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STRENGTHENING RESILIENCE AND RESPONSE TO CRISES

Department for International Development

RECONSTRUCTION RESEARCH IN NEPAL

IMC WORLDWIDE

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STRENGTHENING RESILIENCE AND RESPONSE TO CRISES

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NEPAL EARTHQUAKE RECONSTRUCTION RESEARCH – SCOPING STUDY

27 March 2019

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ACRONYMS & ABBREVIATIONS

BBB	Build Back Better
CBS	Central Bureau of Statistics
CFP	Inter-Agency Common Feedback Project
CLPIU	Central Level Project Implementation Unit
PDNA	Post-Disaster Needs Assessment
PDRF	Post-Disaster Recovery Framework
DFID	Department for International Development
DLPIU	District Level Project Implementation Unit
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DRRM	Disaster Risk Reduction and Management
GFDRR	Global Facility for Disaster Reduction and Recovery
GMALI	Grant Management and Local Infrastructure
GoN	Government of Nepal
HRRP	Housing Recovery and Reconstruction Platform
IDPs	Internally Displaced People
IPs	Implementing Partners
IRDR	Integrated Research on Disaster Risk
IRM	Independent Impacts and Recovery Monitoring Project
JICA	Japanese International Cooperation Agency
MDTF	Multi Donor Trust Fund
M&E	Monitoring and Evaluation
MEL	Monitoring, Evaluation and Learning
MOF	Ministry of Finance
MOFAGA	Ministry of Federal Affairs and General Administration (previously MOFALD)
MOHA	Ministry of Home Affairs
MOUD	Ministry of Urban Development
NASC	National Administrative Staff College
NRA	National Reconstruction Authority
NSET	Nepal National Society for Earthquake Technology
PA	Participation Agreement
RHRP (HRP)	Rural Housing Reconstruction Programme (also known as HRP)
SDC	Swiss Agency for Development and Cooperation
USAID	United States Agency for International Development
VAWG	Violence against Women and Girls
WASH	Water, Sanitation and Hygiene

EXECUTIVE SUMMARY

The aim of this scoping study is to understand what research and learning already exist on reconstruction in Nepal (following the 2015 earthquake) and what evidence gaps there are which need to be filled by further research. The broader purpose of the scoping study is to ensure that further research on reconstruction avoids duplication and provides solid new evidence to inform and improve ongoing reconstruction efforts as well as any future post-disaster reconstruction efforts in Nepal.

The study looked at six themes associated with reconstruction, as well as various sub-topics within each of these themes:

Theme 1: Governance framework
Theme 2: House reconstruction process
Theme 3: Finance and economic recovery
Theme 4: Social impacts and needs
Theme 5: Displacement and resettlement
Theme 6: Infrastructure and heritage

Some obvious gaps in the evidence base were identified: There is no consistent recovery monitoring data to provide information on how people are rebuilding, who is unable to rebuild and why. There are also far fewer studies on economic impacts, finance, household coping and economic recovery, and building costs.

The discussion of how data management and information sharing systems impact reconstruction and how these may be improved is limited. Further, there is no solid information on environmental impacts of reconstruction.

Community engagement in the reconstruction process and in research has been limited and community voices are underrepresented; so are the other local actors such as local government, community organisations, masons, engineers, labourers and technical officers.

Stakeholders highlighted current information needs: They were primarily interested in a better operational understanding of who is most vulnerable in the context of post-earthquake reconstruction. Further, stakeholders pointed to the need for better monitoring of recovery, community perceptions, and a clearer understanding of socio-cultural impacts. There was also significant interest in the roles, contributions and support needs of local governments as well as the transfer of learning to the new disaster preparedness framework in federal Nepal.

There also seems to be a need for more evidence and policy inputs on preserving vernacular architecture, scaling up resilience of housing beyond earthquake-affected areas through retrofitting, rebuilding traditional urban settlements, and resettlement.

Learning from the response should be captured by incorporating a wide range of experiences and viewpoints and should provide clear guidance for future preparedness and responses, according to the majority of stakeholders consulted.

The research also highlights findings on how the uptake of evidence may be increased. Stakeholders mentioned the need for more accessible and user friendly research outputs, consistent and timely synthesis and engagement of research, and better coordination around research needs and findings. A research hub or platform was seen as useful for these purposes.

1 PART 1: INTRODUCTION

1.1 OBJECTIVES OF THE STUDY

Study objectives:

- Highlight gaps in the evidence on Nepal reconstruction.
- Identify current and emerging research needs for stakeholders in Nepal.
- Develop recommendations for future research, the setting of research agendas, and research engagement and impact.

The aim of this scoping study is to understand what research and learning already exist on reconstruction in Nepal (following the 2015 earthquake) and what evidence gaps there are which need to be filled by further research. The broader purpose of the scoping study is to ensure that further research on reconstruction avoids duplication and provides solid new evidence to inform and improve ongoing reconstruction efforts as well as any future post-disaster reconstruction efforts in Nepal.

Based on an assessment of the evidence and the identification of current research and information needs, recommendations for further research and the setting of research priorities and engagement are developed. These are aimed at both, the prioritization of further research as well as more generally, at improving the use of evidence and the impact of research. These recommendations provide a basis for a broader research, and a learning and evidence plan for Nepal reconstruction, as well as specific recommendations for UK and the Government of Nepal (GoN) policy and programmes. The findings and products developed alongside this report can also be used for more systematic reviews on particular reconstruction topics as well as 'lessons papers'.

1.2 METHODOLOGY

1.2.1 APPROACH

This scoping study was guided by the following research question: *What are crucial evidence gaps on post-earthquake reconstruction in Nepal (following the April 2015 Gorkha earthquake) which need to be filled by further research?*

The approach to answering this question was three-fold: A literature review, evidence mapping, and stakeholder consultation, which were conducted in parallel, with each informing the other.[1] The approach draws on the methodological framework which Arksey and O'Malley (2005) developed for scoping studies.[2] However, the focus is broader (see below) than usual for scoping studies which tend to be focused on a more clearly defined topic/research question as well as a particular type of intervention. This required an adapted approach; rather than reviewing and synthesizing findings that speak to a narrow and precise research question, this study aims to assess the evidence base more broadly to identify gaps – asking what does the evidence not tell us rather than summarizing what can it tell us.

To gain a clearer view of the gaps, a matrix was developed to map the evidence according to key themes and topics relevant to Nepal reconstruction (Annex 1) – and to visually highlight gaps (see

[1] See Annex 1, Table 1 for further details on the purposes, methods, outputs, activities, and limitations of each of these.
[2] Arksey, H. and O'Malley, L. (2005) Scoping studies: towards a methodological framework, International Journal of Social Research Methodology, 8, 1, 19-32. https://www.tandfonline.com/doi/abs/10.1080/1364557032000119616

2.1).[3] Stakeholder consultations were conducted throughout the study period to identify additional gaps, ongoing and internal studies and to gain a clearer view of which gaps need to be filled.

1.2.2 RESEARCH PARAMETERS

Definition of reconstruction

> Reconstruction should be an integrated, cross-sectoral and inclusive long-term process.

Reconstruction was viewed holistically, as a cross-sectoral and integrated process which should go beyond the process of rebuilding and be designed as a long-term, integrated recovery process leading to longer-term resilience. Reconstruction also takes place in specific local contexts and therefore would need to consider a range of economic, political, governance, and socio-cultural factors.[4]

The study looked at six themes associated with reconstruction, as well as various sub-topics within each of these themes. A detailed list of reconstruction themes and topics used to map the literature is included in Annex 1, Table 2. It is important to recognize that there are a number of studies on topics which are relevant to reconstruction but are excluded from this study - such as studies on earthquake preparedness, awareness, risk mitigation and resilience, on local social relations and cultures, local governance or health/mental health. Such studies were only included if they were published after 25 April 2015 and link the discussion to the ongoing earthquake response to ensure they provide insights relevant to post-earthquake reconstruction. The six themes are:

- Theme 1: Reconstruction governance, coordination and policies
- Theme 2: House reconstruction assistance and process
- Theme 3: Reconstruction finance and impacts on/recovery of economy and livelihoods
- Theme 4: Social impacts, socio-cultural aspects of recovery, vulnerabilities
- Theme 5: Displacement and resettlement
- Theme 6: Infrastructure and heritage reconstruction

Definition of evidence

Various types of evidence from different disciplines was included to allow for an overall assessment of the evidence base on Nepal reconstruction.[5] Any primary or secondary data and analysis that provides insight into reconstruction in Nepal after the 2015 earthquakes was included, while opinion pieces and studies which are merely theoretical or conceptual studies were excluded. The following types of evidence were considered: Studies or data published in journals or books (primary studies on reconstruction or analysis/synthesis/review studies), grey literature (reports, blog posts, short papers, etc.), official statistical data, ongoing research and learning efforts which generate new evidence. Where relevant, the report refers to other areas of learning on reconstruction such as institutional

[3] The visual gap map draws on the approach of EGMs, which are thematic collections of information about impact evaluations and systematic reviews that measure the effects of international development policies and programmes. They present a visual overview of existing and ongoing studies or reviews in a sector or sub-sector in terms of the types of programmes evaluated and the outcomes measured. http://www.3ieimpact.org/

[4] Lloyd-Jones, T.; Davis, I.; Steele, A (2016). Topic Guide: Effective post-disaster reconstruction programmes. Evidence on Demand, UK xiv, 93p. https://assets.publishing.service.gov.uk/media/57c70932ed915d6c2f00000c/P1735_EoD_TG_ReconstructionFINAL.pdf

[5] The inclusion of a wider range of evidence types and quality means that studies which do not fulfil rigorous screening criteria but nevertheless provide valuable insights are also included. This allows for a broader assessment of the evidence base. See, ALNAP Lessons Paper: Responding to Earthquakes, 2019, https://www.alnap.org/alnap-lessons-paper-responding-to-earthquakes-0 for a similar approach.

memory, monitoring and evaluation and project reports, or research and expertise in other sectors that may provide useful insights.

Timeframe

The timeframe for the inclusion and screening of literature was determined as: Studies published between 25 April 2015 and late February 2019.[6] 25 April 2015 is the date of the last major earthquake in Nepal – often referred to as 'the Gorkha earthquake' – which was followed by a series of aftershocks, including a large second quake on 12 May 2015 with epicentre at the border between Dolakha and Sindhupalchowk districts.[7]

1.2.3 LITERATURE SCREENING AND MAPPING

A number of existing bibliographies and platforms on earthquake impacts, recovery and reconstruction were used to compile an initial list of literature on Nepal reconstruction.[8] This initial list was updated through additional searches to include more recent studies as well as grey literature, focusing on resources on the Housing Recovery and Reconstruction Platform (HRRP) and ReliefWeb as well as online searches on *Academia.edu* and *google scholar*. A total of 415 published studies, grey literature and unpublished studies were compiled and then screened for quality and relevance to Nepal reconstruction.[9] After initial screening, 271 studies were included in the longlist of Nepal reconstruction literature and organized by the six thematic areas associated with reconstruction as well as topics and districts covered in the research, using a mapping matrix (Annex 1.1).[10] Studies were then screened in more detail to summarize topics covered and review key studies for each theme. The literature screening and mapping process is outlined in more detail in Annex 1.

- Any evidence on governance, coordination and communication, economy, finance, assistance, technical aspects, and social impacts are included.
- This report assesses the written evidence (studies and grey literature) but points to other areas of learning.
- Reconstruction stakeholders were consulted extensively to identify current learning and information needs.

[6] The literature published in the first two years after the earthquake is largely focused on the emergency response. Yet, given that reconstruction many features of Nepal's reconstruction process were determined during the early response – such as the identification of beneficiaries or the adoption of an owner-driven approach – these early studies were included if considered to be relevant for reconstruction during the literature screening process.
[7] In this report, this earthquake is referred to as the 2015 Nepal earthquake(s) since there was more than one large quake, significantly affecting a large part of the country beyond Gorkha district.
[8] Bibliographies compiled by University of British Columbia https://guides.library.ubc.ca/reconstructingnepal and the SOAS after the Earthquake's violent sway (SWAY project) https://www.soas.ac.uk/violentsway/ as well as information compiled by HRRP http://www.hrrpnepal.org/
[9] The basic quality appraisal assessed whether a study was primary, secondary (review/synthesis) or conceptual/theoretical. Opinion pieces and theoretical papers were excluded. It further assessed whether the study design and methodology were clear and fulfilled basic research quality criteria. The DFID How To Note on Assessing the Quality of Evidence (https://www.gov.uk/government/publications/how-to-note-assessing-the-strength-of-evidence) was used as guidance but a wider range of relevant evidence was included to assess the evidence base overall. There are benefits to doing less rigorous quality screening as the ALNAP Paper 'Lessons Papers: A Methods Note" suggests. https://www.alnap.org/system/files/content/resource/files/main/ALNAP%20Lessons%20Paper%20Method%20Note.pdf
[10] The mapping matrix was developed based on the first Roundtable discussion focused on topics relevant to reconstruction as well as a review of international and Nepal specific reconstruction literature. See Annex 4 and 5 for a bibliography of Nepal and international literature.

1.2.4 STAKEHOLDER CONSULTATION AND IDENTIFICATION OF RESEARCH NEEDS

Stakeholder consultations were done throughout the study based on extensive stakeholder mapping to ensure a variety of institutions working on, or researching, reconstruction in Nepal were included. The team interviewed stakeholders from the donor community, NRA, HRRP, international and local organizations and academia (Annex 2).[11] Through snowball sampling, additional stakeholders were later included.[12] The team also attended several events and discussions on reconstruction.[13] Two Reconstruction Research Roundtable discussions were held at DFID to engage the reconstruction community and collect feedback. Through stakeholder consultation and engagement with the reconstruction community, ongoing research and learning activities as well as current research and information needs were identified.

1.3 LIMITATIONS

Not a systematic review

This highlights current and emerging research gaps, focussing on the type of research that is most needed on post-earthquake reconstruction in Nepal in early 2019. The study also takes a broader look at how research coordination and engagement can be improved to ensure wider impact of future research and increase the use of evidence. While it includes a systematic mapping of reconstruction literature it does not present a systematic review, nor a comprehensive assessment of the reconstruction process.

Focus on English language evidence

Given the broad scope of the research and limited resources, the literature search could not be done as systematically as for a more specific scoping study or systematic review.[14] Further, only English language evidence was included.[15] However, despite these limitations, the review represents the spread and type of information available on topics related to Nepal reconstruction, and consultations conducted alongside confirmed findings on the evidence base.[16]

Study focus is on reconstruction, yet other research areas may also be relevant

While a holistic approach to post-earthquake reconstruction was taken, not all literature on topics that may be relevant could be included. For example, literature on resilience, risks, preparedness, disaster risk reduction and management, or on the humanitarian response was not systematically included

[11] DFID Nepal provided an initial list of key stakeholders and partner organizations they have worked with. This list was extended significantly throughout the scoping research as the team identified additional stakeholders working on reconstruction programmes or research through their networks, recommendations from those stakeholders interviewed, and through the literature reviewed.
[12] http://methods.sagepub.com/reference/the-sage-encyclopedia-of-social-science-research-methods/n931.xml
[13] The launch of the ALNAP Lessons Paper: Responding to Earthquakes and following discussion with local reconstruction stakeholders on 14 February 2019; a reconstruction policy dialogue with the NRA and NASC organized by The Asia Foundation on 1 February 2019 (for the launch of NASC's political economy analysis of reconstruction); and several meetings as well as a larger workshop (on 19 February 2019) on vulnerability organized by DFID and SDC with partner organizations.
[14] Such studies or reviews usually use library software to search for and organize thousands of studies. The team working on the reconstruction scoping study did not have access to those.
[15] Nepali literature was scanned to determine the value but later excluded. The SOAS SWAY database on the earthquake will include Nepali language resources https://digital.soas.ac.uk/sway/all.
[16] The SOAS SWAY project is compiling a bibliography and news article archive which will be accessible online within 1-2 months. This will be a very good resource for literature on the earthquake and response. This can be found here: https://digital.soas.ac.uk/sway/all. The team has interacted with the SOAS SWAY project for the purposes of this scoping study. The SWAY team also expressed interest in including this scoping study on their platform to circulate it more widely.

unless the research explicitly talks about reconstruction. Further research areas that were excluded (unless they discuss reconstruction) are: Health and mental health, studies on local contexts that impact reconstruction such as local governance, social relations, and historic social and political marginalization. Literature on pre-earthquake cultural practices is also not included although relevant as it can provide insights on people's needs. Better analysis of socio-cultural changes after the earthquake is needed as Part 3 highlights. Literature on infrastructure and heritage reconstruction, as well as on geohazards, was included, but the focus was on housing reconstruction and related areas. The report recognizes that these areas should be drawn on more for insights into reconstruction processes.

Literature on resilience is very relevant to reconstruction as it points to longer-term recovery and how to achieve longer-term development goals. As discussed in the report, there is limited evidence on how reconstruction has impacted communities, especially vulnerable groups. Resilience literature may provide insights and tools for identifying and supporting those groups as a scoping study on resilience tools conducted in parallel to this research shows.[17] Literature on local contexts, such as sociological, political and ethnographic studies, may be equally relevant as they point to ground realities which shape the progress of recovery and the implementation of projects. By paying more attention to these in reconstruction research and analysis, alongside increased engagement with local communities, the contextual understanding could be greatly improved.

Stakeholder consultation restricted to Kathmandu

The consultation of key reconstruction stakeholders was limited to Kathmandu given that the focus was on identifying gaps in the literature and information needs of decision-makers.[18] However, local communities and local government are also key reconstruction stakeholders whose views and experiences are often neglected, as highlighted in some of the literature and emphasized by international calls for more inclusive recovery processes. More research is needed on identifying the information needs of local stakeholders and communities to better support data management and information sharing (see 3.1).

Limited access to ongoing and internal research

Through interaction with the reconstruction community in Kathmandu and major academic research projects on the Nepal earthquake response, the team developed a list of ongoing and internal research and learning activities. This was to determine whether some of the gaps in the evidence are currently already being filled. However, many internal learning efforts are difficult to access and therefore may not be adequately reflected in this report. Given access issues, they cannot be counted as currently available public evidence on reconstruction despite providing significant and useful insights.

[17] Brooks, N., Faget, D., and Heijkoop, P. 2019. Literature review: Tools for Measurement of Resilience in Nepal. DFID Nepal. This Literature Review presents the results of an assignment commissioned by DFID's South Asia Research Hub (SARH) on behalf of DFID's Nepal Country Office. The assignment was carried out by IMC Worldwide, in partnership with Garama 3C Ltd, and though DAI Europe. The purpose of the Review is to identify tools and methods for the measurement of resilience, that are potentially applicable to or adaptable for DFID Nepal's Resilience Portfolio and wider portfolio, over the three themes of Growth, Governance and Inclusion. The principal purpose of the Review is to identify tools and methods that can be used to assess the resilience benefits delivered by the DFID Nepal portfolio.

[18] Due to time and resource limitations, field level consultations with local stakeholders could not be conducted. However, the study team has shared information with an ongoing scoping study on the roles, capacities and information needs of local governments which was conducted in March by Democracy Resource Center Nepal (DRCN). Initial findings from the DRCN research are included.

1.4 BACKGROUND – NEPAL EARTHQUAKE RECONSTRUCTION

Earthquake impacts and institutional framework

The devastating 7.8 magnitude Gorkha earthquake of April 25, 2015 and its aftershocks severely affected 31 districts of Nepal in the central and western regions inhabited by 5.4 million people: The PDNA categorized these districts based on damages – 14 districts were categorized as highly affected and 17 as less affected.[19] The damage assessments and housing recovery support were initially rolled out only in the 14 highly affected districts. District-level categorization has had a number of consequences such as the concentration of assistance providers in the highly affected districts and a general lack of attention, among researchers and assistance providers, on affected areas in lesser impacted districts (see 2.2).[20]

The earthquake caused extensive structural damage, 8970 people lost their lives and more than 23,000 people were injured.[21] Some 188,900 people were displaced.[22] The estimated damage in monetary terms was calculated at USD 7 billion.[23] The quakes destroyed at least 498,852 private houses and 2,656 government buildings and partially damaged 256,697 private houses and 3,622 government buildings (NPC, 2015). Several rounds of damage assessments were conducted. Due to discrepancies in the initial assessments, the Central Bureau of Statistics conducted a formal damage assessment survey in 2016 that categorized damaged houses into three groups: fully damaged, partially damaged, and normal.

On 25 June 2015, the Government of Nepal (GoN) hosted the International Conference on Nepal's Reconstruction where international partners pledged USD 4.4 billion in grants and loans.[24] To fast-track the recovery and reconstruction, the GoN issued an 'Ordinance on Reconstruction of the Structures Damaged by the Earthquake.[25] Following the enactment of National Reconstruction Act (2015), the National Reconstruction Authority (NRA) was established on 25 December 2015, to facilitate and coordinate recovery and reconstruction of private houses, public infrastructure and heritage. It was mandated to formulate the necessary policies and guidelines to facilitate reconstruction activities, including the distribution of the private housing reconstruction grant.[26]

Both the NRA and GoN formulated The Reconstruction and Rehabilitation Policy (2016) for recovery and reconstruction efforts. The GoN adopted the concept of 'build back better' (building earthquake

[19] The highly affected 14 districts include Gorkha, Kathmandu, Bhaktapur, Lalitpur, Sindhupalchowk, Ramechhap, Dolakha, Nuwakot, Dhading, Rasuwa, Sindhuli, Okhaldhunga, Makwanpur, and Khavrepalanchowk. While, the 17 least affected districts include Lamjung, Tanahu, Solukhumbhu, Khotang, Chitwan, Gulmi, Syangja, Kaski, Palpa, Bhojpur, Parbat, Dhankuta, Nawalparasi (now split into two districts), Baglung, Arghakhanchi, Sankhuwasabha and Myagdi. See http://www.nra.gov.np/en/mapdistrict/datavisualization Due to the federalization process there are now a total of 32 earthquake-affected districts: 14 priority districts and 18 lesser affected districts.

[20] The Asia Foundation's Independent Impacts and Recovery Monitoring Project has highlighted impacts and risks of district level categorization. https://asiafoundation.org/tag/independent-impacts-and-recovery-monitoring-nepal/ Further, the CFP December 2018 report shows that people in Solulkhumbu are significantly more likely to say their reconstruction needs are not met than those in highly impacted priority districts. http://www.cfp.org.np/uploads/documents/reconstruction-November2018-December-18-2018-16-55-20.pdf

[21] http://drrportal.gov.np/uploads/document/1321.pdf

22 The United Nations Office for the Coordination of Humanitarian Affairs/ Nepal. Nepal Earthquake Humanitarian Response April to September 2015 (20 Nov. 2015), UNOCHA/Nepal; 2015. Accessed: https://www.humanitarianresponse.info/en/node/113848

[23] National Planning Commission (NPC), Post Disaster Needs Assessment, Vol A: Key Findings Nepal Earthquake 2015. NPC, Government of Nepal, Kathmandu, Nepal, 2015.

[24] From response to recovery (2015). OCHA/Nepal. Accessed:https://www.humanitarianresponse.info/en/operations/nepal/education

[25] 'Reconstruction Ordinance,' Nepali Times, June 21, 2015, Nepali Times, http://archive.nepalitimes.com/blogs/thebrief/2015/06/21/reconstruction-ordinance/

[26] GoN, 2015. National Reconstruction Act (2015).

resilient houses) in Nepal's post-earthquake recovery and reconstruction (NPC, 2015; NPC, 2016).[27] The NRA also prepared the Post Disaster Recovery Framework (PDRF) (2016-2020) which outlines strategies across sectors and envisaged the roles, responsibilities, and cooperation of all stakeholders including national and international partners on recovery and reconstruction activities. To this end, the Steering Committee and the Executive Committee of the NRA by now have taken several decisions and issued more specific guidelines and standard procedures.[28]

In the same month of the establishment of the NRA, The Housing Recovery and Reconstruction Platform (HRRP) was established with the objective of coordinating housing reconstruction, providing general, technical and information related support to various stakeholders including the NRA.[29]

Housing grants to drive owner-driven, earthquake-resilient reconstruction

To support households in building back better, the government allocated conditional housing grants of NPR 300,000 (USD 3000, initially NPR 200,000/USD 2000) per affected household, distributed in three instalments once certain building criteria for earthquake-resilient construction are met. In the first two years following the earthquake, the reconstruction grant distribution and reconstruction was prioritized in severely hit districts and the Kathmandu valley. It was later rolled out to lesser affected districts. At the time of writing this report, 754,938 beneficiaries had signed housing grant participation agreements (PA) with the government.[30] Among them, 750,593 beneficiaries received the first instalment, 546,967 the second and 382,130 received the third.[31] However, stakeholders said questions remained about the compliance of new houses to earthquake-resilient construction criteria, and about the use, future extension and appropriateness of 'bukampa ghar' (earthquake houses).

State as well as non-state actors and institutions have provided recovery and reconstruction support. A Multi Donor Trust Fund (MDTF) was created with support from the World Bank, USAID, SDC, the Government of Canada, DFID, JICA and other development partners.[32]

On 31 January 2019, the NRA announced the handing-over of reconstruction responsibility to the local governments in affected districts by signing a 11-point agreement.[33] Over the last year, the NRA has increasingly engaged multiple stakeholders including concerned local communities to facilitate the reconstruction of private houses and heritage and traditional settlements in the Kathmandu Valley.

Who is falling behind

There has been rapid progress in the last two years compared to the slow start of house reconstruction in the years before.[34] In December 2018, according to the Common Feedback Project (CFP), which interviewed 2580 people across 39 local units in 15 districts, 12 percent had not yet started rebuilding despite planning to, and another 11 percent had not rebuilt for various reasons (repaired house, rubble still not cleared, not planning to rebuild, etc.). The same CFP report highlights

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[27] Aligning with the Sendai Framework for Disaster Risk Reduction 2015-2030 and Hyogo Framework for Action (2005-2015) https://www.unisdr.org/files/1037 hyogoframeworkforactionenglish.pdf
[28] www.nra.gov.np
[29] See, http://www.hrrpnepal.org/
[30] This number is still changing due to the process of addressing grievances of those wrongly left out of beneficiary lists.
[31] 'Progress of Private Housing', National Reconstruction Authority (NRA), accessed on 19 March 2019: http://www.nra.gov.np/en/mapdistrict/datavisualization
[32] Nepal Rural Housing Reconstruction Program: Program Overview and Operations Manual Summary (January 2016), accessed on 18 February 2019: http://documents.worldbank.org/curated/en/135481468187745015/pdf/102944-WP-P155969-Box394845B-NRHRP-ProgramOverview-OperationsManualSummary-01-2016-PUBLIC.pdf
[33] 'NRA hands over reconstruction authority to local governments in 32 districts', National Reconstruction Authority (NRA), 31 Jan 2019, accessed on 19 March 2019. http://www.nra.gov.np/en/news/details/DmgcCmgxwOEkSV1zZUpUnYy2QLlMov7K0hx2SvG-Lzk
[34] Independent Impacts and Recovery Monitoring Phase 4: Synthesis Report, The Asia Foundation (TAF), Bangkok and Kathmandu (April 2017)

that 21 percent were still living in temporary shelters and 13 percent were living in their original damaged house. Of those interviewed, 9 percent say they should be eligible for the housing grant but are not on the beneficiary list.[35] There currently is no publicly available analysis of the demographic of those who are falling behind – a major gap, as this report highlights.

Further, there is a risk that overall reconstruction activity may now stagnate as programmes and activities are on course for completion with few organizations committing new funds at this point. This was reflected by stakeholders who pointed to a lack of funding for further reconstruction support. This poses a particular challenge for addressing the needs of those unable to rebuild even four years after the earthquake. Several donors and development partners, including DFID Nepal, have committed funds to leaving no one behind in house reconstruction.[36] A 'vulnerability working group', hosted by HRRP raises the profile of those at risk of being left behind and focuses on solutions to address the issue. Yet, stakeholders highlighted that limited additional reconstruction funding means that finding funds for those who are struggling to rebuild on their own is challenging.[37]

This scoping study was conducted at a time in the reconstruction cycle when it is becoming clearer that some are rebuilding, while some are not. The precise reasons for this remain unclear although there is sufficient anecdotal evidence and case studies to point to them. Independent monitoring of the impacts and actual progress as well as solid analysis of the housing grant data could provide better insights but is currently lacking as this report highlights. There is a clear need for attention to those who most need it; those who were wrongly excluded from receiving government support, those who are unable to access assistance, and those unable to rebuild without additional support.[38]

Future disaster preparedness and response

Following the earthquake there seems to be increased recognition for the need for adequate disaster preparedness, disaster risk reduction and disaster responses – which was also repeatedly highlight by government and other key stakeholders consulted (see 2.2: Figure 5, 3.1.4, and 3.7). For example, the recently formulated DRRM related frameworks and policies have been aligned with the global frameworks on DRRM, such as the Yokohama Strategy for a Safer World (1994), Preparedness and Mitigation and its Plan of Action (1994), Hyogo Framework for Action 2005-2015, the Sendai Framework for Disaster Risk Reduction 2015-2030, and The Sustainable Development Goals.[39] The recently introduced Local Government Operation Act 2017 has also sought to make federal, provincial and local governments responsible to ensure that disaster preparedness, management and response are considered while formulating plans at a local level, and to ensure that people build earthquake-resistant buildings.[40]

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[35] Inter-Agency Common Feedback Project (CFP), December 2018, Kathmandu. http://www.cfp.org.np/uploads/documents/reconstruction-November2018-December-18-2018-16-55-20.pdf

[36] DFID approved a £63m six-year Post Earthquake Reconstruction Programme in May 2016 to support the recovery in Nepal, with a specific focus on: 1) build back better – with a focused programme in 4 districts to build improved services targeting the most vulnerable, incorporating better resilience to natural disasters, stronger livelihoods and an enhanced investment environment; 2) Leave No One Behind through a rigorous focus on the poorest and most vulnerable, and 3) developing and deepening relations with key national and local government bodies, including through the establishment of a DFID field office in focus districts. https://devtracker.dfid.gov.uk/projects/GB-1-205138/documents

[37] There are still funding gaps for reconstruction in Nepal. See Part 3, Section 3.3.

[38] Yet, public discourse in Nepal tends to focus on 'fake beneficiaries', those 'playing the system', which takes attention away from those who are struggling. See, 'Reconstruction conundrums', The Kathmandu Post, 19 February 2019. Accessed on 19 March, 2018 from http://kathmandupost.ekantipur.com/news/2019-02-19/reconstruction-conundrums.html

[39] Specifically, SDG Goal 13 calls for integrating policies and strategies for combating climate change and adapting its impacts, strengthening resilience and adaptive capacity, also underlining education and awareness-raising capacity for DRRM.

[40] GoN 2017

2 PART 2: GAP MAP

This part presents an overview of the distribution of the evidence on Nepal reconstruction by themes, topics, and study areas. It then compares this to gaps identified by key stakeholders. The precise nature of gaps and research needs are discussed in Part 3.

Key findings from the gap mapping exercise are:

1) There are various crucial gaps in the evidence base on Nepal reconstruction. While this is significant, it does not necessarily imply an information need for practitioners. Similarly, a rich evidence base on a particular topic does not mean sufficient and relevant information on the topic is available to practitioners.
2) For these reasons, a gap or research need cannot be identified through evidence mapping and review alone.
3) Affected areas in lesser impacted districts have received almost no attention and support. The 14 priority districts are studied significantly more than the 18 lesser impacted districts, mirroring the distribution of reconstruction activities by partner organizations.

2.1 DISTRIBUTION OF EVIDENCE BY THEME AND TOPIC

Major gaps in Nepal reconstruction evidence base:

- Economic aspects, finance, livelihoods.
- Environmental impacts.
- Consistent monitoring of social impacts, local needs, and recovery.
- Reconstruction and recovery in the 18 lesser impacted districts.

There are various crucial gaps in the evidence base on Nepal reconstruction, most notably on economic and environmental impacts and finance.

Figure 1 highlights the distribution of studies and ongoing research included in the evidence mapping for this scoping study by thematic area and topic. Figure 2 outlines the numbers of studies for the different topics. It is important to note that a shortage of reconstruction-related studies on any particular topic does not equal an evidence gap as there may be enough good evidence in the few available studies, or in related sectors.[41] An abundance of studies, on the other hand, does not imply that no further research is needed as seen in Figure 5 on perceived research needs and in the discussion of research priorities in Part 3.

Nevertheless, some obvious gaps in the evidence base were identified through the mapping exercise:

- Far fewer studies on finance, economy, markets, costs, and remittance than on other major reconstruction topics.
- Close to no evidence on environmental impacts of reconstruction (housing and infrastructure).
- Very limited coverage of community engagement and communication with communities.
- Limited information on how to scale up earthquake resilience of all building types across Nepal in remote, rural as well as urban areas: There are only a small number of studies on retrofitting, urban reconstruction, vernacular architecture, the use of local materials and building practices for earthquake resilient housing, and the capacity and resource challenges for resilient construction.
- Small number of studies analysing policy and programming implications for local impacts, needs and recovery progress (mostly case studies).

[41] This report points to learning on some of these topics that is not reconstruction related but nevertheless relevant. See also Sections 3.7 and 4 on additional areas of learning.

- No consistent monitoring of overall recovery to provide information on how people are rebuilding, as well as who is unable to rebuild and why.
- Limited discussion of how data management and information sharing systems impact reconstruction and how these may be improved.

Figure 1: Distribution of research – by theme and topic[42]

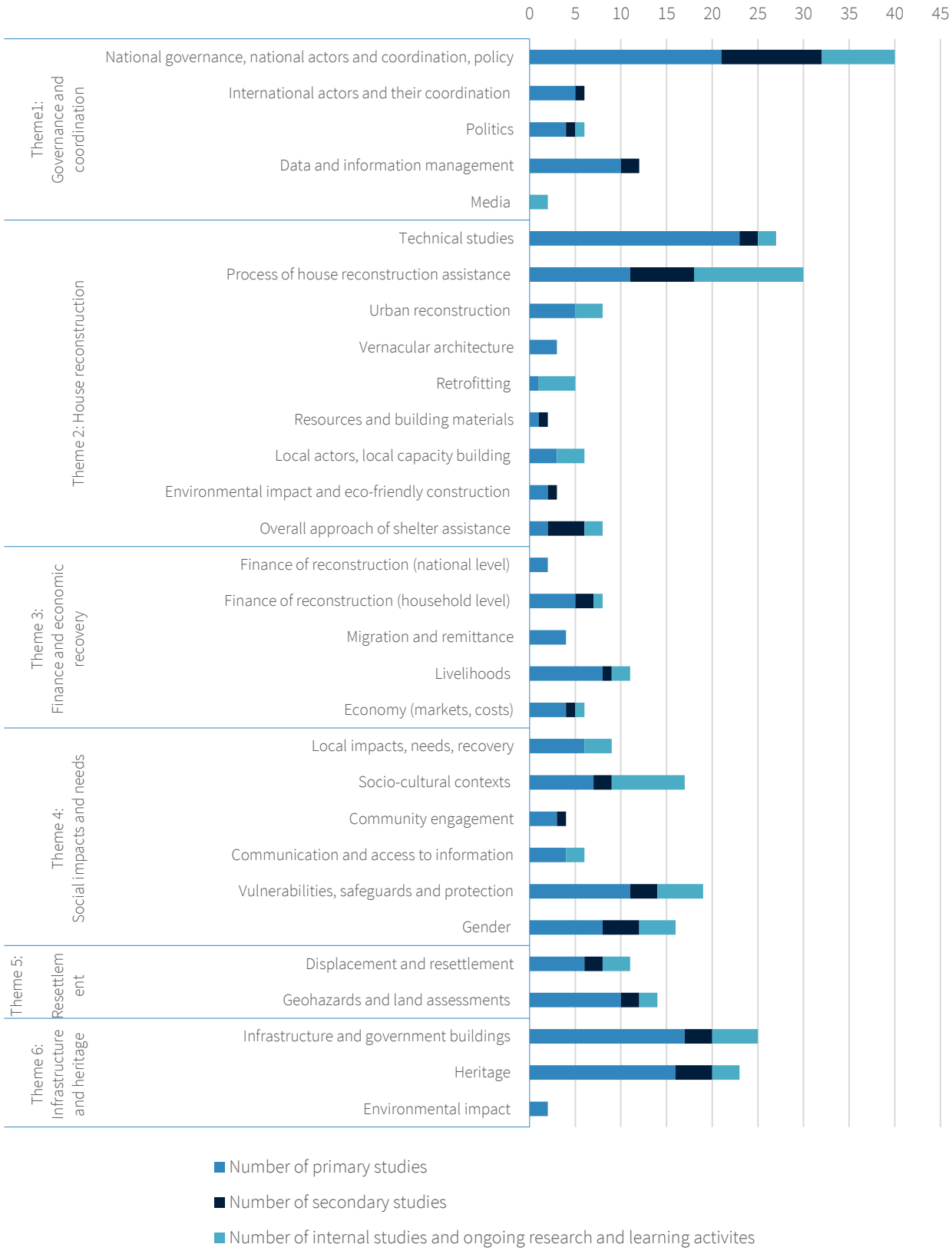


Figure 2: Distribution of studies – by topic[43]

Over 20 studies	16-20 studies	10-15 studies	5-9 studies	Under 5 studies
National governance, national coordination, policy	**Socio-cultural contexts**	Geo-hazards Assessments	**International actors and their coordination**	The role of the media
Technical studies (house reconstruction)	Gender	**Displacement and resettlement**	Politics	**Vernacular architecture**
Process of house reconstruction assistance		**Livelihoods**	**Urban reconstruction**	**Resources and materials for reconstruction**
Vulnerabilities, safeguards and protection		**Data and information management**	**Retrofitting**	**Environmental impact**
Reconstruction of infrastructure and government buildings			Local actors, local capacity building	National level finance of reconstruction
Reconstruction of heritage sites			Overall approach of shelter assistance	Migration and remittance
			Household finance of reconstruction	**Community engagement**
			Economy (impacts, markets, costs)	
			Local impacts, needs and recovery	
			Communication, access to information	

2.2 GAPS IN COVERAGE OF GEOGRAPHICAL AREAS

The 14 priority districts are studied significantly more than the 18 less impacted districts.

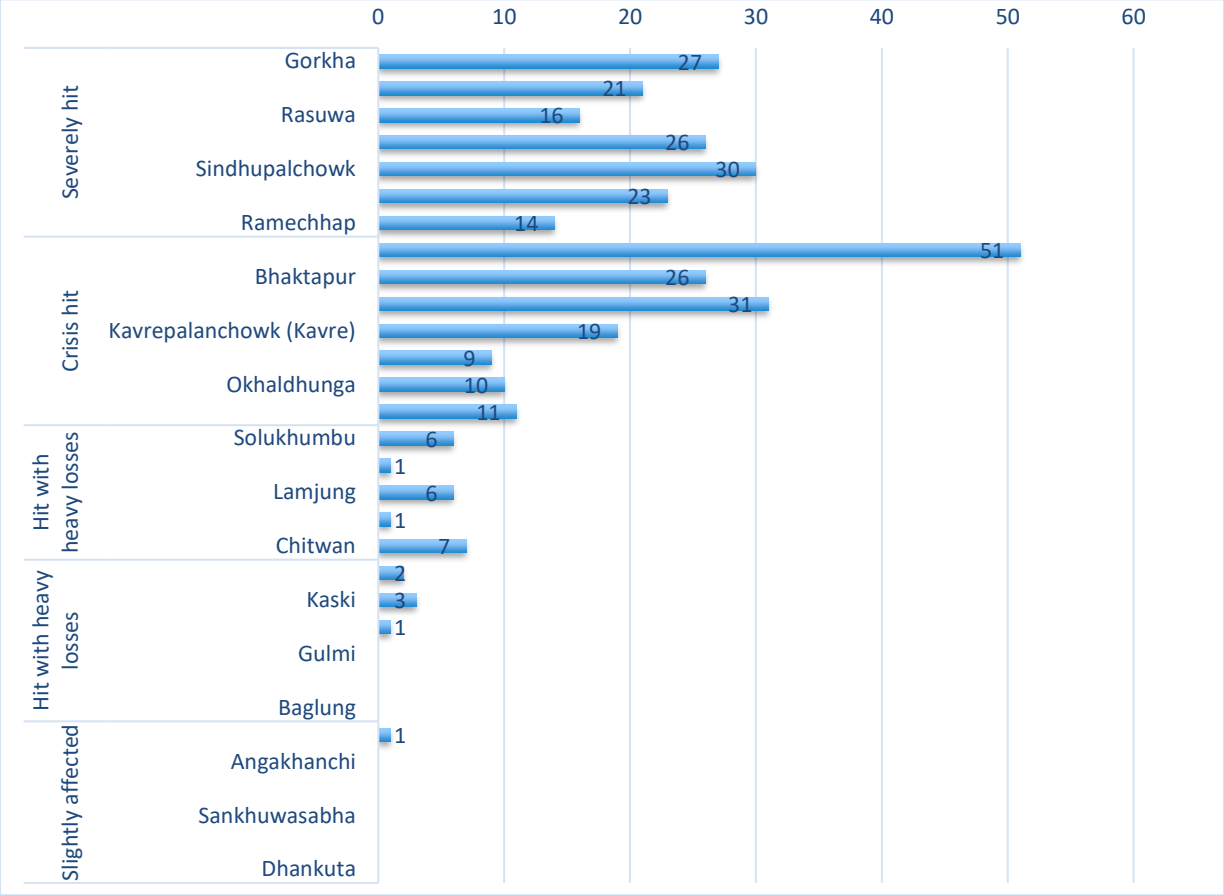
The PDNA identified 31 affected districts (now 32 due to the split of Nawalparasi into two districts).[44] Of these, 14 were determined priority districts due to more extensive damages in terms of numbers of households and areas affected, while 17 (now 18) were determined less impacted districts.[45] An analysis of study areas covered in the Nepal reconstruction evidence shows that significantly more studies have collected data in those 14 priority districts (severely hit and crisis hit districts) than in the other 18 lesser affected districts (Figure 3). More studies have collected data in Kathmandu than in any other district, despite Kathmandu being less affected than the seven severely hit districts. This is at least partly due to the fact that a large number of studies focused on central-level processes or on heritage and urban reconstruction in the Kathmandu valley (Lalitpur and Bhaktapur have also recevid more attention than other districts in the 'crisis hit' category). Further, many studies have collected data in several districts with Kathmandu usually being among them. The commonly observed strategy of choosing Kathmandu plus one or more of the other districts, means that Kathmandu is overrepresented in reconstruction research.

A large number of studies were also conducted in Gorkha, the epicenter of the 25 April 2015 earthquake which also received a lot of media attention, and two other severly hit districts close to

[42] Note: Some studies cover more than one topic and are therefore counted more than once. The total numbers in this chart therefore do not equal the total numbers of studies included in the evidence mapping.
[43] Topics that are particularly relevant, given current priorities in Nepal and information needs of key stakeholders, are highlighted in bold.
[44] The National Planning Commission, 'Post Disaster Needs Assessment'. Vol A. Kathmandu: Government of Nepal (2015).
[45] Gorkha, Kathmandu, Bhaktapur, Lalitpur, Sindhupalchowk, Ramechhap, Dolakha, Nuwakot, Dhading, Rasuwa, Sindhuli, Okhaldhunga, Makwanpur, and Khavrepalanchowk.

Kathmandu, Sindhupalchowk and Nuwakot. The number of studies in these severely hit districts is equal to or less than lesser impacted districts Kathmandu, Lalitpur and Bhaktapur. Severely hit districts Rasuwa, Dhadhing, Dolakha, and Ramechhap, received comparatively less attention in the research. Very few studies were conducted in the 18 districts overall. This is significant as damages to affected settlements in these districts is as often extensive as in the higher impact districts – although overall fewer settlements are affected.[46]

Figure 3: Distribution of study areas by district[47]



[46] Aid and Recovery in Post-Earthquake Nepal (Independent Impacts and Recovery Monitoring System - IRM), Synthesis Report Phases 1, 2 and 3, 2015, Kathmandu and Bangkok: The Asia Foundation. https://asiafoundation.org/tag/independent-impacts-and-recovery-monitoring-nepal/

[47] This count is based on studies included in the long list of literature. Only primary studies that clearly identify the districts visited for data collection were included in this count. Studies which repeatedly visited districts for data collection and produced several reports were counted only once (such as the IRM or CFP projects). The PDNA which covers all affected districts is not included in this count.
Note that there are now 32 earthquake-affected districts due to the split of Nawalparasi into two districts during the federalization process. This figure lists districts as they were at the time of the earthquake and as classified in the PDNA: 31 districts.

Reconstruction support is also concentrated in the 14 priority districts.

The lack of attention to the 18 districts in the research resembles the distribution of partner organizations involved in reconstruction and their activities (Figure 4). Here too, the number of activities is significantly lower in the 18 districts than the 14 priority districts.

Figure 4: Number of partner organizations present in the district[48]

Priority level	District categorization	District	Number of partner organizations present
14 priority districts	Severely hit	Gorkha	21 plus
		Dhadhing	21 plus
		Rasuwa	21 plus
		Nuwakot	21 plus
		Sindhupalchowk	21 plus
		Dolakha	21 plus
		Ramechhap	21 plus
	Crisis hit	Kathmandu	11 to 20
		Bhaktapur	4 to 7
		Lalitpur	21 plus
		Kavrepalanchowk	21 plus
		Sindhuli	8 to 10
		Okhaldhunga	11 to 20
		Makwanpur	21 plus
18 less affected districts	Hit with heavy losses	Solukhumbu	4 to 7
		Khotang	zero
		Lamjung	4 to 7
		Tanahu	4 to 7
		Chitwan	1 to 3
	Hit with heavy losses	Syangja	1 to 3
		Kaski	zero
		Palpa	1 to 3
		Gulmi	1 to 3
		Parbat	zero
		Baglung	1 to 3
	Slightly affected	Nawalparasi (now 2 districts)	zero
		Angakhanchi	1 to 3
		Myagdi	1 to 3
		Sankhuwasabha	1 to 3
		Bhojpur	zero

[48] Taken from the HRRP website which identifies number of partner organizations working in each district (and in areas within the district) as well as the number of type of activities. http://www.hrrpnepal.org/

		Dhankuta	Zero

Key information needs and interests for Nepal reconstruction stakeholders:

- Governance, national coordination and policy: Roles and capacities of local governments.
- Roles, actions and impacts of international actors.
- Vulnerabilities, safeguards and protections.
- Consistent monitoring of social impacts, local perceptions and needs and recovery.
- Lessons learned and preparedness.
- Better research coordination and engagement.

2.3 CURRENT INFORMATION NEEDS BY THEME AND TOPIC

Reconstruction stakeholders are primarily interested in the roles and capacities of local governments, in social impacts, and in who is at risk of falling behind in their recovery.

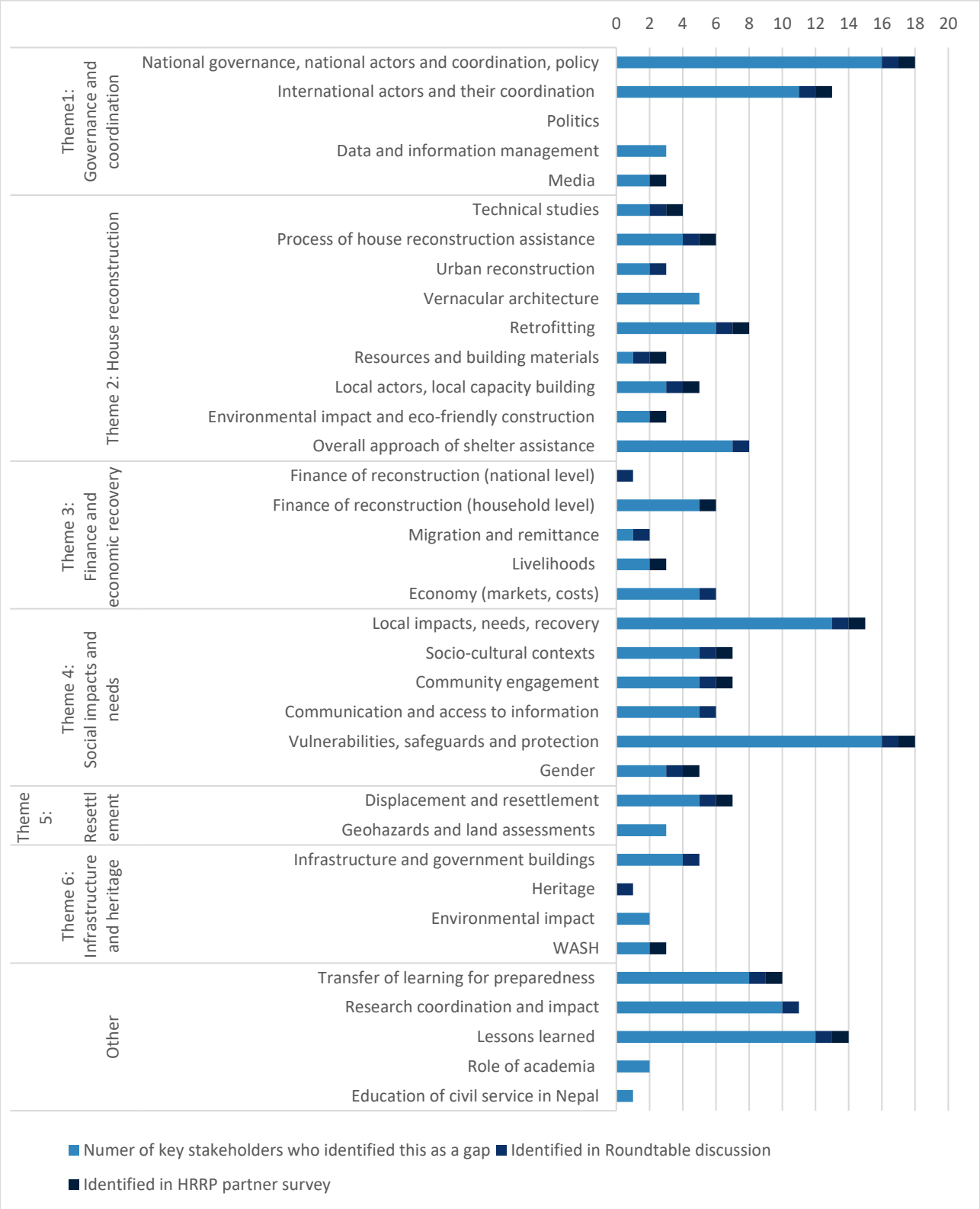
Figure 5 highlights topics that are of interest to reconstruction stakeholders in Nepal in early 2019. A more detailed discussion of gaps and how these may be filled is provided in Part 3.

Stakeholders commonly pointed to the absence of consistent monitoring data on recovery. In addition, there was widespread interest in socio-cultural impacts and a better operational understanding of local socio-cultural practices and needs. One of the two most mentioned needs was a clearer understanding of vulnerability and the implications of this for recovery.

The map of stakeholders' research interests and priorities shows that there is still interest in topics that are already covered quite extensively in the literature such as governance of reconstruction or vulnerabilities. On the other hand, there is significantly more interest in some of the lesser researched topics than others, for example social impacts and recovery. A gap or research need can therefore not be identified only through evidence mapping or literature review. Stakeholder information needs are equally important in determining research priorities for future research or improving access to existing research – a fact often overlooked in research planning and design, potentially leading to limited use and impact of the evidence produced (Part 4).

Additional areas of interest identified by Nepal reconstruction stakeholders are: Preparedness and resilience (long-term risk reduction); identification of lessons learned, and better research coordination and engagement.

Figure 5: Current information needs and interests identified by reconstruction stakeholders[49]



[49] This chart highlights the number of key stakeholders consulted through key informant interviews who highlight research needs and interests for the different topics (including the NRA, DFID Nepal). It also shows whether the topic was raised by a HRRP partner survey, and during the Roundtable discussion for the scoping research (counted as 1).

3 PART 3: DISCUSSION OF GAPS AND RESEARCH PRIORITIES

As Part 2 shows, there are current information needs and research interests that do not necessarily mirror the obvious shortcomings in the evidence base. This is partly due to the precise focus of available evidence, leaving data gaps even where much research has already been conducted, and partly due to a lack of synthesis and accessibility of existing research. Further, reconstruction stakeholders require a different type of research producing outputs that are user-friendly for practitioners. There seems to be a need for action research focused on identifying implementation and advocacy strategies that can directly be applied.

This part discusses gaps – by thematic areas and in order of priority for ongoing reconstruction – in relation to available and upcoming evidence as well as current research needs highlighted by stakeholders. Recommendations for future research priorities are presented in Part 5.

3.1 THEME 1: GOVERNANCE FRAMEWORK AND COORDINATION

Theme 1 includes the following reconstruction *topics*:

- National governance and national coordination of reconstruction, policies, national actors;
- International actors and coordination with and between them;
- The impact of politics and political dynamics on reconstruction (and vice versa);
- Data and information management (national communication, information and data management strategies and processes; data needs of different stakeholders);
- The role and impact of the media.

Coordination and communication with local actors and communities is included in *Theme 4* (Section 3.4.3).

For the governance theme, stakeholders were primarily interested in a) the roles, needs and capacities of local governments in reconstruction and disaster preparedness and how best to support them in the federalization process, and b) learning on the reconstruction framework and how to integrate this into the institutional and policy framework for future responses. There was more interest in these issues, and the question of vulnerability, than in any other topic (see Figure 5). Interest in the roles and impacts of international actors and learning on this was also high. Through evidence scoping and literature review, additional gaps were identified.

3.1.1 LOCAL GOVERNMENTS/DECENTRALIZATION PROCESS

Stakeholder interests

Despite a large number of existing studies, stakeholders expressed an interest in and urgent need for more information on how Nepal's ongoing decentralization and federalization process is impacting reconstruction; in particular a clarification of roles, capacities and support needs of local governments

who have now been given more responsibilities by the NRA.[50] This was one of the most expressed research interests by stakeholders.

Literature

The Nepal reconstruction literature provides some, albeit limited, insights into the roles of local leaders in the earthquake response and the emerging roles of local governments in reconstruction (Pokharel et al 2018; Nepal et al 2018; Sharma et al 2018; Grunewald and Burlat 2016; Daly et al 2017; Regmi 2016; Daly et al 2017; The Asia Foundation and Democracy Resource Center 2015-2017; Ruszczyk 2018; Combaz 2015; Bothara et. al 2018). Some studies point to the absence of local government as a challenge for the response (Sharma et al 2018). Others highlight the positive roles that local leaders have played in some areas, despite the absence of formal local government structures, and that communities find it easier to approach local leaders and party representatives who are more present at the local level than aid providers – at least in the first two years following the earthquake (The Asia Foundation and Democracy Resource Center 2015 and 2016). The literature also points to shortcomings of the centralized, top-down approach to reconstruction and the opportunities for, and advantages of, involving local government and communities (Sharma et al 2018; Daly et al 2017). Studies on disaster preparedness also point to the importance of engaging local level stakeholders and governments (Combaz 2015).

A political economy analysis of reconstruction conducted by the Nepal Administrative Staff College (NASC) (Pokharel et al 2018), which focuses on the emerging roles of local governments, points out that local government could provide crucial links between the people and the central government – something that has been a challenge so far for reconstruction.[51] The study highlights, however, that due to power struggles, distrust of the central government and limited executive powers of local governments, they have largely been restricted to addressing grievances. It also highlights that local governments struggled to address the deployment of technical personal to communities and disbursing funds – partly due to limited devolution of powers to them, and partly due to limited resources, capacity and experience. The study argues that four strategic interventions are needed to enhance the roles and capacities of local governments: 1) assessing and developing disaster risk management capacity; 2) strengthening institutional memory; 3) strengthening communication; and 4) institution building.

The following institutions are currently conducting studies that may provide further insights. Given the widespread interest in newly elected local governments across development projects, more studies may soon emerge.

- NEARR Facility (EU) (NEARR supports the NRA in various areas, including relations with local governments, and focuses on governance of reconstruction. NEARR also supports two pilot municipalities in their reconstruction roles and conducts research and reviews on reconstruction governance needs).
- Democracy Resource Center Nepal (DRCN specializes in reporting on local governance and is currently conducting a scoping study on the roles, experiences and needs of local governments in relation to reconstruction. DRCN has conducted research on the earthquake response for the IRM project.)

[50] 'NRA hands over reconstruction authority to local governments in 32 districts', National Reconstruction Authority (NRA), 31 Jan 2019, accessed on 19 March 2019. http://www.nra.gov.np/en/news/details/DmgcCmgxwOEkSV1zZUpUnYy2QLlMov7K0hx2SvG-Lzk

[51] Available at https://asiafoundation.org/wp-content/uploads/2019/02/Political-Economy-Analysis-of-Post-Earthquake.pdf

- World Bank (the World Bank is conducting an institutional assessment of capacities of local governments).

Research needs

Due to the decentralization process in Nepal, there is a need for revisiting the national disaster response framework (see 3.1.4) and for supporting local governments in their new reconstruction and DRR/DRM roles. As the evidence currently only gives limited insights into the impacts of decentralization on reconstruction, and on strategies for effectively supporting the implementation capacities of local governments, there is a need for further research in this area to better understand local capacities, perceptions and needs.

Future research could consider the following questions (identified by stakeholders and through the literature review) to provide a clear understanding of roles and capacity of provincial and local governments and of ways for engaging and supporting these. Research should also provide clearer information on how communication and information exchange between central and local levels can be improved.

- Perceptions and needs of local governments: How do local institutions relate to the reconstruction process and what are their data, resource, information and capacity needs?
- Capacities: How are local governments able to take up responsibilities; what are their existing capacities; what implementation challenges do they face?. (Major challenges have already been identified by Pokharel et al 2018 but needs to be monitored continuously, and more consistently, to determine the type of capacity support that may be needed).
- How can research cater to information needs of local governments?
- What changes are needed in the overall disaster governance framework to enhance the roles of local and possibly provincial governments and improve communication and coordination with the provincial and central levels (improve effectiveness of institutional mechanisms)? Relations between the NRA and local governments and how this impacts the implementation roles of the latter?
- Which political dynamics and developments (at central and local levels) impact the roles and functioning of local governments? How does politics affect access to earthquake reconstruction resources?
- Local budget planning (focusing on emergency budgets and reconstruction budgets), financial capacities and needs, and local development planning?
- Gender analysis of local governments DRR and reconstruction roles and capacities?

Research in this area should draw on existing knowledge of governance and decentralization in Nepal, by coordinating with or involving governance experts.[52] It should also consider ongoing work in this area. Further, it should also extensively engage with local governments themselves, and local communities, to better incorporate their views and needs.

[52] The following institutions may provide insights: Nepal Administrative Staff College (has conducted a political economy analysis of emerging roles of local governments in reconstruction and has expertise on local level governance processes); The Asia Foundation (TAF has conducted the IRM project whose qualitative reports highlight local level perspectives, the informal roles of local leaders in the first two years after the earthquake. TAF also has a large local governance programme and funded the NASC and DRCN studies mentioned above. Further, TAF works on local level mediation, including in earthquake affected areas around grievances and access to aid.); Oxford Policy Management (OPM has conducted a study on the political economy of disasters and roles of local governments).

3.1.2 DATA AND INFORMATION NEEDS AND MANAGEMENT

Stakeholder interests

Data and information management was not a research priority for the stakeholders consulted. Only a few stakeholders, primarily those working on data, emphasized gaps in this area and the need for further research and support, in particular around strengthening effective data and information management systems and clarifying data needs. Staff working on MIS data and information management, in particular, pointed to the lack of proper information and communication infrastructure, the lack of a central data system and the resulting needs for systematic learning and capacity support on data, MIS and information systems. Given the importance of data for effective responses and reconstruction (Jha et al, 2010: p.253; Local Disaster Recovery Framework Guide 2018: p.24-25; Todd & Todd, 2011: p.17), in efficient data management, and the fact that there are significant data gaps on reconstruction (see 3.4.1), mean that this is a crucial gap that needs to be filled.[53]

Literature

The Nepal literature points to communication challenges and the lack of effective information sharing systems (Dixit et al 2017; Soden and Palen 2016; The Asia Foundation 2017; Oven *et al* 2016). Only a few studies look at the issue from a governance perspective; yet these do not provide detailed insights into data management structures and needs (Grunewald and Burlat 2016; Sharma *et al* 2018). A large part of the literature on the topic is focused on open data due to Kathmandu Living Lab's Open Data Portal as well as post-earthquake mapping initiatives (Kathmandu Living Labs, Nepal 2015 Earthquake: Open Data Portal; GFDRR 2018; McMurren *et. al* 2017).

Research needs

More research focused on identifying ways of supporting data collection, management and preparedness is needed. This research should identify lessons emerging from the earthquake response and provide recommendations for urgent data needs, users, and improved data systems and sharing. The following questions should be considered:

- What sort of infrastructure (staffing, skills, technology, access) is needed for efficient communication and information sharing between ministries, central and local level government, with international and non-government actors, and with the media.
- What should be done to support the government to improve data management and availability, including compiling data in advance of disasters as part of preparedness (for example on vulnerable households, or land ownership). What sort of data management systems and databases are needed in advance of disasters for preparedness?
- What were/are the challenges of managing MIS data and how can this be improved in the future?
- How can the use of data and information technologies be streamlined for disaster preparedness and response in the context of Nepal. How can this be used to improve information sharing between all tiers of government and with communities?

Through this research, the following institutions were identified as doing reconstruction related work on data. Future research should consult these as well as other national and international data and

[53] Homer and Abdel-Fattah, 2014, point to the Nepal governments limited capacities on data management, use and analysis https://www.developmentgateway.org/assets/post-resources/understanding_government_data_use_in_nepal_final.pdf.

information management experts to identify learning and design research interventions focused on implementation support.

- World Bank
- NEARR Facility (EU) (NEARR has supported the NRA on data management)
- HRRP (supports information management around housing reconstruction)
- Kathmandu Living Labs
- DFID and The Asia Foundation through the D4D – Data for Development Nepal programme (research and implementation support around data management and sharing)

3.1.3 INTERNATIONAL RESPONSE

Stakeholder interests

Stakeholders showed much interest in clarifying the roles and impacts of international actors involved in reconstruction; this was among the top five information needs expressed by stakeholders (Figure 5). It is also an area with very few studies to date (Figure 1). International stakeholders were primarily interested in the effectiveness of the international response and how to improve this for future responses in Nepal and elsewhere. The NRA and several other stakeholders in Nepal were interested in better transparency of international decision-making processes, especially around funding.

Literature

Currently, the literature provides limited insights into international reconstruction support – but as is common practice after disasters, lessons learned documents are beginning to emerge (Julliard and Jourdain 2019; Cook, Shrestha et al. 2016).[54] So far, international learning is focused on the humanitarian response, and coordination of the response, more than reconstruction. It largely focuses on identifying lessons for international responders rather than providing data to assess their impacts and effectiveness. The Independent Impacts and Recovery Monitoring Project (IRM) provides information on aid effectiveness but it is largely based on perceptions of affected communities and restricted to the first two years following the earthquake (The Asia Foundation, 2015-2017). Given the large number of studies on the national response framework (3.1.4 and Figure 1), the international response seems to be understudied by comparison.

Research needs

The following questions need to be explored through future research to fill the gap in the evidence on the roles and impacts of international actors. This will provide more clarity to national stakeholders and improve the transparency and accountability of international actors.

- Assess the effectiveness of international aid and the international response (including geographical distribution of support). Determine whether harm is being done. Better monitoring data of impacts can be used for this (see 3.4.1)
- Document experiences and assess effectiveness of inter-agency coordination and the cluster system.
- Determine and clarify roles(s) of the assistance community.

[54] See also https://www.dec.org.uk/article/nepal-earthquakes-appeal-meta-synthesis which was published shortly before submission of this report and therefore not included in the literature review.

- Document structures, governance, and staffing of aid agencies and highlight how this impacted the response.
- Clarify how to better link the early humanitarian response with reconstruction and DRR in future responses by identifying precise actions needed for this, based on the learning from this response.

Future research on international actors should consider internal evaluations and MEAL data, project reviews, stakeholder consultation with key actors involved, as well as any upcoming public or internal lessons learned documents that may provide further insights into this area. It is important to note that institutional memory on this is rapidly fading in international organizations due to the turnover of staff – a point that many stakeholders raised.

3.1.4 NATIONAL RESPONSE FRAMEWORK

Stakeholder needs

National and international stakeholders were interested in determining the impact of decentralization on reconstruction (see 3.1.1). In this context, there was also great interest in the transfer of learning from this response to the new response framework, which is still being developed, for improved coordination, division of responsibilities, and policies. Key national stakeholders for disaster responses, were keen that research in this area should directly support the transfer of learning from the NRA to the new disaster authority (given NRA's limited time) and to local governments. Stakeholders working on policy analysis and design and local implementation of reconstruction programmes supported this concern. Generally, there was agreement that learning needs to be documented in ways that speak to key national stakeholders and are precise enough (clear guidance) to allow for the direct application of this learning in Nepal (see 3.7)

Literature

The literature already discusses the national disaster response quite extensively; mainly looking at the institutional set-up, policies and coordination. The literature points to the lack of preparedness, delays in setting up the response framework, a lack of clarity on roles, coordination and communication gaps between different levels of government, and shortfalls of a centralized top-down approach (Sharma et al 2018; Dixit et al 2017; Grunewald and Burlat 2016; The Asia Foundation and Democracy Resource Center 2015, 2016 and 2017).

The policy framework for preparedness and early response and recovery is also discussed (Gautam 2017; Dixit et al 2017; Sharma et al 2018). In particular, the literature points to the lack of clearly formulated and nuanced policies, at least initially, on various issues such as resettlement, urban reconstruction, or specific needs of certain groups (landless, displaced, single women).

While the literature identifies learning from the response to date, especially from the early response, the focus is on challenges, not solutions or precise actions that need to be taken. Little specific guidance for the implementation of this learning is provided – a key need of national stakeholders as mentioned above and in Section 3.7. The literature does not provide sufficient details on budgets, staffing structures, or capacities of various bodies involved. Local experiences of and insights into coordination and communication channels are documented but little guidance for improvements are provided (The Asia Foundation and Democracy Resource Center 2015-2017).

Research needs

While improvements to the national response framework are not directly relevant to ongoing reconstruction, it is highlighted as a research need given stakeholder interests and the urgency for inputs in this area within Nepal's ongoing decentralization process and revision to frameworks, roles, coordination mechanisms and policies. There currently is an opportunity to directly apply learning in this area for the set-up of future responses.

Further, international literature emphasizes the importance of solid national disaster frameworks and preparedness, including effective coordination and communication channels. Internationally there has been much focus on developing disaster recovery frameworks and processes in advance of disasters, pointing to the benefits of having in place pre-existing entities for core recovery planning and of oversight functions required to meet recovery objectives[55]. This is due to the recognition that strong legal and institutional structures and their effective operation are central to disaster preparedness and management.[56] Effective coordination among various institutions are considered equally important for disaster management, as are engagement and participation of multiple stakeholders including local communities in planning and responses. This is instrumental to strengthen DRRM.[57]

This should be kept in mind for future research, also considering data needs and management systems as a crucial part of the response framework (see 3.1.2). Below are some suggestions for new research in this area:

- Research should aim to support the government in policy design, institutional-set up, development of coordination mechanisms for disaster preparedness, response and reconstruction.
- Future research should provide systematic documentation and analysis of the governance context and ground realities (staffing, budgets, institutions, decision-making, coordination mechanisms), experiences of those involved, and, based on this, identify precise learning to inform and improve future responses.
- There is a need for systematic policy analysis and documentation of the impact of the policy framework to identify necessary policy changes.
- Research should provide synthesis and guidance on how to systematically and successfully ingrain risk awareness and preparedness in governance structures at central and local levels.
- There is a need for improved coordination and communication. Research should provide actionable inputs for these areas.

Key stakeholders for this research area are the same as those listed for Gap 1 above as well as GoN (central, provincial and local levels).

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[55] Internationally accepted approaches include: Guide to Developing Disaster Recovery Frameworks: Sendai Conference Version (2015) https://www.gfdrr.org/sites/default/files/publication/DRF-Guide.pdf; Jha, A.K., Barenstein, J.D., Phelps, P.M., Pittet, D., Sena, S., 2010. Safer Homes, Stronger Communities: a Handbook for Reconstructing After Natural Disasters. The World Bank. https://www.preventionweb.net/files/12229_gfdrr.pdf. In the absence of these arrangements, which is often the case, most governments have opted to designate an agency to take the lead role in coordinating or planning recovery (Sinha & Srivastava, 2013).

[56] UNISDR (2009). UNISDR terminology on disaster risk reduction. United Nations International Strategy for Disaster Reduction (UNISDR), Geneva, available at: www.unisdr.org/eng/library/UNISDR-terminology-2009-eng.pdf (accessed 24 September 2019). IRDR and UNISDR (2014). Governance in Disaster Management. http://www.irdrinternational.org/wp-content/uploads/2015/01/AIRDR-Project-Report-No.-3-WEB-6MB.pdf. (accessed 24 September 2019).

[57] Ahmed, Tofayel, Moroto, Haruna, Sakamoto, Maiko, Haruna, & Matsuyama Akiko (2016). Exploring implementation gaps between policy and practice for disaster management in Bangladesh. Journal of Integrated Disaster Risk Management, 6(2)
Joachim Ahrens Patrick M. Rudolph (2006). The Importance of Governance in Risk Reduction and Disaster Management. Journal of Contingencies and Crisis Management 14(4):207 – 220 DOI: 10.1111/j.1468-5973.2006.00497.x.
Cheema, Abdur Rehman, Abid Mehmood & Imran, Muhammad. (2016). Learning from the past: Analysis of disaster management structures, policies and institutions in Pakistan. Disaster Prevention and Management, 25(4): 449-463

3.1.5 ADDITIONAL GAPS

There is almost no analysis in the evidence base on the role of other stakeholders in reconstruction:

- The media
- Private sector
- Academia
- Politics

Some stakeholders expressed interest in these topics. While there is ongoing research on the roles of media in reconstruction (pressuring the government, spreading information or rumours, use of media for communication with affected people etc.), there is almost no discussion on private sector involvement – another major gap.[58]

Politics is not considered a significant gap by stakeholders. There are a number of studies on the earthquake on politics but fewer on the impact of politics on the response. This is relevant for a number of areas (decentralization, national response framework, local governments, heritage reconstruction) and highlighted throughout the report rather than as a separate topic requiring further research.

3.2 THEME 2: HOUSE RECONSTRUCTION

Theme 2 includes the following reconstruction *topics*:

- Technical studies on house models and building techniques, earthquake resilient construction, damages and risks of different housing typologies and designs.
- The process of house reconstruction assistance (shelter assistance delivery including the housing grant and related support, technical or material assistance).
- Urban reconstruction and the specific challenges, needs and support in urban areas.
- Vernacular architecture (technical, policy-oriented and social studies on how to preserve vernacular architecture).
- Retrofitting of houses (technical, social and procedural aspects of retrofitting).[59]
- Resources and building materials (the use and availability of different materials for construction).
- Local actors and capacity building (masons, engineers, labourers, and other local actors directly involved in reconstruction as well as their capacity building through skills training).
- Environmental impact of house reconstruction, options for and streamlining of greener reconstruction.
- Overall approach of shelter assistance

Studies on local and social impacts of house reconstruction, recovery progress, and community perceptions and engagement, are included in *Theme 4*. Studies on finance for house reconstruction and household access to finance are included in *Theme 3* as are studies on markets and costs for construction materials.

[58] SOAS SWAY Project is developing a database including all newspaper articles on the earthquake and subsequent response. A number of academic studies produced as part of this project discuss the role of media. https://digital.soas.ac.uk/SWAY

[59] There are a number of studies on retrofitting of public and heritage buildings, included in the infrastructure and heritage theme. Those may provide some insights but are not directly relevant to house retrofitting.

There was interest in various aspects of housing reconstruction. Stakeholders thought that more research and analysis is needed on the implications and overall impacts of the chosen approach to shelter reconstruction (owner-driven reconstruction, build back better, centralized rural housing programme) as well as on social impacts of housing reconstruction (see 3.4). There was also interest among government and non-government stakeholders in retrofitting, vernacular architecture, urban reconstruction and traditional settlements, and the roles, contributions and capacities of local actors, such as masons, engineers and labourers (see Figure 5). Through evidence scoping, additional gaps were identified.

3.2.1 RESILIENT HOUSING & RETROFITTING

Stakeholder interests

By themselves, the topics retrofitting, vernacular architecture, local building resources and urban reconstruction were identified comparatively less by stakeholders. However, the government emphasized the need for more research in this area. And, taken together, these topics – and the issue of scaling up resilient building while considering specific local contexts and needs – were raised often. In particular, stakeholders were interested in the use of local resources and building in remote areas.

Stakeholders also pointed to the need for a better understanding of whether the RHRP has contributed to safer housing. Currently, there is only anecdotal evidence that this may not be the case, as some earthquake-affected people continue to use old, partially damaged houses, or are building unsafe extensions to their RHRP houses.

Some also said there was a need for better understanding of how reconstruction can be integrated in the response from the beginning for a larger focus on long-term resilience.

Literature

The literature on housing construction provides insights into damages to different types of houses (PDNA 2015; Gautam et al 2016; Sharma et al 2017; Yadav et al 2018; Gautam 2018; Varum et al 2018; Brzev et al 2017). It also outlines major milestones and challenges on the path to housing reconstruction (Pokharel et al 2019; Sharma et al 2018; HRRP 2018; IRM and CFP project reports).

The literature further discusses the National Building Code (NBC), calling for updates to the NBC (Koirala et al 2015) and better implementation (Arendt et al 2017), given extensive damages to building stock during the earthquake.

Some have examined post-earthquake building safety assessments and highlight how these can be improved in the future to collect more accurate data, make data more consistent and make more effective use of the data.

The evidence further includes studies on the strengths and advantages of traditional construction methods, and the use of local materials in remote areas, in the light of earthquake damages and reconstruction (Ohsumi et al 2016; Gautam et al 2016; Forbes 2018; Bothara 2018). However, there are no studies providing insights into how to preserve vernacular architecture through policy and programming approaches and how to scale up the rebuilding of vernacular architecture. Resource availability and use is also not discussed comprehensively.

The evidence is thin on scaling up retrofitting and applying it more widely in the reconstruction process – both in terms of technical and policy or programming approaches.[60] There are also no studies on social impacts and awareness of and the public's interest in retrofitting.[61] The literature includes some technical case studies on retrofitting public buildings (see 3.6.1). One important study points to a new approach for assessing and highlighting the vulnerability of the existing housing stock and developing a vulnerability scoping model than can be applied to different municipalities and used to prioritize potentially vulnerable buildings for retrofitting and other interventions (Endo et al 2018). This may be useful for scaling up retrofitting efforts across the country.

However, overall information on how to implement and scale up models for improving earthquake resilience of housing in the Nepal context is missing (how to cater to needs, include communities, increase technical skill and awareness, improve the National Building Code and college curricula, cater to different terrains and local resources, maintain vernacular architecture etc.). The literature also does not currently provide evidence on whether reconstruction has led to safer housing and how people are rebuilding. The housing grant data itself cannot provide accurate information on this. There have been some studies on one- and two-room houses built as part of the housing grant scheme but these are not currently accessible.[62] Given limited coverage of local needs, risk perceptions, and plans (see 3.4) the literature does not provide insights into how to improve compliance.

Research needs

Given stakeholder interests in earthquake resilient reconstruction, scaling up retrofitting and the preservation of vernacular architecture, future research should focus on providing implementation rather than technical 'know-how', with the latter already presented in the evidence. More consistent monitoring of recovery may provide some insights into what type of houses people are rebuilding (see 3.4.1) but further studies on housing reconstruction may be needed. Research should focus on synthesis of existing research in these areas and consider the following:

- Provide understanding of how to develop and implement building guidance and models that better reflect local needs, vernacular housing, and specific challenges for different areas, including remote areas.
- Precise recommendations for technical updates to the National Building Code (NBC) (to include guidance on retrofitting and vernacular architecture) and to curricula of engineering and architecture programmes.
- How to improve implementation of NBC and retrofitting at local level.
- How to promote the use of local resources and local construction methods (to reduce costs, environmental impact) (see also 3.2.3 and 3.3).
- Technical study on compliance and whether the approach has led to more resilient houses (has BBB been achieved).
- Study how to improve compliance and identify learning on this for the future.

[60] This may be due to the fact that retrofitting was not promoted from the beginning, despite the fact that the NRA had introduced provisions for retrofitting in the National Reconstruction and Rehabilitation Policy (2072 BS), the Repair and Retrofitting Manual for Masonry Structure 2017, and the Repair and Retrofitting Manual for RCC Structure 2017. Retrofitting was only later provided as option to home owners and retrofitting support programmes, currently provided by UNOPS, DFID and Build Change, was introduced very late.

[61] Ravi van de Port has conducted a small but important social impacts study on retrofitting for UNOPS which may become publicly available in the future.

[62] By the World Bank and by Social Science Baha (which is soon publishing an academic paper on this research). NSET has conducted research on compliance to standards of construction or lack thereof in their project areas (also upcoming).

- Identify how reconstruction and retrofitting can be clarified earlier on in the response to ensure rebuilding leads to longer-term resilience of buildings and that vernacular architecture can be repaired through retrofitting.

3.2.2 URBAN RECONSTRUCTION

Stakeholder interests

Stakeholders frequently pointed out challenges in urban areas, especially in the Kathmandu valley. Few thought there was research in this area. However, key stakeholders highlighted the need for advocacy and policy inputs to develop targeted strategies and support for urban areas and traditional settlements in the Kathmandu Valley. Urban reconstruction has recently attracted the attention of the Government and non-government assistance providers, after it became clear that these areas faced specific challenges related to small land plots and high costs, among others, and that people in urban areas were falling behind.

Literature

The RHRP has been focused on rural reconstruction and so has much of the literature. This may be because the damage assessment in affected urban areas, the three districts of the Kathmandu Valley (Kathmandu, Bhaktapur and Lalitpur), was done later than elsewhere meaning the housing grant support was also rolled out later there.

Different needs and challenges in urban areas are highlighted, as are the need to involve urban communities and local governments (Daly et al 2017). However, strategies for how to address these needs are not discussed more widely (Thapa 2018). Currently, HRRP is conducting research on how to facilitate urban reconstruction, which may soon provide new inputs.[63]

Urban reconstruction – widely recognized as facing specific challenges – has also not been discussed extensively in the literature. Those studies that do exist, point to challenges and the needs of urban areas but less so to solutions (Daly et al 2017; Thapa 2018).

Internationally, there has been increased focus on disaster vulnerability of urban areas (Hossain et al, 2017) and the fact that while rural disaster programs pose their own unique problems, a disaster that has affected both urban and rural areas can be especially challenging to plan and execute (Jha et al 2010).

Research needs

Given that the NRA is in the process of designing their Urban Settlements Plan in the coming months, and the specific reconstruction needs and challenges in urban areas of Nepal, further research in this area may be needed. It should consider the following:

- Provide guidance on targeted assistance that addresses specific needs for urban areas.
- Contribute to clearly defined advocacy and strategies for urban areas and traditional settlements (finance, housing models, integrated settlements approach, community perceptions).

[63] With ARUP https://www.arup.com/

3.2.3 LOCAL ACTORS

Stakeholder interests

Stakeholders highlighted limited information on the mobilization, training, roles, contributions and longer-term impacts of local reconstruction stakeholders, especially masons, labourers, engineers, and technical officers as well as contractors.

Literature

The literature does not currently provide much evidence on the roles of local actors and the impacts their involvement has had. The Asia Foundation's IRM project provides some information on the roles of engineers and the challenges they have faced (The Asia Foundation and Democracy Resource Centre 2016 and 2017) as do the CFP reports (CFP Reconstruction Reports 2016, 2017, 2018). Case studies are highlighted in programme and government pamphlets but little further analysis is provided.

Several ongoing studies look at masons. NSET has conducted research on the masonry system in Nepal as well as a mason retention survey for their Baliyo Ghar programme, while HRRP is also working on a mason retention study.

Research needs

Given the importance of local actors to the success of the RHRP, as well as the general lack of local stakeholders' perspectives on the rebuilding process, there is more need for information. Further studies should consider the following:

- Collect local perspective and experiences to identify learning.
- Analyse the roles, needs and contributions of local actors more comprehensively to better incorporate this in ongoing programming.
- Consider the interaction of local actors with local governments (see 3.1.1) and communities (see 3.4.4).

3.2.4 ADDITIONAL GAPS

A number of additional gaps were identified which may also require further research and data collection:

- Lack of environmental impact assessment of housing reconstruction or studies on environmentally friendly construction methods and models.
- Limited analysis of the overall approach to housing reconstruction: Stakeholders highlighted the need for research on impacts of the centralized approach, sector-wide response, and owner-driven reconstruction focused on rural areas, as well as for synthesis of learning on the housing programme.
- Limited assessments of risks arising from the approach chosen and its impacts.
- No clear understanding of impacts of geographical targeting: As pointed out throughout the report, the impacts of and learning from geographical targeting of the housing programme need to be better understood. For example, what are the implications of this for technical assistance, for safer rebuilding and for overall recovery?

3.3 THEME 3: FINANCE AND ECONOMIC RECOVERY

Theme 3 looks at the following *topics*:

- Overall finance for reconstruction (national and donor finance).
- Household level finance for reconstruction, including access to finance, financial capacity, loans, credit and debts.
- The impact of migration and remittance on reconstruction and the impact of the disaster on migration/remittance patterns.
- Livelihoods impacts, needs and recovery.
- Impacts on economy (national and local level), markets and costs (materials, transportation, labour).

Implications of the lack of household access to finance are discussed in more detail in *Theme 4* under the *topic* vulnerability.

3.3.1 ECONOMIC IMPACT

Stakeholder interests

Stakeholders were interested in further studies on economic impacts in a number of areas: They were primarily interested in household finance for reconstruction and access to finance as well as building costs (see 3.3.2). Several also thought that a larger cost benefit analysis of disaster risk reduction was needed (determining the overall costs of the disaster and response versus costs of preparedness). Several stakeholders pointed to the need to better understand the implications of economic impacts for longer-term development. The Roundtable discussions held as part of this research pointed out the limited information on livelihoods recovery and support needs.

Literature

Overall, there are very few studies on economic impacts and finance of the disaster and recovery. The PDNA points to costs of the disaster impacts (PDNA 2015). However, no further analysis on economic costs is currently available. The literature does not provide insights into the costs of the response compared to the costs of preparedness, nor implications for longer-term development goals.

Further, there is limited information on national and international funding of the response and no analysis of the implications of funding shortages in some areas. Funding structures and flows are considered important. GFDRR (2015) highlighted that the rapid disbursement of funds, coordination of resources, and flexible sources of funding as common characteristics of good financial practice in their guide to developing disaster recovery frameworks (GFDRR, 2015). Yet, the pressure to disburse funds and meet demands for accountability also mean that donors often set short timetables for spending, creating a disconnect between the humanitarian and development approaches, which is an underlying cause for failures in post disaster reconstruction, creating a short-term focus on humanitarian assistance and leading to complexity in attempting to use multiple funds to support ongoing interventions (Steets 2011).[64] In the context of Nepal, this complexity is not yet well understood or discussed in the evidence.

[64] Lloyd-Jones, T.; Davis, I.; Steele, A. Topic Guide: Effective post-disaster reconstruction programmes. Evidence on Demand, UK (2016) xiv, 93p." GOV.UK. Accessed March 22, 2019. https://www.gov.uk/dfid-research-outputs/topic-guide-effective-post-disaster-reconstruction-programmes

Although Freeman, 2004, is not directly on reconstruction in Nepal the research provides application evidence about funding. The funding shortage is also an issue, as post-disaster funds are limited while the demand for post-disaster assistance continues to dramatically increase (Freeman, 2004). Funding limitations often mean that the focus is on housing reconstruction rather than integrated recovery which means that housing funds might be captured by the middle class rather than by the poor as a lot of the poor are not homeowners but usually tenants or renters. Further, government's funding of housing losses discourages homeowners from securing adequate provision and protection of their private assets, such as insurance (Freeman, 2004).

The Nepal literature does provide some information on household finance of reconstruction, access to finance and building costs (see 3.3.2).

Research needs

There is a clear need for better economic analysis of disaster impacts and reconstruction. Given widespread stakeholder interests, in scaling up disaster preparedness, in particular retrofitting, analysis of overall costs may be useful to prove that preparedness is more cost-effective. Data on economic costs and impacts can also provide insights relevant for longer-term development planning. Future research in this area may therefore examine the following:

- Determine the costs of the response versus costs of DRR in Nepal.
- Predict implications of economic impact for longer-term development goals.
- Analyse funding structures and gaps for transparency and learning on funding needs.

3.3.2 ECONOMIC RECOVERY, ACCESS TO FINANCE, BUILDING COSTS

Stakeholder interests

Stakeholders pointed to the need for a better understanding of the current and longer-term economic impacts on affected households, how they finance reconstruction and whether they have gone into debt or fallen further into poverty. This was partly because stakeholders were interested in determining who is vulnerable and why (see 3.4.2).

Several also expressed an interest in having better data on livelihoods impacts and needs and cost analysis of reconstruction (materials, transportation, differences in costs across different areas, labour costs etc.). Increasingly, donors are now focusing their attention on livelihoods recovery (especially the World Bank).

Literature

The IRM projects provides the most extensive data on household economic recovery and financing of reconstruction (The Asia Foundation, 2015-2017). It includes information on debts, sale of assets, livelihoods recovery, access to finance, and building costs. The CFP reports also present data on livelihoods recovery, access to finance and costs (CFP Livelihoods and Reconstruction Reports 2015-2018). Both studies highlight the limited access to loans and the fact that reconstruction costs far surpass the housing grant, leaving those without access to additional resources struggling to pay for their new house. The IRM report highlight that some groups, in particular Dalits, have incurred high debts to cope with the disaster impacts. This is because most people have reverted to borrowing from informal sources at high interest rates, given very limited access to formal loans. An upcoming study on modelling vulnerability also emphasizes the need for evidence on the economic realities of

households to better understand who is struggling to pay for their new house or falling into debt (Coyle 2019).

Further information may soon be available. The World Bank is conducting research on livelihoods. HRRP is developing a material and transport costing tool for housing reconstruction.

A small number of studies have looked at the impact of remittance and migration on reconstruction finance, but the data is not comprehensive, nor longitudinal, primarily collected in the first one-two years after the disaster (Sijapati et al 2015; Manandhar 2015; Maharjan et al 2015; Wendelbo et al 2016; The Asia Foundation Survey reports 2015-2017).

A report provided by the Cash Coordination Group (not publicly accessible) provides insights into the use of emergency cash grants and cash transfers. Further there are a number of studies on livelihoods impacts (Chatterjee and Okazaki 2018; Solgado 2018; IRM and CFP reports).

Overall, however, the evidence provides little insight into economic recovery and support needs – perhaps reflecting the limited attention given to this due to the focus on the RHRP – despite emphasis in the PDRF on integrated recovery (PDRF 2016) and the NRA's interest in supporting livelihoods recovery.

Research needs

Given the limited evidence on economic impacts and recovery, further research in this area is crucial, in particular to better determine who is economically vulnerable and why. It should look at the following topics:

- Data on overall economic impacts and cost-benefit analysis of response versus preparedness.
- Collect more recent and comprehensive data on access to finance, debts, loans, and building costs (possibly linking with larger recovery monitoring efforts - see 3.4.1) to determine how people are financing reconstruction and who is struggling.
- Better determine livelihoods needs for input into livelihoods strategies.
- Analyse and predict the implications of economic impacts for longer-term development to determine risks and whether the response has done harm by failing to prevent vulnerable affected households from falling into extreme poverty.

3.4 THEME 4: SOCIAL IMPACTS AND NEEDS

Theme 4 looks at the following *topics*.

- Impacts, needs and recovery: Information on local impacts, evolving needs, decision-making processes and how the response relates to these; implications for the ability to recover; overall monitoring of household recovery progress;
- Socio-cultural contexts and changes: Local contexts and the impacts of the earthquakes and the response on these; impacts on culture, traditions, social relations, cohesion, conflict, communities, perceptions of impacts and response.
- Community engagement: social and community mobilization; community involvement in the reconstruction process.
- Communication and access to information: Communication with and for communities, affected households and local actors involved in reconstruction; access to information for different groups; and local awareness of risks and risk mitigation (safer building).

- Vulnerabilities, safeguards and protection: Specific needs of those struggling to access assistance or unable to recover; safeguards for those most vulnerable; protection issues.
- Gender: Gender equality, particular needs of women and LGBTQ groups, women empowerment and rights, VAWG.

Information on recovery, community engagement and those unable to recovery (vulnerable groups) is included here rather than in the house reconstruction *theme* to emphasize the importance of including community experiences as part of any recovery assessments and studies on social impacts. Community engagement should be recognized as a part of local realities and recovery processes rather than merely an aspect of assistance delivery.

3.4.1 CONSISTENT RECOVERY MONITORING DATA

Stakeholder interests

Nearly all stakeholders expressed interest in better data on local impacts, needs and recovery progress – whether it was to assess economic impacts, social impacts, reconstruction progress (type of houses built, resilience, risks), long-term implications for development goals, geographical and demographic differences, and those falling behind. This was the third-most expressed need (see Figure 5).

This study highlights consistent data on local level recovery progress and needs as the most crucial gap (see Part 5 – Recommendations). Better monitoring data on recovery could speak to various other crucial gaps such as information on those falling behind, transparency of the housing programme and aid provision more generally (assessing impacts), better information on socio-economic impacts and how household access finance for reconstruction, and inclusion of community perceptions and needs for decision-making.

Literature

Local impacts, needs and recovery are a key aspect of reconstruction. These should be given significant attention to supplement data from damage and loss assessments and human recovery needs assessments and provide further insights into the 'why' and 'how' of recovery.[65] In Nepal, there currently is no recent data on recovery progress across affected areas other than the official housing grant data which shows progress of those on the beneficiary list through the grant disbursal system. This means there is a major gap in the documentation, monitoring and understanding of local impacts, perspectives and factors that shape recovery.

There were notable efforts to monitor earthquake impacts and recovery through the Independent Impacts and Recovery Monitoring Project (IRM) and Common Feedback Project (CFP), but there is no recent larger scale monitoring data to assess overall recovery progress and remaining needs.[66] The IRM project published a series of reports, between 2015 and 2017, with extensive quantitative and qualitative data and analysis on local impacts, perceptions, needs, coping mechanisms, and progress in shelter and economic recovery.[67] The CFP project frequently collected community feedback data on reconstruction, livelihoods, food security, water and protection issues between 2015

[65] The World Bank emphasizes the importance of analysing social impacts after disasters and provides tools for this purpose: http://siteresources.worldbank.org/INTEAPREGTOPSOCDEV/Resources/PostDisasterocialAnalysisToolsVolumeI.pdf
[66] The IRM project last collected data in April 2017, while the CFP project ended in late 2018.
[67] The Asia Foundation, Aid and Recovery in Post-Earthquake Nepal, 2015-2017 https://asiafoundation.org/tag/independent-impacts-and-recovery-monitoring-nepal/. The IRM project was designed using the World Bank Post Disaster Social Analysis Tool – see above.

and late 2018.[68] Both projects produced statistically representative data (at district level and for all affected areas), but the CFP data is not longitudinal. Further, both studies focused more in the 14 higher impacted districts although the IRM project also produced extensive qualitative data from lesser impacted districts – one of the few projects that did so and therefore highlighted adverse impacts of uneven geographical distribution of support early on (see 2.2).[69]

There have been other efforts to collect data on social impacts but they either focus on a particular theme (for example gender), a particular location, or fail to use robust methodologies to produce data that is representative of affected areas. Data for a large socio-demographic impact study was collected in late 2015 and provides valuable insights into impacts on various groups but this was a one-off study (Central Department of Population Studies, UNFPA and IOM 2016).

NSET and Social Science Baha are in the process of producing reports, based on longitudinal research, discussing recovery progress. These will likely provide useful insights into recovery challenges.

Research needs

Given stakeholder interests, gaps in the existing evidence, and international emphasis, there is a crucial and urgent need for better monitoring of impacts and recovery through consistent and comprehensive data collection across affected areas. The absence of such monitoring was felt acutely by stakeholders and leaves a number of gaps in the understanding of reconstruction impacts and needs. Further efforts in this area are needed to include local perceptions, to better react to changing local contexts, and to identify support needs and risks earlier on (making assistance more inclusive and responsive). Monitoring research should focus on the following:

- Collection of data on recovery progress focusing on both, housing and economic recovery (livelihoods, loans and debts).
- Collect perceptions of affected households to determine their information and support needs and include their voices.
- Be representative of affected areas and the affected population overall.
- Allow for socio-demographic, and socio-economic breakdown of the affected population to better identify specific needs of different groups.
- Allow for district breakdown to point to differences between higher and lower impact districts.

3.4.2 IDENTIFYING THOSE FALLING BEHIND

Stakeholder interests

The identification and targeting of vulnerable groups was one of the two top priorities for reconstruction stakeholders in Nepal, alongside governance related research (see Figure 5). Stakeholders pointed out that vulnerable groups are clearly falling behind in their recovery, based on field observations, as they are often excluded from standard communication and assistance processes and the lack of targeted support.[70] They agreed that a better operational understanding of who is vulnerable – a common framework for identifying vulnerable groups – was crucial for ongoing reconstruction programming and advocacy with the GoN/NRA. The NRA compiled a list of vulnerable

[68] http://www.cfp.org.np/reports/
[69] The Asia Foundation and Democracy Resource Center, Aid and Recovery in Post-Earthquake Nepal, Qualitative reports 2015-2018. 2017 https://asiafoundation.org/tag/independent-impacts-and-recovery-monitoring-nepal/
[70] The RHRP, Nepal's flagship programme for housing recovery, has targeted all affected households equally, ensuring equal, but not equitable, aid distribution as many stakeholders highlighted.

people who are entitled to 'top-up' grants of NPR 50,000 (USD 500). However, stakeholders pointed out that the list could have been more flexible to accommodate people who have more recently become destitute because of earthquake impacts, and it did not include large numbers of people who are extremely vulnerable. Donors and partner organisations have been focusing on the issue through a 'vulnerability group' that meets regularly to share experiences and identify actions needed to make sure that no one is falling behind in their recovery (see Section 1.4).

Literature

The international literature highlights the needs for inclusive reconstruction to ensure no one falls behind. The Sendai Framework emphasizes inclusive recovery 'paying special attention to people disproportionately affected by disasters, especially the poorest'.[71] The 2018 World Disaster Report titled 'Leaving No One Behind', points out that more needs to be done to respond to the needs of those who are most vulnerable.[72] The report emphasizes that there is a need for better documentation of, and attention to, 'hidden', excluded or marginalized people and for tailored assistance that addresses their specific needs (for example through communication in local languages, better reach to remote areas, or funding considerations).

The Nepal literature is rich in studies on marginalized and vulnerable groups and the specific challenges they face. What the existing evidence highlights is that marginalized groups, and their specific experiences and needs, have been neglected by the disaster response (Amnesty International 2017; Barber 2016; Nougaret and Danuwar 2016; Kruhl et al 2018; NDRI 2017). The literature points to the following vulnerable groups: Women, especially single women, and children (Kruhl et al 2018; Nougaret and Danuwar 2016; Oxfam 2016; Shrestha et al 2017); people with disabilities (NDRC 2016; Lord et al 2016), Dalits and other marginalized caste groups (BK 2015; DeYoung and Penta 2017; Feminist Dalit Organization Nepal 2017), the undocumented and landless (Nougaret and Danuwar 2016; Jackson et al 2016), the elderly (NDRI 2016), the displaced (He et al 2018), the poor (Coyle 2019; NDRI 2017), and the historically and geographically marginalised (Amnesty International 2017; Warner et al 2015). The IRM and CFP reports identify the same groups. Gender and caste discrimination, in particular, have received much attention in the literature which highlights that single and elderly women as well as Dalits are particularly vulnerable.

Given the long and extensive presence of development organizations and anthropologists in Nepal there is generally much emphasis in the evidence on how certain groups have been, and continue to be, disadvantaged and vulnerable and are in need of targeted communication and assistance (Warner et al 2015).

There are a number of ongoing efforts by the NRA and the reconstruction community to identify those most in need and at risk of falling behind. Yet, what is currently missing is consistent data that shows who is falling behind in earthquake recovery to determine, and target, those most in need. The publicly available literature also does not clearly discuss the different ongoing approaches to identifying and targeting vulnerable groups – and their respective advantages and challenges. The upcoming publication 'Modelling Vulnerability and Shelter – Hamro Ghar Approach' (Coyle 2019) provides a model to determine 'vulnerability' in the context of reconstruction, by determining the economic reality that households experience in the process of reconstruction. Ongoing research on

[71] Sendai Framework 2015-2030. https://www.preventionweb.net/publications/view/43291
[72] IFRC World Disaster Report 'Leaving No One Behind', 2018, https://media.ifrc.org/ifrc/wp-content/uploads/sites/5/2018/10/B-WDR-2018-EN-LR.pdf

women's experiences of shelter self-recovery may provide some guidance on addressing their specific needs.[73]

Research needs

Given the rich evidence on the types and experiences of vulnerability in Nepal, and who the vulnerable groups are, future research on vulnerability in the context of reconstruction needs to focus on the following:

- Identifying those who are falling behind in, or left out from, post-earthquake recovery: This should be done through broader monitoring data (see 3.4.1) to determine who, among all those affected, is most vulnerable and least likely to be rebuilding – and the reasons why they are unable to recover. There are plenty of case studies on vulnerable groups and the specific issues they face in earthquake recovery. Implementing partners also have rich insights in this area. What is therefore needed is comprehensive data on who is falling behind within the broader profile of the affected population.
- Provide synthesis of the existing literature, and the monitoring data, to help determine an actionable definition of vulnerability for programming and policy purposes, and more effective targeting of vulnerable groups.
- Engage more extensively with marginalized groups to include their views and experiences and for more effective communication with said groups (see 3.4.3).

3.4.3 COMMUNITY ENGAGEMENT AND COMMUNICATION

Stakeholder interests

Stakeholders pointed out that communication and engagement with communities should be improved for more successful reconstruction for two reasons: 1) To ensure those eligible for various types of assistance know how to access it; and 2) To include and respond to the voices of affected people. Communication was considered particularly relevant in the context of reaching those falling behind (often due to a lack of clear communication).

Further, many stakeholders were interested in better understanding local socio-cultural impacts and how socio-cultural context affect reconstruction (see Figure 5). While impacts monitoring could provide some insights into social changes (see 3.4.1), consistent and in-depth engagement and communication with communities would allow for a better understanding of socio-cultural contexts, and impacts.

Literature

It appears that most of the reconstruction research has been one-off, or short-term, and extractive – with few notable exceptions.[74] There are a number of ongoing anthropological projects as part of larger research projects which may reveal more in-depth engagement with communities.[75] Despite

[73] This research is being conducted at UCL, London.
[74] The CFP project has collected questions interviewees had on reconstruction to later revert to them with answers: http://www.cfp.org.np/uploads/documents/reconstruction-November2018-December-18-2018-16-55-20.pdf. A project led by anthropologist Jeremy Spoon has engaged with local communities by bringing them into the conversation to make their voices heard more: https://www.pdx.edu/anthropology/anthropology-professor-dr-jeremy-spoon-completes-national-disaster-recovery-workshop-in-nepal. The IRM project was longitudinal, repeatedly visiting the same communities to track their recovery. https://asiafoundation.org/tag/independent-impacts-and-recovery-monitoring-nepal/
[75] https://www.soas.ac.uk/violentsway/ and https://elmnr.arts.ubc.ca/

efforts of individual researchers or projects, there currently is no sustained effort to include the views and experiences of communities and local actors in the reconstruction process, since the end of the CFP.

This is a gap given international emphasis on inclusive recovery and an 'all-of-society engagement', highlighted in the Sendai Framework and the 2015 World Disaster Report.[76]

The Nepal literature also does not provide know-how for improved communication with communities. Communication has been highlighted as a shortcoming in Nepal which has had adverse impacts on local recovery (CFP 2015-2018; The Asia Foundation 2015-2017; Pokharel et al 2019; Buchanan and Routley 2016). The literature provides some insights into how communities access information and what channels are most effective (The Asia Foundation 2015-2017; CFP 2015-2018). BBC Media Action's work in this field provides further – albeit not publicly accessible – insights. There is no insight, however, into specific interventions needed to improve information-sharing with communities (see also 3.1.2 on the importance of improved information management).

Studies on community engagement in reconstruction are equally limited – possibly reflecting the emphasis on owner-driven reconstruction. The fact that the evidence can not tell us much about communication with communities and about community engagement means that evidence on how communities are affected by and engage with the process – as well as on how to develop strategies for better engagement – is currently anecdotal at best.

Research needs

Given evidence gaps and stakeholder interests in better understanding local impacts of the disaster response, and in improving communication with communities, more research may be needed. Future research should consider the following:

- Contribute to engagement and information sharing with communities and local actors.
- Provide knowldege on how to better integrate local stakeholders in reconstruction and how to communicate more effectively and consistently with affected people.
- Provide new information as well as synthesis on socio-cultural contexts, impacts and needs (how community relations, living and cultural practices have been affected).

3.4.4 ADDITIONAL GAPS

A number of addional gaps for Theme 4 were identified by stakeholders:

- Gender: Several stakeholders expressed interest in long-term impacts on gender relations and empowerment. There is extensive literature on the impacts of the disaster on women but currently, there is no analysis of long-term impacts. While this is a gap, research on this may soon emerge given the extensive interest of researchers in gender. Further, research on socio-cultural impacts as well as monitoring of recovery (3.4.3 and 3.4.1) may provide insights.
- Engagement with local actors (leaders, masons, engineers etc.): Their voices and experiences are also currently underrepresented in reconstruction literature. This is further discussed in Section 3.2.

[76] Sendai Framework 2015-2030. https://www.preventionweb.net/publications/view/43291; World Disaster Report 2015 http://ifrc-media.org/interactive/wp-content/uploads/2015/09/1293600-World-Disasters-Report-2015_en.pdf

3.5 THEME 5: RESETTLEMENT

Theme 5 looks at the following *topics*:

- Displacement and resettlement: Displaced communities and households, resettlement needs, processes, policies and assistance.
- Geo-hazards assessments: Land assessments to determine geo-hazards and identify safe land for resettlement.

3.5.1 DISPLACEMENT DATA AND RESETTLEMENT SOLUTIONS

Stakeholder interests

Stakeholders were interested in better data on displaced households (who has been rendered landless by the earthquake and who remains on unsafe land) and geo-hazards mapping. They also pointed to the need for studies on the socio-economic impact of displacement and resettlement and analysis of longer-term impacts and needs. As part of this, there was interest in policy analysis highlighting the implications and impacts of the policy framework on displaced populations. Stakeholders highlighted their urgent need for evidence on resettlement strategies to ensure successful, integrated resettlement processes that consider livelihoods, social and cultural needs. Given the complexity of the issue and the need for evidence for decision-making, there is a need for research input, and synthesis, to inform ongoing programmes and policy development in this area.

Literature

In the international reconstruction literature, there is much information on resettlement – a key issue of post-disaster recovery. In Nepal too, there is some learning on the impact on and needs of those who are displaced. The government has taken important steps towards providing resettlement for those in need (Resettlement Policy Framework; Process Manual for Reclustering). However, there is no consistent data and no clear Nepal specific guidance for resettlement rooted in evidence on local contexts and experiences and perceptions of affected people.

There are a number of studies on the vulnerabilities of displaced people (He et al 2018; Jackson et al 2016; Man Singh et al 2018; International Commission of Jurists 2016). These do not provide comprehensive data on those in need of resettlement, nor longitudinal monitoring of impacts on and needs of displaced households. They are therefore of limited use for those determining policies and programming on resettlement. They also do not consistently represent perceptions and experiences of affected people during and after relocation; how they perceive the new home compared to the old one, their willingness to relocate, and the impact on livelihoods, social relations and cultural practices.

In addition, there are a number of geological studies and ongoing land assessment projects on geohazard risks induced by the 2015 earthquake, and methods for measuring those (UN Environment 2017; Shrestha et al 2015; Kargel et al 2016; Zhao et al 2017; Kruhl et al 2018; Zekkos et al 2017; Williams et al 2018; Zhao et al 2017; Shrestha et al 2016). Durham University's Earthquakes Without Frontiers project is assessing and monitoring landslide hazard in Nepal, after the 2015 earthquake and over the longer term, and provides advice on current and potential landslide hazards to a wide

range of organisations in Nepal, including DFID Nepal.[77] This was considered particularly useful by those working on resettlement projects.

Research needs

Future research on resettlement should contribute towards the following research needs:

- Consistent data on impacts on and needs of displaced people (including assessment of displaced households and their needs);
- Identification of resettlement sites and integrated resettlement solutions;
- Analysis of long-term impacts on displaced households;
- Actionable policy and advocacy guidance based on the data and synthesis of available evidence, community perceptions, and views of those working with displaced groups on the ground;
- There is a need for clearer policy frameworks for managing relocation.
- More research is required to understand the socio-cultural and economic factors that need to be considered for decision-making and resettlement plans, and to highlight the experiences and challenges faced communities during and after resettlement and relocation;
- In particular, research is needed on the relocation of marginalised groups, drawing on clearer understandings and identification of vulnerability (see 3.4.2).

Through this research, the following key stakeholders for resettlement were identified, in addition to the displaced households themselves. These, and others, should be considered by further research on resettlement.

- Durable Solutions Project: People in Need (PIN) and the Community Self-Reliance Centre (CSRC).
    - They work closely on finding resettlement solutions and have produced an upcoming report (Displacement Solution) on resettlement policies and procedures, focusing on those displaced by the 2015 earthquake, with guidance for resettlement procedures and for future housing, land and property and policy reform.
- Durham University's landslide assessment project (Earthquakes Without Frontiers project).
- The Government of Nepal and the NRA.

3.6 THEME 6: INFRASTRUCTURE AND HERITAGE

Theme 6 looks at the following *topics*:

- Infrastructure and government buildings: Reconstruction of roads, electricity and water supply systems, schools, health posts and other government buildings.
- Heritage: Reconstruction of heritage sites.
- Environmental impact: The environmental impact of infrastructure and heritage reconstruction.

The topic Heritage looks at public heritage sites. The preservation of vernacular architecture of homes is discussed in Section 3.2.

[77] https://www.dur.ac.uk/ihrr/wherewework/nepal/, http://ewf.nerc.ac.uk/2016/06/15/landslides-following-2015-gorkha-earthquake-monsoon-2016/

3.6.1 INFRASTRUCTURE AND PUBLIC BUILDINGS

Stakeholder interests

Stakeholders discussed the need for integrated infrastructure reconstruction that involves communities and local governments and considers their needs and priorities to improve service delivery overall. As outlined in Sections 3.1.1 and 3.1.4, stakeholders were also concerned about transferring learning on infrastructure reconstruction to local governments and the overall disaster response framework to scale up resilient infrastructure construction. Yet, few stakeholders mentioned infrastructure as a research need.[78] Those that did highlighted the lack of environmental impacts data and research.

Literature

The existing evidence on infrastructure reconstruction is largely technical. It primarily provides insights into damage and risk assessments, and vulnerability of infrastructure such as water, electricity, schools, roads, health infrastructure, and government buildings (Subedi et. al 2016; Sharma et al 2018; Pradhan et al 2015; Jalsrot Vikas Sanstha (JVS)/GWP Nepal 2017; Hazarika et al 2016; Lee et al 2018; Zhu et. al 2017; Pehlivan et al 2017; Butler and Rest 2017; Shrestha 2016; Regmi et al 2015; WHO 2016; GoN (PDNA) 2015; UNDP Nepal 2016; GoN 2018). Some studies discuss processes and techniques for retrofitting public buildings (Rodrigues et al 2018; Pradhan et al 2016).

Further, there is literature on how donors and I/NGOs have assisted the reconstruction of public infrastructure (UNDP Nepal 2016; GoN 2017; ADB n.d.; WHO 2016). Studies on geohazard risks and land assessments can inform the choice of locations for infrastructure rebuilding (see 3.5.1).

In the Nepal reconstruction literature, there currently is very limited discussion of environmental impacts (MoSTE 2015; Wendelbo 2016) and no data and analysis on carbon emissions of reconstruction or on overall environmental impacts. As highlighted in Part 2, environmental impact is a key gap in the evidence base on Nepal reconstruction.

The discussion on integrated infrastructure reconstruction is also very limited, with little attention given to the involvement of communities and local governments, to local social, cultural and political contexts that may impact the reconstruction, and to user practices and long-term functioning.

Research needs

Future research on infrastructure reconstruction is needed, in particular research that goes beyond the technicalities and considers local contexts. The following considerations are important for future research in this area:

- Future studies should look at the presence of human resources to manage infrastructure (local government capacity, presence of teachers or health care staff), at socio-cultural contexts (for example, impacts of out-migration, cultural practices, perceived needs, user practices), at the role of communities, and at economic aspects (local budgets, financing of maintenance, etc.).
- Research should also provide information on the long-term sustainability of infrastructure reconstruction.

[78] This is likely a reflection of the general focus on the RHRP in Nepal and current donor interests in supporting households falling behind. While many of the donors and key stakeholders consulted have supported infrastructure reconstruction, stakeholders working only on infrastructure were not sought out.

- The links between improved service delivery and infrastructure construction need to be better understood and infrastructure projects should aim to provide not only physical structures but should also provide evidence to improve service delivery. Longer-term uses of the infrastructure need to be determined at the outset, considering human resources, management, and links to other infrastructure such as roads, water and electricity.
- Environmental impacts of infrastructure need to be studied to help prioritize more environmentally sustainable infrastructure projects.

Future research should also consider a number of ongoing learning and data collection efforts related to infrastructure reconstruction. The World Bank is conducting a school and health post assessment to determine resilience and risks. NSET and Social Science Baha are conducting studies on health infrastructure recovery. CARE International, Loughborough University and the British Geological Survey are publishing a journal article about how geo-science can support the lifting of infrastructure barriers to recovery (water, landslide risk etc).

3.6.2 HERITAGE

Stakeholder interests

Stakeholders pointed to the need for sustained attention to heritage reconstruction and a better understanding of challenges in this area. However, like infrastructure, this was not a research priority for most of the stakeholders consulted.

Literature

There is almost no discussion of damages to and reconstruction needs of heritage sites outside the Kathmandu Valley, especially in rural and remote areas (Torri 2017). As shown in Section 2.2, the Kathmandu Valley (Kathmandu, Bhaktapur and Lalitpur districts) has been covered extensively in studies, in part due to the large number of studies on technical, historical and cultural aspects of heritage reconstruction in the Valley (Weiler 2017; Shrestha et al 2017; Shrestha et al 2016; Shrestha et al 2017b; Sharma 2017; Pan et al 2018; Lekakis et al 2018; Hazarika et al 2016; NHDP n.d.; Brosius 2017; Bajcharya and Michaels 2017; Weise et al 2017; Sandholz 2017; Lizundia et al 2017; Joshi and Kaushik 2017; Kruhl et al 2018; Wood et al 2017; Abdulrahman 2018).

Politics of heritage rebuilding is highlighted as having an impact on projects but not discussed further. The role of foreign assistance for heritage reconstruction is also not explicitly discussed.

Some of the research on heritage reconstruction considers how cultural practices are linked to heritage sites. However, there is currently little research on how social and cultural changes following the earthquake – such as relocation, migration or displacement – are affecting heritage preservation and the maintenance of vernacular building practices (see 3.2).

Research needs

To support effective rebuilding of heritage reconstruction and preservation, new research in this area should pay attention to the following:

- There is a need for more studies assessing the vulnerability and reconstruction needs of heritage reconstruction particularly in rural and remote areas. What are the needs for, interest in, and possibilities for heritage reconstruction outside the Kathmandu Valley, especially in rural areas, for small-scale heritage sites?

- How have local political and economic contexts affected heritage reconstruction and how can political obstacles be better addressed?
- What has been the role of foreign assistance in heritage reconstruction?
- How can heritage be better protected by planning for its preservation across the emergency, recovery and reconstruction phases?
- There is a need for a better understanding of socio-cultural impacts on communities and how this has affected heritage reconstruction and preservation more generally.

There are a number of ongoing research efforts on the topic of heritage. Within the SOAS SWAY project there are studies on social and political aspects of heritage preservation. The Nepal Heritage Documentation Project is compiling a database on the status of larger and smaller heritage sites in the Kathmandu Valley, including architectural drawings, measurements, photos and translations of inscriptions, historical data, visual history, and interviews.[79]

3.7 PREPAREDNESS AND LESSONS LEARNED

Stakeholders highlight that any future lessons learned document(s) should be Nepal-specific, providing a clear, sector-wise roadmap for future disaster response and preparedness.

There was wide agreement among stakeholders that lessons learned during Nepal's post-earthquake response should be compiled for the purpose of improving future disaster response and preparedness in Nepal rather than for international learning. Without ingraining learning in future response frameworks (policy, institutions, plans, and programmes), there is a risk of repeating mistakes. Given Nepal's decentralization process, and that many disaster response policies and structures are still being developed, the needs and opportunities for integrating learning are great (see 3.1).

Lessons learned documents are often commissioned by and targeted at international responders, especially in the humanitarian sector. However, such learning was considered less useful by Nepal stakeholders who prefer a Nepal-specific document which includes lessons on governance structures, policies and precise implementation challenges rather than on 'international best practices'.

Tafti & Tomlinson (2015) caution the use of 'best practice' and highlight the shortcomings of knowledge transfer, particularly in relation to post-disaster housing and livelihood recovery. They assert that knowledge transfer rarely exposes the recurring problems arising from the interpretation and implementation of these policies (Tafti & Tomlinson, 2015). They also challenge the prescriptive nature of 'best practice' approaches which tend to overlook local contextual issues and neglect local needs and priorities (Tafti & Tomlinson, 2015).

Much of the learning that remains undocumented. Lessons should therefore draw on institutional and individual memory and learning.

Stakeholders pointed out that the learning curve for both national and international actors involved in the 2015 response has been steep but that much of this learning currently remains undocumented. Future lessons learned should consider this and draw on institutional and individual learning, especially among local actors. Learning should represent multiple viewpoints on and experiences of reconstruction, including experiences and perceptions of affected communities. They need to be included in the lesson learning process – not only than through case studies or quotes – to ensure a more inclusive assessment of the response.

[79] Nepal Heritage Documentation Project: http://www.uni-heidelberg.de/nhdp/ . SOAS SWAY: https://digital.soas.ac.uk/SWAY

The UK Disasters Emergency Committee (DEC) commissioned a study of lessons that can be learnt from the Haiti earthquake for the next urban disaster. This study is a good example of how learning can be brought together from multiple viewpoints from different sectoral perspectives. The final report Urban disasters – lessons from Haiti (Clermont et al, 2011) provided key recommendations for agencies to consider for the next urban disaster.

4 PART 4: RESEARCH COORDINATION, ENGAGEMENT AND IMPACT

Parts 2 and 3 have highlighted current gaps in the evidence on Nepal reconstruction. This part looks more broadly at research production, engagement and uptake. Any efforts to fill evidence gaps should take these findings into consideration to improve the impact of evidence.

Reconstruction stakeholders do not currently have a common strategy for identifying information gaps and needs – but better exchange and coordination in this area is desired.

Data and information management is an area where evidence is lacking (see gaps for Theme 1). This was reflected by stakeholders who frequently pointed to the need for better coordination around research priorities and findings in individual interviews as well as at the Roundtable discussions held with stakeholders for this scoping research (see Figure 5 which shows that research coordination and impact is among the six top current interests of stakeholders). The opportunity for information exchange between practitioners and researchers, provided at the second Roundtable, was generally appreciated by participants who pointed out that such exchange is rare but leads to fruitful discussions. Academics rarely get to provide information to policy-makers and practitioners, while the latter rarely get to draw on the expertise of academics or share information requests.

Improved coordination and more regular exchange between key reconstruction stakeholders and researchers/academics through semi-formal mechanisms could identify information needs and define common research strategies to enhance information sharing and ultimately, the timely production and uptake of evidence. This research was considered a much-needed step in this direction and stakeholders pointed out that such efforts should be ongoing and regular rather than one-off. This points to the need for a research platform or hub (see below).

An overview of the type of information needed to provide a broader understanding of the reconstruction process and its impacts, through cross-sectoral and interdisciplinary lenses, is lacking.

This is reflected in the limited insights in the evidence on overall impacts of reconstruction and systematic synthesis around larger questions (implications of approach; learning; strengthening integrated, cross-sectoral reconstruction).

A view of how different pieces of research fit together to answer larger questions is also missing. This may be because within organizations, information needs, production and management tends to be sector- and project-wise. A large part of the information is internal, produced as part of project reviews and MEAL data. Further, practitioners' attention is largely on project implementation in working areas, not on the overall reconstruction progress, locations beyond their working areas, or larger research questions.

Improved and sustained research coordination and exchange, as well as discussion about how the research speaks to broader questions, could help develop a clearer picture of what types of

information, and which different pieces of research, are needed to improve the general understanding of the reconstruction process.

A clearer view of different users and their information needs is required. This can inform the type of research and its outputs.

Stakeholders highlighted that existing evidence is not easily accessible to them because research outputs do not identify actionable recommendations useful to those working on programming, advocacy, policy making and implementation. Further, research timeframes often do not align with information needs. More user-friendly research formats, targeted to specific audiences, and shared in a timely manner, could ensure better uptake. This requires a clear view of who the users are, what information they require (and when), and what type of formats suit them.

Stakeholders emphasised that research engagement needs to go beyond written products, be more real-time, two-way, and long-term. Yet, even real-time engagement needs to be based on a clearer view of who the information is for and what type of information they need. Data collection may be sufficient for some users while others require advocacy inputs, action research and guidance for implementation, or synthesis of learning.

Knowledge politics can shape what evidence gets produced (and suppressed) and what gets taken up by different stakeholders, as was pointed out by stakeholders. Research should take this into consideration for dissemination and engagement around research findings. A better understanding of knowledge politics could potentially help circumvent resistance and rejection of relevant evidence.

There is a lack of synthesis of research findings. Synthesis could help make evidence more accessible and actionable for practitioners.

Extensive evidence has been produced on reconstruction in Nepal, but it is largely scattered. While there are a number of specific gaps (discussed in Parts 2 and 3), a broader view of the evidence base highlights that synthesis is also missing. This is significant because in some cases, synthesis rather than new research is needed to fill information gaps. Synthesis can help identify findings and learning relevant to ongoing reconstruction and make these more accessible – thereby increasing the use of evidence.[80] It can also provide much-needed cross-sectoral and interdisciplinary perspectives. As for research engagement, stakeholders agreed that scoping and synthesis efforts should be continuous rather than one-off, individually commissioned reviews. This too could be the work of an semi-formal research mechanism.

A research platform or hub was widely considered useful by reconstruction stakeholders in Nepal to facilitate real-time engagement and exchage around research needs, priorities and findings.

A reconstruction research hub or platform – a centre focused on the documentation, coordination and synthesis of research, and on strengthening links between researchers, experts, practitioners and government – was considered to have value by nearly all stakeholders, including the National Reconstruction Authority (NRA). Better coordination and exchange through such a platform could help increase awareness of existing expertise and the relevance of findings, and ultimately, improve the impact of research. Coordination could also help reduce both gaps and duplication by providing a

[80] Desk-based research and synthesis is increasingly considered valuable in the humanitarian sector to improve knowledge management. See, https://www.alnap.org/blogs/alnap-lessons-papers-a-case-for-humanitarian-desk-based-reviews

better view of knowledge needs, most crucial or overarching gaps, and the various research pieces needed to fill them.

Internationally and in the humanitarian community, there are a number of mechanisms for the exchange of information and knowledge around disaster responses: For example, Recovery Hub, ALNAP, Humanitarian Library to name just a few.[81] However, in Nepal, there is no such institution focused on documentation and information sharing around disaster preparedness, response and reconstruction. As discussed above, better information management and coordination around research needs was widely desired by international and national stakeholders at the central level. At the local level, information needs are even less likely to be met.[82]

Stakeholders pointed out that it is not common practice in Nepal to consult experts and academics for governance decisions, policy-making and implementation. This means limited uptake of evidence for decision-making overall as well as a general lack of exchange between practitioners and researchers.[83] However, both government and non-government stakeholders thought such exchange would be useful.

As mentioned above, research coordination was among the six top priorities of stakeholders. It was also highlighted as a need by the NRA, NSET and the Roundtable discussions held for this scoping research. Key stakeholders raised the idea of a research platform or centre, which was widely supported by others, and during the second Roundtable discussion. The precise structure and functions of this platform would depend on funding, however, stakeholders provided the following suggestions:

- The platform should be self-contained but it should be linked to national institution(s) for sustainability, and engage with all stakeholders (national, international, local academics/researchers, practitioners and governments).
- The main purposes should be knowledge coordination and information management.
- The platform could also maintain a list of experts and practitioners involved in the response to the 2015 Nepal earthquake (particularly desired by national stakeholders).
- To sustain discussions and analysis and facilitate information exchange the platform should:
    - Monitor and compile evidence (ongoing basis) to provide regular updates and synthesis.
    - Provide information on ongoing research and timelines for availability of evidence.
    - Highlight evidence gaps and the types of research needed to fill them.
    - Maintain contact with a wide range of stakeholders and create linkages where needed.
    - Facilitate regular thematic or sector-wise engagement to determine research needs and priorities.
    - Promote the inclusion of leaning in MEAL documents and project reviews through synthesis of those.

The platform could be integrated into the following institutions:

[81] https://www.alnap.org/about, https://www.humanitarianlibrary.org/, http://recoveryhub.org/
[82] The Asia Foundation and Democracy Resource Center, Aid and Recovery in Post-Earthquake Nepal: Qualitative reports, 2015-2017.
[83] The report 'Aid data needs and use cases in Nepal' by Data for Development highlights the limited use of evidence for decision-making in Nepal. https://reliefweb.int/report/nepal/aid-data-needs-and-use-cases-nepal

- NRA/new disaster authority: The NRA and NSET are in the process of setting up a chapter for Integrated Research on Disaster Risk (IRDR), which is linked to the international IRDR programme.[84] A research hub could be linked to this chapter.
- NSET: The institution has conducted much research on disaster awareness and preparedness, has been involved in the earthquake response and is interested in promoting knowledge exchange between academia and government.
- NASC: The Nepal Administrative Staff College has a strong research department and trains civil servants. Given that one of the current priorities in Nepal is to ingrain learning from the 2015 earthquake into government structures, NASC may be able to facilitate this.
- HRRP: The platform has long been involved in sharing knowledge and creating linkages..
- Academic institutions: Such as universities or organisations extensively involved in reconstruction research.[85]

While the primary function of the platform would be to facilitate knowledge exchange through a research centre, it could also set up and manage a data portal to share information more efficiently and provide the opportunity for live-inputs. Alternatively, it could link up with existing databases such as the SOAS-SWAY digital database on Nepal earthquakes, which will be publicly accessible from April 2019 and has collected studies, news articles, grey literature and government policies and briefs.[86]

Research engagement with local governments and local communities is also needed to increase the use and impact of research.

Engagement with local governments and communities is crucial for reconstruction efforts. While most research extracts data from local stakeholders, their information needs, perceptions and experiences are underrepresented in the evidence base (see Theme 4). The evidence does, however, point to communication challenges between central and local levels and to local-level needs for better and timely information.[87] There is therefore a real need for direct and sustained engagement and knowledge exchange with local communities across affected areas. Any future research, as well as a future research platform should pay attention to, and cater to, the information needs of local stakeholders.

[84] http://www.irdrinternational.org/
[85] Such as Social Science Baha which has been involved in large academic projects with the University of British Columbia and the London School of Oriental and African Studies (SOAS): https://www.soas.ac.uk/violentsway/, https://elmnr.arts.ubc.ca/
[86] https://digital.soas.ac.uk/SWAY
[87] The Asia Foundation and Democracy Resource Centre, Aid and Recovery in Post-Earthquake Nepal: Qualitative reports, 2015-2017. DRCN is also currently conducting research on local governments roles in reconstruction and DRR.

5 PART 5: RECOMMENDATIONS

The report highlights obvious gaps in the evidence base, uneven geographical coverage of research, and current research interests of key stakeholders (Part 2). It also describes precise research needs for Nepal's reconstruction process after the 2015 earthquakes. Finally, it outlines findings on the use and impact of research more broadly, and how this could be improved through synthesis, consistent engagement and better coordination.

Following are a number of recommendations, organized by the type of research needed, rather than topics.

5.1 CURRENT RESEARCH PRIORITIES

Recommendation 1: Conduct comprehensive, large-scale (representative across affected areas), and longitudinal monitoring of social impacts to provide better socio-economic data on recovery and those falling behind, on social impacts, and to improve transparency of the response.

Recommendation 2: Implementation- and policy-focused research is needed to inform policies, plans and programming and to determine the type of support that is most suitable:

a) Governance structures: Clarify and support the roles and capacities of local governments and the future disaster authority (for remaining reconstruction and to strengthen the national disaster response framework in a federal set-up).
b) Data: Enhance data collection, data management and information sharing systems.
c) Settlements: Inform (re)settlement policies for the displaced and traditional urban settlements. The need to synthesize existing evidence and learning to feed into the NRA urban settlements plan is particularly urgent.
d) Communication: Improve communication channels between central and local level, in particular with communities; and make engagement with communities more consistent.
e) Vulnerability: Provide an operational understanding and model for targeting those who are most vulnerable to improve safeguards and prevent longer-term severe poverty (this should build on impacts monitoring data – see Recommendation 1).

Recommendation 3: Make reconstruction more inclusive by conducting research that extensively engages with local communities and local actors and highlights their perceptions, experiences and needs.

Recommendation 4: There needs to be more and better research on finance, costs and economic factors and how these affect reconstruction.

Recommendation 5: Technical studies, or synthesis on how to scale up resilient building techniques, are needed to strengthen earthquake-resilient construction across and beyond earthquake-affected areas in Nepal.

Recommendation 6: Ensure public documentation of international assistance, decision-making, impacts and learning for transparency and long-term learning.

Recommendation 7: Future research should consider the geographical coverage of existing research and produce more evidence from lesser impacted districts.

5.2 SYNTHESIS AND LEARNING

Recommendation 8: Timely and continuous synthesis of the existing research should be produced to make available evidence accessible and actionable for practitioners.

Recommendation 9: Any future lessons learned document(s) should be Nepal-specific, providing a clear, sector-wise roadmap for future disaster response and preparedness.

5.3 ENGAGEMENT AND UPTAKE OF RESEARCH

Recommendation 10: Engagement and exchange around research needs, priorities and findings should be real-time and consistent.

Recommendation 11: Research priorities need to be set collaboratively, through engagement with a wide range of stakeholders as well as through desk-based evidence scoping and synthesis, to ensure gaps are filled more effectively and consider how different research pieces complement each other.

Recommendation 12: Sustained engagement with local governments and local communities is needed to increase the use and impact of research.

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6 ANNEX 1. METHODOLOGY

ANNEX 1.1. – METHODOLOGY: PURPOSES, METHODS, OUTPUTS, ACTIVITIES AND LIMITATIONS

Table 1: Literature review, evidence mapping and stakeholder consultation: Purpose, methodology, outputs, activities, and limitations

	Stakeholder consultation	Literature Review	Evidence mapping
Purpose	Gain a better understanding of institutional and individual learning on Nepal reconstruction. Collect feedback on scoping study findings and recommendations. Ensure the scoping study is a collective exercise that considers a wide range of interests, needs, and feedback and coordinates with practitioners and researchers.	Assess the evidence base on reconstruction in Nepal	Highlight evidence gaps Highlight what types of evidence exist on which topics (to date) and which locations (districts)
Methodology	Key informant interviews and focus group discussions	The search for and organization of relevant literature draws on methodology suggested for systematic sector literature reviews as well as scoping studies	Evidence gap map draws on the methodological framework which Arksey and O'Malley (2005) developed for scoping studies as well as evidence gap mapping (3ie)
Outputs	List of topics relevant to reconstruction as identified by stakeholders List of research interests and needs identified by stakeholders Analysis of research interests and needs Analysis of most crucial gaps in relation to research interest and needs	Long list of Nepal reconstruction literature, entered into Zotero, tagged by topic of the study as well as type of evidence Short review of international literature on reconstruction to inform assessment of the Nepal literature. Creation and review of short list of Nepal reconstruction literature (focusing on most relevant topics)	Visual representation of evidence base and gaps (visual gap mapping)

Activities	Stakeholder mapping (institutions and individuals creating, compiling or reviewing evidence on reconstruction in Nepal)	Compilation of a 'long list' of literature on post-earthquake reconstruction in Nepal (including on topics considered related or relevant to reconstruction) through the bibliographic reference program Zotero	Map evidence by topic and type of evidence: Mapping of the literature compiled on Zotero in an evidence matrix (Excel spreadsheet) Mapping by study areas
	Key informant interviews with identified stakeholders, in Kathmandu to identify current information needs, research interests, and institutional learning	Organizing of literature on the 'long list' by type of evidence as well as topic	Compilation of ongoing research and studies or learning exercises not accessible to the public
	Key informant interviews in two districts (at least two *gaun* or *nagar palikas*)	Identification of most relevant literature for a 'short list' (by assessing quality and relevance with regards to current research needs and interests)	Insertion of ongoing research and internal studies into the evidence matrix
	First Roundtable discussions in Kathmandu (at DFID Nepal): Introduce scoping study and collect feedback on topic of further research	Review of a limited number of international studies on reconstruction (in general or in other countries) to inform assessment of relevance of Nepal literature as well as analysis of gaps and recommendations for further research	Insertion of ongoing research and internal studies into the evidence matrix
	Second Roundtable discussions in Kathmandu (at DFID Nepal): Present and discuss initial findings	Review of literature on the 'short list' to identify learning provided by these studies	Visualize evidence matrix
Limitations	Stakeholder consultation is largely limited to Kathmandu Not all identified stakeholders could be interviewed due to time limitations and absence of some stakeholders	Not a systematic review A wide range of topics are included in the long list and inform analysis of gaps, but detailed review is provided for only some of these	Gap mapping methodology is adapted for the purposes of the scoping study to visually represent crucial gaps. Yet, the focus of the scoping study is broader than usual for gap mapping exercises. Therefore the search strategy and quality appraisal[88] are comparatively less rigorous.

[88] There are benefits to doing less rigorous quality screening as the ALNAP Paper 'Lessons Papers: A Methods Note" suggests.
https://www.alnap.org/system/files/content/resource/files/main/ALNAP%20Lessons%20Paper%20Method%20Note.pdf

			Limited access to internal learning documents

ANNEX 1.2. – LITERATURE SCREENING AND MAPPING

The literature screening process is outlined in Figure 1.

Literature search

As there are a number of existing bibliographies on earthquake impacts, recovery and reconstruction, the team made use of these to compile an initial list of literature on Nepal reconstruction.[89] This initial list was updated through *google*, *google scholar* and *academia.edu* searches to include more recent studies as well as grey literature. The following search string was used: *Nepal [AND] earthquake [AND] reconstruction*. Additional search terms were later added to the search string: *Nepal AND earthquake AND reconstruction AND (insert a theme or topic from Table 2).* Relevant studies were identified during the search process and carried forward for the literature screening process.

Compilation of longlist of literature

A longlist of 406 studies and grey literature on Nepal reconstruction was compiled by entering the bibliographic data and the study document (where accessible) in Zotero (a programme to manage bibliographies).[90] A small number (9) of unpublished studies were also identified through stakeholder consultations and added in a separate Zotero folder. A total of 415 studies were compiled and then screened for their relevance to Nepal reconstruction and underwent basic quality appraisal.[91] During this process 144 studies were found to be either not relevant or of low quality and excluded.

Evidence screening and mapping

After initial screening, 271 studies were included in the longlist of Nepal reconstruction literature. All studies in the longlist were then mapped by theme and topic, using a matrix developed for the purposes of this scoping study.[92] Table 2 shows the mapping matrix used to sort studies by themes and topics covered. This matrix was developed based on a) a DFID Roundtable discussion held with reconstruction stakeholders in Nepal in late December 2018 to discuss topics relevant to Nepal reconstruction, b) a review of key international reconstruction literature to identify themes and topics generally deemed relevant to post-disaster reconstruction, and c) the reconstruction literature on Nepal.[93] The matrix was further refined during the Nepal literature screening and mapping processes. Six themes of reconstruction were identified, of which the first five are most relevant to household recovery in Nepal and discussed in more detail in this report: 1) Governance and coordination; 2) House reconstruction;

[89] Bibliographies compiled by University of British Columbia https://guides.library.ubc.ca/reconstructingnepal and the SOAS after the Earthquake's violent sway (SWAY project) https://www.soas.ac.uk/violentsway/

[90] Zotero is a reference management software to manage bibliographic data and related research materials (such as PDF files). https://www.zotero.org/

[91] The basic quality appraisal assessed whether a study was primary, secondary (review/synthesis) or conceptual/theoretical. Opinion pieces and theoretical papers were excluded. It further assessed whether the study design and methodology were clear and fulfilled basic research quality criteria. The DFID How To Note on Assessing the Quality of Evidence (https://www.gov.uk/government/publications/how-to-note-assessing-the-strength-of-evidence) was used as guidance but a wider range of relevant evidence was included to assess the evidence base overall. There are benefits to doing less rigorous quality screening as the ALNAP Paper 'Lessons Papers: A Methods Note" suggests. https://www.alnap.org/system/files/content/resource/files/main/ALNAP%20Lessons%20Paper%20Method%20Note.pdf

[92] Studies were sorted into six thematic folders on Zotero and tagged by the topic(s) covered. Some studies cover more than one theme and more than one topic. If this was the case, they were included in all relevant themes as well as topics.

[93] See Annex 5 for a bibliography of international literature included for this review.

3) Finance, economy and livelihoods; 4) Socio-cultural aspects and impacts; 5) Resettlement; and 6) Infrastructure and heritage reconstruction.[94]

Table 2: Mapping matrix: Reconstruction themes and topics[95]

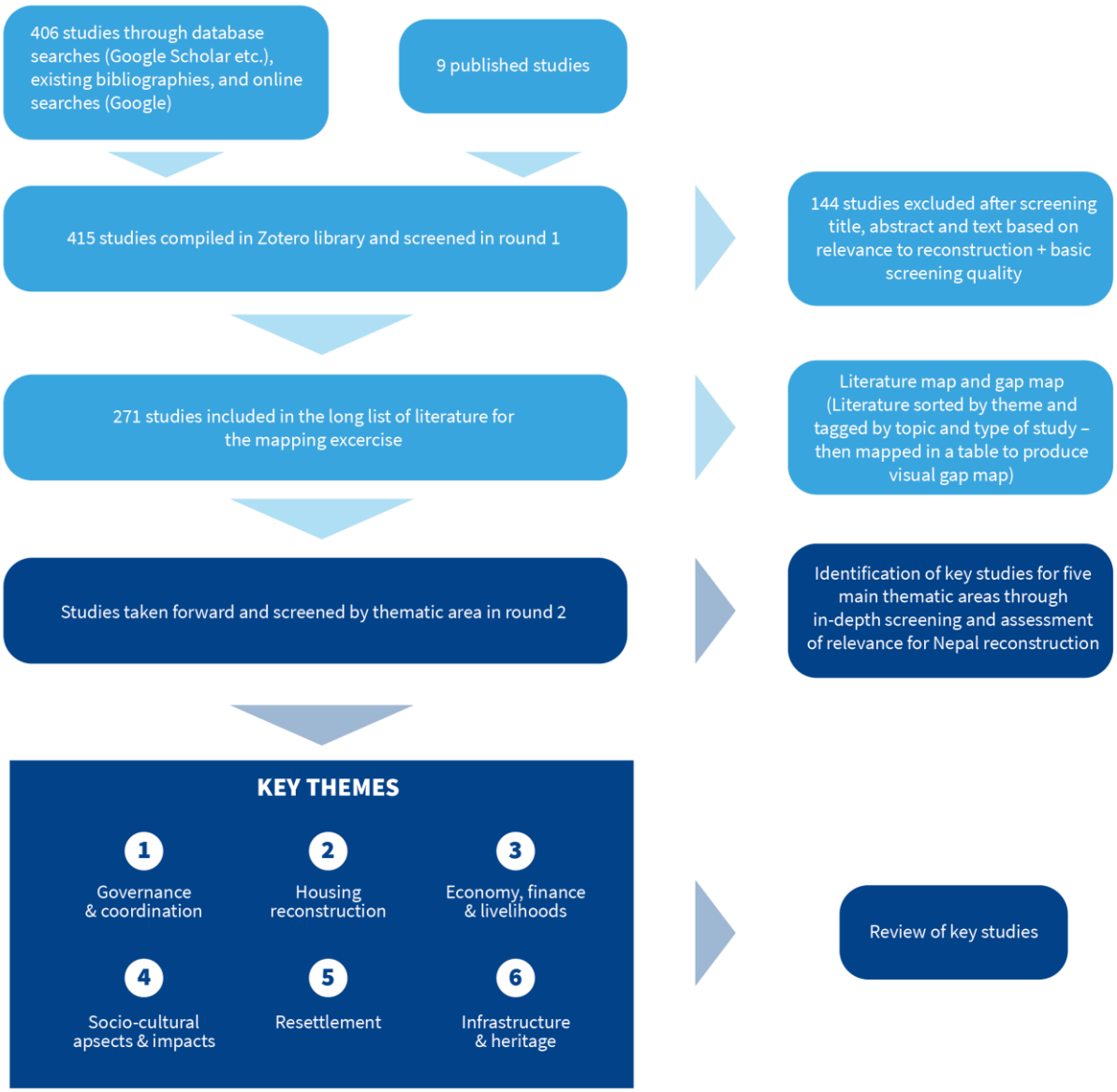
Themes	Topics	Explanations
Theme 1: Governance and coordination	• National governance, national coordination, policy • International actors and their coordination • Politics • Data and information management • Media	○ National actors (government, local civil society organizations, private sector, NGOs) and their coordination are included under 'Governance, national coordination, policy', while the coordination between government and international actors or between various international actors are included in 'International actors and their coordination'. ○ Coordination and communication with and involvement of communities is included in Theme 4.
Theme 2: House reconstruction	• Technical studies • Process of house reconstruction assistance • Urban reconstruction • Vernacular architecture • Retrofitting • Resources and building materials • Local actors, local capacity building • Environmental impact and eco-friendly construction • Overall approach of shelter assistance	○ Technical includes any technical, engineering studies on house damages, designs, building techniques, safer building. ○ House reconstruction assistance includes studies on housing grants and technical shelter assistance and the process of providing those. ○ Approach includes information on and analysis of the owner-driven and BBB approaches chosen in Nepal
Theme 3: Finance and economic recovery	• Finance of reconstruction (national level) • Finance of reconstruction (household level) • Migration and remittance • Livelihoods • Economy (markets, costs)	○ Household level reconstruction finance includes information on how people finance rebuilding, including grants, loans/credit, debts, borrowing. ○ National level reconstruction finance includes studies and information on overall costs and finance of reconstruction of housing and infrastructure (national and donor finance).
Theme 4: Social impacts and needs	• Impacts, needs, and recovery • Socio-cultural contexts • Community engagement	○ Impacts, needs and recovery: Local evolving needs and decision-making processes, socio-demographic characteristics/impacts, impacts of support and implications for recovery,

[94] Note: Studies on health and mental health were not included because no research on the links between health and mental health and the ability to engage in the reconstruction process were found. The fact that health and mental health as barriers to reconstruction are often overlooked are highlighted in the report.
[95] Note: Studies on health and mental health were not included because no research on the links between health and mental health and the ability to engage in the reconstruction process were found. The fact that health and mental health as barriers to reconstruction are often overlooked are highlighted elsewhere in the report. Studies on other related topics such as resilience, risks, or local contexts are only included if directly linked to reconstruction.

	• Communication, access to information, awareness • Vulnerabilities, safeguards, and protection • Gender	implications of local factors and contexts for recovery, including access to information etc. ○ Socio-cultural contexts and impacts: Culture, traditions, social relations, cohesion, conflict, communities, perceptions of response. ○ Community engagement: Social mobilization, community involvement. ○ Communication: Communicating with affected households and communities, access to information, awareness.
Theme 5: Resettlement	• Displacement and resettlement • Geohazards and land assessments	○ Scientific and technical studies on geohazards are included as they are needed for geological assessments and resettlement.
Theme 6: Infrastructure and heritage	• Infrastructure and government buildings • Heritage • Environmental impact	○ Heritage includes study on rebuilding of heritage sites. Information on vernacular housing is included in Theme 2. ○ Environmental impact: Of infrastructure and heritage reconstruction. Environmental impact of housing is included in Theme 2.

After mapping the literature, a visual gap map was produced to show the number of studies for each topic (by theme) and highlight obvious gaps in the literature. Studies were then screened again (screening of the main text) to identify and review key studies by theme with a view to what the literature covers and what it does not. Districts covered by studies were also listed to identify geographical areas that have received less attention.

Figure 1: Screening process for gap mapping and identification of key literature



7 ANNEX 2. DETAILS OF STAKEHOLDERS CONSULTED

The Reconstruction Research Team held a series of meetings with DFID Nepal (reconstruction team, South Asia Research Hub, and field offices), representatives of organisations working on reconstruction in Nepal, researchers, and government representatives . Further, the team held two Roundtable discussions at DFID Nepal to discuss the research and initial findings with the wider reconstruction community in the country.

ANNEX 2.1. – KEY INFORMANT INTERVIEWS HELD IN KATHMANDU

Table 3: Key Informant Interviews

No.	Organisation
1	Build Change
2	CARE Nepal
3	Independent researcher, formerly involved in implementing reconstruction projects
4	UNOPS
5	Oxford Policy Management (OPM)
6	The Asia Foundation (TAF)
7	CARE Nepal
8	World Bank
9	Japan International Cooperation Agency (JICA)
10	HRRP
11	SDC
12	People in Need (PIN), Durable Solutions
13	Researcher, affiliated with World Bank
14	NEARR Facility (EU)
15	NSET

16	Department of Anthropology, TU
17	Kathmandu University
18	ALNAP
19	SOAS
20	DFID
21	Independent researcher
22	International reconstruction expert
23	NCCR

8 ANNEX 3. OVERVIEW OF DFID NEPAL'S RECONSTRUCTION SUPPORT

The following description of DFID's support to reconstruction efforts in Nepal is based on the individual programme summaries and business cases accessible via DFID's online Development Tracker[96].

Table 4: DFID Reconstruction Support in Nepal

No.	Name of programme	Budget	Dates	Relevance to reconstruction
1	Post-Earthquake Reconstruction in Nepal – Building Back Better	£63,049,990	8 June 2016 – 31 December 2022	Establish partnerships with local & central government, communities and businesses to support the (i) districts effected by the Earthquake to "build back better" including leading to more resilient (including climate resilient) infrastructure and institutions; (ii) the most vulnerable recover their livelihoods and assets; and (iii) the Government of Nepal to plan for and manage the response to the earthquake. https://devtracker.dfid.gov.uk/projects/GB-1-205138
2	Seismic Retrofitting of unsafe housing in Nepal	£4,999,998	27 June 2017 – 18 December 2019	This programme will benefit up to 50,000 families through seismic retrofitting of damaged houses across earthquake affected districts in Nepal. This will improve resilience to future earthquakes as well as generating significant savings in costs and carbon emissions compared to full housing reconstruction. The programme will build the capacity of the Government of Nepal, skilled masons and engineers to retrofit homes, an approach that can be replicated in other, highly vulnerable regions of Nepal, such as the West. https://devtracker.dfid.gov.uk/projects/GB-GOV-1-300458
3	Support to vulnerable households (Durable	£4,999,999	5 September 2017 – 31 October 2021	The UK will provide up to £5 million (October 2017- October 2019) to identify and support groups of households who are particularly vulnerable and at risk of

[96] https://devtracker.dfid.gov.uk/countries/NP/projects

	solutions and housing)			being left behind in the implementation of post-earthquake housing reconstruction efforts in Nepal. These groups could include: those displaced by the earthquakes in April and May 2015 and are unable to return to their areas of origin owing to geo-hazard risks such as landslides; households currently residing in highly vulnerable sites; and those that are at risk of not being able to fully access the Government of Nepal's housing cash grant support to enable them to rebuild their houses. Addressing the housing needs of these families will require a multi-pronged approach including a package of support in the form of social mobilization, technical advice, and cash grants. https://devtracker.dfid.gov.uk/projects/GB-GOV-1-300462
4	Nepal Health Sector Programme III	£84,999,999	11 July 2016 – 31 December 2020	To improve the health of women, children, the poor and socially excluded in Nepal, including by restoring health services in areas affected by the 2015 earthquake, and improving the quality and governance of health services nationwide. https://devtracker.dfid.gov.uk/projects/GB-1-205145
5	Strengthening disaster resilience in Nepal	£45,999,998	6 September 2016 – 31 March 2023	This project will strengthen disaster resilience in Nepal, particularly to earthquakes, by working with urban centres to build and plan more safely; supporting the strengthening of critical public infrastructure to earthquakes; working to strengthen national capacity to respond to crises and ensure that the international community is prepared; and ensuring that the UK is able to support a humanitarian response should a crises hit. https://devtracker.dfid.gov.uk/projects/GB-GOV-1-300003
6	Nepal earthquake response 2015	£40,000,000	27 April 2015 – 30 June 2016	To provide immediate humanitarian support to people affected by the Nepal earthquake. https://devtracker.dfid.gov.uk/projects/GB-1-205028

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