

# Nepal Earthquake Recovery Monitoring Assessment

Nepal 25 April/12 May Earthquakes Response

Nepal

November 2015



In partnership with:

## ACKNOWLEDGMENTS

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*Cover photo: ©REACH, 2015*

## EXECUTIVE SUMMARY

In April and May 2015 two earthquakes of 7.8 and 7.4 magnitude struck Nepal, with epicentres in Gorkha district north-west of the capital Kathmandu (April), and between Sindhupalchok and Dolakha districts north-east of the capital (May). While the impacts on housing, social and economic infrastructure were widespread, the Nepalese government identified 14 priority districts with a combined population of around 2 million for intervention. The relief effort from both government and non-government actors implied 3 phases: 1) initial emergency needs coverage, including seasonal preparations; 2) recovery of pre-earthquake infrastructure, including rebuilding and repair of damaged housing; 3) long-term economic and social recovery. This report takes place during the transition between phases one and two, as transition from the strong emergency response towards medium and long-term recovery is underway. The report is intended to monitor change in shelter conditions, the delivery of assistance and the success of relief efforts in preparing households for seasonal conditions. Furthermore, the report also informs strategic planning for recovery, assessing the scope of damage and progress towards repairs and rebuilding, as well as identifying key areas to target in order to assist households in recovery.

Since late September 2015, Nepal has been experiencing a protracted shortage of petrol, kerosene, cooking gas and other critical imported goods. The effect of the economic crisis, such as rapidly rising prices, has not been taken into account by this assessment, due to the timing of fieldwork. The situation requires monitoring to understand the impact on livelihoods and recovery.

This report has used a cluster sampling methodology to analyse the comparative progress towards shelter recovery in 15 districts of Nepal affected by the dual earthquakes in April and May 2015.<sup>1</sup> Key trends within and between the 14 priority districts have been identified, but further analysis of variations between smaller administrative boundaries will be required to fully implement an appropriate shelter response. Within this caveat, several key themes can be identified. Presented below are the key findings of the report, and recommendations for the future in order to assist the recovery of households who have been impacted by the earthquakes.

Following the earthquakes, the National Planning Commission estimated that 600,000 temporary shelters were needed in Nepal in order to house those unable to remain in their homes.<sup>2</sup> The assessment found wide coverage of humanitarian assistance across all affected areas and a good degree of household preparedness in advance of winter, only 11% of respondents in rural areas reported they had not received assistance. Overall 77% of households reported that they have received shelter assistance since the earthquakes. Cash was the most commonly received assistance reported by respondents, at 57% in the priority districts and 55% overall. The primary items purchased with cash assistance have been being Corrugated Galvanised Iron (CGI) at 57% in the priority districts and food (44%).

The majority of households have received victim cards (63%), in order to enable them to access assistance. The vast majority of houses reporting moderate (86%), heavy (96%) or total damage (98%) did possess a victim card, although high rates of non-possession of victim cards within households reporting these damage levels were found in Sindhuli (29%), Lamjung (21%), Lalitpur (19%) and Okhaldhunga (16%). Ensuring that the coverage of victim cards is consistent across districts, especially among those households with higher levels of housing damage, is paramount in ensuring the equity of assistance. 77% of households reported that they were able to retrieve personal and household items from their damaged homes. Apart from salvaged materials and goods, and in addition to cash assistance spent, over half of all households in Dolakha, Gorkha and Kavre reported spending more than 15,000 NPR (144 USD) of their own money on shelter needs or household items since the earthquakes. The average across all districts was 27%.

Considering the extent of damage, the affected population is better prepared for winter than was earlier anticipated. Rapid progress was made in advance of the monsoon in July and continuous improvements have been made since. Over 50% in all districts reported that they believed their shelter to be rain and weather proof most of the time or more, apart from Dolakha and Gorkha, where 33% and 35% respectively reported that their accommodation was

<sup>1</sup> The 14 districts identified by the Government of Nepal as priority were included in both the baseline assessment, and this assessment. In addition, this assessment included the non-prioritised district of Lamjung.

<sup>2</sup> Government of Nepal National Planning Commission, *Post-Disaster Needs Assessment*, p. 6

prepared for snow and cold most of the time or all of the time, with those in temporary shelter reporting the greatest concern for winter. In total 41% of households surveyed expect to spend the coming winter in temporary shelter, with large variations by district.

Direct winterisation needs look to be less severe than some previous assessments have indicated, reflecting the strong emergency response in preparation for the monsoon season. Over 50% in all districts reported that they believed their shelter to be rain and weather proof most of the time or more, apart from Dolakha and Gorkha, where 33% and 35% respectively reported that their shelter was prepared for snow and cold most of the time or all of the time. There is limited variation in the proportion of households believing their shelter to be not at all prepared for winter by location type, access conditions or elevation. Nevertheless, lower proportions of those households in rural areas, hard to reach areas, and areas above 1500 meters report their household is 'always prepared for cold' than in those in urban areas, road-accessible areas, and areas below 1500 meters.

There is more variation in winter preparations depending on whether or not a household is currently in a temporary shelter. 11% of households in temporary shelter report that their shelter is not at all prepared for cold weather, compared to 2% of households not currently in temporary shelter. In total 41% of households surveyed expect to spend the coming winter in temporary shelter, with large variations by district. Conditions in temporary shelter largely meet expected standards, with 86% of households in temporary shelter having a total covered living space per person of over 3.5 metres; although there is a district variation meaning many still live in conditions below required standards, especially in Gorkha. The easy access to CGI either through assistance or markets is reflected in the primary use of the material in temporary shelter wall (71%) and roof (90%) structures.

Moving forward, more work will be required to enable a household-lead rebuilding effort for houses damaged by the earthquakes, although a solid base exists in the resources available to households, knowledge of building techniques and availability of labour. Further interventions will need to focus on advocacy of Build Back Safer (BBS) techniques using materials households are already familiar with, and on overcoming uncertainty in the degree of, and access to, financial assistance for recovery. There has been little change in the income sources reported by households before and after the earthquake. The continued prevalence of agricultural income sources, especially in rural areas, suggests that households have been prioritising agricultural inputs over shelter recovery in the distribution of household resources, both labour and financial. Any moves towards recovery will require a recalibration of these resources, for example in the distribution of household cash to shelter supplies, and the use of household members as labour on rebuilding/ repair rather than agriculture. The implicit fine margins of income stability, indicated by the high proportion of rural households reporting subsistence farming as an income source (56%), mean that recovery assistance must be mindful of the potential decrease in the stability of income as households have less time and resources to expend on agriculture.

Moving forward, economic vulnerability will be a constraint in reconstruction through a household led process. There has been little change in the income sources reported by households before and after the earthquake with a high proportion of rural households reporting subsistence farming as their income source (56%). 9% of households across the priority districts reported having at least one member having migrated for work, either within Nepal or abroad. This varied across the districts, with Sindhupalchok (25%) Lamjung (23%), Dhading (19%) and Gorkha (19%) reporting the highest levels of migration. This appears to reflect the higher levels of migration in rural areas than urban areas. The rates of migration were also higher for those households in hard-to-reach areas (15%) than areas accessible by road (9%).

A majority, 81% of respondents in the priority districts, reported that they had access to at least one form of banking service. However, significant proportions in all districts have no access to financial services. Furthermore, only 48% reported they currently use a bank for financial services. This has implications on plans for the disbursement of any government or other subsidies.

Reconstruction and rehabilitation aims to meet BBS (building back safer) criteria particularly around hazard resistant construction. While only 1% of those surveyed were unable to name a build back safer technique, the techniques named most frequently tend to be more general and more expensive than those techniques named less frequently. This indicates a need for high levels of technical guidance to support households in rebuilding safely with existing materials, which should serve the dual purpose of increasing the safety of recovery, and decreasing

the anticipated costs households face. This is highlighted also by the Government of Nepal: “As the recovery is going to be largely owner led, it is essential to make them aware of need of disaster resistant construction. There will be need to guide them on choice of building typologies, materials and costing in addition to minimum disaster resistant features. As the owners hire artisans and take decision with regards to materials and construction system, their awareness is critical. Dissemination of required information on reconstruction, repairs and retrofitting to them is very important.”<sup>3</sup> Communication, training and awareness activities during the humanitarian phase have achieved limited coverage and impact at household level. 99% of respondents across all districts reported they have not received technical training, assistance or information materials, reflecting that outreach activities had not yet reached broad public scale or household level.

The majority of housing in the affected districts is constructed in load bearing masonry (89%), predominantly stone or brick. Reinforced concrete frames are concentrated in urban areas. Levels of damage were higher in low strength load bearing masonry, (dry stone mortar and mud mortar) which constitute the highest proportion of rural construction. While respondents expressed intentions to move to reinforced concrete construction for safety reasons, there will be considerable challenges in terms of cost. In response to questions on safer construction, the majority of households focused on reinforced concrete. This raises two concerns, that improvements to stone and brick masonry are less well known and that reinforced concrete safety is an assumption. Load bearing masonry is more likely to involve household members in construction (69%) compared to 29% in building with reinforced concrete frames which are more likely built by contractors. This pattern should inform the targeting of information and training.

Current progress on repair and reconstruction has been limited overall, 5% report that repairs or rebuilding work has been completed, a further 8% are currently being repaired. However, in some districts the percentage repaired or under repair is as high as 28% (Kavre district). The reasons for the overall low rate of reconstruction include: investment of resources and effort into temporary shelter construction, agricultural priorities including planting and the impact of the monsoon season on access and construction. Since the field assessments were carried out, the fuel crisis has also slowed down construction activity nationally. Households and assistance agencies expressed concern that the lack of clarity on government subsidies was making it difficult to plan for reconstruction.

The primary barriers to repair or rebuild after the earthquakes in the priority districts were reported as lack of funds (97%), lack of skilled labour (38%), lack of materials (39%) and lack of knowledge (25%). More detailed examination of both the availability of skilled labour and materials suggests that both are available in all locations, but that the price is rising. In particular 83% of households indicated that masons are available in their location, but at an increased cost since before the earthquake. A marked increase in the rate of reconstruction is likely to precipitate inflation in skilled labour and material costs, with implications for the application of building back safer measures.

The current phase, after rapid construction of shelter and before large scale permanent reconstruction affords an important window of opportunity to start to increase skilled labour supply through training, to improve supply chains of materials and particularly to plan and start broad scale household and public awareness initiatives on a range of options to rebuild, repair and retrofit their homes safely.

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<sup>3</sup> Government of Nepal, National Planning Commission, *Post-Disaster Needs Assessment*, p. 18

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## LIST OF ACRONYMS

<b>BBS</b>	Build Back Safer
<b>CGI</b>	Corrugated Galvanised Iron
<b>RCC</b>	Reinforced Concrete Cement
<b>VDC</b>	Village Development Committee



## **GEOGRAPHICAL CLASSIFICATIONS**

<b>District</b>	The administrative units that make up administrative zones; Nepal contains 75 districts, 14 of which were categorized as Priority Districts by the Nepali government after the earthquakes.
<b>Municipality/Village Development Committee (VDC)</b>	Lower administrative units that make up districts. A municipality can include multiple VDCs, and is defined based on population numbers and infrastructure criteria.
<b>Ward</b>	The lowest political-administrative unit. Each VDC contains 9 wards.
<b>Town/Village</b>	The lowest administrative units

## INTRODUCTION

On 25 April 2015, a 7.8 magnitude earthquake struck Nepal with its epicentre in Gorkha District, approximately 81km northwest of the country capital, Kathmandu. Intense tremors, and subsequent aftershocks, landslides, and avalanches caused widespread damage to homes, infrastructure, and livelihoods, affecting millions of people across 39 out of 75 districts. The Nepalese government categorized 14 of these districts as severely affected: Dhading, Gorkha, Rasuwa, Kavrepalanchok, Nuwakot, Dolakha, Sindhupalchok, Kathmandu, Ramechhap, Bhaktapur, Lalitpur, Makawanpur, Sindhuli and Okhaldhunga. Combined, these districts contain over 2 million people.

Amid ongoing recovery efforts following the earthquake of 25 April 2015, Nepal was struck by a second earthquake on 12 May 2015, with a magnitude of 7.4. The epicentre of the second earthquake was located further east than the first, close to the border between the Sindhupalchok and Dolakha districts, causing further damage in areas that had already been affected, whilst causing new devastation in areas which had previously experienced limited damage

According to government estimates, the earthquakes combined caused over 8,790 casualties and 22,300 injuries, and left over 500,000 houses and hundreds of historical and cultural monuments destroyed.<sup>4</sup> It is estimated that the earthquakes affected the lives of approximately eight million people, constituting almost one-third of the population of Nepal.<sup>5</sup>

In April 2015, following the Gorkha earthquake, REACH Initiative was deployed with support from the shelter cluster to assess the impacts of the earthquake on the shelter conditions in Nepal. During data collection the second earthquake hit Nepal, exacerbating an already severe humanitarian crisis. Following an adaptation of the methodology the assessment was restarted, to form the baseline of future longitudinal analysis, as well as to inform the immediate planning of humanitarian relief efforts.

In September 2015 REACH Initiative was redeployed at the request of the Global Shelter Cluster and the Nepal Shelter Cluster in order to conduct a follow up monitoring assessment of the shelter relief and recovery efforts. Being timed during a transition between emergency relief and longer term recovery, this assessment report presents findings on the progress and scope of emergency relief, and the progress of recovery.

Primary data was collected across the 14 priority districts identified by the Nepalese government, which were also assessed in the baseline reports. Initially, the assessment was planned to include 4 non-priority districts as well: Lamjung, Solokhumbu, Tanahu and Kotang. However, due to the effects of a severe fuel crisis in Nepal during the data collection period, it was only possible to include Lamjung district. Additionally, a secondary data review was conducted by the Nepal Shelter Cluster, with assistance from REACH.

## METHODOLOGY

This assessment used a multi-stage cluster sampling in order to give a complete picture of the shelter situation of households in districts of Nepal that sustained the highest levels of shelter damage as a result of the April and May earthquakes, in addition to districts where information gaps exist.

A sample of 120 households (+10% buffer) was drawn from each of the 15 districts of interest, including a minimum of 120 households drawn overall from areas that were inaccessible by road at the time of data collection in priority/non-priority districts. This was intended to achieve:

1. The widest possible geographical coverage including districts not previous assessed,

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<sup>4</sup> Government of Nepal - National Planning Commission, "[Nepal Earthquake 2015 - Post Disaster Needs Assessment \(PDNA\): Executive Summary](#)" p. 5, 2015.

<sup>5</sup> Ibid.

2. A minimum acceptable level of precision when disaggregating either by district or by road access in priority districts.
3. Direct comparability with the baseline assessment

### Stage 1: Selection of target geographies

Geographies included, where logistically feasible, difficult to reach mountainous areas, and areas that are at risk of monsoon flooding/landslides. All 14 districts covered in the baseline will be assessed, with the aim of including areas not accessible by road. Where resources permitted, an additional four non-priority districts, not included in the baseline, were assessed to gather comparable data on areas where a severe information gap exists. Further, a sample was gathered to enable the analysis of areas accessible/ not accessible by road within the priority districts. While the assessment had intended to include three additional non-priority districts, only one, Lamjung, was included as a result of limitations imposed by the ongoing fuel crisis in Nepal.

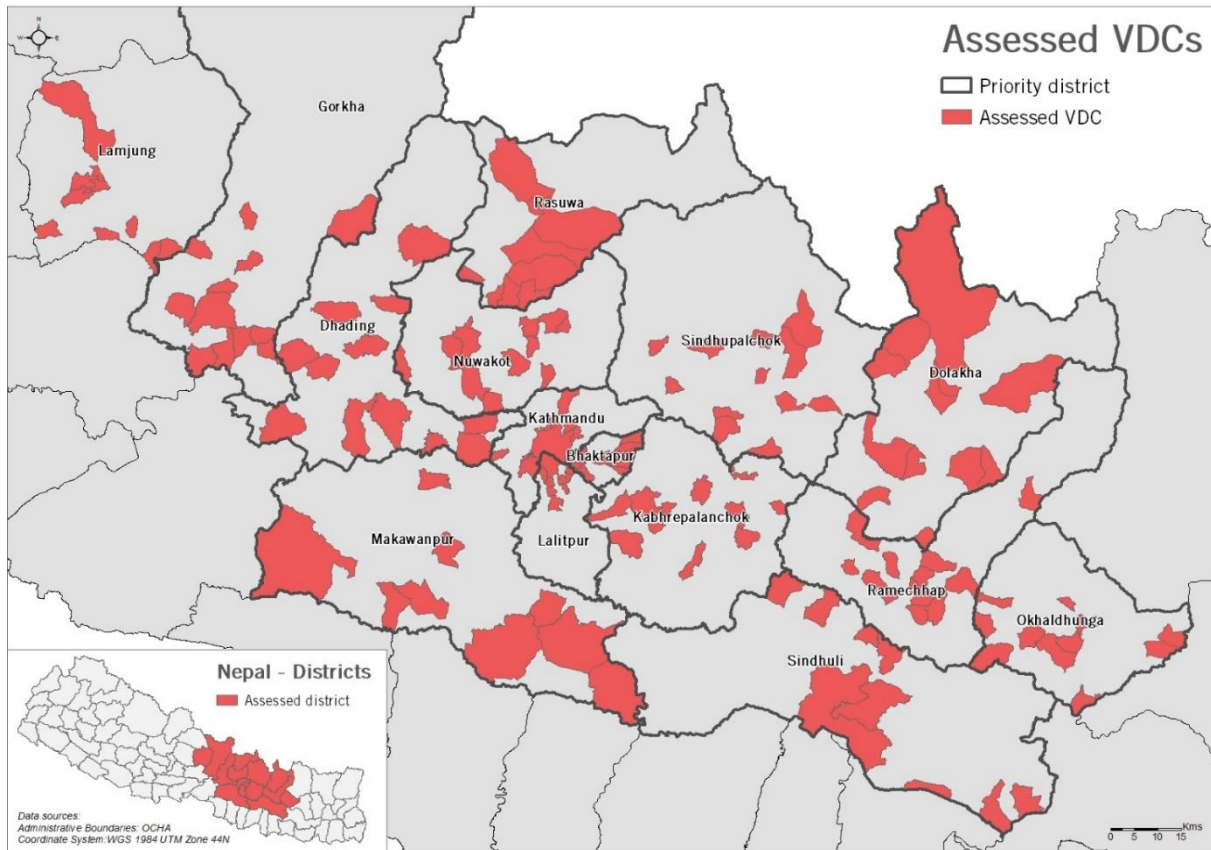
### Stage 2: Randomly selected VDCs > Wards > Households within selected districts

In line with the baseline methodology, Village Development Committees (VDCs) were randomly selected within each district according to Probability Proportional to Size (PPS) method. One Ward was then randomly selected within each selected VDC. Within each Ward, a randomly selected number of households were interviewed to reach the required sample size.

Table 1: Collected sample per district

District	Population	Sample size
Bhaktapur	73084	242
Dhading	77510	139
Dolakha	48414	149
Gorkha	67204	159
Kathmandu	469145	222
Kavre	86605	140
Lalitpur	114443	259
Lamjung	44068	159
Makwanpur	89550	164
Nuwakot	61950	145
Okhaldhunga	32847	120
Ramechhap	45036	118
Rasuwa	9942	236
Sindhuli	58270	141
Sindhupalchok	69600	134
<b>Priority districts</b>	<b>1303600</b>	<b>2368</b>
<b>All districts (Priority districts &amp; Lamjung)</b>	<b>1347668</b>	<b>2527</b>

Map 1: Village Development Committees (VDCs) assessed



Following the data collection phase, data cleaning was undertaken, and two datasets were used for analysis. One was used for the presentation of findings in areas accessible by road and those in hard-to-reach locations at a confidence level of 95% and a 10% margin of error. The second dataset was analysed to present district-level findings, again at a confidence level of 95% and a 10% margin of error at the district level. Further disaggregation, for example by vulnerability of household populations, was conducted using the district-level dataset, thus the precision of findings will vary; although the report retains a high degree of confidence in the findings presented.

When presenting findings at the level of the 14 priority districts, or all 15 assessed districts, as a combined figure, the district-level findings are weighted accordingly. The formula used is:

$$\text{District weight} = (\text{district population} / \text{total population}) / (\text{district sample} / \text{overall sample})$$

The final weightings per district are presented in table 2, below.

Table 2: District weighting

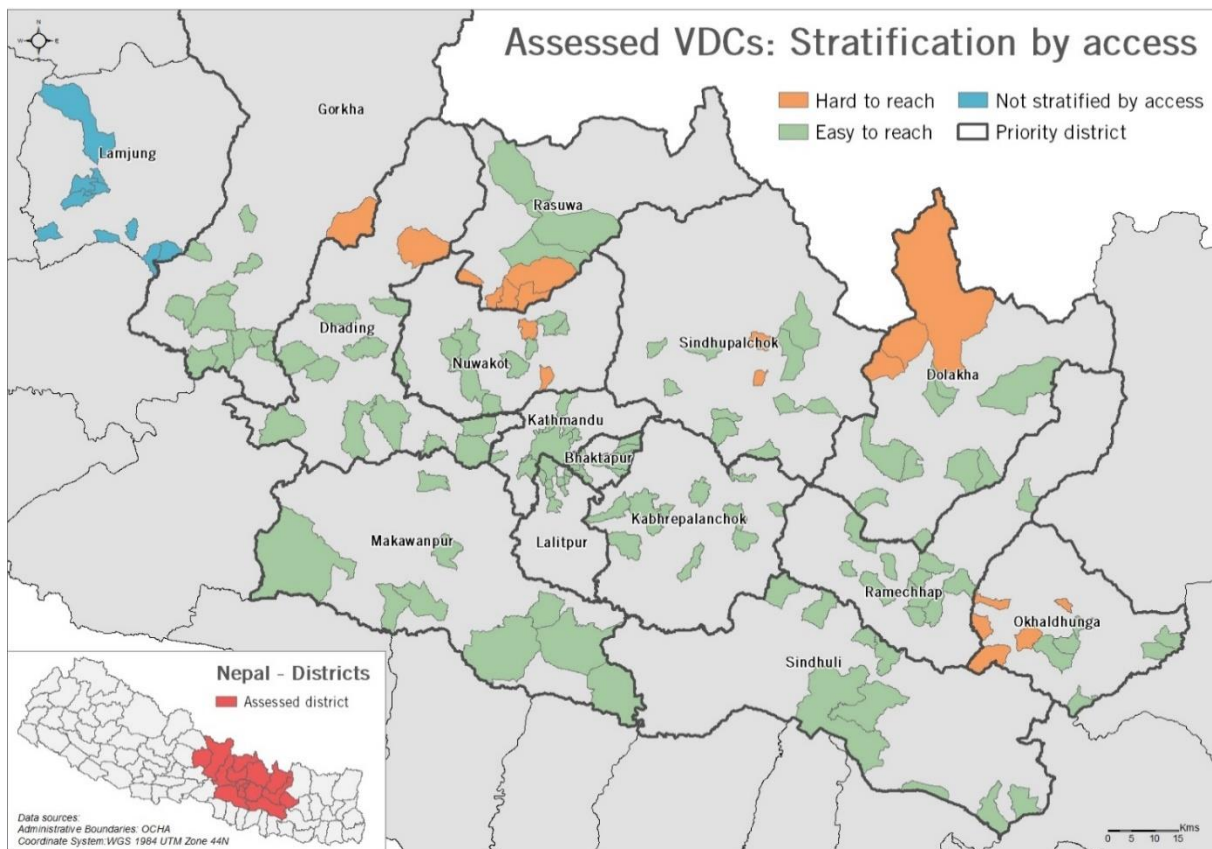
District	Census population	Sample size	Priority district weight	All district weight
Bhaktapur	73084	242	0.548585455661246	0.5662774511229770
Dhading	77510	139	1.012931980282600	1.0455992480952400
Dolakha	48414	149	0.590231038054659	0.6092661122420510
Gorkha	67204	159	0.767777436841567	0.7925384194524670
Kathmandu	469145	222	3.838764447171930	3.9625654019314000
Kavre	86605	140	1.123704905097970	1.1599446228596400
Lalitpur	114443	259	0.802651119975453	0.8285367861472660
Lamjung	44068	159	N/A	0.5196950042918770
Makwanpur	89550	164	0.991879897319992	1.0238682310624800
Nuwakot	61950	145	0.776087439557300	0.8011164214904870
Okhaldhunga	32847	120	0.497223688247929	0.5132592559888640
Ramechhap	45036	118	0.693290340699289	0.7156490989104950
Rasuwa	9942	236	0.076524253566395	0.0789921767182714
Sindhuli	58270	141	0.750694530585242	0.7749045859033360
Sindhupalchok	69600	134	0.943499745824422	0.9739278095818720

When presenting findings by vulnerability score, the analysis utilised Shelter Cluster Nepal's Vulnerability Scorecard. This allocates weighted vulnerability scores for specific household conditions. The weights utilised are presented below:

Table 3: Vulnerability scoring

Category	Criteria	Points
Family composition and social characteristics	Elderly-Head of Household (HHH) (60+)	2
	Family +5 members	2
	Children in family <5 years	1
	Child HHH (<18)	2
	Disability/ chronic illness in family	2
	Member of Dalit caste	2
	Member of Janajati indigenous group/ ethnic minority	1
Social and economic	No one engaged in income generation	2
	Family has needed to take loans/ sell assets since EQ	2
	HH does not have key documentation and/ or has not been issued a victim card	1
	Property self-occupied, of rented	2
Family capacity to rebuild	Family with no adult (16-60) physically able to rebuild	2
	HH more than 1 day travel from nearest market	2
	HH is only accessible by foot	2
<b>Total Scored</b>		<b>25</b>

Map 2: Access stratification



### Limitations

When presenting comparable secondary data, it should also be noted that the precision is always that of the data source with the highest margin of error (which is not always known). Specifically it must be noted that the baseline report did not incorporate a design effect. In short, when conducting a cluster sample the design process marginally negatively impacts the confidence interval of the assessment, when compared to a pure random sample. This means that the baseline assessment's margin of error is higher (within an additional +1% range in most cases) than intended. In order to mitigate this, the current assessment presented here gathered a larger sample to ensure it is representative at a 95% level of confidence, and a 10% margin of error. As such when comparing with the baseline shelter cluster report from June 2015, the margin of error is that of the baseline, i.e. slightly higher than the level of the current assessment.

Some secondary data sources proved ill-suited for comparison with this report. A specific example is the existing DDR portal damage data. This data source gives the number of houses damaged at a VDC level however, as the overall sample is not recorded when aggregating to the district level, this source of data becomes unreliable. Specifically, as the damaged houses presented can exceed the total number of houses recorded in the 2011 Census or available projections for increased housing stock, in some cases the percentage of houses damaged presented in the DDR data exceeds 100% of the known housing at the district level.

All findings are representative to the given confidence interval at the district and access levels. Further correlations below this have a less robust confidence interval. With this caveat noted, REACH is confident that all findings contained in this report are statistically significant.

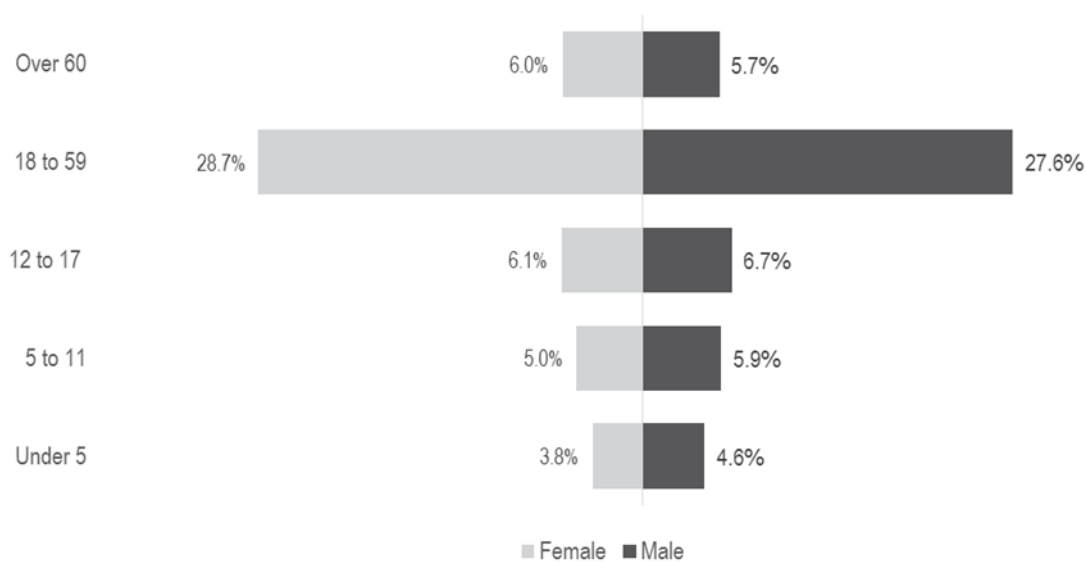
## FINDINGS

### Demographics

#### *Household characteristics*

Across the sample 45% of respondents were female, and the population gender divide was 50% male and 50% female. 56% of the population was of working age, with 32% being children. The total weighted dependency ratio for all assessed districts was 75%. This is in line with the dependency ratio for the last conducted census (71%), although differs from the World Bank projections for 2014 (64%).<sup>6</sup> The variation from the World Bank figures is likely to due to the different age groups used for categorisation – while the World Bank calculates the dependent population as the total number of children aged 0-14 and elderly over 65, the dependency ratio presented here is children aged 0-17 and elderly over 60.

Figure 1: Population pyramid of households covered in the survey

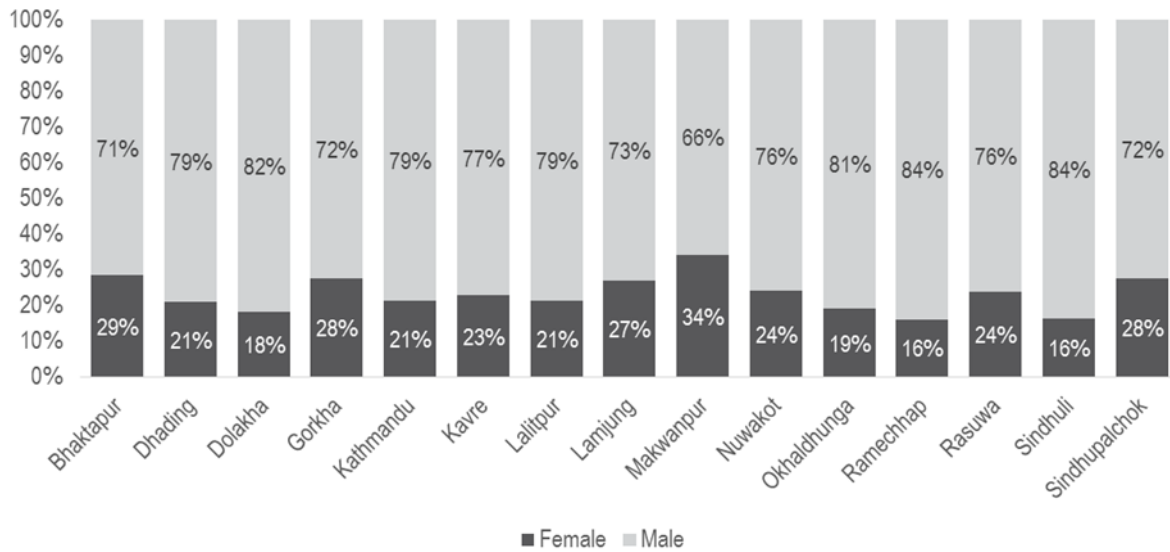


A high proportion of heads of household were reported to be female, at 23% in the priority districts, and 27% in the non-priority district of Lamjung. This is reflected in other data sources as well, with the baseline report noting 19% of households assessed were female-headed. The proportion of female headed households did not significantly vary by district, with a minimum value of 16% in Ramechhap and Sindhuli, and a maximum value of 34% in Makwanpur.

<sup>6</sup> <http://data.worldbank.org/indicator/SP.POP.DPND>

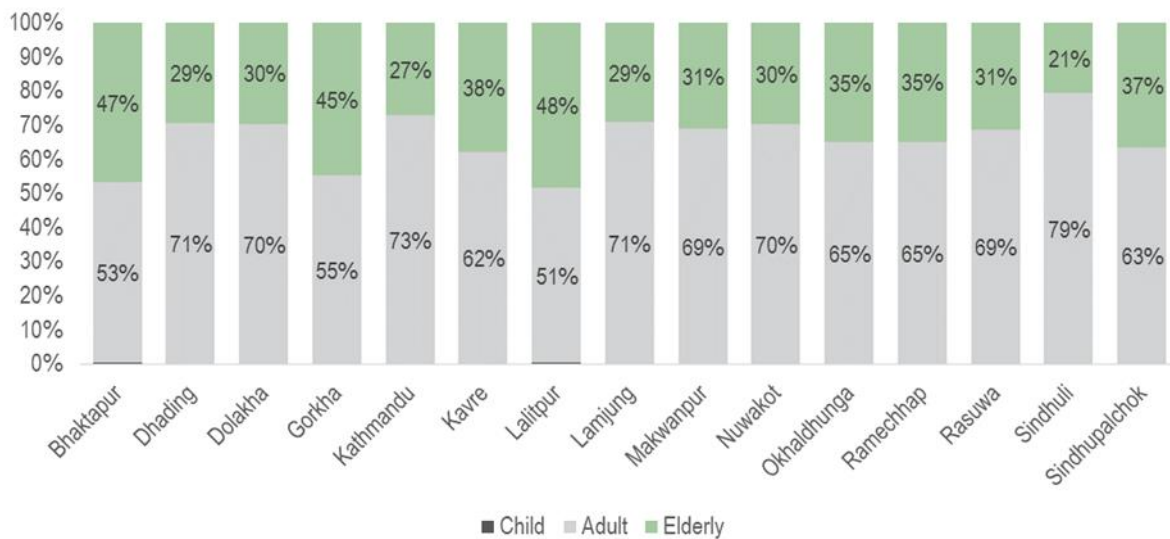


Figure 2: Head of households by district



The assessment did not find a significant number of child-headed households, the reported number being below 1% in all districts. There was however a significant proportion of heads of households aged over 60 years, 33% across the priority districts and 29% in Lamjung.

Figure 3: Head of household by age group



A high proportion of households surveyed indicated they had at least one member with a chronic illness or a disability, 24% across the priority districts. This also varied significantly by district, with far lower proportions indicating a member with a disability or chronic illness in Lamjung (8%) than elsewhere, and the highest proportion reported in Kavre (30%). This could be connected to higher reporting of chronic illness or disability in areas where respondents believe that this will increase the chances of the household receiving targeted assistance; reported rates in Lamjung may have been lower as the district is not prioritised by the government.

The vast majority (over 99%) of respondents were willing to disclose their caste. The Janajati indigenous group formed the majority of those surveyed (53% in the priority districts), followed by Chettri (20%), Brahmin (17%) and Dalit (8%). The distribution of castes varied considerably by district, as shown in table 4, below. The distribution of castes also varied slightly by access conditions. In hard to access areas Janajati made up 62% of those surveyed, while Dalit represented only 3%, Brahmin 18% and Chettri 17%.

Table 4: Distribution of castes by district

District	Janajati	Chettri	Brahmin	Dalit
Bhaktapur	74%	16%	3%	3%
Dhading	55%	12%	22%	9%
Dolakha	64%	17%	11%	8%
Gorkha	38%	13%	33%	16%
Kathmandu	45%	27%	20%	3%
Kavre	58%	9%	31%	2%
Lalitpur	62%	24%	11%	3%
Lamjung	36%	39%	3%	21%
Makwanpur	75%	5%	14%	5%
Nuwakot	55%	13%	17%	14%
Okhaldhunga	38%	44%	8%	10%
Ramechhap	50%	36%	3%	10%
Rasuwa	78%	0%	18%	5%
Sindhuli	61%	10%	10%	19%
Sindhupalchok	43%	22%	10%	25%

The vulnerability score of households was calculated using the beneficiary prioritisation tool published by Shelter Cluster Nepal.<sup>7</sup> By this measure, the distribution of vulnerable households did not vary greatly by district, with the most vulnerable households (those rated 10+) making up 4% of the population in priority districts, and ranging between 1% (Kathmandu, Lalitpur, Lamjung and Nuwakot) and 8% in Kavre. No significant variation was found in vulnerability scores by access conditions or between rural and urban populations.

63% of households surveyed in the priority districts were in possession of at least one victim card. However, this varied considerably by district. In the non-priority district of Lamjung only 34% of households possessed a victim card. Even within the priority districts under half of households in Kathmandu (17%), Lalitpur (36%) and Sindhuli (35%) reported being in possession of a victim card. The variation is partly due to the level of damage in each district. The vast majority of houses reporting moderate (86%), heavy (96%) or total damage (98%) did possess a victim card. The highest rates of non-possession of victim cards, within households reporting these damage levels, were in Sindhuli (29%), Lamjung (21%), Lalitpur (19%) and Okhaldhunga (16%); indicating that these areas are still lacking appropriate coverage of affected households. Additionally, 10% of those reporting that their house had not been damaged by the earthquakes, also reported possessing a victim card. In contrast, almost half (43%) of households reporting minor damage did not have a victim card. While there were instances of families reporting

<sup>7</sup> <https://www.sheltercluster.org/sites/default/files/docs/prioritisation-final.pdf>, see methodology for further elaboration of the use and make-up of the vulnerability score

more than one victim card in possession of the household, this was not a significant sub-group, amounting to less than 1% of the sample.

Reported literacy rates were high across the assessed districts, with 96% of households reporting at least one member able to read and write in Nepali. Only two districts, Gorkha (88%) and Dolakha (89%) reported literacy rates below 90%. While there was no significant variation between rural and urban areas, the literacy rate was higher in areas accessible by road (96%) than in hard to reach areas (89%). There was also a slight variation in the literacy rates by the age of the head of household, with households with a head of household older than 60 years reporting a higher rate of having no literate member (9%) than households with a head of household between 18-59 years (3%). However, this variation is within the margin of error of the sample. There was no significant variation in literacy rates by other demographic indicators.

9% of households across the priority districts reported having at least one member having migrated for work, either within Nepal or abroad. This varied across the districts, with Sindhupalchok (25%) Lamjung (23%), Dhading (19%) and Gorkha (19%) reporting the highest levels of migration. This appears to reflect the higher levels of migration in rural areas than urban areas, as shown in table 5. The rates of migration were also higher for those households in hard-to-reach areas (15%) than areas accessible by road (9%).

**Table 5: Migration rates by location type**

Location type	No member migrated	Member migrated
Rural	87%	13%
Urban	94%	6%

### *Livelihoods*

The most commonly reported primary income source before the earthquake was owning a business, reported by 19% of households as their first income source. This was followed by crop farming (18%) and formal salaried labour (14%). Following the earthquake, the primary income sources generally have remained stable, with business, crop farming and formal job remaining at the same levels.

As highlighted in the baseline report, there is a variation in income sources by district, largely reflective of the concentration of business related income sources in urban centres, especially Kathmandu, where 42% of households reported business as an income source.

While the overall proportions have remained stable, 10% of households did report a change in their primary source of income in the past year, with the proportion of change particularly high in Makwanpur (23%), Bhaktapur (19%) and Sindhupalchok (18%).

When looking at all sources of income (respondents could choose up to three) there was still little variation in income sources pre and post-earthquake. Notably the baseline report observed that 55% of respondents were engaged in subsistence farming, whilst only 47% reported so for this report; a figure that was within the margin of error. These households may be particularly vulnerable to shocks, although, the stability of agricultural activities (crop farming, livestock farming and subsistence farming), indicates that disruption to the planting season, highlighted as a risk in the

baseline report, did not have a significant impact on the income sources of households. Similarly the National Planning Commission highlighted this risk.<sup>8</sup> This is possibly due to households prioritising agricultural inputs over reconstruction in both the application of labour, and the distribution of household finances as observed in the Asia Foundation report of June 2015: “as the planting of crops such as rice and wheat had not yet begun at the time of the first quake, the impact on farming was relatively low; by mid-June, most farmers had resumed their work.”<sup>9</sup>

The findings on livelihoods differ from some other data sources available on the reliance on remittances, with the census of 2011 suggesting 35% of households receive remittances, and OCHA reporting that 30% were entirely dependent on remittances.<sup>10</sup> In the data for this report, only 14% reported receiving remittances, either before or after the earthquake.

### *Housing, Land and Property*

The vast majority of households across the priority districts (92%), reported that they owned both their pre-earthquake house and the land on which it was situated. A smaller proportion (6%) reported renting both their pre-earthquake property and the land it is on. The only variation by district is the higher proportion of those renting in Kathmandu (19%), compared to 80% owning their property. This reflects the findings of the baseline assessment, which found that 91% owned the property and the land they lived on prior to the earthquake, and the increased rental rates in the Kathmandu Valley. These findings corroborate those of the baseline report, where 91% of respondents indicated owning the land on which their pre-earthquake house was built, and 8% were renting. There is little variation by vulnerability groups, with those households with a vulnerability score of 10+ being marginally less likely to own their property, as shown in table 6.

#### **Box 1: Demographics and Livelihoods in Lamjung**

The non-priority district of Lamjung has a lower proportion of households reporting possession of a victim card than any of the priority districts – just 34% compared to the priority district average of 63%. The lower prioritization for assistance has also led to an increase in the migration rates within households. In total 23% of households in Lamjung reported at least one member having migrated to a different part of Nepal or abroad for work; the highest of any district and above the priority district average of 9%. The higher migration rate is matched by an increased proportion of households reporting remittances as a pre-earthquake primary income source (23%) than any other district. After the earthquake income sources have remained stable in Lamjung, with remittances continuing to be reported as the primary income source for 23% of households. Lamjung also has a higher proportion of households continuing to live in their pre-earthquake house (91%). Even among only those respondents whose pre-earthquake house was damaged only 16% in Lamjung had moved as a result – the lowest of the assessed districts.

<sup>8</sup> National Planning Commission, *Post-Disaster Needs Assessment - Executive Summary*, p. 8

<sup>9</sup> The Asia Foundation, *Independent Impacts and Recovery Monitoring Nepal Phase 1: June 2015*, p.18

<sup>10</sup> UNOCHA - Nepal Earthquake Assessment Unit, *Note on Migration and Remittances*, August 2015

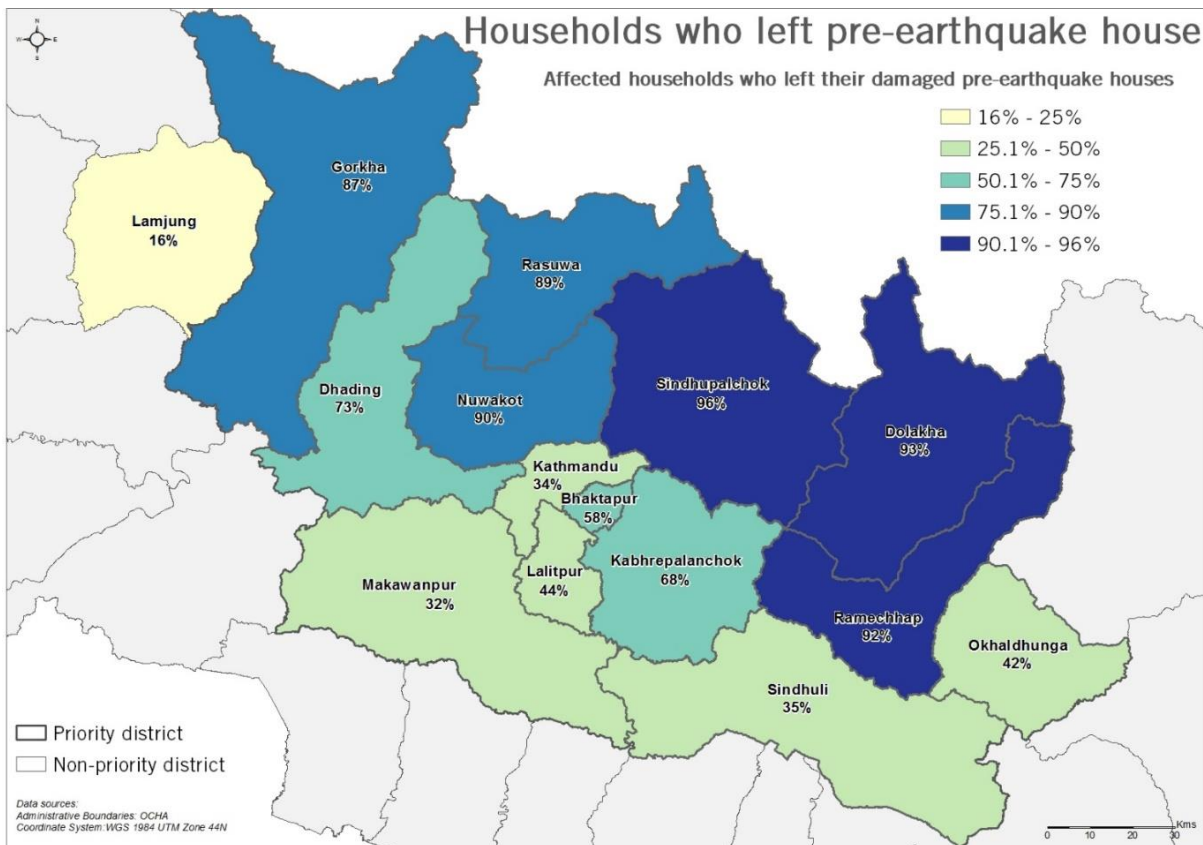
Table 6: Pre-earthquake property arrangement, by vulnerability score

Vulnerability score	Own house and plot	Rent house and plot	Other
0	100%	0%	0%
1	98%	0%	2%
2	97%	0%	3%
3	96%	3%	1%
4	94%	3%	2%
5	95%	3%	2%
6	96%	2%	2%
7	93%	3%	4%
8	94%	3%	3%
9	94%	5%	1%
10+	88%	6%	7%

Similarly, 90% of respondents in the priority districts reported having had at any point in time a land title certificate or rental agreement for their property. 4% reported having had a verbal agreement, with only 4% reporting no documentation or agreement. Only 3% of respondents reported having lost their documentation, and less than 1% of these reported they had lost their documentation as a result of the earthquake. Overall, 88% of respondents own their pre-earthquake housing, and have a land title document still in their possession.

Of the respondents, just over half, 51% of those in the priority districts were living in their pre-earthquake house. Among those districts where the impact of the earthquake was greatest, a higher proportion have been required to vacate their house, and in Dolakha (93%) Nuwakot (90%) Ramechhap (92%) and Sindhupalchok (96%) over 90% of households were no longer living in their pre-earthquake house. Few households reported moving from their pre-earthquake house in Kathmandu (87%) and Lalitpur (80%). Map 3 shows the proportion of respondents who were no longer living in their pre-earthquake house, excluding those whose pre-earthquake house was not damaged. This indicates a decline of those who had moved from their house when the baseline was conducted (79%). The return of many households will be a result of the high proportion who moved because of fear of aftershocks (72% in June) or fear for the structural integrity of their home (41% in June), as not all of these fears will have resulted in significant damage to housing.

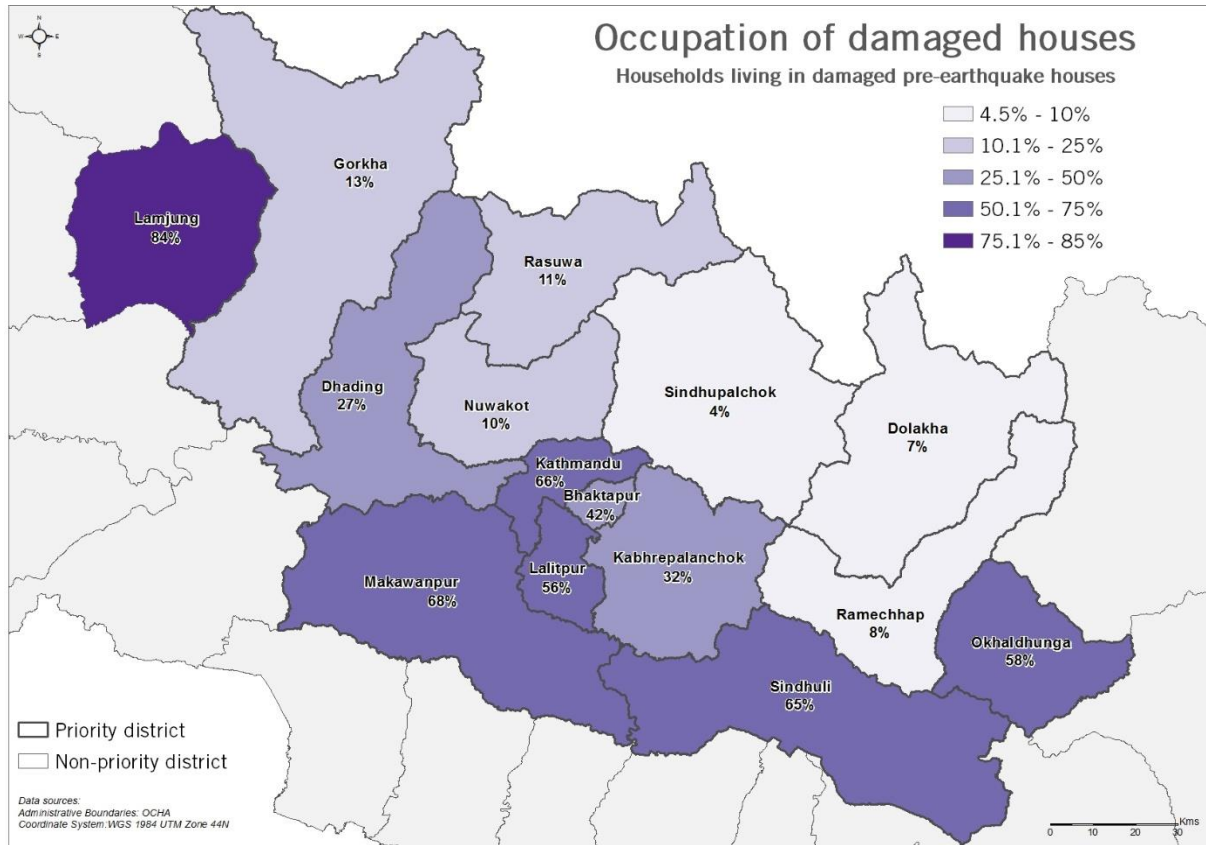
Map 3: Proportion of households reporting property damage who left their pre-earthquake house



Of the 49% of households in the priority districts reporting they had moved out of their pre-earthquake house, only 10% reported they had left their existing community, all of which reported being in temporary shelter. The majority of households assessed (68%) reported they were living in temporary shelter next to their existing house matching findings from the baseline assessment. 20% of those who moved (5% of the overall population), largely concentrated in urban areas of Kathmandu and Makwanpur, reported renting or building another property. Overall, inclusive of all damage and non-damaged houses, 43% of households in the priority districts reported they are currently living in temporary shelter.

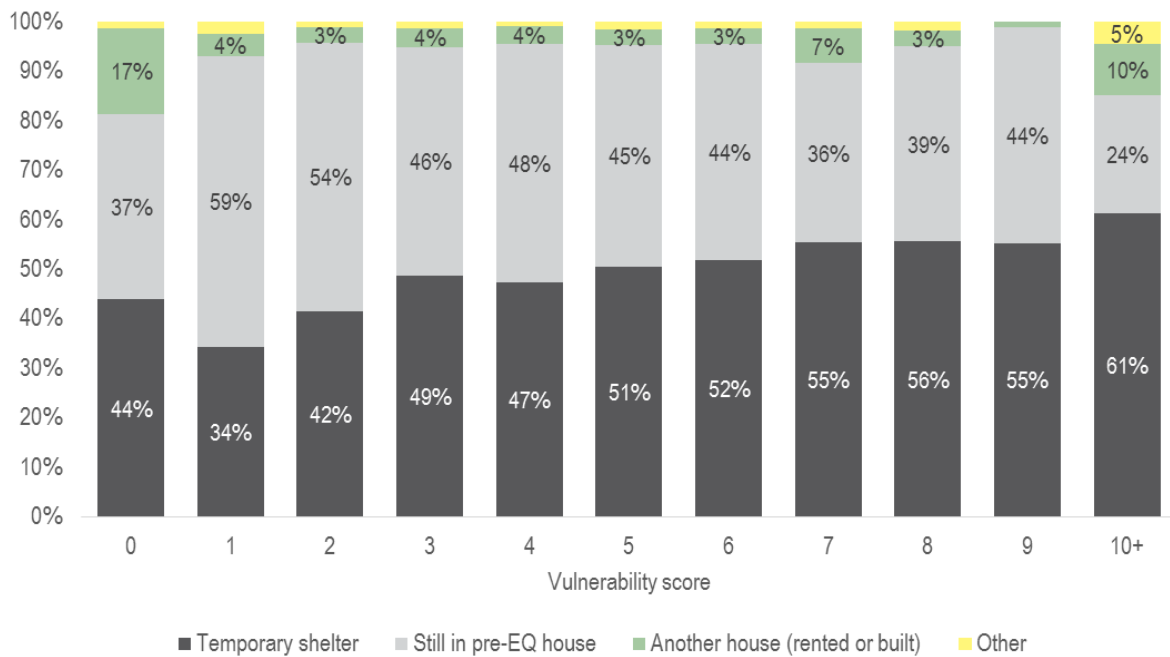
The primary reason for leaving the pre-earthquake house was damage, reported by 42% of all households in the priority districts. However, relatively high proportions of households reported fear of aftershocks as the motivation for moving in Gorkha (20%), Kavre (11%) and Okhaldhunga (13%).

Map 4: Households still living in a house damaged by the earthquakes



There was no significant variation in those leaving their homes by gender of head of household, but those of the Dalit (66%) caste were well above the district average. There was a higher proportion of those with a vulnerability score of 10+ who had had left their pre-earthquake house (76%), compared to the district average, although 63% of those with a vulnerability score of 0 had also left their home. However, households with a higher vulnerability score are more likely to have left their pre-earthquake house and be currently living in temporary shelter, as indicated by figure 4, below. Even amongst those displaced from their pre-earthquake house, very few households reported having to share spaces with other households, just 13% in the priority districts. However, the proportion was much higher in Lalitpur, where 17% reported sharing a bathroom, 17% reported sharing kitchen facilities, and 23% reported sharing sleeping spaces.

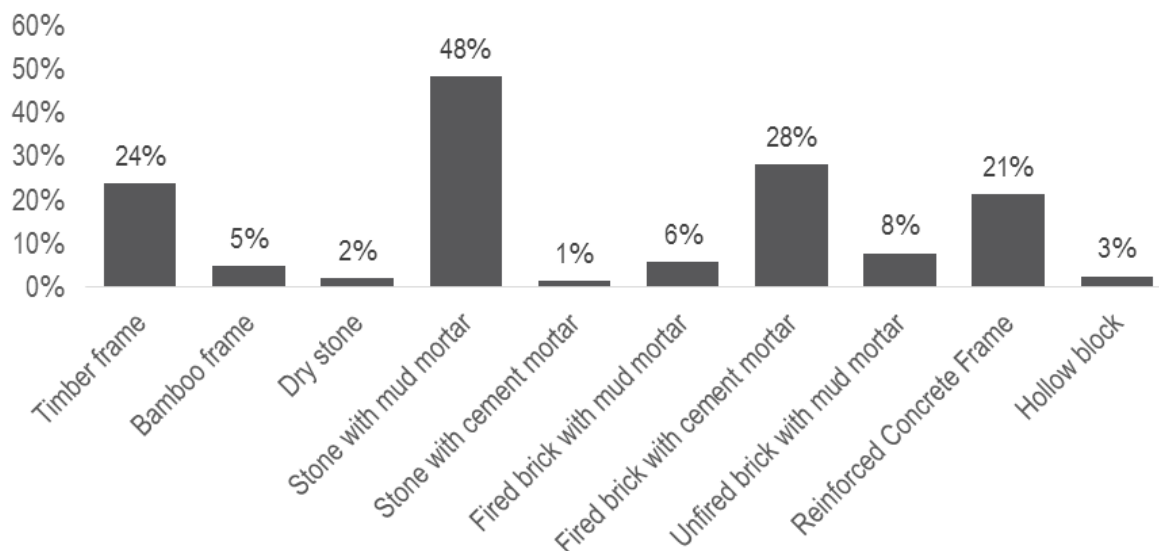
Figure 4: Proportion of households by current living arrangement, and by vulnerability



### Pre-Earthquake Building Typologies

Across the sampled population, ten primary structural materials were commonly identified to be used for wall frames/ load bearing structure. Households were requested to name all load bearing structural or frame materials used in construction. The following percentages therefore total more than 100%, reflecting the use of multiple construction materials in single dwellings. Figure 5 outlines the reported use of these materials within the 14 priority districts.

Figure 5: Reported load bearing wall load bearing structural/ frame materials in the priority districts



The most commonly reported materials across priority districts for wall frames/ structure in the assessed districts were stone with mud mortar (48%), followed by fired brick with cement mortar (28%) and timber (24%). While the baseline report used a different typology division for building types, the most commonly reported, in the earlier assessment, were houses of mud bonded brick or stone. There was a significant variation within the priority districts.



Bhaktapur reported that the most common materials were fired brick with mud mortar (31%) and unfired brick with mud mortar (31%) whereas fired brick with cement mortar and reinforced concrete were the most commonly reported in Kathmandu (82% and 60% respectively) and Lalitpur (46% and 38%). Timber was the predominant material for wall structure/ frame in Makwanpur (80%) and Sindhuli (48%).

These building typologies can be divided into three groups:

- 1) **Load bearing masonry:** comprises dry stone, stone with mud or cement mortar, fired brick with mud or cement mortar, and unfired brick with mud mortar.
- 2) **Reinforced concrete frame**
- 3) **Other:** combining timber, bamboo and hollow block

Table 7: Reported wall load bearing structural/ frame materials (grouped) by district

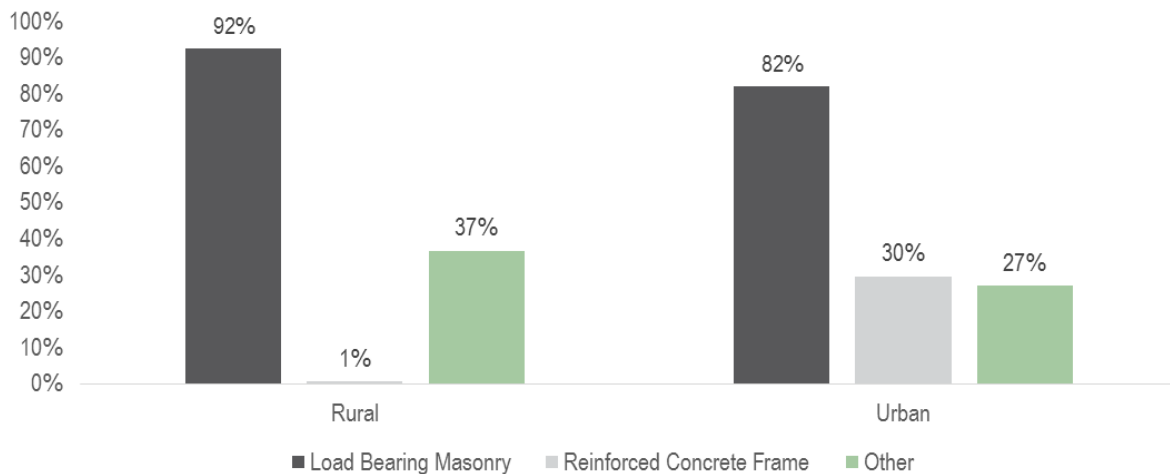
District	Load Bearing Masonry	Reinforced Concrete Frame	Other
Bhaktapur	88%	9%	29%
Dhading	97%	5%	60%
Dolakha	99%	0%	46%
Gorkha	98%	1%	7%
Kathmandu	97%	60%	6%
Kavre	96%	4%	10%
Lalitpur	83%	38%	24%
Lamjung	94%	6%	52%
Makwanpur	42%	2%	84%
Nuwakot	99%	1%	17%
Okhaldhunga	99%	1%	21%
Ramechhap	100%	0%	39%
Rasuwa	99%	1%	34%
Sindhuli	40%	9%	75%
Sindhupalchok	98%	1%	8%

Load bearing masonry, as indicated above, is the most commonly reported – 89% in the priority districts and 94% in Lamjung, in total 89% of all assessed districts. Other materials, including timber and bamboo were reported by 27% of assessed households in the priority districts. Reinforced concrete frame was reported by 21% of households in the priority districts, as stated above this was heavily concentrated in Kathmandu and Lalitpur.

Little variation between structural material groups was observed between vulnerability scores. The most vulnerable respondents, those with a score of 10 or higher, report higher use of stone with mud mortar (70%) and timber (39%) than other respondents; and lower use of reinforced concrete frame (2%). However, these variations are not large, and there is not a continuous correlation between increased vulnerability score and building materials.

There is a greater relationship between location type and building materials. Rural areas have far higher reporting of stone with mud mortar (85%) and timber (35%) than urban areas (14% and 22% respectively). Conversely, fired brick with cement mortar (36%) and reinforced concrete frame (30%) are far more common in urban areas than rural (1% for each material). Figure 6 shows the variation between load bearing masonry, reinforced concrete frame and other wall load bearing structural materials in rural and urban areas.

Figure 6: Reported wall load bearing structural/ frame materials by location type

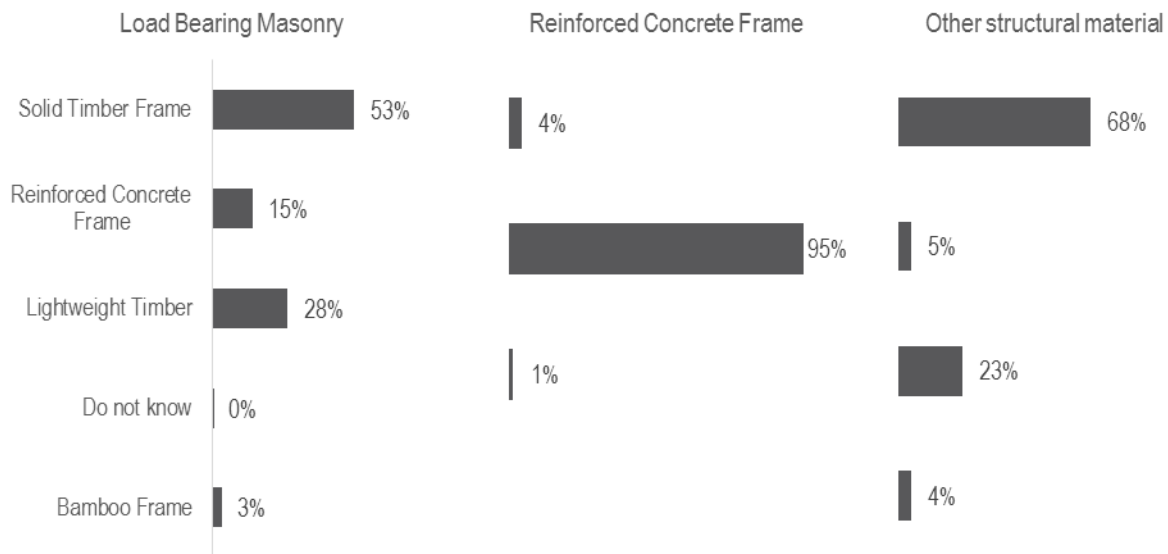


The decreased use of reinforced concrete in rural areas is corroborated by examining the primary wall load bearing structural/ frame material by the access conditions. Hard-to-reach areas reported almost no use of reinforced concrete frame (1%), compared to 14% of areas accessible by road. Load-bearing masonry was more commonly reported in hard to reach areas (99%) than those accessible by road (87%). Similarly, reinforced concrete frame was reported as a wall load bearing structural/ frame material by 15% of households assessed in areas below 1500 metres elevation, compared to only 1% in those over 1500 metres. Load bearing masonry was reported in 98% of households in areas over 1500 metres, compared to 86% in those below.

The primary wall infill material reported corresponded strongly to the primary frame material. Almost all of buildings (91%) with reinforced concrete frame as a structural material reported fired brick with cement mortar as the wall infill. Houses with timber and bamboo wall frames mostly reported stone with mud mortar as the wall infill (64%).

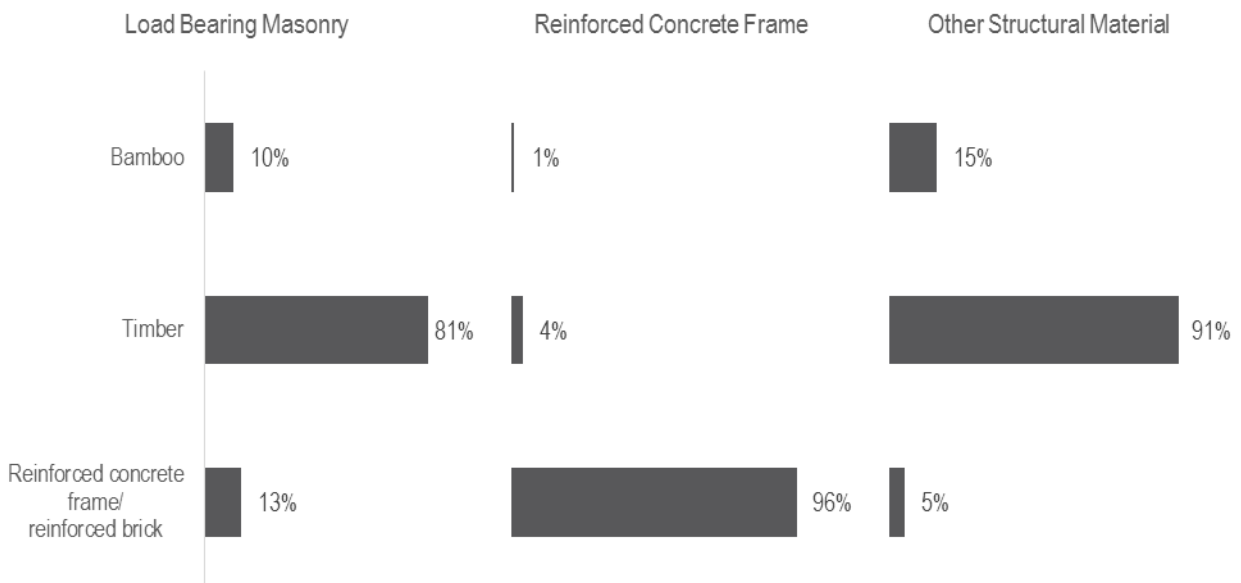
Most respondents reported that their pre-earthquake house was two storeys high, 61% in the priority districts. In only four districts, Bhaktapur (46%), Dolakha (13%), Kathmandu (53%) and Lalitpur (59%) more than 10% of respondents reported that their pre-earthquake building comprised of more than two storeys. There was some variation in the primary wall structural material by number of storeys. Load bearing masonry was used in a majority of buildings regardless of the number of storeys, but reinforced concrete was more commonly used in buildings of three storeys or more (37%) than those of one storey (10%) and two storeys (5%). This reflects the increased use of reinforced concrete in urban areas, where building with more storeys are also more common. Figure 7 shows the upper storey materials used as a proportion to the primary wall structural/frame material. Almost all (95%) of multi-storey buildings with reinforced concrete as the primary structural material also used reinforced concrete for the upper storey frame. 82% of multi-storey buildings, with load bearing masonry used as the primary structural material, used timber as the frame for upper storeys. This possibly reflects the use of cheaper materials when ad-hoc storeys are added to building structures, especially in rural areas. Timber was reported as the upper floor material by over 80% of households in multi-storey buildings in all districts apart from Kathmandu (13%) and Lalitpur (43%). 15% of houses with load bearing masonry used for the primary structure reported the use of reinforced concrete in upper storeys; a mix of materials which is unusual, and potentially unstable. It is possible that this figure is misreported where cement mixture has been used for floor covering on upper storeys, but does not form part of the structural frame.

Figure 7: Reported upper storey structural/ frame material by wall load bearing structural/ frame materials



Timber was also commonly reported as a roof structural material, especially by households whose pre-earthquake house used load bearing masonry as a wall load bearing structural material/ frame (81%). 13% of households reporting load bearing masonry as a wall load bearing structural material reported the roof structure was reinforced concrete frame or reinforced brick. Figure 8 shows the roof structural material as a proportion of the wall load bearing structural/ frame material.

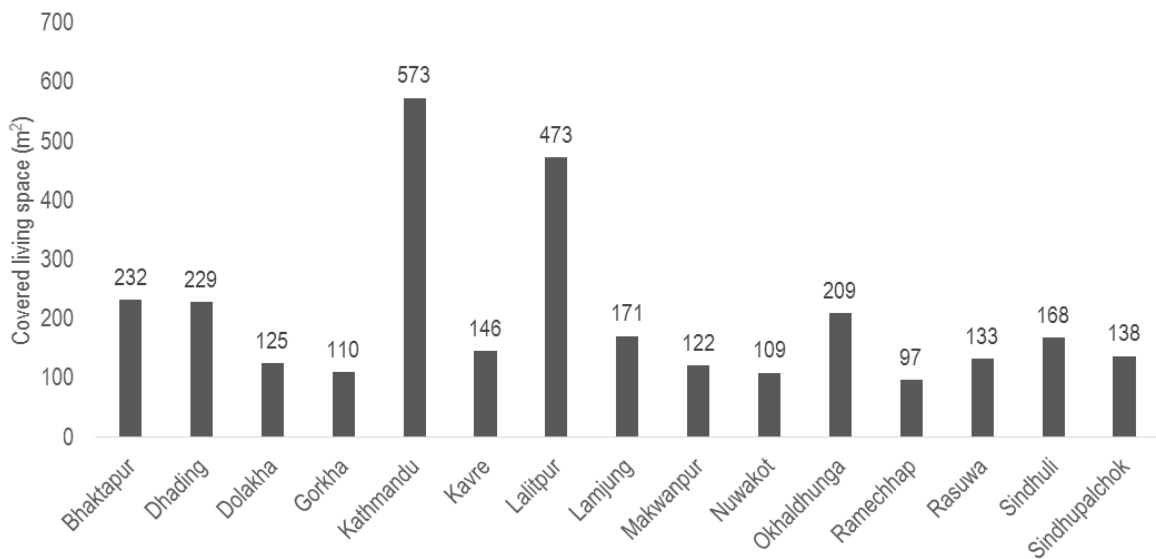
Figure 8: Reported roof structural/ frame material by wall load bearing structural/ frame materials



The average covered living space within pre-earthquake buildings was higher in those reporting a reinforced concrete frame wall frame (550 square metres) than those reporting load bearing masonry (223 square metres) and other structural materials/ frame (204 square meters). This reflects the increased use of reinforced concrete frame in multi-storey buildings. There was also a significant variation in the size of buildings between districts, as shown in figure 9, below. Kathmandu (573 square metres) and Lalitpur (473 square meters) were considerably

above the priority district average of 291 square metres. Ramechhap (97 square metres) had the lowest average covered living space, a reflection of the lack of multi-storey or concrete frame structures reported in that district.

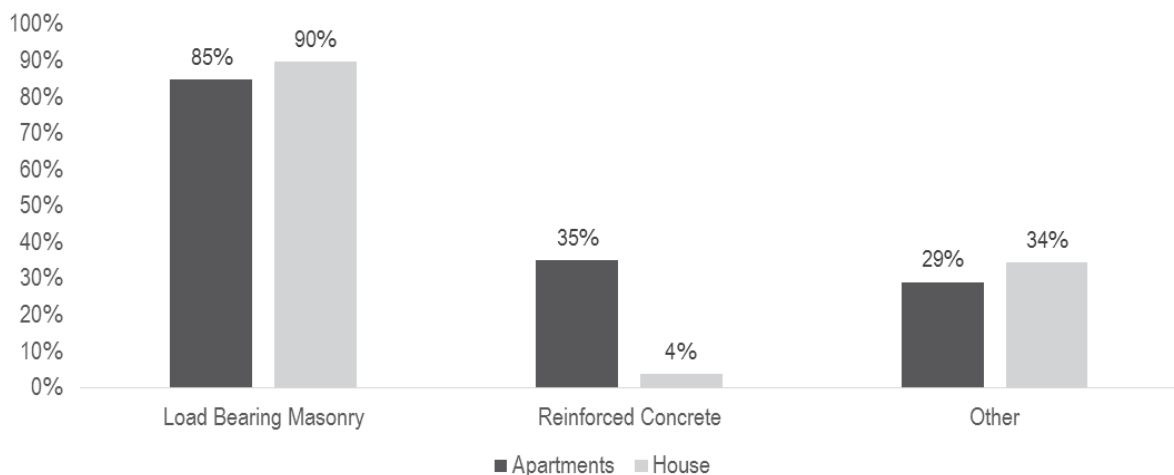
Figure 9: Average covered living space of whole building by district in square metres



The labour (both skilled and unskilled) used in the construction of pre-earthquake houses also varied considerably by the wall structural/ frame material used. While local masons were reported as being involved in the construction by 82% of households across all three groups, those buildings utilising reinforced concrete involved household members in only 29% of cases, compared to 69% of buildings utilising load bearing masonry and other wall structural/ frame materials. Similarly, relatives and friends were less commonly involved in construction for reinforced concrete (2%) than load bearing masonry (15%) and other wall structural/frame materials (15%). Conversely, construction companies were more commonly reported for reinforced concrete (13%) than load bearing masonry (3%) and other (2%).

Buildings that were detached were less likely to use reinforced concrete frame (9%) than those that were adjoining other buildings (20%), although this is likely linked to the increased prevalence of both reinforced concrete frame (30%) and adjoining buildings (64%) in urban areas. It is also possible this correlation is caused by the greater use of reinforced concrete frame in apartment blocks than independent houses, as shown by figure 10, below.

Figure 10: Building type by wall load bearing structural/ frame material



## Pre-Earthquake Housing Damage

### Overall damage to pre-Earthquake housing

Overall, 74% of households assessed reported some level of damage to their pre-earthquake house. This included 100% of households assessed in Dolakha, Gorkha, Nuwakot, Ramechhap and Sindhupalchok. The districts reporting the lowest overall damage of any level were Kathmandu (36%) and Lalitpur (44%). 38% of households in the priority districts reported their pre-earthquake home had been either heavily damaged or totally destroyed. The highest levels of heavy damage or total destruction were reported in Sindhupalchok (98%), Rasuwa (88%) and Nuwakot (84%), while the lowest were reported in Kathmandu (5%), Okhaldungha (9%). The variation in damage shows both the proximity to the April and May earthquake epicentres (in Gorkha and Dolakha respectively), and also other environmental factors, including the predominance of building materials. This is also in concurrence with other sources, although precision on damage levels is difficult to compare because of different measurement methodologies. However, the Asia Foundation report of 2015 did reflect higher levels of damage in high impact districts of around 96%.<sup>11</sup> Table 8 shows the damage breakdown by district.

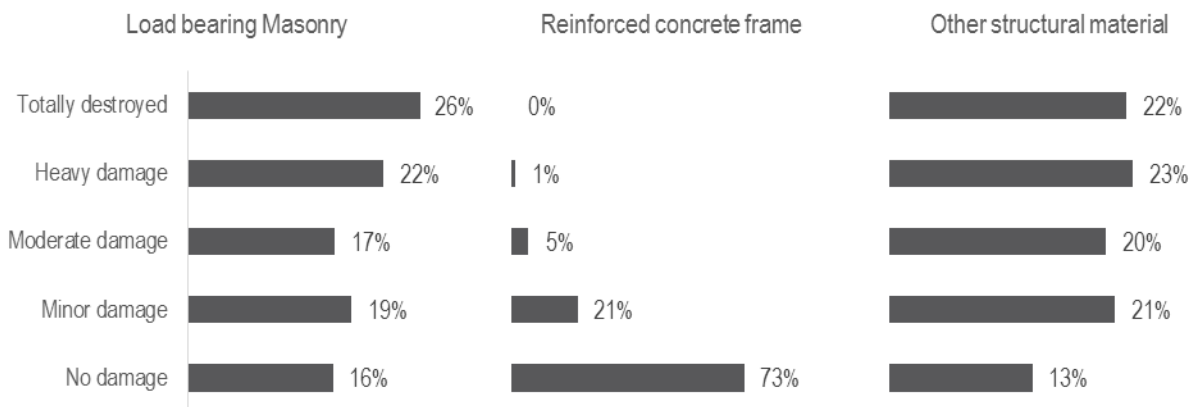
Table 8: Damage levels by district

District	No damage	Minor damage	Moderate damage	Heavy damage	Totally destroyed
Bhaktapur	11%	31%	20%	18%	19%
Dhading	3%	23%	15%	31%	28%
Dolakha	0%	5%	23%	28%	44%
Gorkha	0%	17%	26%	38%	19%
Kathmandu	64%	24%	7%	4%	1%
Kavre	1%	16%	41%	34%	6%
Lalitpur	56%	17%	8%	12%	7%
Lamjung	41%	38%	7%	11%	3%
Makwanpur	5%	26%	26%	27%	16%
Nuwakot	0%	3%	12%	32%	52%
Okhaldhunga	26%	48%	18%	8%	2%
Ramechhap	0%	12%	33%	38%	17%
Rasuwa	3%	4%	5%	22%	65%
Sindhuli	32%	27%	24%	14%	3%
Sindhupalchok	0%	1%	1%	13%	84%

<sup>11</sup> The Asia Foundation, *Independent Impacts and Recovery Monitoring Nepal Phase 1: June 2015*, p. 9

There was considerable variation in damage levels between the different building materials used for the primary wall load bearing structure/ frame. 94% of buildings using reinforced concrete frame reported either no damage (73%) or minor damage (21%). This compares to 35% of houses utilising load bearing masonry and 35% of those using other structural materials. The findings broadly match those of the National Planning Commission that the majority of damaged structures were low-strength masonry while cement based masonry and reinforced concrete structures fared better.<sup>12</sup> Figure 11 shows the levels of overall damage by building material.

Figure 11: Damage levels by load bearing structural/ frame material

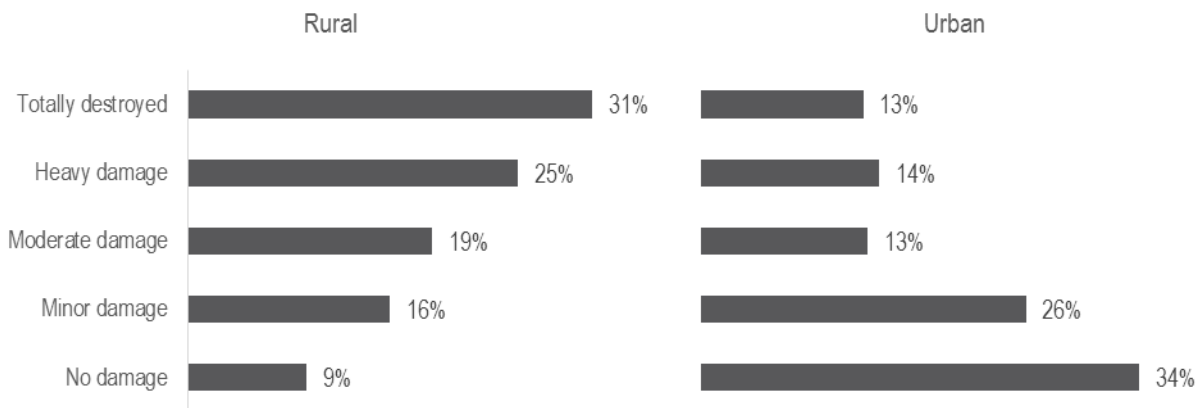


As is to be expected two-storey buildings reported higher levels of damage than one-storey buildings and buildings of three-storeys or more. Only 12% of two-storey houses were reported to have no damage, compared to 23% of one-storey houses and 41% of houses with three-storeys or more. This reflects the greater use of reinforced concrete frame in taller buildings, and the use of cheaper materials such as timber for upper storey extensions in two-storey buildings. There was no significant variation in the level of damage by whether the building was adjoining or detached. However, there was a variation in the damage levels sustained in rural areas compared to urban. 91% of rural households reported some level of damage, compared to 66% of urban households. Levels of heavy damage and total destruction were also considerably higher in rural areas (57%) than urban areas (27%). Figure 12 shows the levels of damage by location type. This broadly corroborates findings of the Asia Foundation, which suggested that 51% of houses in rural areas were unliveable, compared to 26% in urban areas.<sup>13</sup>

<sup>12</sup> National Planning Commission, *Post-Disaster Needs Assessment*, p. 12

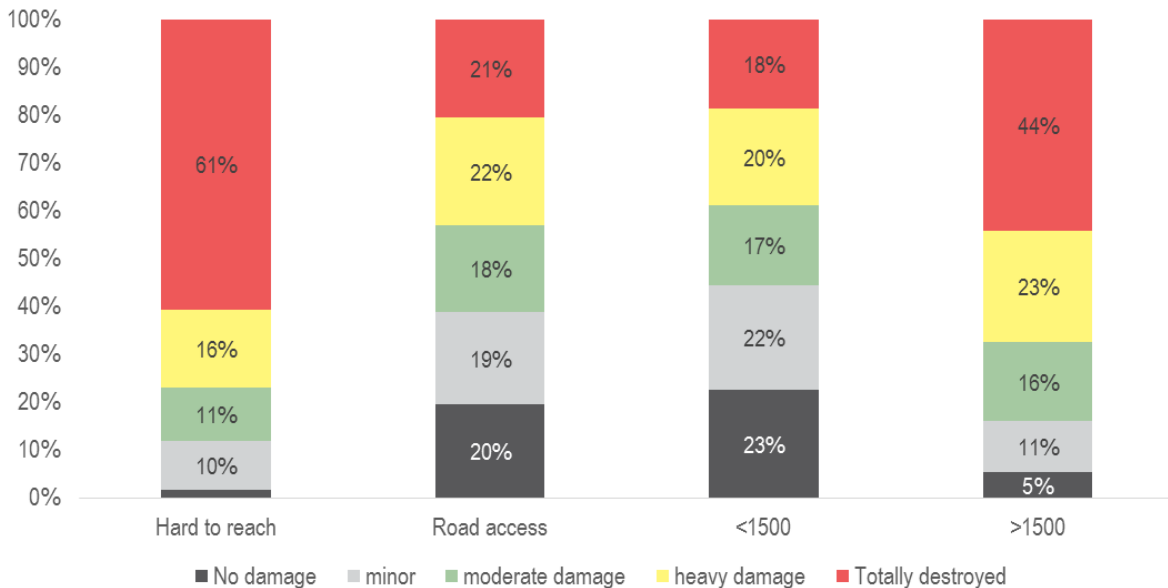
<sup>13</sup> The Asia Foundation, *Independent Impacts and Recovery Monitoring Nepal Phase 1: June 2015*, p. 11

Figure 12: Damage levels by rural/ urban location



There was an even greater correlation between access conditions and damage. Assessed households in hard to reach areas reported far higher levels of total destruction (61%) than those in areas accessible by road, and only 2% reported no damage in hard to access areas. Less stark, but still significant, was the level of damage by elevation, where 95% of houses assessed above 1500 metres reported some level of damage, compared to 77% of those below 1500 metres. Figure 13 shows the level of damage reported by access and elevation. This is in part attributable to the higher use of load bearing masonry structures in hard to access areas – found in 99% of buildings in hard to access areas, compared to 87% in accessible areas. Similarly, load bearing masonry structures were reported in 98% of houses in areas above 1500 metres, compared to 86% of those below 1500 metres. The higher reported damage levels in areas over 1500 metres can be attributed to two factors: firstly, areas of higher elevation are likely to be closer to the earthquakes’ epicentres; secondly, both elevated and hard to reach areas had a higher use of load bearing masonry and timber/ bamboo structures.

Figure 13: Damage levels by access and elevation



## Status of building damage assessment

Across the priority districts 79% of households reported that someone had assessed their house, with 92% of the assessments being carried out with government representatives. There is also considerable variation within the priority districts: 58% of respondents in Kathmandu, 62% in Dolakha, 69% in Sindhuli and 72% in Rasuwa reported that a building assessment has been carried out, while other districts all report over 80%. Some of this variation is caused by the higher

### Box 2: Building typologies and damage in Lamjung

In Lamjung a higher proportion of households reported the use of stone with mud mortar (86%) and timber (51%) as a primary structural material than in the priority districts (48% and 24% respectively). The use of reinforced concrete frame was low (6%), reflect the trend in most low-urbanised districts. In Lamjung the further distance from the earthquakes' epicentres are reflected in the lower damage levels in the district. Only 14% of households reported that their pre-earthquake house had been heavily damaged or totally destroyed, compared to 38% in the priority districts, while 41% reported no damage to their house at all. This is also reflected in the self-reported anticipated repair costs, with 20% of households in Lamjung believing repairs will cost under 50,000 NPR, compared to 9% in the priority districts. However, the low prioritization of the district is reflected in the fact that only 50% of households reported their pre-earthquake house had been assessed for damage.

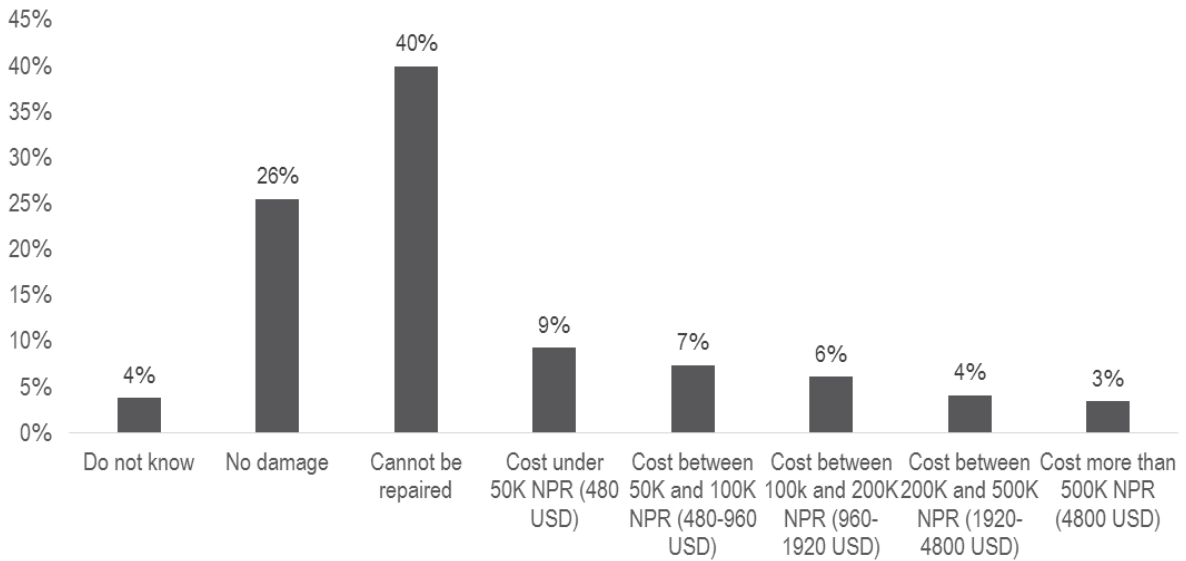
proportions of no damage in districts such as Kathmandu. Overall 61% of houses reported to have no damage were not assessed after the earthquake. Variation by access conditions varies less markedly, with 84% of respondents in areas accessible by road reporting their property has been assessed, compared to 71% in hard to reach areas. There was no significant variation in whether houses had been assessed by rural/ urban divide or elevation.

The recommendation given generally corresponded to the level of damage, with 75% of houses reported as totally destroyed and 78% of houses with heavy damage receiving a demolition recommendation (an additional 23% of totally destroyed, and 14% of heavily damaged buildings were either not assessed or received no recommendation). However, a large proportion of houses reported as moderately damaged received a demolition recommendation (34%), compared to 31% being recommended as unsafe and requiring repair, and 19% being reported as safe but requiring repair. There was no significant correlation between a household's vulnerability score and whether their household was assessed, or a recommendation given.

Figure 14 shows the anticipated repair cost within priority districts, as self-reported by households. While there is some observable difference in anticipated repair costs between districts, once houses that cannot be repaired or were not damaged are isolated the sample is too small to draw conclusions with reasonable confidence.



Figure 14: Self-reported anticipated repair cost in priority districts



*Detailed damage to pre-earthquake housing*

Figure 15 shows the proportion of buildings reporting inclination by district (“No damage” is inclusive of households reporting no damage to the building, and those reporting both some damage to the house, but no inclination damage; and “damage to whole house” is inclusive of heavy damage and total destruction). As one would expect, houses using reinforced concrete frame as a building material for the wall load bearing structure/ frame reported lower levels of inclination (1%) than load bearing masonry (4%) or other structural materials (9%).

Figure 15: Proportion of buildings reporting inclination by district

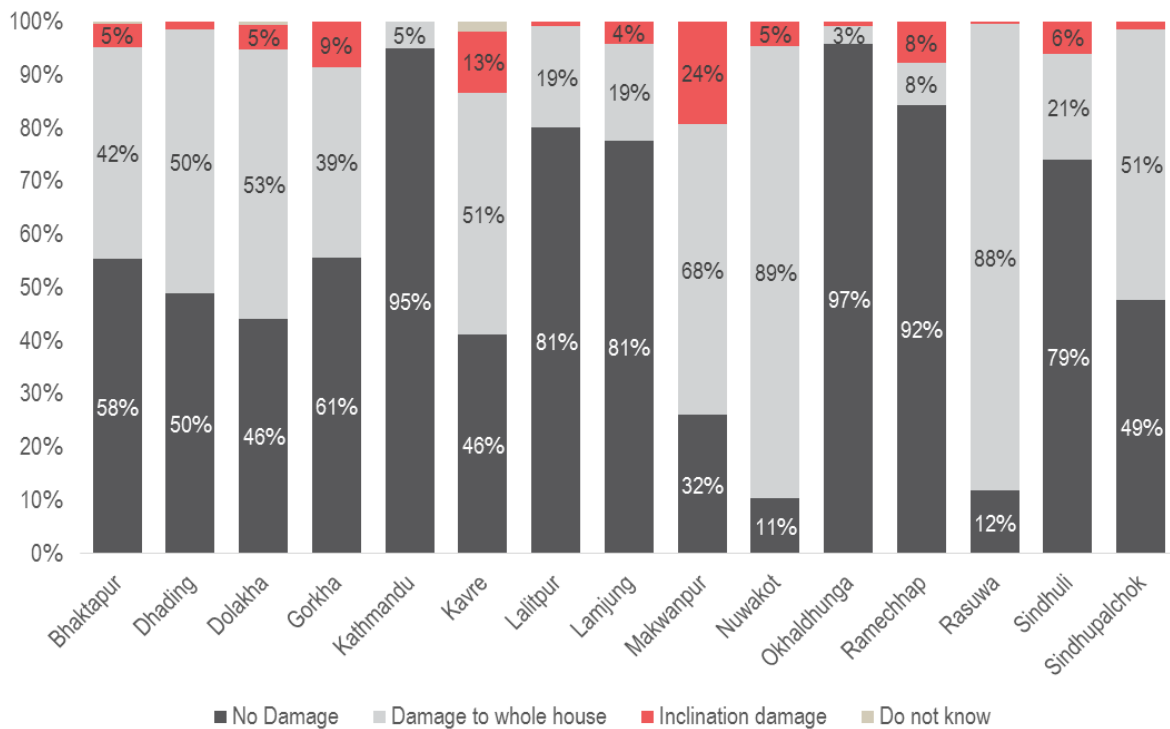


Table 9: % Households reporting specific damage, by wall load bearing structural material

Structural material	Damage to whole house	Inclination	Foundation failure	Roof damage (partial and total)	Floor damage (partial and total)	Parapet damage (partial and total)
Load bearing masonry	38%	4%	3%	17%	17%	8%
Reinforced concrete	1%	1%	2%	4%	8%	8%
Other	37%	9%	6%	23%	19%	10%

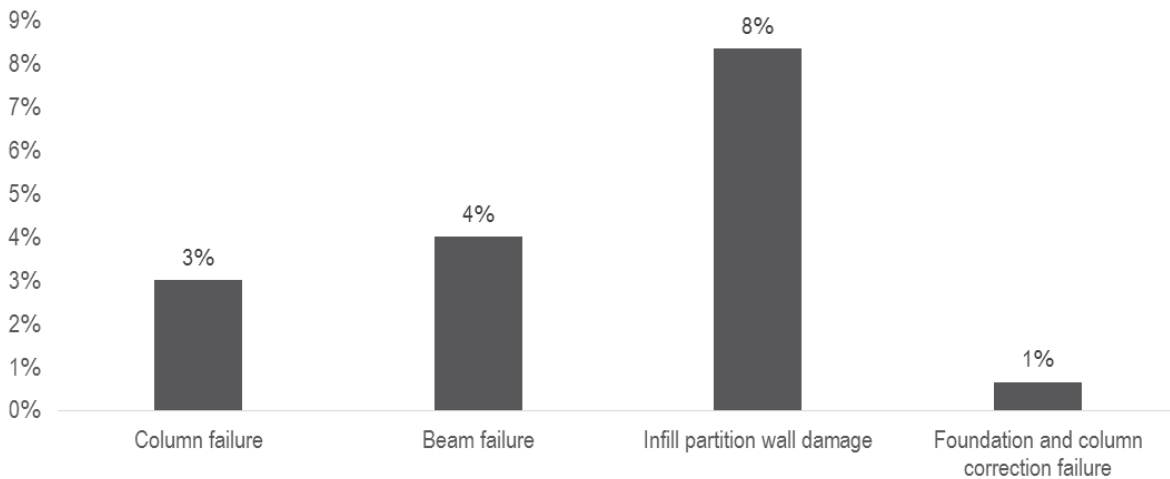
Reinforced concrete frame structures generally fared better in all damage categories, as shown in table 9. Table 10 shows the level of damage specific to load bearing masonry, disaggregated by reported wall load bearing structural material. Dry stone showed the highest levels of damage from the earthquake, and gable wall collapse and corner separation were common even in buildings not heavily damaged or totally destroyed by the earthquakes. The disaggregated figures are more significant for the other load bearing masonry, as total destruction or heavy damage to the whole building were below 50%. Stone with cement mortar had higher reports of all specific damage types than stone with mud mortar, although the latter had far higher levels of total destruction and heavy damage (45% compared to 24%). Even so, all houses using stone with cement mortar as a wall load bearing structural material that were not heavily damaged or destroyed reported gable wall collapse. Fired brick with cement mortar showed lower levels of damage across the board than other structural materials.

Table 10: Specific damage reported for load bearing masonry wall structures

Damage type	Dry stone	Stone with mud mortar	Stone with cement mortar	Fired brick with mud mortar	Fired brick with cement mortar	Unfired mud brick with mud mortar
Damage to whole house	76%	45%	24%	33%	4%	44%
Cladding damage	-	23%	30%	21%	14%	25%
Corner separation	11%	28%	36%	42%	14%	43%
Diagonal cracking	10%	33%	48%	49%	27%	47%
Out of plane failure	7%	16%	28%	22%	8%	24%
Gable wall collapse	7%	16%	20%	10%	1%	25%
Delamination	7%	14%	20%	16%	4%	14%

For reinforced concrete frame only 1% of structures across the sample were heavily damaged or destroyed. On specific damage to reinforced concrete frame structures, no indicator was reported more than 8%, which was damage to infill/ partition wall material. The small proportion makes it unreliable to further disaggregate damage to wall infill further by material used for the wall infill. Total destruction to a specific element was not recorded for any indicator. Figure 16 shows specific damage to reinforced concrete frame buildings. These findings corroborate those of the National Planning Commission that gable wall collapse and out of plane failure were primary causes of failure in masonry structures (although the NPC observations include the causes of total damage, which are not reflected in this assessment's findings).<sup>14</sup>

**Figure 16: Specific damage levels for reinforced concrete frame buildings**



### *Site-specific hazards*

Site-specific hazards were reported by 31% of respondents in the priority districts. The reports of hazards varied by district. Rasuwa had the highest reported levels of site-specific hazards, with slope movement (55%), ground subsidence (52%) and ground fissures (50%) reported by half of respondents, and rock fall (34%) also commonly reported.

There was little variation in the reporting of site-specific hazards by vulnerable groups. Households with a vulnerability score of 10+ were marginally more likely to report a site-specific hazard (53%) than those with lower vulnerability scores. There was no variation by male and female headed households. Those from the Janajati indigenous group were less likely to report no site-specific hazards (57%) than those surveyed from Dalit (64%), Chettri (73%) and Brahmin (62%) castes. Those in rural or locations above 1500 metres were more likely to cite site-specific hazards than those in urban locations or below 1500 metres.

## **Seasonal Preparations and Temporary Shelter**

### *Monsoon and winter preparedness*

Across the priority districts only 2% of households reported that their current shelter is not at all protected from rain, and only 6% believe that their current shelter is not at all prepared for snow and cold weather. Over 50% in all districts reported that they believed their shelter to be rain and weather proof most of the time or more, apart from Dolakha and Gorkha, where 33% and 35% respectively reported that their shelter was prepared for snow and cold most of the time or all of the time. Over half of those in temporary shelter also reported that their shelter was prepared for snow and cold (58%) although with significantly fewer reporting that their shelter was always snow and cold resistant (20%) than those in permanent shelter (59%). 11% of those in temporary shelter reported that the shelter was not at all prepared for cold and snow, compared to 2% of those outside of temporary shelter.

<sup>14</sup> National Planning Commission, *Post-Disaster Needs Assessment*, p. 13

Table 11: Preparedness of current shelter for rain, by district

District	All the time	Most of the time	Some of the time	Never	Didn't live here during monsoon
Bhaktapur	67%	23%	8%	2%	0%
Dhading	38%	32%	20%	7%	2%
Dolakha	6%	45%	48%	0%	1%
Gorkha	11%	58%	24%	6%	0%
Kathmandu	90%	9%	1%	0%	0%
Kavre	25%	54%	17%	4%	0%
Lalitpur	84%	13%	3%	0%	0%
Lamjung	75%	21%	3%	1%	0%
Makwanpur	22%	39%	38%	1%	0%
Nuwakot	57%	38%	6%	0%	0%
Okhaldhunga	59%	30%	9%	2%	0%
Ramechhap	7%	31%	63%	0%	0%
Rasuwa	26%	71%	2%	0%	0%
Sindhuli	56%	28%	14%	1%	0%
Sindhupalchok	33%	43%	24%	0%	0%

Households in urban areas were more likely to report their house was prepared for rain (71%) and cold (71%) all of the time than rural areas (33% and 32% respectively). However, there was no significant corresponding increase in the proportion of households in rural areas reporting that their shelter was never rain-proof or would not be prepared for the cold and snow. This was mirrored in hard to reach areas, where 28% believed their household was prepared for rain, and 31% believe it to be winter prepared all the time, compared to 48% and 47% in areas accessible by road. A lower proportion of households in hard to access areas believed their shelter was not prepared for winter at all (1%), than those in areas with road access (7%). This same pattern holds true for elevated areas, with lower proportions believing their shelter is always prepared (29% for rain and 28% for cold) in areas above 1500 metres, than those in areas below 1500 metres (52% for both indicators), but no corresponding rise in number of households reporting their shelter is not at all prepared.

Table 12: Preparedness of current shelter for snow/ cold by district

Area	All the time	Most of the time	Some of the time	Never	Don't know
Bhaktapur	62%	13%	7%	6%	11%
Dhading	27%	32%	30%	11%	0%
Dolakha	5%	28%	49%	18%	0%
Gorkha	6%	28%	48%	18%	0%
Kathmandu	93%	5%	1%	0%	0%
Kavre	21%	33%	29%	18%	0%
Lalitpur	83%	9%	5%	0%	3%
Lamjung	74%	21%	4%	1%	0%
Makwanpur	24%	51%	18%	0%	7%
Nuwakot	57%	38%	4%	1%	1%
Okhaldhunga	65%	16%	17%	3%	0%
Ramechhap	5%	11%	57%	27%	0%
Rasuwa	26%	71%	2%	1%	0%
Sindhuli	64%	20%	14%	2%	0%
Sindhupalchok	43%	36%	22%	0%	0%

There was a marginal, not significant, increase in the proportion of households with higher vulnerability scores reporting that their house was not at all prepared for cold.

Across all districts over 90% of households reported they do not habitually move for winter. There was no significant variation by elevation (over/under 1500 metres), access conditions or vulnerability. However, a higher

proportion, up to 24% in Lalitpur, indicate that they do intend to move this coming winter. There were marginal although not statistically significant variations by access (those with road access 6% more likely to move), and elevation (those below 1500 metres 4% more likely to move). Those who do not use coping strategies reported they intended to move more commonly (13%) than those reporting negative shelter related coping strategies (8%).

A greater variation was found when considering the experiential and predicted element of proofing homes. Of those whose house was protected from the rain during the monsoon only some of the time, 18% reported that they would move this winter, compared to 7% of those who reported their current shelter was rain-proof. Similarly 18% who

### Box 3: Seasonal preparedness in Lamjung

Lamjung reported a high level of preparedness for seasonal conditions, with 75% reporting their shelter was completely rain-proof, and 74% reporting it was completely protected from cold and snow. This reflects the lower levels of damage, and higher proportions of households still dwelling in their pre-earthquake house, compared to other districts. The reported rates of those in Lamjung intending to spend winter in temporary shelter was the lowest outside of Kathmandu, at just 8% of those surveyed in Lamjung.

believe their current shelter is not prepared for the snow and cold indicated an intention to move, compared to 7% of those who believe their shelter is prepared.

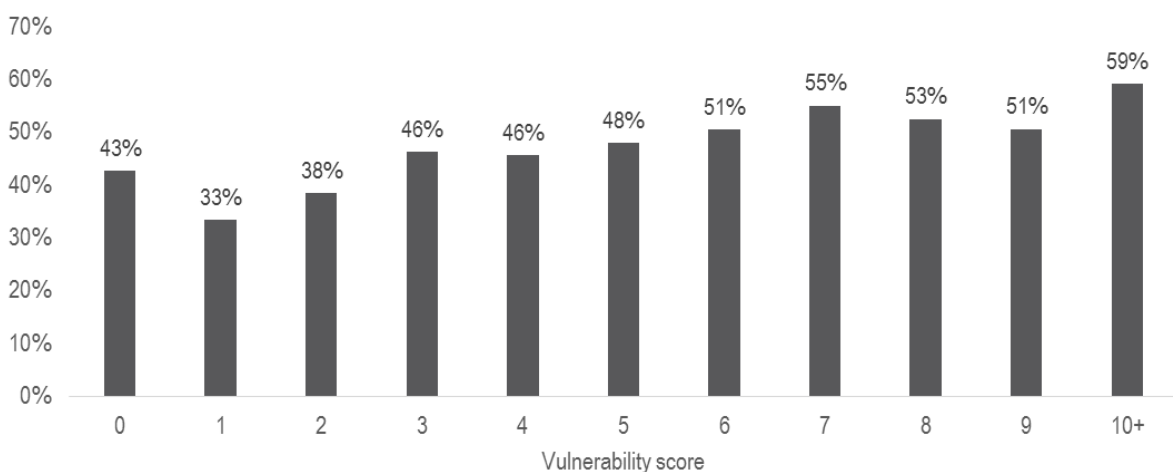
The above suggests, a) that there will not be a significant movement of people in preparation for winter, although perhaps greater than in previous years, b) that elevation, location type and access are not sufficient indicators for predicting winterisation needs. A greater indicator could be targeting by district or specific VDCs where temporary shelter is a prevalent shelter type, especially given the limited progress on rebuilding and repairs, and the lack of time to enact longer-term recovery initiatives before winter.

### Temporary shelter

The focus of assistance on life-saving or short-term need is further demonstrated by the predominate use of two key assistance items, CGI items and tarpaulin, for temporary shelter. Across the priority districts 81% of respondents receiving CGI and 80% of those receiving tarpaulin have used the materials for temporary shelter. The use of CGI for households' pre-earthquake house was higher in Lalitpur (22%), Makwanpur (14%) and Sindhuli (29%) than other districts. The only other significant uses of the materials were CGI being stored for future use (7% in the priority districts), and tarpaulin use as storage for assets (8% in the priority districts). However, it is worth noting that many households will be able to reuse CGIs for their permanent house, although this is not covered in the responses. The use of CGI and tarpaulin did not vary by access conditions, although there was a slight variation in vulnerability, with a higher proportion of those with a 10+ vulnerability score reporting that they had stored CGI for future use (26%).

Temporary shelter was reported as the expected winter shelter type for 41% of households in the priority districts, encompassing those households currently in temporary shelter and expecting to remain, and those households who indicated they will move to temporary shelter for the winter. Urban areas inevitably have a lower proportion of households expecting to spend winter in temporary shelter than rural locations, 21% of households compared to 63%. Those households in elevated locations also reported a higher instance of temporary shelter, 74% of those above 1500 metres, compared to 39% among those below 1500 metres. Similar figures for hard to access areas are prevalent, with 77% in areas with no road access expecting to spend winter in temporary shelter, compared to 46% in areas with road access.

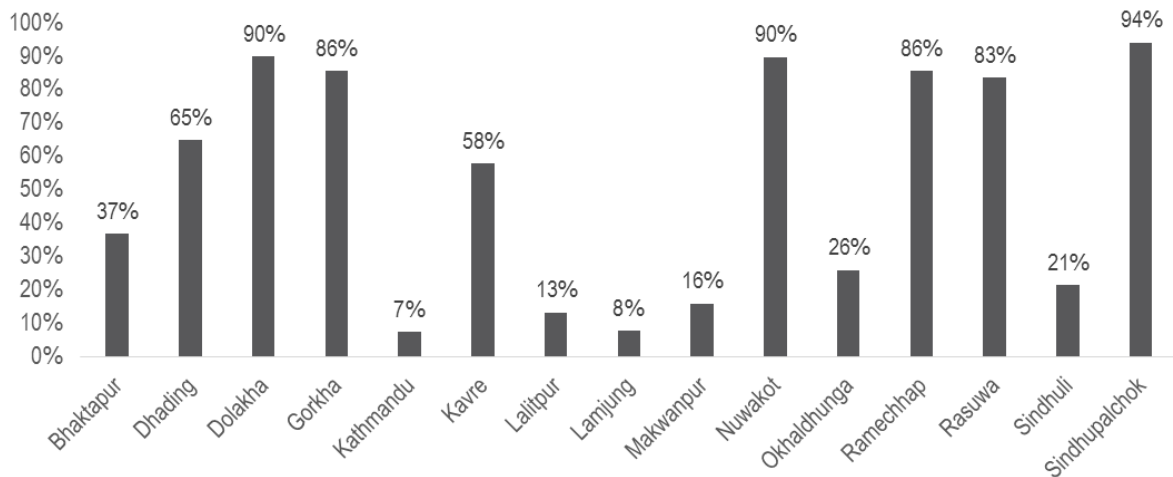
Figure 17: Proportion of households expecting to spend winter in temporary shelter, by vulnerability score



As shown in figure 17, above, there is a marginal increase in the proportion of households expecting to spend winter in temporary shelter disaggregated by vulnerability score, but this is not as significant as disaggregation by access, location type and elevation. There is a variation by caste, with Dalit households reporting they expect to spend winter in temporary shelter (60%) more frequently than Brahmin (52%), Janajati (47%) and Chettri (36%).

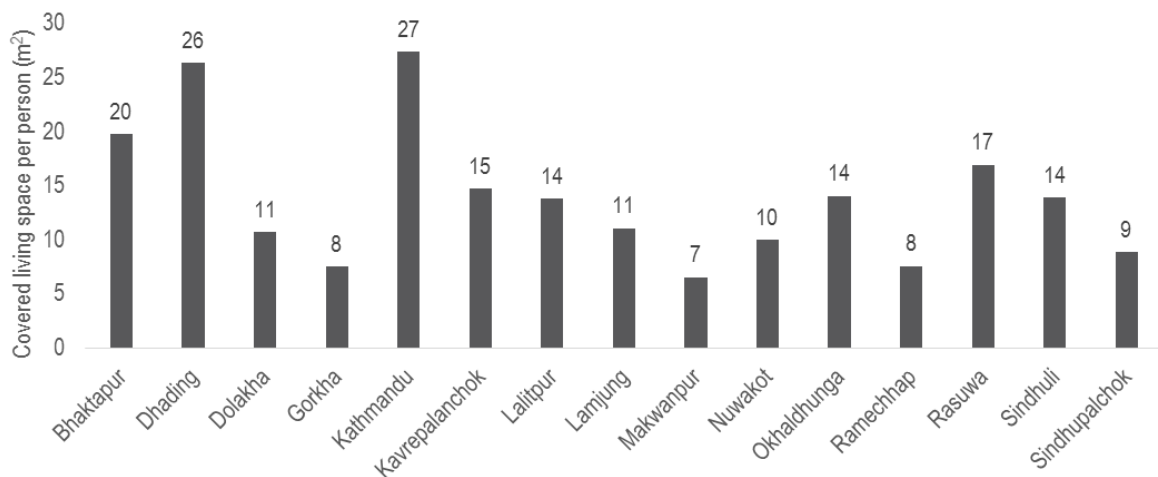
It is not possible to judge conditions for those moving to temporary shelter directly, but examining the 43% currently in temporary shelter gives an indication. There is substantial variation by district, with over 90% of those surveyed in Sindhupalchok, Nuwakot and Dolakha currently residing in temporary shelters, while in urbanised districts far fewer live in this type of shelter arrangement. Figure 18 shows the proportion living in temporary shelter by district.

Figure 18: Households currently in temporary shelter by district



Across the sampled areas the average total living space for those in temporary shelter is 64 square metres, equating to 13 square metres per person on average. 14% of households living in temporary shelter were reported to have a covered living space below the SPHERE standard of 3.5 square metres per person. This was particularly high in Bhaktapur (26% below SPHERE standard), Gorkha (28%), Kavre (25%), Lamjung (33%) and Sindhuli (27%). The figure for Gorkha is particularly concerning given that 86% of households in that district reported they were living in temporary shelter.

Figure 19: Average square metres per person in temporary shelter



The main types of wall materials for temporary shelters are CGI (71%), and timber (61%), although there is significant variation by district. For example bamboo is reported in over 50% of temporary shelters in Gorkha, Kavre, Okhaldhunga, Ramechhap and Sindhuli. The type of shelter material was not linked directly to whether or not households had received assistance, although those who reported receiving assistance were more likely to have used Tarpaulin (18%) and timber (62%) than those who did not receive assistance (8% and 31%), and less likely to have used bamboo (36% compared to 46%).

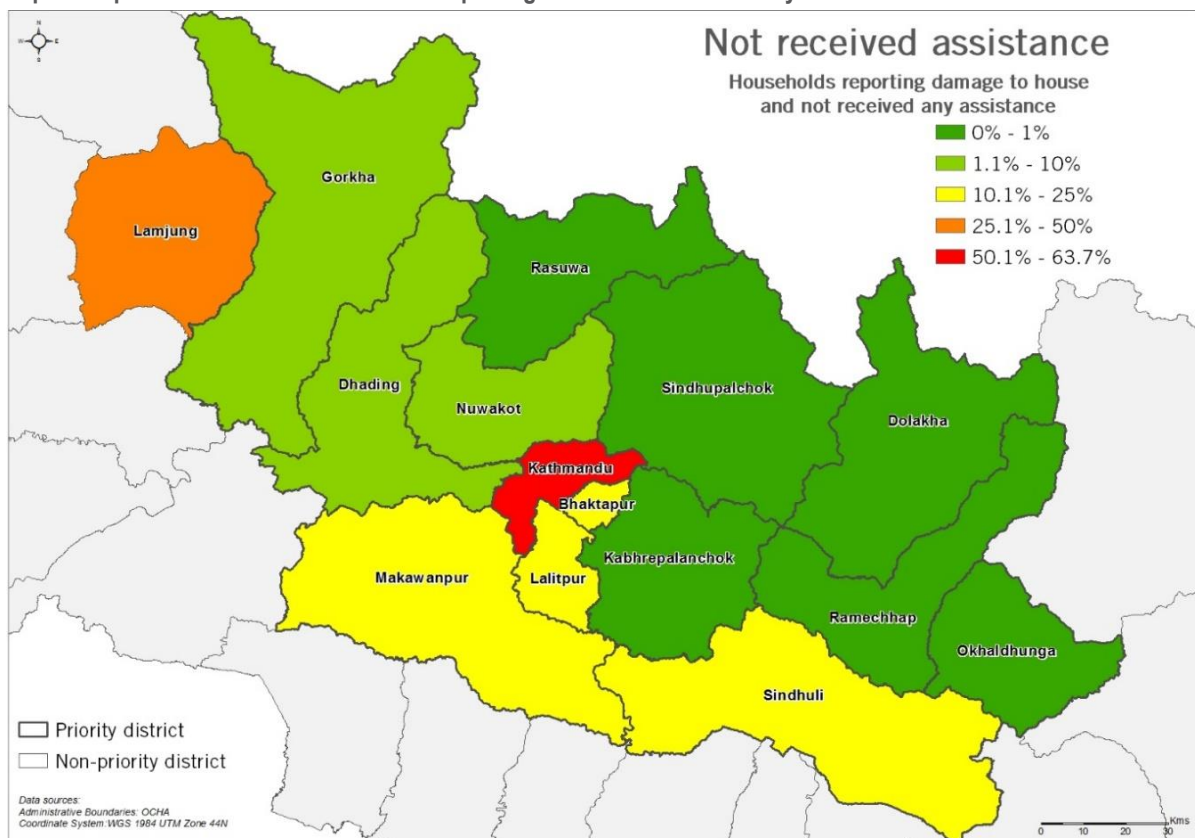
The roof material overwhelmingly used CGI (90%) with only temporary shelters in Okhaldhunga (48%) reporting its use in below 50% of cases. These findings indicate significant progress in the quality of temporary shelter building materials since the baseline assessment, where the most common wall material was tarpaulin (17%) and 1% had no walls at all. Similarly, while CGI was the most common roof material in the baseline assessment as well, its use has expanded in all districts. Okhaldhunga had a higher use of tarpaulin (45%) and bamboo (45%) than most other districts. In general those in temporary shelter were less optimistic about their shelter’s weather resistance than those not in temporary shelter, with 20% reporting they expect to be protected from snow and cold all of the time, and 11% not expecting to be protected at all, compared to 72% and 1% in non-temporary shelter.

## Assistance and Access to Services

### Assistance received

In all, 77% of respondents reported that they had received shelter assistance, although this includes 17% of those who received shelter assistance despite the fact their house were not damaged in the earthquakes. This is an increase on the baseline assessment finding that only 57% had received assistance. The highest percentage of households reporting they had not received shelter assistance by district was in Kathmandu, where 64% of affected households claimed they had received no shelter assistance. The district level findings for affected households reporting they had not received shelter assistance are shown in map 5.

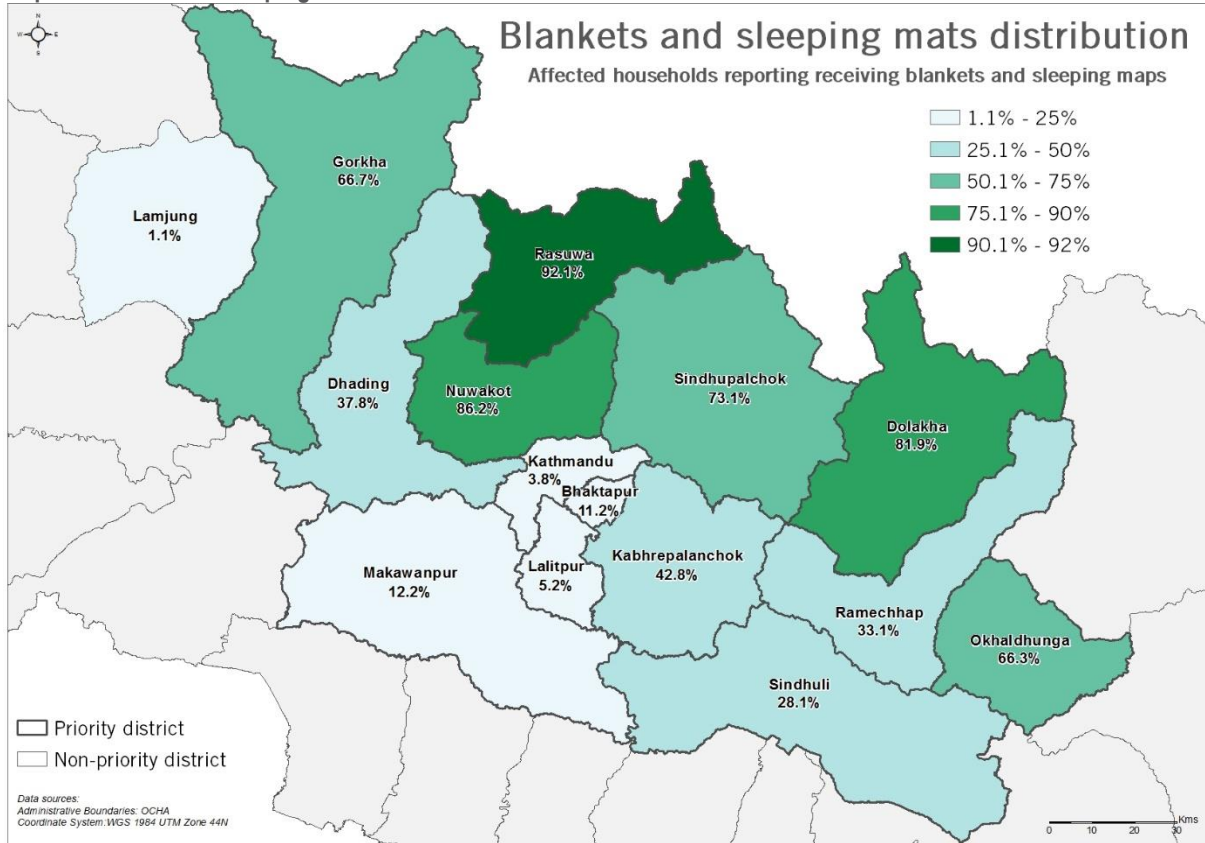
Map 5: Proportion of affected households reporting no shelter assistance by district



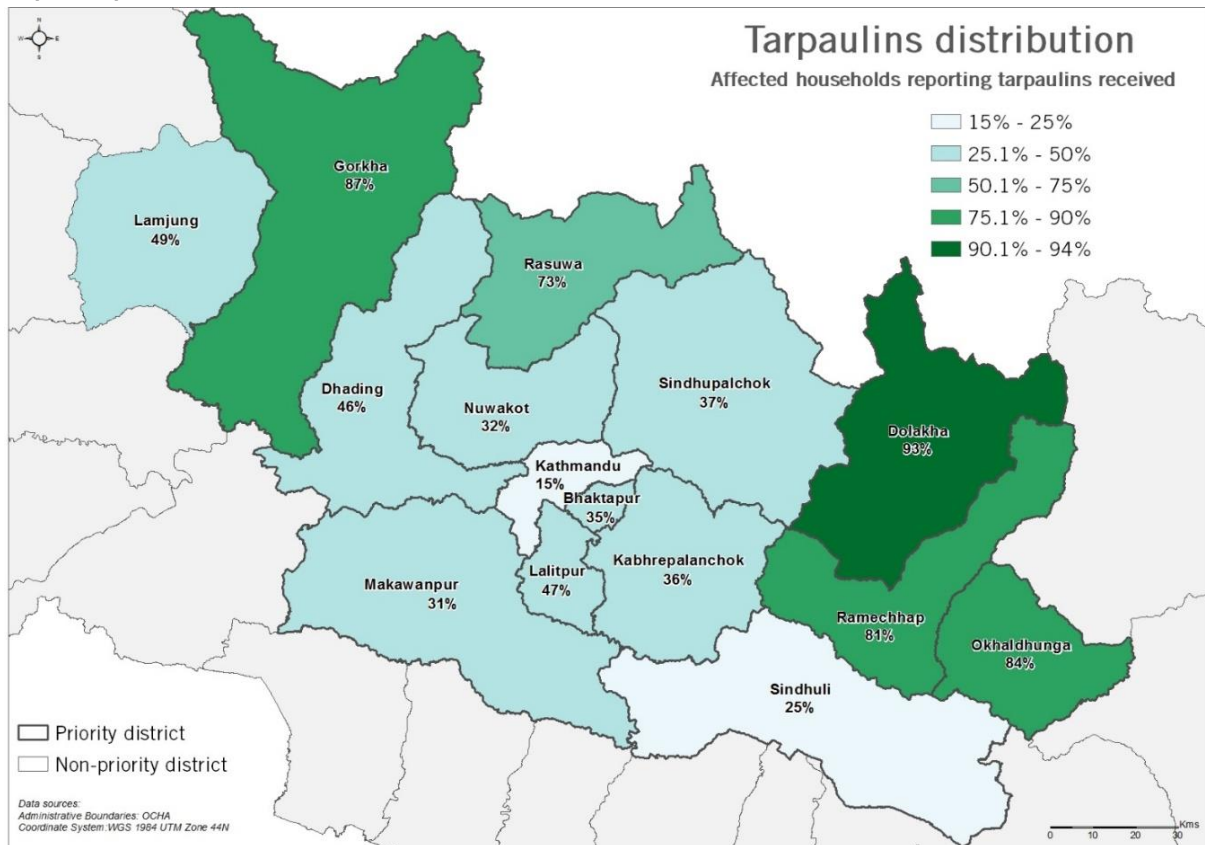
Cash was the most commonly received assistance reported by respondents, at 57% in the priority districts and 55% overall. Cash assistance in this instance covers all cash, regardless of purpose, rather than cash specifically for shelter intervention. The most common shelter specific assistance reported in the priority districts were tarpaulin (36%), tents (32%), blankets and sleeping mats (31%) and CGI (23%).



Map 6: Blankets and sleeping mats received

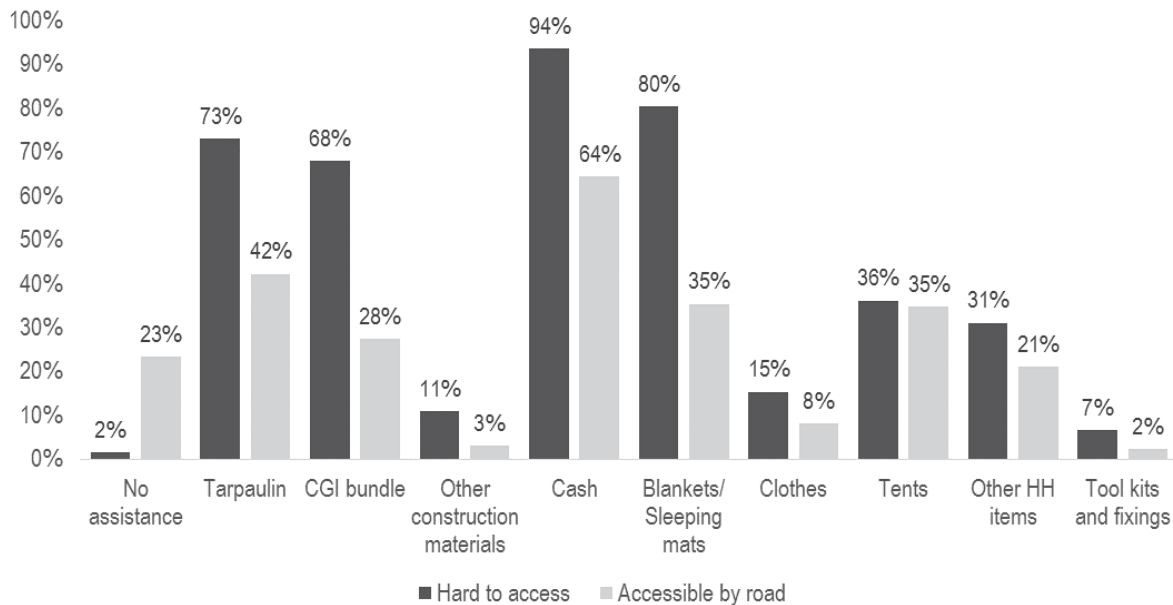


Map 7: Tarpaulin assistance received



Regarding access, the receipt of assistance is not adversely correlated with the difficulty of access. In fact, as shown in figure 20, hard to access areas reported marginally higher rates of assistance than areas accessible by road, most likely a result of lower assistance being recorded in urban areas such as Kathmandu. This is corroborated by the fact that only 11% of respondents in rural areas reported they had received no assistance, compared to 44% in urban environments. This is a continuation of the trend observed in the Asia Foundation report of June 2015, which noted that "According to survey findings, aid was even more likely to have been received in remote areas, than in accessible areas".<sup>15</sup> In both hard to access and rural areas the reported receipt of cash (94% and 78% respectively), blankets and sleeping mats (80% and 55%), tarpaulin (73% and 57%), and CGI (68% and 41%) were especially high.

Figure 20: Assistance received by accessibility<sup>16</sup>



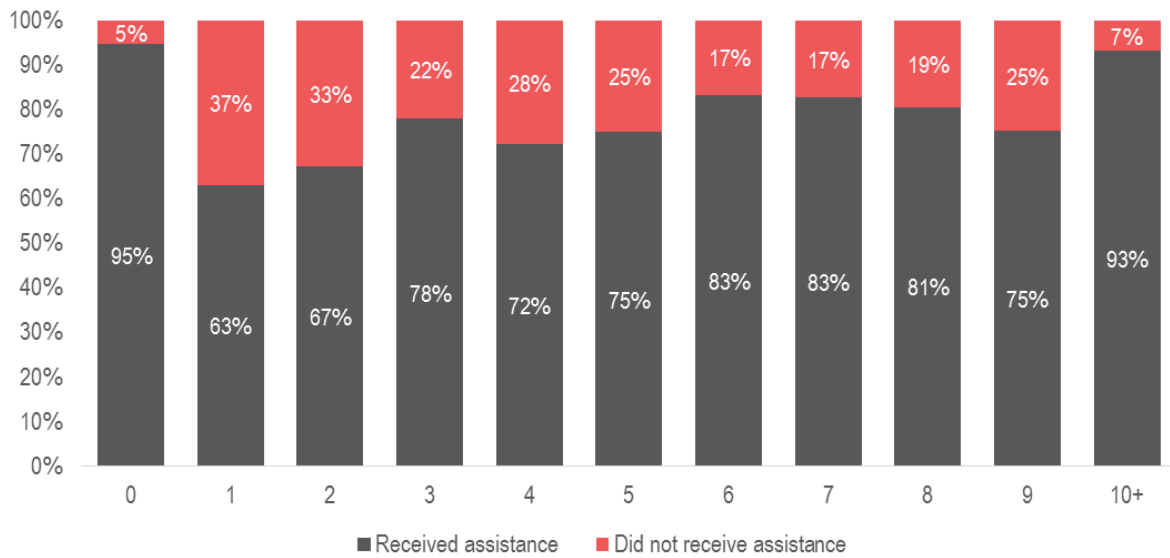
There was little or no variation in received assistance by vulnerability. As shown in figure 21, while those with a vulnerability score of 10+ reported the second highest rate of assistance (93%), possibly the effect of vulnerability targeting, the highest rate of assistance was reported by those with no vulnerability on the current score-card used by the shelter cluster, which reflects the use of vulnerability targeting in assistance provision. In addition, perhaps also suggesting the presence of vulnerability targeting, there was a variation in assistance by caste, with Janajati (78%) and Dalit (90%) respondents reporting the receipt of assistance at a higher rate than Brahmin (74%) and Chettri (67%). This reflects on the conclusions of the findings of the Asia Foundation in June 2015 that caste and head of household gender were not determinate factors in the receipt of aid.<sup>17</sup>

<sup>15</sup> The Asia Foundation, *Independent Impacts and Recovery Monitoring Nepal Phase 1: June 2015*, p. 33

<sup>16</sup> Respondents could choose multiple options

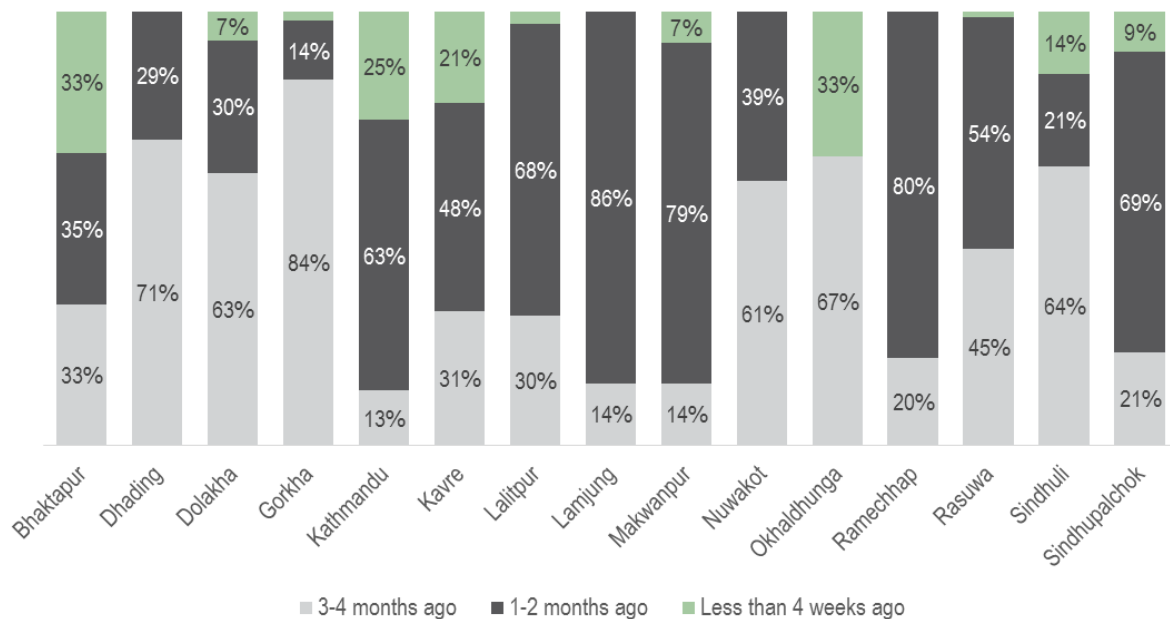
<sup>17</sup> The Asia Foundation, *Independent Impacts and Recovery Monitoring Nepal Phase 1: June 2015*, p.VIII

Figure 21: Assistance received by vulnerability score



The survey asked respondents to state all points when they have received CGI assistance, as a proxy for assistance timelines. Of respondents receiving CGI in the priority districts, 14% received in the last 4 weeks, 50% received 1-2 months ago, and 38% received 3-4 months ago. This suggests that very few respondents have received duplicate distributions, with almost identical timelines recorded for the last receipt of CGI assistance. Figure 22 shows when households last received CGIs by district.

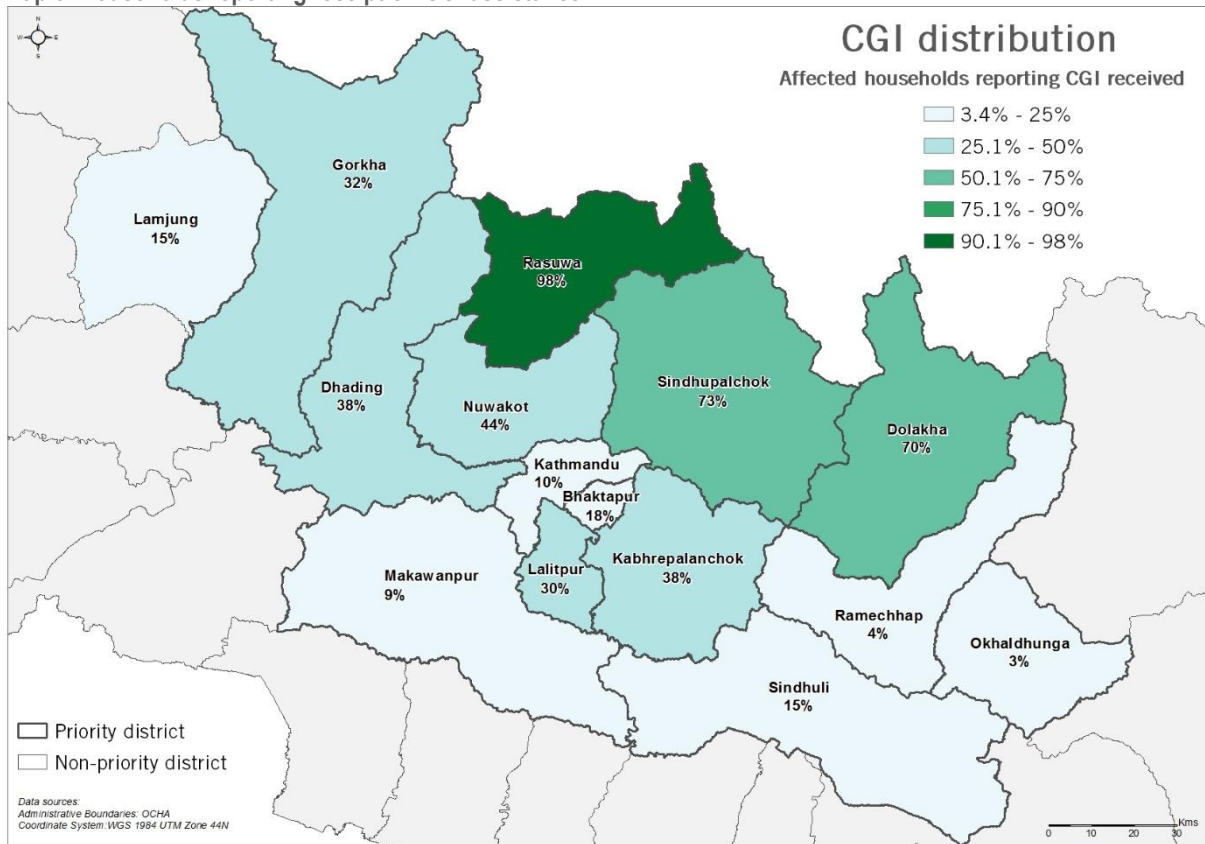
Figure 22: Proportion of households who received CGI assistance by point in time when assistance last received



The source of assistance was heavily weighted towards INGOs, local authorities and other government agencies – reported by 50%, 62% and 43% of respondents respectively who received assistance in the priority districts. In Kathmandu, a relatively high proportion reported receiving assistance from religious institutions (10%), a trend that was not repeated in other districts. Private sector companies were reported as a source of assistance by only 1% of respondents in the priority districts, and surprisingly less than 1% of respondents in Kathmandu. This could indicate a lower than expected delivery of assistance by the private sector, but it could also indicate either the delivery of assistance indirectly through local charities, or poor messaging at distributions. Separately gathered

information by the Shelter Cluster Nepal indicates that there is significant assistance being delivered by the private sector, which suggests that recipients are unclear about the source of this assistance, and erroneously attribute it to governmental or INGO sources.

Map 8: Households reporting receipt off CGI assistance

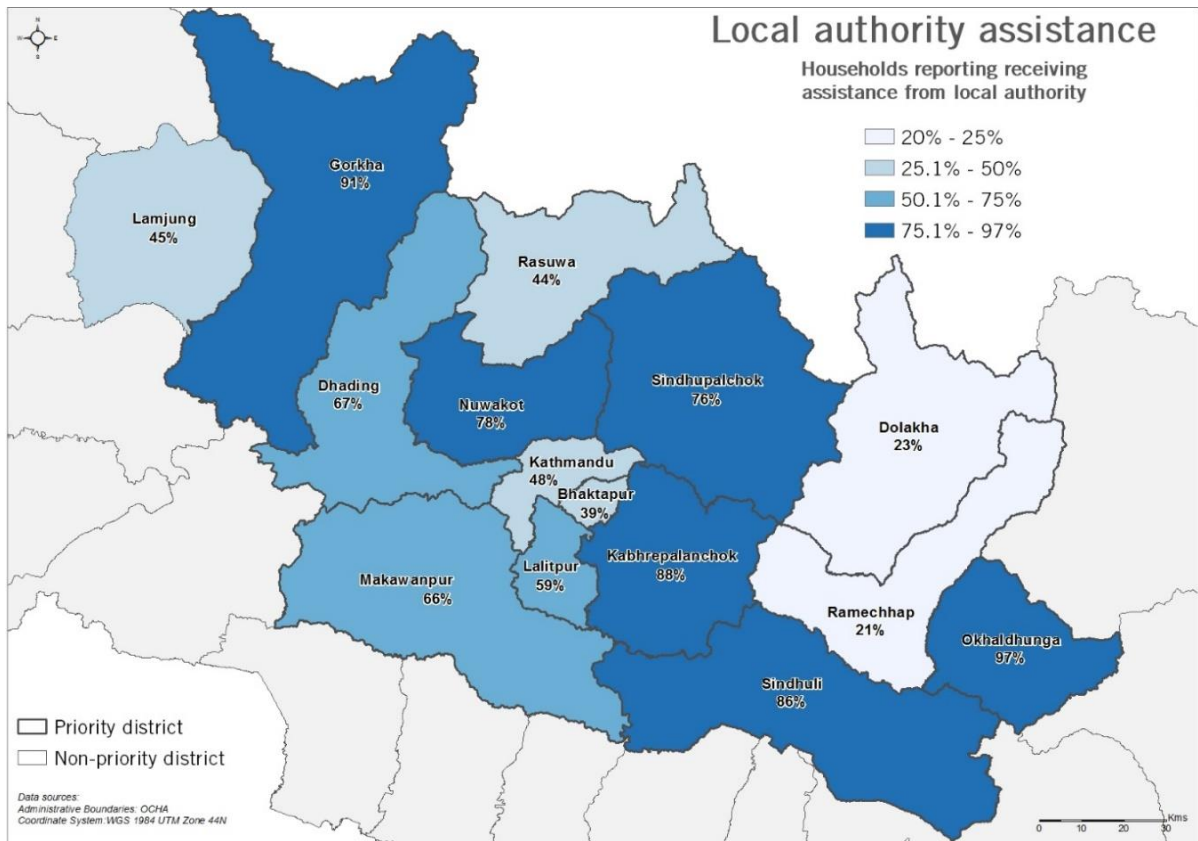


**Box 4: Assistance in Lamjung**

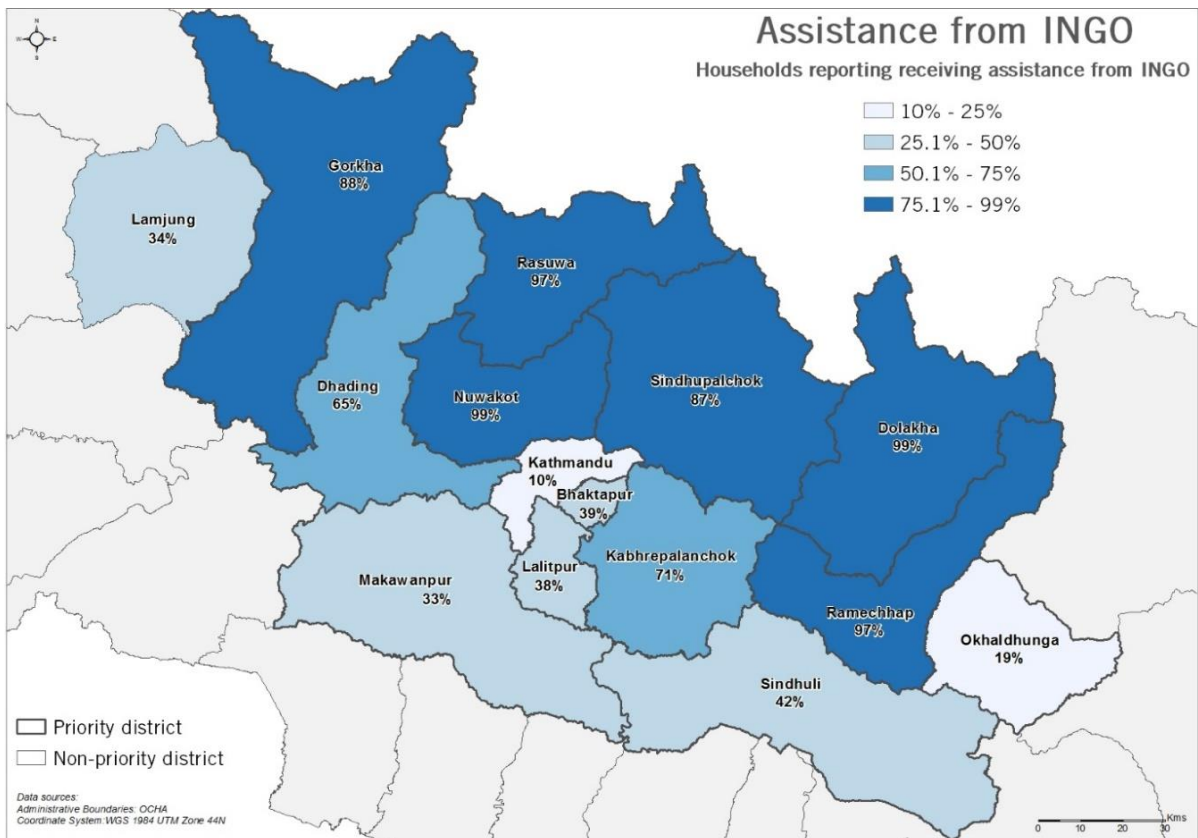
Lamjung, which is not a priority district, reported the second highest rate of non-assistance among affected populations (44%). Lamjung was the only district where receipt of vouchers was reported, although less than 1% of respondents in the district reported this form of assistance. Unlike the priority district average, where cash was the most commonly reported form of assistance, tarpaulins were the most commonly reported assistance in Lamjung, by 30% of the population. The use of CGI for the households' pre-earthquake house was higher in Lamjung (21%) than most of the priority districts, reflecting the higher proportion of households who still reside in their pre-earthquake house. Generally, the assistance reported in Lamjung was last received after the emergency phase (with only 14% reporting receiving 3-4 months ago), but with no respondents reporting having received assistance within the last month.

Lamjung reported a higher access to banking services (59% of households) than the priority district average (48%), and 90% reported they had access to a financial service, compared to 81% in the priority districts. Like in the priority districts the most commonly used type of financial service was cooperatives (69%), followed by banks and money transfer agents (13%).

Map 9: Sources of assistance - INGO

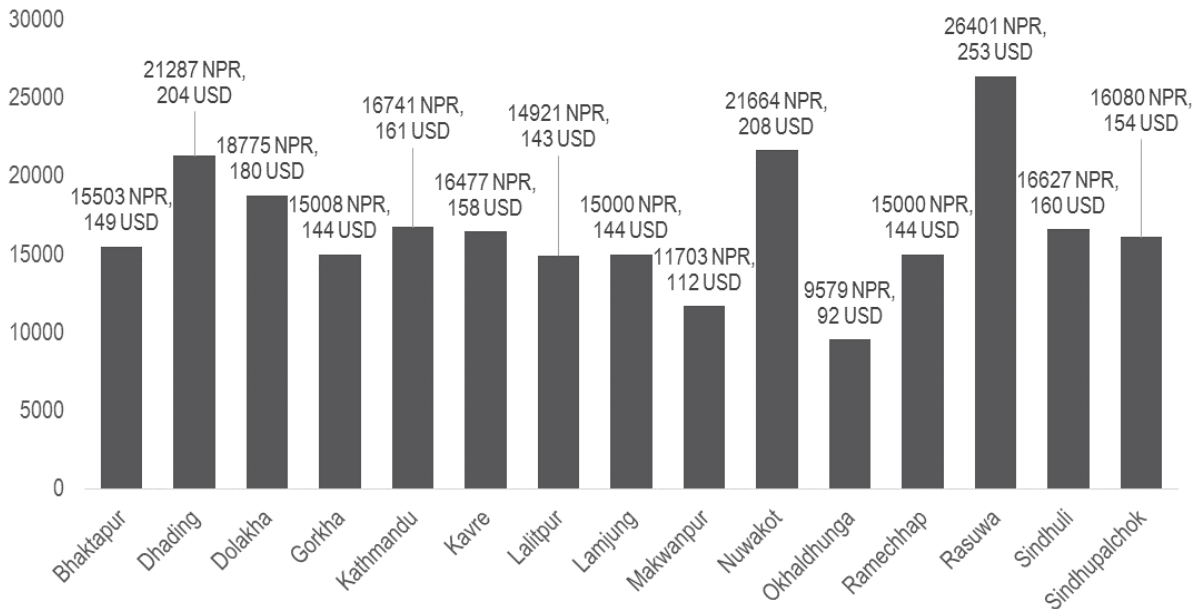


Map 10: Sources of assistance - Local authorities



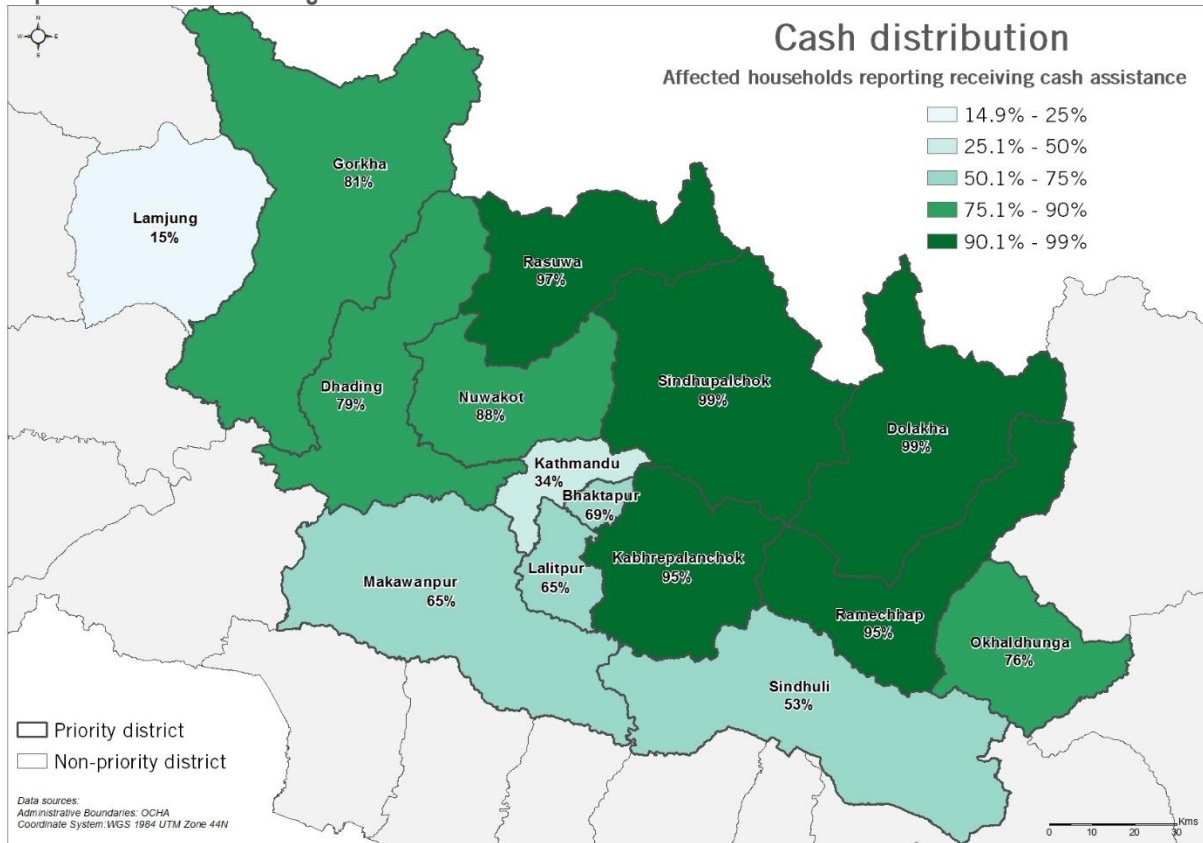
The link between households receiving remittances and the source of assistance was not as might be expected. While households reporting remittances as one of their current income sources were not more likely to have received assistance from family or friends abroad (1%) than those not receiving remittances (2%), they did report receiving assistance from INGOs (73%) and local authorities more than households without remittances as a current income source (67% and 59% respectively). As stated above, cash assistance was reported by 57% of respondents, with a variation in amount between districts.

Figure 23: Average cash assistance by district



The average of cash assistance received is higher in hard to access areas (23,288 NPR, 224 USD) than in areas accessible by road (16,596 NPR, 159 USD), with 94% of respondents in hard to reach areas receiving cash assistance compared to 64% in areas with road access. This suggests there has been a degree of area targeting in cash programming.

Map 11: Households receiving cash assistance



The expansion of cash programming is evident in the comparison with the Asia Foundation report from June 2015, with proportions reporting receipt of cash rising in all comparable districts.<sup>18</sup>

The primary expenditure of cash assistance has been on short-term primary needs, with the most commonly reported item being CGI (57% in the priority districts), followed by food (44%) and construction materials (24%). This reflects the specific cash assistance provided for both food and shelter. Expenditure of cash assistance on health (13%) is high, possibly a corroboration of the high proportion of households reporting a disabled or chronically ill member (see demographics section, above). There is little variation by district, with CGI and food being in the top three cash assistance expenditures in every district assessed. Health costs were particularly high in Sindhupalchok (45%) and Rasuwa (37%). The high levels of shelter assistance received reflects the success of cash interventions as well as initial material distribution. While the findings correlate with those of the Asia Foundation in June that shelter and food were the commonly received assistance types, the expansion of cash programming and CGI distribution has meant many more households receiving CGI in the period June-October. In June the Asia foundation reported that only 10% had received CGI.<sup>19</sup>

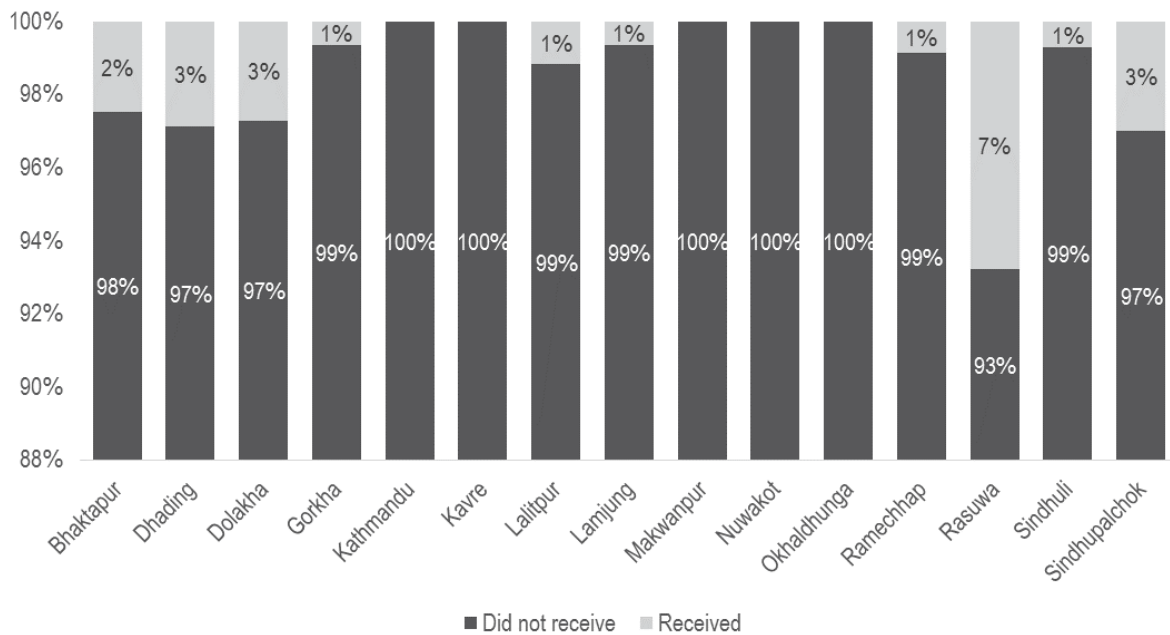
In addition to cash assistance spent, over half of all households in Dolakha, Gorkha and Kavre reported spending more than 15,000 NPR (144 USD) of their own money on shelter needs or household items since the earthquakes. This is considerably above the district average of 27%. No respondents had not spent anything on shelter or household items, although 20% reported that they were unaware of how much had been spent. There was little variation in amount spent by access, with marginally fewer of those in hard to access areas (29%) spending over 15000 NPR (144 USD) than those in accessible areas (34%), possibly a result of the higher receipt of cash assistance in hard to reach areas. Those who did not receive assistance were less likely to be aware of spending costs on shelter or household items since the earthquake, 45% compared to 9% of those receiving assistance.

<sup>18</sup> The Asia Foundation, *Independent Impacts and Recovery Monitoring Nepal Phase 1: June 2015*, p.30

<sup>19</sup> The Asia Foundation, *Independent Impacts and Recovery Monitoring Nepal Phase 1: June 2015*, p.26

The majority of assistance has been focused on emergency life-saving assistance, rather than long-term recovery. This is also reflected in the remarkably low rates of respondents across all districts reporting they had received technical assistance, materials or training. The survey question was broad, including household and community level trainings, practical demonstrations, technical support from skilled professionals, and messaging through a variety of media. Despite this less than 1% across the priority districts reported receiving any messaging, the highest reporting being 7% in Rasuwa. Over 99% reported that they have not received technical training or materials. This is despite the existence of several technical messaging documents by various actors, and suggests that greater emphasis on a strategy for the transfer of technical advice is required.

Figure 24: Households reporting the receipt of technical assistance, training or messaging



### Access to services and utilities

There was considerable variation between districts in the level of electricity access. While 86% of households in the priority districts reported they currently have access to the mains electricity network, 17% in Dolakha, 16% in Okhaldhunga and 24% in Sindhupalchok reported that they do not have current access to electricity. Okhaldhunga generally reported a far lower proportion of mains electricity connection than other districts (9%), with more respondents there indicating that their primary electricity source is micro hydro (38%) or solar power (37%). The survey asked for only the primary source, so the increased use of micro-hydro and solar power does not equate necessarily to a lack of mains provision in Okhaldhunga, as it could represent the greater availability and economy of alternative power sources.

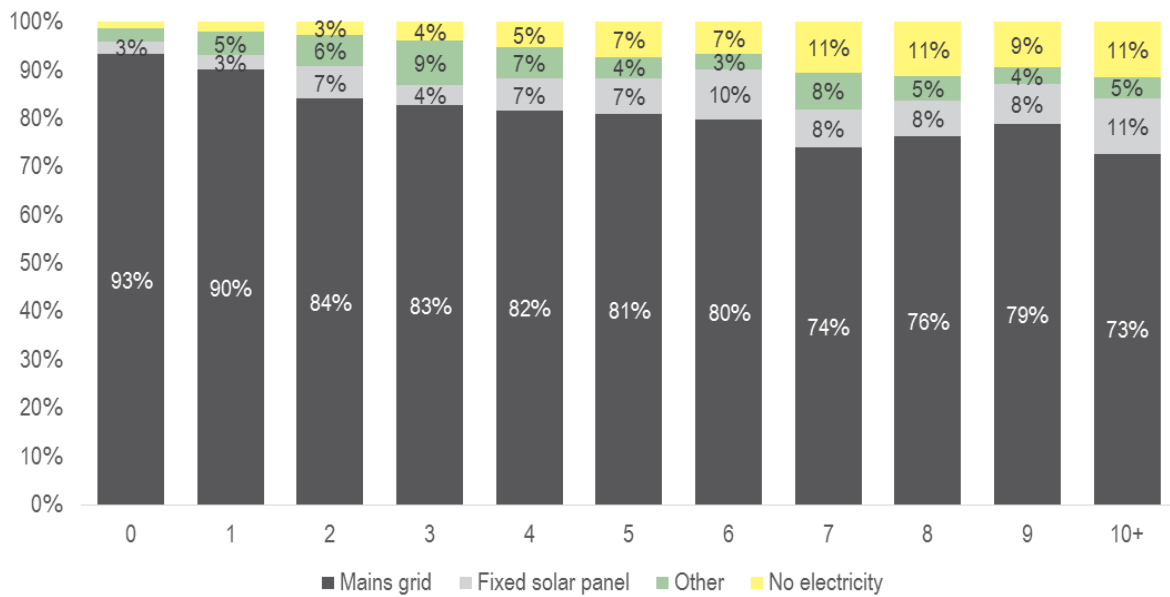


Table 13: Primary electricity source, by district

District	Mains grid	Fixed solar panel	Micro-hydro	Other	No electricity	Do not know
Bhaktapur	93%	0%	0%	2%	2%	2%
Dhading	68%	10%	14%	1%	6%	0%
Dolakha	68%	15%	1%	0%	17%	0%
Gorkha	87%	6%	0%	0%	6%	0%
Kathmandu	99%	0%	0%	0%	0%	0%
Kavre	91%	1%	7%	0%	0%	0%
Lalitpur	86%	0%	13%	0%	0%	0%
Lamjung	87%	1%	10%	0%	2%	0%
Makwanpur	87%	10%	0%	2%	1%	0%
Nuwakot	95%	0%	0%	0%	5%	0%
Okhaldhunga	9%	37%	38%	1%	16%	0%
Ramechhap	68%	26%	0%	0%	6%	0%
Rasuwa	86%	2%	0%	0%	12%	0%
Sindhuli	77%	17%	4%	0%	3%	0%
Sindhupalchok	74%	2%	0%	0%	24%	0%

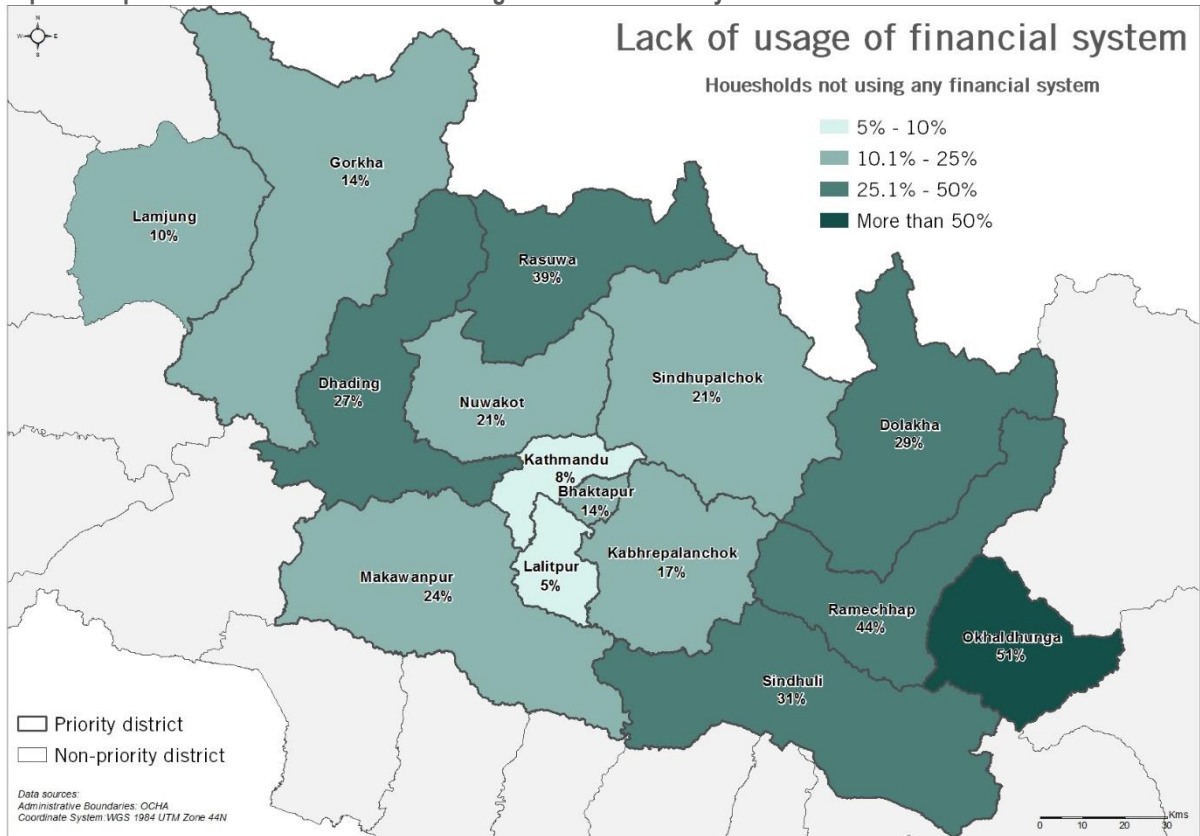
While rural areas do, in general, have less reliance on the mains grid than urban areas, 73% compared to 95%, the lack of no electricity in rural areas (9%) is not drastically higher than urban areas (1%). There is a large variation in both mains access and no electricity between hard to reach areas (49% and 30%) and areas accessible by road (85% and 3%). There is also a gradual decrease in mains access and an increase in lack of electricity by vulnerability score, as shown in figure 25.

Figure 25: Primary electricity source, by vulnerability



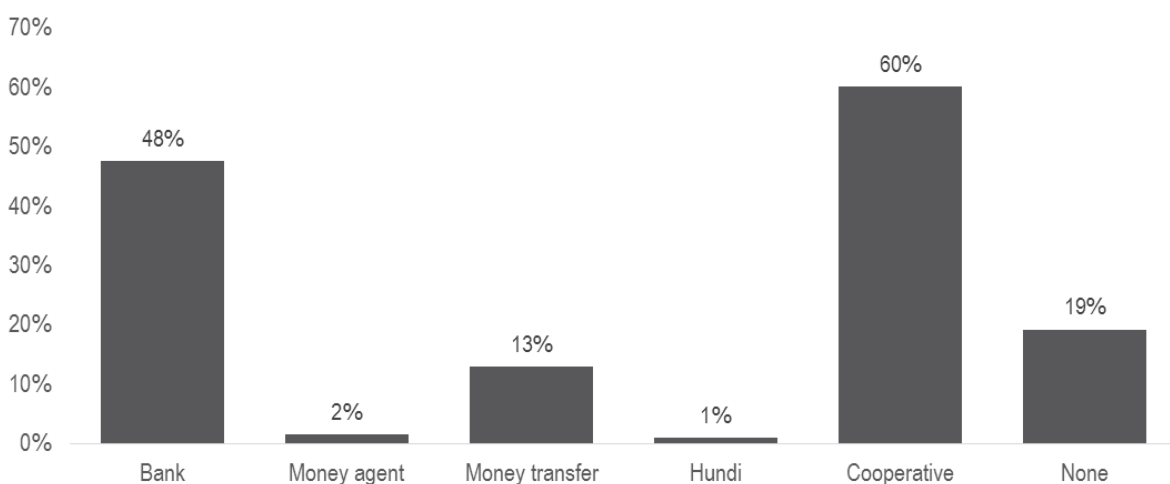
The distribution of sources of drinking water is much more directly linked to district, and shows little variation between rural and urban, access conditions, and vulnerability. While 73% of households surveyed in the priority districts reported their primary drinking water source was piped, significant proportions in Okhaldhunga (53%) and Sindhuli (41%) reported covered well, which is also not uncommon in Kathmandu (16%). In Okhaldhunga a significant proportion (37%) also reported their primary source of drinking water was from a river or stream. However, given that a majority in Okhaldhunga report using a flush toilet with septic tank (63%), it would seem that there is a piped water supply being used, but not for drinking water. Alternatively, field sources report that the water supply for flush toilets in Okhaldhunga are often fed directly from natural water sources as well. The variation in type of toilet is also linked to access, with 15% of households in hard to reach areas being without a toilet, compared to 3% in accessible areas.

Map 12: Proportion of households not accessing financial services by district



A majority, 81% of respondents in the priority districts, reported that they had access to at least one form of banking service. Cooperatives were the most common service reported, by more than half in all districts apart from Okhaldhunga (23%), Ramechhap (48%) Rasuwa (32%) and Sindhuli (46%). These districts also had the highest reported proportion of households who do not access banking or money transfer services – 51%, 44%, 39% and 31% respectively. This reflects that all of these districts have been relatively peripheral in terms of service provision. Map 12 shows the proportion of households reporting they do not access financial services by district.

Figure 26: Type of financial service access in the priority districts



The lack of financial service access is also closely linked to road access, with 41% of households in hard to reach areas indicating that they do not use any financial services, compared to 20% in accessible areas. Perhaps surprisingly, a higher proportion of households who gave remittances as a current income source also indicated

they do not access financial services (25%) than households not receiving remittances (6%). This indicates that other informal means of money transfer are being used for remittances.

## Current Status

The current status of buildings damaged by the earthquake suggests that efforts to recover from the earthquakes are being stymied. Despite 74% of households in the priority districts reporting damage as a result of the earthquakes in April and May 2014, only 5% report that repairs or rebuilding works have been completed. A further 8% are currently being repaired, while 11% report that their houses have either been demolished, or the site is currently being cleared. This leaves 50% of all households in the priority districts in the same condition as they were immediately following the earthquakes. There is some variation by district, with over 20% of houses in Bhaktapur (20%), Gorkha (24% and Kavre (24%) having begun repairs. Table 14 shows the current status of repairs by district.

Table 14: Current status of repairs/ rebuilding by district

District	Being demolished or site cleared	Repairs started	Demolished	Do not know	Repairs complete	No work started	House not damaged
Bhaktapur	17%	20%	9%	0%	2%	40%	11%
Dhading	13%	4%	23%	1%	7%	50%	3%
Dolakha	9%	1%	19%	0%	1%	70%	0%
Gorkha	4%	24%	8%	0%	2%	62%	0%
Kathmandu	0%	4%	1%	0%	8%	23%	64%
Kavre	2%	24%	3%	0%	4%	66%	1%
Lalitpur	10%	8%	4%	0%	3%	19%	56%
Lamjung	1%	6%	2%	0%	4%	47%	41%
Makwanpur	4%	11%	10%	0%	12%	59%	5%
Nuwakot	8%	5%	1%	0%	5%	81%	0%
Okhaldhunga	0%	8%	0%	0%	2%	65%	26%
Ramechhap	0%	2%	6%	0%	1%	92%	0%
Rasuwa	10%	2%	49%	0%	3%	33%	3%
Sindhuli	1%	4%	2%	0%	8%	54%	32%
Sindhupalchok	4%	0%	16%	0%	0%	79%	0%

There is no great difference in progress of repairs by the access conditions of areas, with 49% of households in areas accessible by road reporting their property is in the same condition as immediately after the earthquakes, compared to 49% of households in hard to access areas. In hard to access areas a far greater proportion (36%) of

households have been demolished, than in areas accessible by road (8%), a reflection of the higher levels of total and heavy destruction in hard to reach locations. Similarly, in urban areas where access to materials and labour is higher a greater proportion of damaged houses have begun or completed repairs (23%) than in rural areas (12%). In total 68% of damaged houses in rural areas are in the same condition as post-earthquake, compared to 53% of damaged houses in urban areas. Whether those affected by the earthquake are currently residing in temporary shelter appears to have no impact on the proportion reporting their house is in the same condition as before the earthquake.

Of those houses receiving a recommendation to be demolished, very few have actually been demolished (18%) or are currently undergoing demolition (12%). Similarly, less than half (35%) of households who were informed their house needed repairs have begun (23%) or completed (12%). There is little variation in the status of repairs by the type of primary structural material used in pre-earthquake construction, with 53% of load bearing masonry structures and 51% of those using timber and bamboo still in the same condition as after the earthquake. A smaller proportion, 14%, of reinforced concrete frame buildings have not made any progress towards repair or rebuilding, although this is due to only 27% of buildings using reinforced concrete frame for the wall structure having been damaged.

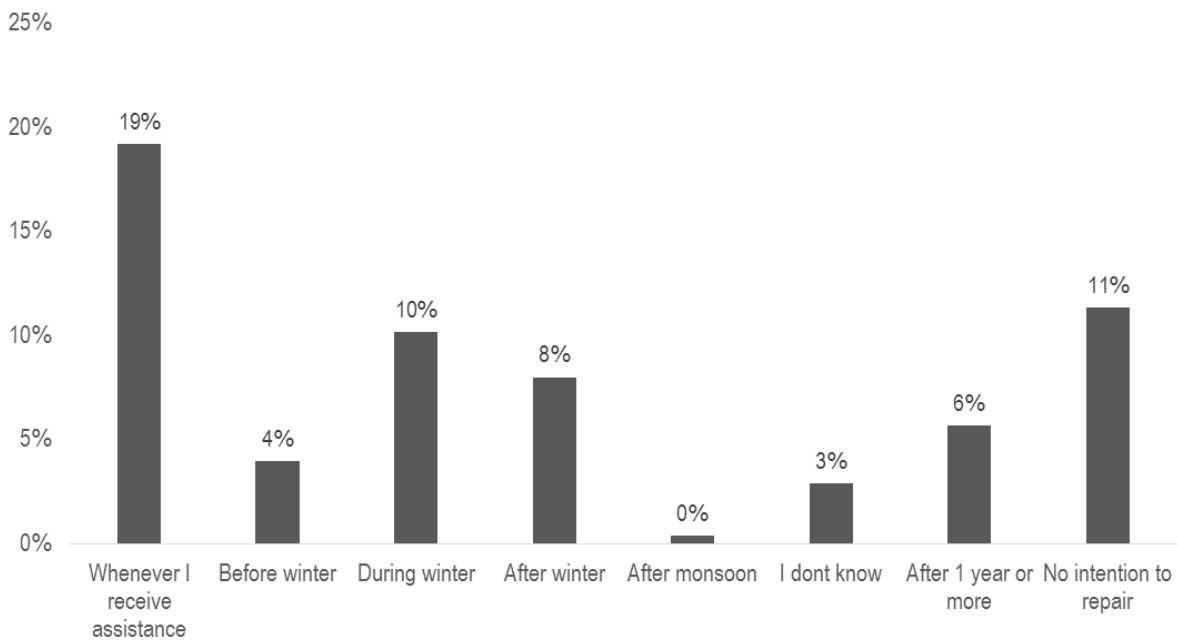
Of houses totally destroyed by the earthquakes, 41% have not been both demolished and the site cleared, although 43% have been demolished. Even more concerning, 77% of heavily damaged houses are still in the same condition as immediately following the second earthquake. Repairs have been undertaken or completed in only 23% of houses moderately damaged, and in 30% of those with minor damage.

Among households who reported being involved in the construction of their pre-earthquake house only 12% have begun or completed repairs, while 19% have either been demolished or are undergoing demolition. This is particularly pertinent to shelter cluster strategy, as those households involved in previous construction might be expected to be further along in the rebuilding or repairing process, an assumption that is has not held true with analysis of the collected data. Similarly, including only those households who reported their pre-earthquake property had been damaged, there seems to be no evidence that the receipt of potentially construction related assistance have been more likely to begin repairs. As is shown in the assistance section of this report, training assistance to enable and encourage rebuilding is proving to be a key gap in reconstruction efforts.

In particular, only 37% have begun or completed repair and rebuilding work. Similarly no relation is observable between whether a household has taken out debts and the progress of repairs, although it is worth noting that 96% of households who have taken out debt reported damage to their property, compared to 73% of households who took no debt. This suggests that both debt and cash assistance are being funnelled into short-term emergency needs, rather than recovery.

Of those households whose pre-earthquake house was damaged, and who have not yet begun repairs, the most common intended timeline for repairing or rebuilding is on the receipt of assistance. This is possibly related to potential government subsidies for houses damaged by the earthquake, and people perceiving that if they complete repairs before the scheme rolls out they will be ineligible. As the scheme's timeline is uncertain, and unlikely to be launched before February of 2016 at the earliest, the potential for many households continuing to take no action on repair or rebuilding work throughout the winter remains high. As figure 27 highlights, a high proportion of affected households who have not yet begun repairs report that they do not intend to carry out repairs in Bhaktapur (42%), Lalitpur (37%) Sindhupalchok (29%) and Nuwakot (27%). Across the entire sample, 15% of those in temporary shelter who have not begun repairs on their pre-earthquake house do not currently intend to start repairs.

Figure 27: Repair and rebuilding intentions in the priority districts

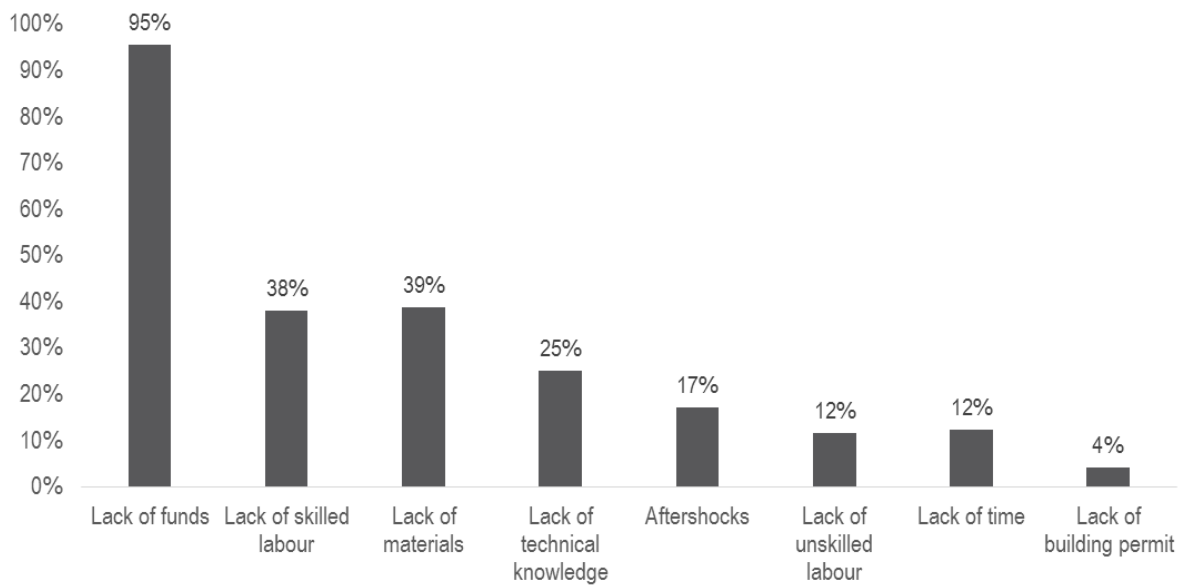


Despite the lack of progress on recovery, a majority of households (64%) in the priority districts reported that they had been able to recover materials from their pre-earthquake house, as opposed to 10% who were unable to recover any materials. In all districts a majority of those whose houses had been damaged were able to recover materials. The ability to recover materials varied only slightly by the level of damage, with a lower proportion of households whose house was totally destroyed (77%) being able to recover materials than other damage groups. This suggests that recovered goods were primarily non-construction related, or are being used in temporary shelter rather than rebuilding. Alternatively households may be storing recovered materials for future use.

## Recovery

The primary barriers to repair or rebuilding after the earthquakes in the priority districts were a lack of funds (97%), lack of skilled labour (38%), lack of materials (39%) and lack of knowledge (25%). The major district specific variations were a low proportion in Lamjung lacking skilled labour (6%), but a high proportion indicating problems acquiring building permits (22%). A high proportion indicated they were prevented from undertaking rebuilding and repairs by the upcoming winter in Makwanpur (23%), Kathmandu (16%) and Bhaktapur (20%); despite these not being districts that would be expected to suffer a severe winter.

Figure 28: Primary barriers to rebuild in the priority districts



Despite the limited progress towards rebuilding and repair of shelters damaged by the earthquake, the base elements necessary to assist in the recovery appear to be present. Firstly there are a degree of expertise present in the population that should allow rebuilding to start. 61% of respondents in the priority district indicated that a member of the household was involved in the construction of their pre-earthquake house. This indicates that there is a willingness and ability to be involved in construction, as well as to contribute unskilled labour. This is corroborated by the fact that 93% of households in the priority districts have adult members able to undertake unskilled labour, on average two members per family.

There is an availability of skilled labour within the workforce. Households indicated that 79% of pre-earthquake houses were built with the assistance of a local mason. Of the households surveyed none indicated that they had no access to a mason, and only 3% of those surveyed in the priority districts indicated that there were no carpenters available for them to hire. However the primary barrier given by respondents to rebuilding was a lack of available funds, reflected in the availability of skilled labour.

While skilled labour is available, 83% in the priority districts indicated that the cost of a mason had risen, with 42% indicating that the cost had at least doubled since the earthquake. In only Kathmandu (56%) and Lamjung (52%) did less than 70% of respondents indicate that the cost of a mason had risen. The pattern was identical for access to carpenters across all districts, as shown in tables 15 and 16. There were particularly high rates of increased labour costs in those areas most severely affected by the earthquakes.

Table 15: Cost and availability of skilled labour – mason

District	Do not know	Less than before	Paid with food	Same	More than before, but less than double	At least double	None to hire
Bhaktapur	9%	0%	0%	1%	21%	69%	0%
Dhading	2%	1%	1%	4%	27%	65%	0%
Dolakha	0%	0%	0%	1%	45%	54%	0%
Gorkha	1%	0%	0%	0%	90%	9%	0%
Kathmandu	41%	0%	0%	2%	17%	39%	0%
Kavre	0%	0%	0%	0%	79%	21%	0%
Lalitpur	3%	0%	0%	2%	15%	80%	0%
Lamjung	15%	1%	0%	33%	40%	11%	0%
Makwanpur	7%	0%	1%	9%	53%	30%	0%
Nuwakot	1%	0%	0%	2%	51%	46%	0%
Okhaldhunga	18%	0%	0%	3%	32%	47%	1%
Ramechhap	0%	0%	0%	0%	70%	30%	0%
Rasuwa	0%	0%	0%	0%	17%	83%	0%
Sindhuli	11%	0%	0%	6%	55%	28%	0%
Sindhupalchok	0%	0%	0%	3%	49%	49%	0%
Priority districts	14%	0%	0%	2%	41%	42%	0%



Table 16: Cost and availability of skilled labour – Carpenter

District	Do not know	Less than before	Paid with food	Same	More than before, but less than double	None to hire	At least double
Bhaktapur	8%	0%	0%	2%	23%	0%	67%
Dhading	2%	1%	1%	4%	27%	0%	65%
Dolakha	0%	0%	0%	1%	44%	0%	55%
Gorkha	1%	0%	0%	0%	90%	0%	9%
Kathmandu	42%	0%	0%	2%	17%	0%	38%
Kavre	0%	0%	0%	0%	79%	0%	21%
Lalitpur	3%	0%	0%	2%	16%	0%	80%
Lamjung	15%	0%	0%	33%	40%	0%	11%
Makwanpur	7%	0%	1%	9%	54%	0%	29%
Nuwakot	1%	0%	0%	2%	50%	0%	48%
Okhaldhunga	18%	0%	0%	3%	32%	1%	47%
Ramechhap	0%	0%	0%	0%	70%	0%	30%
Rasuwa	0%	0%	0%	0%	17%	0%	83%
Sindhuli	11%	0%	0%	6%	54%	0%	28%
Sindhupalchok	0%	0%	0%	3%	46%	0%	51%
Priority districts	15%	0%	0%	3%	41%	0%	42%

There was little to no variation in access to labour between different damage levels sustained in the earthquake, except that those whose houses had been totally destroyed indicated that the cost of both masons and carpenters had doubled or more (61% for each) in comparison to those with heavy damage (45%), moderate damage (39%) and minor damage (44%). This indicates that, as one would expect, the higher the demand for skilled labour, the more the cost is increasing. The high percentage reporting lack of skilled labour as a barrier to rebuilding (38% across the priority districts), reflect not just the availability, but also their ability to hire skilled labour at a cost they can afford. This is confirmed in the fact that the reports on a lack of skilled labour increase as the cost of skilled labour increases – 56% of those who mentioned that the cost of a mason had doubled gave the lack of skilled labour as a barrier, compared to 45% of those who indicated the cost had risen by less than double, and 23% of those indicating the cost had remained the same. A key factor in recovery efforts will be concerted action to lower costs of rebuilding and repair to households with skilled labour being the key cost that will need to be reduced for safe rebuilding and repair to begin in earnest. This has been highlighted by the Government of Nepal as a key disaster mitigation strategy prior to the

**Box 5: Recovery barriers in Lamjung**

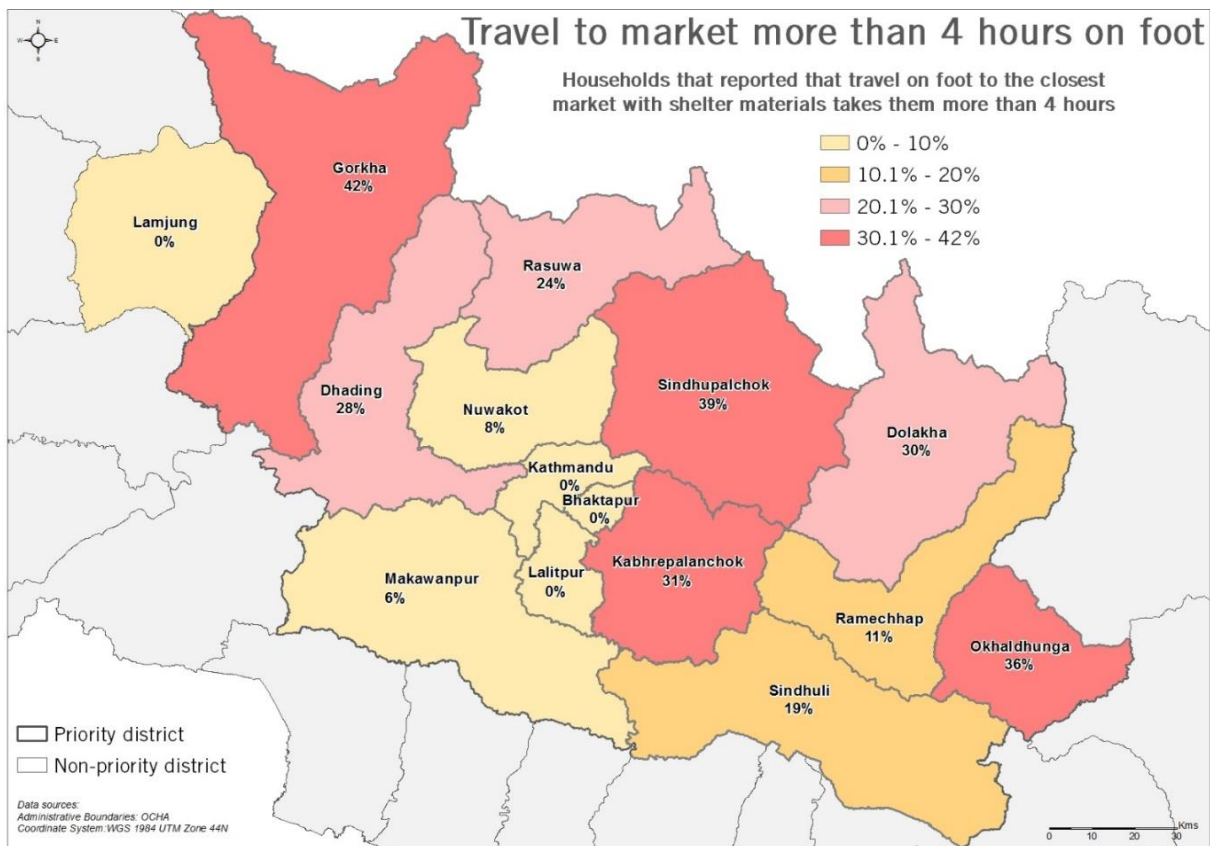
While Lamjung followed the general pattern of the priority districts in listing lack of funds as the primary barrier to recovery (100% of those surveyed), there were two key variations. Firstly, only 6% said lack of skilled labour was a barrier, compared to 38% in the priority districts, reflecting that the lower levels of damage and repair work are not inflating prices in the same way as in the priority districts. In fact a higher proportion of respondents in Lamjung indicated that a mason would cost the same now as before the earthquakes (33%) in comparison to other districts. Secondly, a higher proportion listed building permits as a potential barrier (22%) than other districts. This reflects the perceived greater inflexibility of pre-earthquake legislation and administration in a district that has not been prioritised for needs as a result of the earthquakes.

earthquake: “The prevailing construction practice does not incorporate earthquake resistant components and the existing housing stock is highly vulnerable to earthquakes. This shows a clear need of producing more trained masons by skill upgrading of the practicing masons as well as the newcomers in the construction sector.”<sup>20</sup>

Households have also indicated that materials are available to purchase in their areas. There is some distance however in the length of time taken to access a market selling shelter supplies. In Gorkha (42%), Kavre (31%), Okhaldhunga (36%) and Sindhupalchok (39%) large proportions of households reported they had to travel over four hours by foot to reach a market. This is surprising for Kavre as other districts are more remote in terms of road access. This suggests that even in relatively central districts rural areas can have poor access to markets. This is indicated by the fact that 26% of respondents in rural areas indicated they had to travel for more than 4 hours by foot to reach a market, compared to 0% in urban areas, while 23% in rural areas have to travel 2-4 hours, compared to 5% in urban areas. This is also true of elevated areas, where 36% of those above 1500 metres reported traveling for more than 4 hours, compared to 10% below 1500 metres. This distinction appears to be mirrored by the current distribution strategy of humanitarian actors, with 26% of those receiving CGI having to travel more than 4 hours to a market.

<sup>20</sup> Government of Nepal - Ministry of Home Affairs, *National Disaster Report 2011*, p.124

Map 13: Proportion of households reporting market selling shelter supplies more than a 4 hours walk



The availability of materials once at a market was overwhelming – all of the households surveyed were able to access at least one of CGI, bamboo, timber, cement, tools or steel at their local market. Cement was available almost everywhere, with only Kavre (83%) reporting less than 90% availability of cement at the nearest market.

Despite this, 39% of respondents did indicate a lack of materials as a barrier to beginning repairs or rebuilding their homes. This is partly influenced by the access conditions – 68% of those in hard to reach areas indicated a lack of materials inhibiting rebuilding or repair. Like skilled labour, this could be a complete reflection of material availability, but potentially rising costs of materials limiting availability.

Overall households are planning to make alterations to their property in rebuilding or repairing post-earthquake, 74% of households in the priority districts. 59% of households are intending to rebuild with fewer storeys, and less than 1% are planning to add storeys. This has implications for the recovery effort, as it implies that new rebuilding will focus on the current core size needs of the household, but not on long-term sizing. As pre-earthquake structures of two storeys demonstrated the use of cheaper materials in the construction of upper storeys, the same could occur in constructions. As a summary, even where lower storeys are currently being built back safer, there is no guarantee of the structural integrity of upper storeys that may be added in the future. The proportion of households planning to increase (20%) or decrease (18%) the surface size of the property varies considerably by district. There is no variation in the plans for changing house dimensions by who built the pre earthquake house, or by vulnerability.

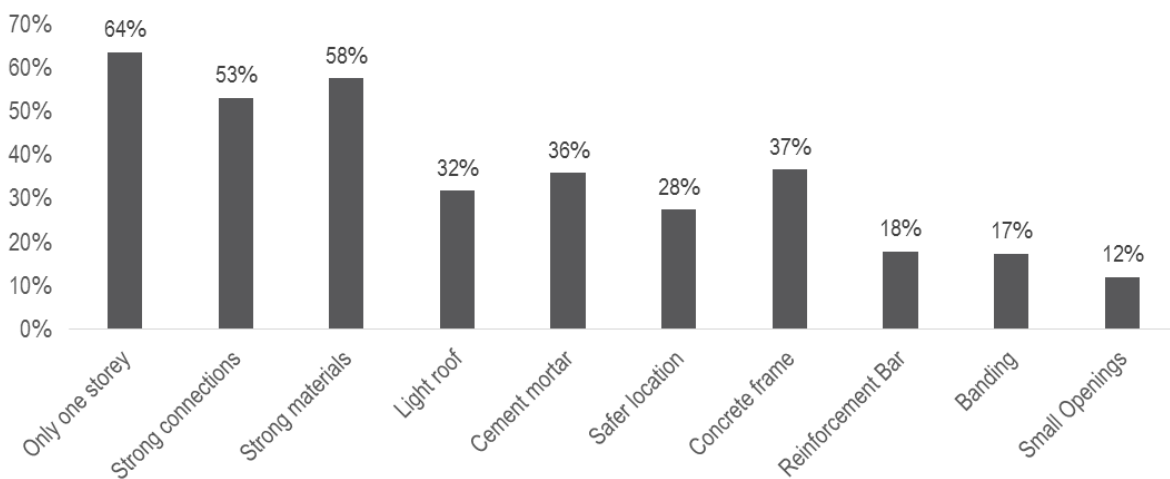
Most households (72% in the priority districts) are intending to change the materials they will use from those used in the pre-earthquake house, although those who constructed with reinforced concrete frame before the earthquake are more likely to maintain this resource, even in the case of damaged houses (31%). The particular material they intend to use varies considerably by district, with brick in cement mortar the most common (21%), followed by reinforced concrete frame (18%). The figure reporting they will rebuild or repair with reinforced concrete frame rises for those who expect repairs to cost more, up to 38% for those households who expect repairs to cost 500,000 NPR (4800 USD) or more, and 32% among those whose pre-earthquake house cannot be repaired. Given this means that households will be changing to a new material they have not worked with before, this places a high

premium on the need for training programmes and messaging to ensure the rebuilding and repair process is undertaken safely, especially given 25% of respondents gave lack of knowledge as a barrier to rebuilding.

When asked which materials households would use to effect repairs or rebuilding if they had only 100,000 NPR (945 USD) to spend, a higher proportion indicated they would use the same materials as their pre-earthquake house (35%), while there was also a rise in the number of people who do not know what materials they would use to 11%. The proportion who would use brick block in cement mortar or reinforced concrete frame decreased to 15% and 13% respectively. This is important as the predominant changes people are planning to make are very expensive, for example increased use of cement mortar or reinforced concrete frames – feeding in to perceptions of lack of funds being a barrier to reconstruction.

Overall the proportion of households able to name at least one Build Back Safer (BBS) technique was high, only 1% in the priority districts were unable to name any BBS techniques. The number of BBS techniques named was correlated to assistance, with 75% of those receiving assistance able to name five techniques, compared to 54% of those who did not receive assistance. Those who built their own house prior to the earthquake were also able to name more BBS techniques than those who did not, 77% compared to 63%.<sup>21</sup>

Figure 29: BBS techniques named by 10% or more of households



However, the predominately named rebuilding techniques, shown in figure 29, reveal two key elements for future strategy. Firstly, the most commonly named techniques are those more intuitive and general – building with one storey for example was named 65% of the population, in contrast to techniques that are more technical in their application, for example long lintels (7%), gable bands (1%) or use of cornerstones (5%). Secondly, the most commonly named BBS techniques are also often the most expensive to enact – using reinforced concrete frame (35%), stronger materials (58%) or rebuilding on a new, safer location (29%).

This suggests that the primary named barrier to rebuilding, lack of funds, is influenced partly by the perceptions households have about the expected costs of a safer structure. In terms of future planning, more work needs to be done to lower the expected costs, as well as to clarify government plans for subsidised rebuilding. Training to improve the ability of households to identify cheaper safe rebuilding techniques, as well as work through training and subsidy to lower the costs of skilled labour and materials will have a significant impact on the progress of recovery.

<sup>21</sup> The Build Back Safer techniques listed are those self-reported by households, their inclusion here does not necessarily imply the support of Shelter Cluster Nepal for their use in the current context.

## CONCLUSION

In April and May 2015 two earthquakes of 7.8 and 7.4 magnitude struck Nepal, with epicentres in Gorkha district north-west of the capital Kathmandu (April), and in Dolakha district north-east of the capital (May). While the impacts on housing, social and economic infrastructure were widespread, the Nepalese government identified 14 priority districts with a combined population of around 2 million for intervention. The relief effort from both government and non-government actors implied 3 phases: 1) initial emergency needs coverage, including seasonal preparations; 2) recovery of pre-earthquake infrastructure, including rebuilding and repair of damaged housing; 3) long-term economic and social recovery. In acknowledging its timing at the transition between the emergency support and recovery phases, the report seeks to identify potential barriers to the upcoming recovery focus, especially within the paradigm of supporting an owner-led reconstruction, in order to inform strategic planning for recovery.

This report has used a cluster sampling methodology to analyse the comparative progress towards shelter recovery in 15 districts of Nepal affected by the dual earthquakes in April and May 2015. Key trends within and between the 14 priority districts have been identified, but further analysis of variations between smaller administrative boundaries will be required to fully implement an appropriate shelter response. Within this caveat, several key themes can be identified. Presented below are the key findings of the report, and recommendations for the future in order to assist the recovery of households who have been impacted by the earthquakes.

Following the earthquakes the National Planning Commission estimated that 609,938 temporary shelters were needed in Nepal in order to house those unable to remain in their homes.<sup>22</sup> It is a reflection of the strength of the response effort in the emergency phases that relief did allow people to make seasonal preparations for the monsoon season, and that season preparation also means the majority of respondents are ready for the coming winter. A majority (77%) of households reported that they have received shelter assistance since the earthquakes. Cash was the most commonly received assistance reported by respondents, at 57% in the priority districts and 55% overall. The primary items purchased with cash assistance have been being CGI (57% in the priority districts) and food (44%), reflecting the use of cash assistance to transfer emergency life-saving assistance.

The majority of households have received victim cards (63%), in order to enable them to access assistance. The vast majority of houses reporting moderate (86%), heavy (96%) or total damage (98%) did possess a victim card, although high rates of non-possession of victim cards within households reporting these damage levels were found in Sindhuli (29%), Lamjung (21%), Lalitpur (19%) and Okhaldhunga (16%). Ensuring that the coverage of victim cards is consistent across districts, especially among those households with higher levels of housing damage, is paramount in ensuring the equity of assistance.

Direct winterization needs look to be less severe than some previous assessments have indicated, reflecting the strong emergency response in preparation for the monsoon season. Over 50% in all districts reported that they believed their shelter to be rain and weather proof most of the time or more, apart from Dolakha and Gorkha, where 33% and 35% respectively reported that their shelter was prepared for snow and cold most of the time or all of the time. There is limited variation in the proportion of households believing their shelter to be not at all prepared for winter by location type, access conditions or elevation; although lower proportions of those households in rural areas, hard to reach areas, and areas above 1500 meters report their household is always prepared for cold than in urban areas, road-accessible areas, and areas below 1500 meters.

There is more variation in winter preparations by whether or not a household is currently in a temporary shelter, with 11% of households in temporary shelter reporting the building is not at all prepared for cold weather, compared to 2% of households not currently in temporary shelter. In total 41% of households surveyed expect to spend the coming winter in temporary shelter, with large variations by district. Conditions in temporary shelter largely meet expected standards, with 86% of households in temporary shelter having a total covered living space per person over 3.5 metres, although there is a district variation meaning many still live in conditions below required standards, especially in Gorkha. The access to CGI either through assistance or markets is reflected in the common use of the material in temporary shelter wall (71%) and roof (90%) structures.

<sup>22</sup> National Planning Commission, *Post-Disaster Needs Assessment*, p. 6

Moving forward, more work will be required to enable a household-lead rebuilding effort for houses damaged by the earthquakes, although a solid base exists in the resources available to households, knowledge of building techniques and availability of labour. Further interventions will need to focus on advocacy of Build Back Safer (BBS) techniques using materials households are already familiar with, and on overcoming uncertainty in the degree of, and access to, financial assistance for recovery. There has been little change in the income sources reported by households before and after the earthquake. The continued prevalence of agricultural income sources, especially in rural areas, suggests that households have been prioritising agricultural inputs over shelter recovery in the distribution of household resources, both labour and financial. Any moves towards recovery will require a recalibration of these resources, for example in the distribution of household cash to shelter supplies, and the use of household members as labour on rebuilding/ repair rather than agriculture. The implicit fine margins of income stability, indicated by the high proportion of rural households reporting subsistence farming as an income source (56%), mean that recovery assistance must be mindful of the potential decrease in the stability of income as households have less time and resources to expend on agriculture.

A majority, 81% of respondents in the priority districts, reported that they had access to at least one form of banking service. However, significant proportions in all districts have no access to financial services. Furthermore, only 48% reported they currently use a bank for financial services. This has implications on the current plans for the disbursement of any government subsidy, with large numbers of households likely to be excluded if this subsidy is transferred exclusively using bank accounts.

The majority of structural materials used in pre-earthquake housing fall into the category of load bearing masonry – reported by 89% of households. The use of reinforced concrete frames (21%) is concentrated in urban areas. While damage levels in pre-earthquake housing are lower for those with a reinforced concrete frame (94% reporting no damage or minor damage) compared to load bearing masonry (35%), this should not be equated with a need to encourage a dramatic and expensive shift in the building materials that should be used in recovery.

Load bearing masonry houses also saw a higher proportion of household members involved in the original construction (69%) compared to 29% in buildings with a reinforced concrete frame, meaning that most households will already have a level of expertise in the use of load bearing masonry. A shift in the building materials used in recovery will consequentially entail a loss of these expertise, as households attempt to rebuild utilizing unfamiliar materials; aside from the added cost of reinforced concrete frames.

Current progress towards recovery has been limited, reflecting the initial requirements of focusing on emergency and life-saving assistance. Despite 74% of households in the priority districts reporting damage by the earthquakes in April and May 2014, only 5% report that repairs or rebuilding works have been completed. A further 8% are currently being repaired, while 11% report that their houses have either been demolished, or the site is currently being cleared. This leaves 50% of all households in the priority districts that are still in the same condition as after the earthquakes, with little variation by the degree to which households have taken on debt or received assistance. This reflects the current use of both debt and assistance for meeting emergency needs, rather than in supporting recovery. In the coming months, while preparations for seasonal needs are important, a strong emphasis of technical guidance and resources for recovery will be necessary. Currently very low rates of respondents across all districts report that they had received technical assistance, materials or training. Over 99% reported that they have not received technical training or materials.

This need for further technical support is also reflected in the finding that 72% of households intend to use a new material they have not worked with before when conducting repairs or rebuilding, and this places a high premium on the need for training programmes and messaging to ensure the rebuilding and repair process is undertaken safely, especially given 25% of respondents gave lack of knowledge as a barrier to rebuilding. The change in intended materials for repair/ rebuilding means that households are less likely to have an existing expertise in the use of materials. Concurrently, the increased intention to use reinforced concrete frames (21%) or brick in cement mortar (18%) would entail an unrealistic increase in the costs of rebuilding. Where perceptions about the prospective costs of rebuilding are cited as the primary barrier to recovery, there is a great deal of outreach needed to ensure that households are able to identify cheaper, safe alternatives in rebuilding/ repair than a shift in materials.

Similarly, while only 1% of those surveyed were unable to name a build back safer technique, the techniques named most frequently tend to be more general, less technical, and more expensive than those techniques named less frequently. This indicates a need for high levels of technical guidance to support households in rebuilding safely with existing materials, which should serve the dual purpose of increasing the safety of recovery, and decreasing the anticipated costs households face. This is highlighted also by the National Planning Commission: “As the recovery is going to be largely owner led, it is essential to make them aware of need of disaster resistant construction. There will be need to guide them on choice of building typologies, materials and costing in addition to minimum disaster resistant features. As the owners hire artisans and take decision with regards to materials and construction system, their awareness is critical. Dissemination of required information on reconstruction, repairs and retrofitting to them is very important.”<sup>23</sup>

There is also a potential for uncertainty related to potential government subsidies for houses damaged by the earthquake stymying or delaying household-led recovery, with people perceiving that if they complete repairs before the scheme rolls out they will be ineligible. As the scheme’s timeline is uncertain, and unlikely to be launched before February of 2016 at the earliest, the potential for many households continuing to take no action on repair or rebuilding work throughout the winter remains high. Currently the government subsidies are funded only for a limited number of centrally located districts, with timelines and budgeting for the remaining areas uncertain.

A majority, 81% of respondents in the priority districts, reported that they had access to at least one form of banking service. However, significant proportions in all districts have no access to financial services. Furthermore, only 48% reported they currently use a bank for financial services. This has implications on the current plans for the disbursement of any government subsidy, with large numbers of households likely to be excluded if this subsidy is transferred exclusively using bank accounts.

The primary barriers to repair or rebuild after the earthquakes in the priority districts were reported as lack of funds (97%), lack of skilled labour (38%), lack of materials (39%) and lack of knowledge (25%). Despite these reports, more detailed examination of both the availability of skilled labour and materials suggests that both are available in all locations, but that the price is rising. In particular 83% of households indicated that masons are available in their location, but at an increased cost since before the earthquake. Any significant moves in recovery are thus likely to precipitate further price rises, as a result of increased demand. Thus a significant danger exists of pricing many households out of use of skilled labour in particular, which could result in fewer households contracting local skilled labour than in the construction of pre-earthquake housing. This could have significant implications for the application of build back safer techniques. Similarly, and as reflected throughout, a focus on lowering households perception of rebuilding and repair costs through technical assistance on the safe use of pre-existing housing materials will be required as the response focus shifts away from seasonal preparedness and emergency shelter provision towards long-term recovery.

The report has observed successful operations from aid actors and government in meeting the initial emergency needs of those affected by the earthquakes. The earthquakes immediately preceded the Nepali monsoon season from June-October, and assistance following this was required to make subsequent preparations for the December-March cold season, meaning that the transition to the recovery phase is nascent at the time of writing. Past experience of disaster recovery regionally and in Nepal suggests that people will begin reconstruction using their own resources. The key strategic aims of the assistance effort in the recovery phase will thus be activities aimed at expediting self-recovery in order to minimise the human and financial costs of repeated seasonal preparation; and activities aimed at facilitating safer rebuilding in order to mitigate the effects of future disasters.

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<sup>23</sup> National Planning Commission, *Post-Disaster Needs Assessment*, p. 18

## ANNEXES

## Annex A: Household Questionnaire

English	Nepali	Choices
Date	मिति	
Enumerator Name	सर्जकको नाम	
<b>Consent</b>		
<p>INTRODUCTION: Namaste! My name is..... I am from [NRCS] conducting a survey for Shelter Cluster. Your household is one of over 2,600 households randomly selected for interview. This is not a beneficiary selection survey but a survey to understand the situation overall. I will ask you questions related to your household members and your housing situation. Other household members can help answer questions. The survey will take approximately 30 minutes. There will be no risk to you or your household as a result of your participating in the study – the information given by you is strictly confidential and will be used only for the study. Your responses will not be linked with your name/address. Your participation in this study is completely voluntary. Would you like to proceed with the interview?</p>	<p>परिचय: नमस्ते! मेरो नाम.....हो। म नेपाल रेड क्रस सोसाईटिबाट [एन आर सी एस] आएकी हु र यो सेल्टर/आश्रय क्लस्टरको लागि एक सर्वेक्षण सञ्चालन हो। तपाईंको परिवार २६०० घरधुरी मध्ये कुनै पनि तालिका बिना अनियमितरूपमा साक्षात्कारका लागि चयन गरिएको हो। यो फाइदाजनक/सहयोग पुराउनका लागि गरिएको सर्वेक्षण होइन। यस सर्वेक्षणको मूल उद्देश्य समग्र अवस्था बुझ्ने मात्रै हो। तपाइलाई म तपाइको घरधुरी र घरका सदस्यहरुबारे प्रश्नहरु सोध्ने छु। घरका अरु सदस्यहरुले पनि उत्तर दिन सक्नु हुन्छ। सर्वेक्षण लगभग ३० मिनेटको हुनेछ। तपाईं वा तपाईंको परिवारले दिएको उत्तरले तपाइलाई कुनै जोखिम हुने छैन। तपाईं दिएको जानकारी गोपनीय राखिने छ र अध्ययनको लागि मात्र प्रयोग गरिनेछ। तपाईंको प्रतिक्रियालाई तपाईंको नाम / ठेगाना संग जोडिने छैन। यस ?अध्ययनमा तपाईंको सहभागिता पूर्ण रूपमा स्वैच्छिक हुनेछ। तपाईं साक्षात्कारसंग अगाडी बढ्न चाहनुहुन्छ?</p>	
<b>A. Geographic Information</b>		
A.1. District	जिल्ला	
A.2. VDC/Municipality	गाविस / नगरपालिका .A.2	
A.3. Ward Number	वडा नम्बर .A.3	
A.4. Type of location	स्थानको प्रकार .A.4	Urban Peri-urban Rural
A.5. By what transport can you currently reach this location?	A.5. रोडको पहुँच	On foot Mule, horse, donkey Motorbike Tractor Car 4X4 Truck/Bus Car (not 4x4)



English	Nepali	Choices
<b>B. Demographic and HH information</b>		
B.1. Gender of respondent	उत्तरदाताको लिङ्ग .B.1	
How many members in household based on categories below (including household head)?	तल दिएको मध्ये घरधुरीका सदस्य कुन पर्नुहुन्छ?(घरमुली सुध) विभाजनमा	
B.2. Males under 5 years old	B.2. ५ वर्ष भन्दा मुनिका पुरुष	
B.3. Females under 5 years old	B.3. ५ वर्ष भन्दा मुनिका महिला	
B.4. Males 5 - 11 years old	B.4. ५-११ वर्षका पुरुष	
B.5. Females 5 - 11 years old	B.5. ५-११ वर्षका महिला	
B.6. Males 12 - 17 years old	B.6. १२-१७ वर्षका पुरुष	
B.7. Females 12 - 17 years old	B.7. १२-१७ वर्षका महिला	
B.8. Males 18 - 59 years old	B.8. १८-५९ वर्षका पुरुष	
B.9. Females 18 - 59 years old	B.9. १८-५९ वर्षका महिला	
B.10. Males 60 years old or more	B.10. ६० वा ६० वर्ष भन्दा माथिका पुरुष	
B.11. Females 60 years old or more	B.11. ६० वा ६० वर्ष भन्दा माथिका महिला	
B.12. total number of household members	B.12. घरधुरीका सदस्यको संख्या	
B.12. Confirm with the interviewee the total number of household members is ( \${B12_total_number_of_household_members} )	B.12. उत्तरदातासंग घरधुरीका सदस्यहरूको कुल संख्या निश्चित गर्नुहोस ( \${B12_total_number_of_household_members} )	
B.13. What is the gender of the head of household?	B.13. घरमुली को लिङ्ग के हो ?	
B.14.What is the age of the head of household?	B.14. घरमुली को उमेर कति हो ?	
B.15. Number of household members with disability/chronical illness?	B.15. अशक्तता भएका / दिर्गायु बिरामी सदस्यहरूको संख्या कति छ ?	
B.16. Would you be willing to disclose your caste?	B.16. के तपाईं आफ्नो जात खुलाउनु चाहनु हुन्छ?	Yes - Brahmin Yes - Chettri Yes - Janajati Yes - Dalit Yes - Other (Specify) No Don't know
B.16.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .B.16.a	
B.17. How many victim cards are possessed by members of this HH?	B.17. यस घरधुरीका कति जना सदस्यले पिडित परिचयपत्र प्राप्त गरेका छन्?	
B.17. Please confirm number of victim cards was more than 1		

English	Nepali	Choices
B.18. Is there at least one person in household that can read and write in Nepali?	B.18. के घरमा कम्तिमा एक व्यक्ति नेपालीमा लेख्न र पढ्न सक्छ ?	
B.19. What services do you currently use for banking or collecting remittances?	B.19. हाल बैंकिंग वा विप्रेषण सङ्कलनको लागि तपाईं कुन सेवाहरू प्रयोग गर्नुहुन्छ ?	Bank Money agent Money transfer operation Hundi Cooperative None
B.20. How many members of this household have migrated within Nepal or abroad after the earthquake for job opportunities?	भुकम्प पश्चात के यस घरधुरीका कुनै सदस्य रोजगारीका अवसरका लागि नेपाल भित्र ? वा विदेश गएका छन्	
Male:		पुरुष :
Female:		महिला :
B.21. Last year around this time, what was the 1st source of household income?	B.21. गत वर्ष यो समयमा, घरेलू आय को पहिलो स्रोत के थियो ?	Being in a cooperative Cash crop farming (for sale)
B.21. Last year around this time, what was the 2nd source of household income?	B.21. गत वर्ष यो समयमा, घरेलू आय को दोस्रो स्रोत के थियो ?	Livestock farming (for sale) Income from rent Owning a business Masonry Informal job (NO contract) Formal job (salaried WITH contract) Income from remittances Income from government payments Other sources No income - subsistence farming (not for sale) No income Don't know
B.21. Last year around this time, what was the 3rd source of household income?	B.21. गत वर्ष यो समयमा, घरेलू आय को तेस्रो स्रोत के थियो ?	
B.22. Currently, what is the 1st source of household income?	B.22. हाल घरधुरीको आयको पहिलो स्रोतहरू के हो ?	Being in a cooperative Cash crop farming (for sale)
B.22. Currently, what is the 2nd source of household income?	B.22. हाल घरधुरीको आयको दोस्रो स्रोतहरू के हो ?	Livestock farming (for sale) Income from rent Owning a business Masonry
B.22. Currently, what is the 3rd source of household income?	B.22. हाल घरधुरीको आयको तेस्रो स्रोतहरू के हो ?	

English	Nepali	Choices
		Informal job (NO contract) Formal job (salaried WITH contract) Income from remittances Income from government payments Other sources No income - subsistence farming (not for sale) No income Don't know
<b>C. Displacement</b>		
C.1. What was your household's status of land and house occupation before the earthquake?	भुकम्प जानु पहिले तपाइको घरधुरीको .C.1 ? भूमि स्वामित्व को स्थिति के थियो	Own house and plot Own house but rent plot Own house, rent free plot with consent of owner Own house, rent free plot without consent of owner Rent house and plot with consent of owner Rent free house and plot with consent of owner Rent free house and plot without consent of owner Don't know
C.2. What kind of proof have you ever had of this occupation status?	घरधुरीकोसंग हाल बसोबास गर्ने जग्गाको .C.2 ? प्रमाण छ स्वामित्व / भाडाको पुष्टि गर्ने कुनै	Land Title/Ownership Certificate Tenancy Certificate Rental Agreement Proof of address; for example tax or utility bill Verbal confirmation from owner, neighbour or local authority representative None Don't know
C.2.1. Do you still have this documentation?	?के यो कागजात अहिले तपाईंसंग छ .C.2.1	Yes No - it was lost due to earthquake

English	Nepali	Choices
		No - we do not have it for other reason
C.3. Are you currently living in the same <b>house (building)</b> you were living in prior to the earthquake?	के तपाईं भुकम्प अघि जुन घरमा बसोबास .C.3 ?गर्नु हुन्थ्यो त्यहि बस्नु हुन्छ	
C.4. If not, where are you staying <b>now</b> ?	कहाँ बस्दै बस्नु हुन्न भने ,तपाईं अहिले .C.4 ? हुनुहुन्छ	Temporary shelter next to pre-EQ house Temporary shelter elsewhere Another house which I rent/built Friends/family in pre-EQ community (no rent) Friends/family in different community (no rent) Collective site in pre-EQ community Collective site in different community Other (Specify)
C.4.a. Please specify other	अन्य भए निर्दिष्ट गर्नुहोस .C.4.a	
C.5. What is <b>the primary reason</b> that you are not residing in your pre-EQ house?	भुकम्प पूर्व बसोबास गर्ने घरमा नबस्नुको .C.5 ?को मुख्य कारण के के हुन्	Pre-EQ house is damage/not livable Ongoing repair of Pre-EQ house Fear of aftershocks Fear of landslides Lack of services To be with family living in another location To find work elsewhere Usual change of location in this part of year Other (Specify)
C.5.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस C.5.a	
C.6. Are you sharing any household spaces/services with other households?	के तपाईंले घरधुरीको स्थान तथा सेवाहरु .C.6? मिलेर अरु परिवार वा घरधुरीसंग ?साझेदारीमा चलाईराख्नु भएको छ	Toilet/Bathroom Kitchen Sleeping space Storage Animal Shelter None
<b>D. Pre-EQ Housing</b>		

English	Nepali	Choices
D.2. What type of housing did you live in before the EQ?	भुकुम्पपूर्व तपाईं कुन प्रकारको घरमा ? बस्नुहुन्थ्यो .D.2	One apartment in a multi-unit building More than one apartment in multi-unit building (not whole building) All apartments in multi-unit building Single-unit house
D.3. Did that pre-EQ house have an attic?	के भुकुम्पपूर्व बसोबास गर्ने घरमा बुइगल ? थियो .D.3	
D.4. How many storeys did the pre-EQ house have?	गर्ने घरमा कति तला भुकुम्पपूर्व बसोबास ? थियो .D.4	
D.5. Wall Material - Primary Structural Component	फ्रेम/पर्खाल सामाग्री प्राथमिक संरचनात्मक तत्त्वहरू .D.5	Timber Bamboo Dry stone Stone with mud mortar Stone with cement mortar Fired brick with mud mortar Fired brick with cement mortar unfired mud brick with mud mortar reinforced concrete frame concrete hollow block Do not know Other (Specify)
D.5.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .D.5.a	
D.6. Wall Material - Primary Infill	पर्खाल सामाग्री- प्राथमिक इन्फिल/बस्तुहरू .D.6	None Timber Bamboo Stone with mud mortar Stone with cement mortar Fired brick with mud mortar Fired brick with cement mortar unfired mud brick with mud mortar concrete hollow block Do not know

English	Nepali	Choices
		Other (Specify)
D.6.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .D.6.a	
D.7. Upper Floors Material - Frame	माथिल्लो तल्लाहरुको सामाग्री - फ्रेम .D.7	Solid Timber Frame Lightweight Timber Bamboo Frame Reinforced Concrete Floor Frame Do not know Other (Specify)
D.7.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .D.7.a	
D.8. Upper Floors Material - (Surface - Non Frame part)	सतह पट्टा ) सामाग्री माथिल्लो तल्लाको .D.8 (- फ्रेम नभएको भाग	Mud floor Timber floor Concrete floor Bamboo Do not know Other (Specify)
D.8.a. please specify other	भए निर्दिष्ट गर्नुहोस D.8.a.अन्य	
D.9. Roof Material - Structural Component	छत सामाग्री - संरचनात्मक तत्वहरु .D.9	Reinforced Concrete (including reinforced brick) Timber Bamboo Do not know Other (Specify)
D.9.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .D.9.a	
D.10. Roof Material - Covering	छत सामाग्री -छाउने/छोप्ने .D.10	CGI Slate Timber planks Tiles Thatch Do not know Other (Specify)
D.10.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .D.10.a	
D.11. What was the position of the building before the earthquake?	भुकम्प अघि भवन को स्थिति कस्तो .D.11 ?थियो	Detached Adjoining Building on one side Adjoining Building on two sides Adjoining Building on three sides Do not know
D.12. What was the size of the covered living space?	बसोबास गर्दा कति जग्गा ओगटको थियो .D.12 ?	

English	Nepali	Choices
D12.a. Width (Meters)	चौडाई (मीटर) .D.12.a	
D12.b. Length (Meters)	लम्बाई (मीटर) .D.12.b	
D12.c. Number of Storeys	घर कति तल्लाको हो .D.12.c	
<b>E. Damage</b>		
E.1. How badly was the main house you lived in before the EQ damaged, as a result of the earthquake?	E.1. भूकम्पका कारण भूकम्प पूर्व बसोबास ? भएको थियो गर्ने घर कतिको क्षति	No damage minor damage moderate damage Heavy damage Totally destroyed Do not know
E2. Was the house damaged by another building falling?	के तपाईको घर अरु भवनहरु खसेर .E.2? क्षतिग्रस्त भएको थियो	
E.7. Have your house been assessed to identify its structural condition after EQ?	के भूकम्प पश्चात तपाईको घरको .E.7? संरचनात्मक अवस्थाको मूल्यांकन गर्न जाँचबुझ गराइएको थियो	
E.8. Who was the person assessing your house?	E.8. तपाईको घर जाँचबुझ गर्ने व्यक्ति को ? थियो	Just by myself Government representative Local mason requested by household Engineer requested by household NGO Other (Specify) I don't know
E.8.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .E.8.a	
E.9. What recommendation was given?	E.9. जाँचबुझ पश्चात के-के सिफारिहरु ? थियो गरिएको	Safe, doesn't need repair Safe, require repair/retrofitting Not safe, require repair/retrofitting Not safe, to be demolished No recommendation provided Do not know
E.10. Do you think your house could be repaired and how much you estimated minimal cost?	के तपाईको घर मर्मत गर्न मिल्छ ? .E.10? तपाईको अनुमानमा कति खर्च लाग्छ होला	No, cannot be repaired Yes, cost under 50.000 NRP Yes, cost between 50.000 - 100.000 NRP

English	Nepali	Choices
		Yes, cost between 100.000 - 200.000 NRP Yes, cost between 200.000 - 500.000 NRP Yes, more than 500.000 NRP Do not know
<b>F. Damage detail</b>		
<b>General</b>		
F.2. Was there inclination of the building/storey as a result of the earthquake?	F.2. भूकम्पको कारण भवन वा तला कति झुकेको छ	
F.3. Was there foundation failure?	के त्यहाँ जग बिग्रेको छ .F.3?	
F.4. How badly was the roof damaged/collapsed?	छाना कत्तिको बिग्रेको छ .F.4?	Not at all Partially Totally Do not know
F.5. How badly was the floors damaged?	भूईँ कत्तिको बिग्रेको छ .F.5?	Not at all Partially Totally Do not know
F.6. How badly were the parapets damaged?	छतको पर्खाल कतिको भत्किएको छ .F.6?	Not at all Partially Totally Not applicable Do not know
F.7. How badly was cladding affected?	जलपमा कत्तिको असर परेको छ .F.7?	Not at all Partially Totally Not applicable Do not know
<b>Masonry buildings (F.8 - F13)</b>		
F.8. What was the extent of corner separation?	कुना बीभाजनको सीमा कति थियो .F.8?	No damage minor damage moderate damage Heavy damage Totally destroyed Do not know
F.9. What was the extent of wall cracking?	पर्खाल कति हद सम्म चर्केको थियो .F.9	No damage minor damage moderate damage Heavy damage Totally destroyed



English	Nepali	Choices
		Do not know
F.10. What was the extent of out-of-plane-failure of walls carrying floor/roof (walls FALLEN out)?	कति हद सम्म समतल भित्रको भित्ता, छाना र जगको भार बोक्ने भाग माथि अशर परेको थियो (पर्खाल कतिको ढलेको थियो) .F.10	Not at all Partially Totally Do not know
F.12. What was the extent of gable wall collapse?	कति हद सम्म चुली गारो ध्वस्त भयको छ .F.12?	Not at all Partially Totally Not applicable Do not know
F.13. What was the extent of delamination?	छ कति हद सम्म पत्र उतरिएको .F.13?	Not at all Partially Totally Not applicable Do not know
<b>Reinforced concrete building (F15 – F18)</b>		
F.15. What was the extent of column failure?	पिलरको जोडमा अशर कति हद सम्म छ परेको .F.15?	Not at all Partially Totally Do not know
F.16. What was the extent of beam failure?	बिममा अशर परेको छ कति हद सम्म .F.16?	Not at all Partially Totally Do not know
F.17. What was the extent of infill/partition walls damage	भित्रि बिममा/पर्खालमा कति हद सम्म परेको छ अशर .F.17?	Not at all Partially Totally Not applicable Do not know
F.18. Was there foundation and column connection failure	के जग तथा स्तम्भ जोडाइ क्षति भएको थियो .F.18?	
F.19. What are the Site Specific Hazards?	स्थानीय निर्दिष्टित जोखिम हरु के के छन् .F.19?	Ground subsidence Slope movement Ground fissures Rock fall Flood No hazards Do not know Other (Specify)
F.19.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .F.19.a	
<b>G. Assistance/Coping mechanisms</b>		

English	Nepali	Choices
G.1. What type of shelter assistance items have you received?	तपाईंले कुन प्रकारको आश्रय सहयोग प्राप्त गर्नुभएको छ .G.1?	No assistance received Tarpaulin, plastic sheeting CGI Bundle Construction materials (Other than CGI, Tarps) Tool kits and Fixings Insulation materials Tents Blanket or Sleeping mats Other HH items (Lighting, kitchen sets, stoves) Clothes Cash Vouchers Do not know
G.2. What were the source(s) of the shelter assistance?	G.2. आश्रय सहयोगको स्रोत के थियो ?	International NGO Local Charity Local authorities Other national government agency Relatives, friends in Nepal Relatives, friends abroad Private sector (company) Do not know Other (Specify)
G.2.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .G.2.a	
Have you received any technical assistance/training?	तपाईंले कुनै प्रकारको प्राविधिक सहयोग वा के तालिम प्राप्त गर्नुभएको छ	No Yes - Temporary shelter construction Yes - Permanent housing/settlement rebuilding Do not know
G.3. What kind of technical assistance have you received?	तपाईंले कुन प्रकारको प्राविधिक सहयोग प्राप्त गर्नुभएको छ .G.3?	Household level training Community level training less than a day

English	Nepali	Choices
		Community level training one day or more Demonstration of items usage during/after distribution HH visit from an engineer / mason to provide technical assistance Messages through Radio Messages through social media Messages through TV Messages through leaflets Messages through posters Messages via word of mouth Do not know
G.3.a. Have you/do you plan to take different action because of this information/assistance?	के तपाईंले लिनु भएको तालिम कुनै रूपमा उपयोग गर्नुभएको छ वा उपयोग गर्ने हुनुहुन्छ योजनामा G.3.a	
G.4. When have you received CGI?	तपाईंले कहिले प्राप्त गर्नु भएको थियो? (जस्तपतहरु) .G.4	Less than 4 weeks ago 1 - 2 months ago 3 - 4 months ago Do not know
G.5. Considering all cash you have received as help after EQ, can you estimate total amount?	के तपाईंले भुकम्प पश्चात पाउनुभएको कुल रकमको अनुमान लगाउनु सक्नुहुन .G.5	
G.6. What have you used CGI for?	तपाईंले केका लागि जस्तापाता प्रयोग गर्नुभयो .G.6?	Temporary shelter Pre-EQ house New house Animal shelter Grain stores Storage for assets None, and do not intend to use it I haven't used yet, but keeping/storing it for future use in permanent reconstruction

English	Nepali	Choices
		It was used but not sure for what Other (Specify)
G.6.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .G.6.a	
G.7. What have you used tarpaulins for?	प्रयोग तपाईंले केका लागि पालह+E127 .G.7? गर्नुभयो	Temporary shelter Pre-EQ house Animal shelter Grain stores Storage for assets None (I haven't used it) It was used but not sure for what Other (Specify)
G.7.a. please specify other	भए निर्दिष्ट गर्नुहोस G.7.aअन्य	
G.8. What items have you bought using received vouchers?	भौचर प्रयोग G.8. तपाईंले प्राप्त गर्नुभएको? गरी केके सामग्री किन्नुभयो	Tarpaulin, plastic sheeting CGI Bundle Construction materials (Other than CGI, Tarps) Tool kits and Fixings Insulation materials (straw, hay, bamboo mats etc.) Blanket or Sleeping mats Clothes Other HH items (Lighting, kitchen sets, stoves) Other (eg. Food) Do not know
G.9. Considering all cash assistance that you received as help after EQ, which 3 things did you spend most of the cash on?	G.9. भुक्तम्प पश्चात पाउनुभएको राहात रकम ? ,अधिकांश कुन ३ वस्तुमा खर्च भयो	Tarpaulin CGI Bundle Tool kits and Fixings Construction materials (Other than CGI and tarps) Blanket or Sleeping mats Clothes Furnitures Other HH items (Lighting, kitchen sets, stoves) Food

English	Nepali	Choices
		Health Services (also medicine) Education Agriculture inputs Transport Did not spend (saved it) Other (Specify) Do not know
G.9.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस G.9.a	
G.10. How much have you spent on shelter materials or household/personal items since the EQ (NOT including costs covered by government/NGO assistance you received)?	भूकम्प पश्चात तपाईंले घर मर्मतमा .G.10 उपयोग हुने सामग्री तथा अन्य घरधुरीको कति खर्च गर्नुभएको छ (सरकारी तथा सामग्रीमा प्राप्त भएको अन्य गैर सरकारी संगठनबाट (बाहेक राहत रकम	Less than 5.000 NRP 5.000-10.000 NRP 10.000-15.000 NRP More than 15.000 NRP Do not know
G.11. Have you borrowed money for any shelter materials or household/personal items since EQ?	आश्रय G.11. के भूकम्प पश्चात तपाईंले ? लागि पैसा सामग्री वा घरेलू / व्यक्तिगत खर्चको सापटी लिनुभएको छ	Yes, I borrow money from relatives/friends Yes, I took a formal loan (e.g. bank, money agent) Yes, I took an informal loan No Do not know
G.12. If yes, how much debt has the HH acquired since the earthquake? (not including previously held debt)	लिनुभएको छ भने, भूकम्प पश्चात कति .G.12? ऋण घरेलू खर्चको लागि लीनु भएको छ? (भूकम्प (अधिको ऋण बाहेक	
G.13. Since the earthquake, have the members in your household had to adopt any of the below coping mechanisms to be able to repair/build your temporary shelter or permanent house?	भूकम्प पश्चात तपाईंका घरधुरीका .G.13? सदस्यहरूले अस्थायी तथा स्थायी घरको मरम्मत/निर्माण गर्न निम्न मध्ये कुनै तरिकाहरू अपनाउनु भएको छ	Reduce or stop agriculture activities Selling household goods (radio, furniture, refrigerator, TV, jewelry etc.) Selling livestock Selling land and/or buildings Selling productive assets (agriculture tools, wheelbarrow, power tiller, sewing machine etc.) Withdrawing children from school Reduce budget for healthcare Reduce daily food consumption

English	Nepali	Choices
		Save on other goods None of above
<b>H. Pre-EQ permanent House: Current condition</b>		
H.1. What is the current state of your pre-EQ house?	हाल भूकम्पपूर्व बसोबास गर्ने घरको अवस्था कस्तो छ .H.1	Same as after earthquake Currently repairing it Repairs completed Currently demolishing and site clearing Demolished Do not know
H.2. Is your pre-EQ house currently being used?	घर H.2. भूकम्पपूर्व तपाईं बसोबास गर्ने ? अहिले बस्न योग्य छ	For sleeping For daily activities (cooking, bathroom, laundry, etc) For storage For animal shelter Do not use for particular activity, but sometimes enter Do not use
H.3. When are you planning to start repair/rebuild your house?	कहिले देखि घरको मर्मत/पुनर्निर्माण शुरु गर्ने योजना गर्दैहुनु हुन्छ .H.3?	After monsoon Before winter During winter After winter After 1 year or more Whenever I receive assistance I am not planning to I don't know
H.4. Have you been able to get any personal belongings or household goods from your preEQ house?	H.4. के तपाईंले भूकम्पपूर्व बसोबासबाट कुनै? व्यक्तिगत सम्पत्ति तथा घरायसी सामानहरु निकाल्न सक्नु भएको छ	
<b>I. Housing: Condition for winter</b>		
I.1. Did your household use to move to different location (village) during winter time before EQ?	भूकम्पअघि I.1. के तपाईंको घरधुरी? (गाउँ) मा हिउँद/जाडोको बेला विभिन्न स्थान सर्ने गर्थ्यो	
I.2. Are you planning to spend winter in the shelter you currently live in?	हिउँद/जाडोमा के तपाईं हाल बसोबास हुन्छ गर्नुभएको आश्रयमा नै बस्ने योजना गर्दै हुनु	
I.3. Where are you planning to spend this winter?	यो वर्षको हिउँद/जाडो महिना कहाँ बिताउने योजना गर्दै हुनुहुन्छ .I.3?	Undamaged mildly damage pre EQ house Repaired pre-EQ house House build after EQ

English	Nepali	Choices
		Rented house With family/friends in their house Temporary shelter next to original house (tent, makeshift) Temporary shelter elsewhere (tent, makeshift) Collective center, camp I am not able to decide yet
<b>J. Temporary Shelter: Condition</b>		
J.1. How many units (separate structures) do your household currently occupy?	हाल तपाइको घरधुरीले कतिओटा एकाइ छ (छुट्टा छुट्टै संरचनाहरु) ओगटेको .J.1	
J.2. Living space of each shelter unit	प्रत्येक आश्रय बस्न योग्य एकाइ .J.2	
J.2.a. Width (Meters)	चौडाइ (मीटर) .J.2.a	
J.2.b. Length (Meters)	लम्बाइ (मिटर) .J.2.b	
J.2.c. Number of storeys	घरको तल्ला .J.2.c	
J.3. What is the roof of your current shelter made of?	J.3. वर्तमान आश्रयको छत के ले बनेको हो ?	Tarpaulin, plastic sheeting CGI Bundle Bamboo Timber Tents Blanket Sleeping mats The temporary shelter is a Pre-Fab Other (Specify)
J.3.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .J.3.a	
J.4. What are the walls of your current shelter made of?	J.4. वर्तमान आश्रयको पर्खाल के-के ले बनेको हो?	Tarpaulin, plastic sheeting CGI Bundle Bamboo Timber Concrete Stone Mud Tents Blanket Sleeping mats

English	Nepali	Choices
		The temporary shelter is a Pre-Fab Other (Specify)
J.4.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .J.4.a	
J.5. During the most recent monsoon season, did your current shelter protect you from rain?	J.5. यस वर्षातको महिना तपाईंको हाल ? बसोबस गर्ने अश्रयाले तपाइलाई पानीबाट रुज्ज बचायो	Yes all the time Most of the time Some of the time Not at all Did not live in the current shelter during the monsoon
J.6. Do you think your current shelter can protect you from snow and cold during winter?	J.6. के हिउँद/जाडोको बेला हाल बसोबस ? बचाउने अपेक्षा गर्ने आश्रयले तपाईंलाई हिउँबाट गर्नुहुन्छ	Yes all the time Most of the time Some of the time Not at all Do not know
<b>K. Current shelter: Electricity/WASH</b>		
K.1. What is the primary source of electricity for your house <u>now</u> ?	K.1. तपाईंको घरमा अहिले बिजुलीको मुख्य ? स्रोत के हो	No electricity Micro-Hydro / Isolated Mains / grid Fixed solar panel Personal generator Community generator Other (Specify) Do not know
K.1.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .K.1.a	
K.2. What is your household's primary source of drinking water <u>now</u> ?	K.2. तपाईंको घरधुरीको अहिले खानेपानीको ? मुख्य स्रोत के हो	Municipal Tap / piped Tubewell / Hand Pumped Covered Well / Kuwa spout water River / Stream water trucking Purchased or donated bottled water Other (Specify) do not know
K.2.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .K.2.a	
K.3. What type of toilet facilities does your household have access to <u>now</u> ?	हाल तपाइको घरधुरीमा कस्तो प्रकारको .K.3? चर्पीको प्रयोग गरिन्छ	Without toilet flush toilet (public sewerage) flush toilet (septic tank) ordinary drop toilet



English	Nepali	Choices
		temporary/emergency latrine Other (Specify)
K.3.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .K.3.a	
K.4. Have you made any work on water or sanitation facilities in your current shelter since EQ?	के तपाईंले भूकम्प पश्चात बसोबास गरिने .K.4? वर्तमान आश्रयमा कुनै प्रकारको खानेपानी व सरसफाई सुबिधा सम्बन्धि पुनर्निर्माण गर्नुभएको छ	
<b>L. Recovery</b>		
L.1. Who built the house you lived in before the earthquake?	बसोबास L.1. भूकम्पअघि तपाईं ? गर्ने घर कसले बनाएको हो	Myself Other household members Relatives/friends, not currently living in household Local mason Construction company Other (Specify) Do not know
L.1.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .L.1.a	
L.2. While repairing/rebuilding your house, did you/do you plan to change its size?	के तपाईं घर मर्मत/पुनर्निर्माण गर्ने क्रममा .L.2? योजना यसको आकार परिवर्तन गरिसकेको/गर्ने गर्दै हुनुहुन्छ	no yes, make it bigger (bigger surface) yes, make it smaller (smaller surface) yes, add storeys yes, make less storeys
L.3. What techniques did you/ are you planning to use to rebuild / repair your house?	घर पुनर्निर्माण गर्ने क्रममा के कस्ता .L.3? गर्दै हुनुहुन्छ प्रविधी प्रयोग गरिसकेको/गर्ने योजना	The same materials like Pre-EQ house Adobe Bamboo Dry Stone Stone in mud Stone in cement mortar Brick/Block in mud Brick/Block in cement mortar Reinforced Concrete Reinforced Concrete Frame with Brick Infill Timber Frame with Brick Infill Timber Frame with Stone Infill

English	Nepali	Choices
		Other (Specify) Do not know
L.3.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .L.3.a	
L.4. Which techniques can you afford to use based on your current resources (i.e. without external assistance)?	हाल तपाईंसँग उपलब्ध भएको स्रोतहरूको .L.4 गर्न आधारमा के कस्ता प्रविधिहरू तपाईं समर्थन सक्नुहुन्छ? (बाहिरी सहयोग बाहेक)	The same materials like Pre-EQ house Adobe Bamboo Dry Stone Stone in mud Stone in cement mortar Brick/Block in mud Brick/Block in cement mortar Reinforced Concrete Reinforced Concrete Frame with Brick Infill Timber Frame with Brick Infill Timber Frame with Stone Infill Other (Specify) Do not know
L.4.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .L.4.a	
L.5. What type of materials recovered from damaged pre-EQ house were you able to use for repairs / rebuild your house?	L.5. भुकम्पपुर्व घरबाट तपाईंले संकलन? गर्नुभएको सामग्री मध्ये के कस्ता सामान नया गर्नुभयो घर बनाउन वा मर्मत गर्न प्रयोग	Bricks Timber Stones Slates Bamboo CGI Reinforced bar None Not applicable Do not know Other (Specify)
L.5.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .L.5.a	
L.6. How many adult members of the household will contribute unskilled or skilled labour to repair/rebuild the house?	L.6. घरधुरीका कति जना वयस्क सदस्यहरू ? मर्मत/पुनर्निर्माणमा दक्ष र अदक्ष श्रम दिन घरको सक्नुहुन्छ	
L.7. How many hours does it take to travel by foot from your house to the nearest market that stocks building materials? (One way)	L.7. पैदल यात्रा गर्दा तपाईंको घर देखि नजिकको घर निर्माणका बस्तुहरू पाइने बजारसम्म पुग्न कति घण्टा लाग्छ? (बजारसम्म जाने एक तर्फी मात्र)	Less than 1 hour 1<2 hours 2-4 hours More than 4 hours

English	Nepali	Choices
		Do not know
L.8. At this markets, which of the following items are you able to buy:	यस बजारमा तल दिएको मध्ये कुन कुन सामानहरु पाइन्छ .L.8?	CGI Timber Steel Tools Bamboo Cement None of above
L.9. How much does it currently cost to hire a mason compared to pre-EQ situation?	तुलनामा डकर्मीलाई L.9. भूकम्पपूर्वको? हिसाबले कति भाडामा काम लगाउन खर्चको फरक छ	At least double compared to before EQ Less than double but more compared to before EQ Same as before EQ Less than before the EQ Only paid with food There is no one to hire Do not know
L.10. How much does it currently cost to hire a carpenter compared to pre-EQ situation?	तुलनामा सिकर्मीलाई भूकम्पपूर्वको .L.10? कति भाडामा काम लगाउन खर्चको हिसाबले फरक छ	At least double compared to before EQ Less than double but more compared to before EQ Same as before EQ Less than before the EQ Only paid with food There is no one to hire Do not know
L.11. Can you list 5 safety measures you will include/have included in your new house when you repair/rebuild?	L.11. के तपाईं ५ वटा सुरक्षा उपायहरुको ? गर्न सक्नुहुन्छ जुन तपाईंले नयाँ घर सूची समावेश मर्मत/निर्माण गर्ने/गरिसकेको क्रममा गर्नुहुन्छ/गरिसकेको छ	Banding Stiches Vertical Timber or Bamboo Reinforcement Tiestones Cornerstones Cement Mortar Reinforced concrete frame Small Openings Confined openings Doors not near corners Light Gable

English	Nepali	Choices
		Gable Band Collar Ties on Roof structure Light Roof Strong connections Build only one or two storeys Build in a safer location Use more reinforcement bar Use strong materials Use square stone Long lintel for doors and windows Not applicable None
L.15. What are 3 main barriers for your households to rebuild/repair house?	तपाईंको घरधुरीलाई घर .L.15 निर्माण/पुनर्निर्माण गर्न क्रममा आउने ३ मुख्य ? के-के हुन् बाधाहरु	Lack of funds Lack of time No unskilled labour available to hire No skilled labour available to hire (mason, carpenter) Lack of materials Lack of technical knowledge on housing Weather condition/Winter Issues connected with land ownership Lack of building permit Waiting for earthquake aftershocks to stop Building location is unsafe None Other (Specify) Do not know
L.15.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .L.15.a	
L16. What are the top 3 most urgent improvements needed in your community?	३ मुख्य सुधारहरु समाजमा आवश्यक तपाइको ?हुन् के के	Reduce risk of Flooding Reduce risk of Landslides Reduce risk of Rockfall

English	Nepali	Choices
		Improve access to Water and/or Sanitation Improve irrigation Improve health care access Improve education access Improve road access Improve market access Repair heritage structures Improve access to safe housing Improve access to livelihoods Improve access to financial services [e.g. banks] None Other [please specify]
L.16.a. please specify other	अन्य भए निर्दिष्ट गर्नुहोस .L.15.a	
<b>GPS Location</b>		
Please take first photo of the pre-EQ house	भुकम्पपुर्व बसोबास गर्ने घरको पहिलो कृपया तस्विर लिनुहोस	
Please take second photo of the pre-EQ house	भुकम्पपुर्व बसोबास गर्ने घरको दोश्रो कृपया तस्विर लिनुहोस	

## **Annex B: Manual for Enumerators**

Please see additional annex