



Challenges of Implementing Disaster Risk Reduction Activities by Local Governments: A Case Study of Shankharapur Municipality in Kathmandu Valley, Nepal

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Abstract

The promulgation of Nepal's new constitution in 2015 has given mandatory responsibilities to the local governments (municipalities) to deal with all kinds of disasters within the municipalities. The Disaster Risk Reduction and Management Act (2017) has clearly highlighted their roles and responsibilities. Since this is a new provision, the stakeholders are concerned if the municipalities can handle such an important task. Considering this concern into account, the main objectives of this research are to identify the major challenges that the municipalities are facing and to identify the policy recommendations to overcome them. A case study was conducted in Shankharapur Municipality in Kathmandu Valley, Nepal. The methodology adopted was desk study, field study and opinion collection from the residents and stakeholders. Investigation results indicate that the local government's approach is still reactive, lack sufficient technical human resources, and the Disaster Risk Reduction (DRR) activities are not prioritized in their planning and budgeting. Consequently, new disasters are increasing and the local community is not happy with the initiatives undertaken by the municipality. To overcome these constraints, several recommendations are made including hiring DRR related personnel by the municipality on a permanent basis and developing a DRR plan with its implementation modalities.

JEL Classification: Q54, H70, O29, H11

Keywords: disaster risk reduction, local government, Nepal

1. Introduction

The 1934 earthquake known as the Great Nepal Bihar Earthquake of Mw 8 scale was one of the worst disasters in Nepal (National Planning Commission, 2015). Only after 80 years, Nepal faced a natural shock of comparable magnitude. On April 25th, 2015 an earthquake of Mw 7.8 occurred in central Nepal (hereafter referred to as the Gorkha earthquake). The mainshock and its strong aftershocks (26th April and 12th May), affected 31 out of 75¹ districts, and 14 of those districts were declared a crisis hit (Ministry of Home Affairs [MOHA], 2015). This earthquake disclosed the general vulnerability of Nepal and its population to disasters. Nepal can experience a high magnitude earthquake anytime in the future as the country lies in the Central Seismic Gap, extending from North-Central India into Western Nepal (Ghazoui et al., 2019). Only a portion of the stored seismic energy was released during the Gorkha earthquake and many details are yet to be investigated to understand the state of seismic hazards in Nepal (Bhattarai et al., 2020). Besides earthquakes, every year floods, landslides, lightning, windstorm, and other disaster are recurring in Nepal. Some of the factors contributing to disaster vulnerability are the absence of proactive legislation and reactive approaches in the country (MOHA, 2015).

Regarding the legislation, the newly enacted Disaster Risk Reduction and Management Act (DRRMA) 2017 has answered this as the act encompasses all pre-and post-phases of the Disaster Management (DM) cycle. The DRRMA 2017 has moved forward from the traditional reactive DM approach to proactive Disaster Risk Reduction (DRR). Lately, a paradigm shift has been seen in the country. Nepal has moved from a unitary to a federal structure of governance and the DRRMA 2017 has also been enacted. The new constitution has envisioned three-tier governance systems namely federal, provincial, and local. The Constitution of Nepal (CON 2015) has granted more authority and responsibility to the Local Government² (LG) as they are provided with exclusive judicial, legislative, and executive functions. For example, establishing LG as a separate constitutional body, they are provided with quasi-judicial power as per CON, 2015 Part 17(217) to form a judicial committee and similarly Part 18 (226) powers to make law in their constituency. The CON 2015 has given mandatory responsibilities to the local governments (municipalities) to deal with all kinds of disasters that may occur within the municipalities, and also as a shared responsibility amongst federal, provincial and local governments. The DRRMA 2017 also outlines the function, duties, and rights relating to disaster management of the three-tier governance in Nepal. The DRRMA 2017 has highlighted the role of local government in Disaster Risk Reduction (DRR). The major role and responsibilities of LG are to initiate activities such as (i) Design and implementation of the local DM plan, (ii) Allocation of budget for disaster reduction (iii)

¹ After the promulgation of the Constitution of Nepal in September 2015, the number of districts has been increased to 77. The number of affected districts, out of the newly formed 77 districts, therefore was 32 as Nawalparasi district has been divided into two districts called Nawalpur and Parasi

² Article 5 of the CON 2015 defines local government as rural municipalities, municipalities and district assemblies. In this study local government has been interchangeably used for the municipality being studied.

Coordination of public, private, NGOs, local volunteers, and social mobilizers to conduct DM activities (iv) Implementation of building codes and standards/guidelines (v) Formation of disaster preparedness committee at ward and community level (vi) Mock-drill & Training, (vii) Management of rescue and relief at affected areas, (viii) Establishment of Disaster Management Information System and prior warning system at the local level, (ix) Installation of Early Warning System (EWS), (x) Establishment and operation of local emergency operation center, (xi) Maintenance of updated record of documents lost, defaced or destroyed due to disaster, (xii) Assessment, identification, categorization and distribution of identity card to disaster-affected households, and (xiii) Maintenance of operational fire brigade and other instruments so that they may be used in time of disaster.

As LGs are the closest governance units to the community, they are considered to be the first line of response and defence to disasters (Basu et al., 2013) and are also the most impacted by disasters (United Nations Office for Disaster Risk Reduction [UNISDR], 2013). LGs are the closest tier of governance to the local community and it is the responsibility of the LG to protect the community from risk and to reduce the impacts of disasters (Kusumasaki et al., 2010).

Nepal embarks on a new federal structure from the unitary structure in the past. The LG have a bigger mandate in their constituency including the mandate of DRR. The delineated approach for governance and DRR is new in Nepal. Now it raises the question of whether LG will be able to properly carry out their mandate or not. According to Democracy Resource Center (DRC) (2019), LG has been active in the disaster response phase only and showed very little interest or investment in disaster preparedness and mitigation phase. Furthermore, the article highlighted LG prioritized infrastructure construction (such as the construction of roads) and DRRM had not received adequate priority in the planning and decision making. Bhandari et al. (2020) stated LG leaders have no clarity on the different DRRM capacities they require to meet DRRM challenges in their constituency. Shrestha (2019) highlighted that LG for service delivery lack adequate institutional capacity. Additionally, they lack human resources and a low capacity of staff members. Despite Nepal having participated in many international and national DRRM initiatives, the implementation of these policies at the ground level has been problematic (Gaire et al., 2015). In Nepal, existing rules and regulations for DRRM has neither been fully funded nor fully enforced (Wendelbo et al., 2016). In this context, this study has been conducted to understand the major challenges that the municipalities are facing in implementing the act. Further findings from the study will be beneficial for policymakers and DRR practitioners in understanding the challenges of local government and in strengthening the capacities to create a disaster-resilient community. The specific research questions of this study are.

1. What is the implementation status of DRR mandates set by DRRMA 2017 at the local level (Municipality)?
2. What are the challenges faced by the LG (Municipality) in carrying out the DRR mandate set by DRRMA 2017?
3. What is the perception of the community on DRR activities done by LG at the municipality?

2. Study Area

Shankharapur municipality lies in the Kathmandu district and covers an area of 60.21 square km. Many areas of the municipality are difficult to access due to poor road infrastructure. Shankharapur municipality has a total population of 27,202, and households of 5,607 are distributed across 9 wards (Shankharapur Municipal Office, 2019a). From the earthquake, 6,351 buildings were partially or fully damaged and 98 people were killed (Shankharapur Municipal Office, 2019b). While analyzing the disaster data from the DRR portal of MOHA, the municipality lacked data on disasters, only incidents of fire are recorded. Secondary data analyzed from the municipality showed landslide has been a major recurring disaster in the community. The map below (Figure 1) shows the Shankharapur municipality boundary and index maps (Map of South Asia, Nepal, and Kathmandu district).

Figure 1

Shankharapur Municipality Map and Index Maps



Note: Map of Nepal (Survey Department, Government of Nepal, 2021) and other maps from Google.

Shankharapur Municipality was one of the most affected municipalities in Nepal during the Gorkha 2015 earthquake. In the city of Sankhu in Shankharapur municipality, more than 90 percent of the buildings, mostly traditional houses, were completely damaged in the Gorkha 2015 earthquake and its aftershocks (Shrestha et al., 2016). Before the 2017 elections of LG representatives, only 10% of the buildings were reconstructed, and after the elected officials were in charge the numbers increased to 58% (Shankharapur Municipal Office, 2019b). On this background, the study site was selected as the LG has been active in the reconstruction process, and it is believed to be active in the role of fulfilling the mandate of DRR.

3. Research Methodology

Convergent parallel mixed method research has been used in this case study. This method enables researchers to concurrently conduct both quantitative and qualitative studies

in the same phase of the research process, weigh both the methods equally, analyze the two components independently, and interpret the results together (Creswell & Clark, 2011).

The study has deployed tools such as an In-depth Interview (IDI) and Cross-Sectional Survey. For the qualitative study, six key stakeholders were interviewed. The interviewees were selected based on their experience and knowledge of the municipality being studied, and engagement in the field of DRR. An NGO official, a DRR practitioner, an elected leader, a DRR committee member, a LG representative, and a civil society leader have been interviewed in the study. The interview was conducted using a checklist to identify the challenges of LG in DRR. The interview questions are divided into several categories such as:

- a) What activities are initiated for DRR to mitigate and prepare for different recurring disasters or hazards as mandated by the DRRMA 2017?
- b) What is the approach used for DM in the municipality?
- c) How is sustainable development integrated into DRR?
- d) What is the budget allocation status for DRR in the municipality?
- e) What is the workforce status for implementing DRR incentives at the municipality?

The checklist was used as a tool to cover the major theme of the study; probing questions were asked to stimulate further discussion. The interviews were recorded using a digital voice recorder after the consent of the interviewees. All the interviews were then manually transcribed and thematically analyzed. The thematic analysis allowed the researcher to identify the key recurring themes of the study and to bring in direct quotes able to highly represent participants' views that were chosen to be presented in the study.

For the quantitative study, 131 community members were interviewed. The formula to calculate sample size has been determined using Daniel's sample size formula for finite population (Daniel & Cross, 2018). Further sample in the Shankharapur municipality for each ward was determined on the ward's population using a proportional probability sampling technique. Systematic random sampling technique was used in the field while collecting data from the study area. While conducting a systematic random, every 5th individual/household has been selected for sampling.

N =	Population size,	5,733 (HH: Household)
CI =	Confidence Interval	95%
Z =	Z-score of 95%	1.96
e =	Margin of error (percentage in decimal form) of 5%	8.46%
p =	Population proportion of 50%	0.5
(Using P=0.5 provides the largest sample size)		
n =	Sample size	131

$$Sample\ Size\ (n) = \frac{\frac{1.96^2 * 0.5(1-0.5)}{0.0846^2}}{1 + \left(\frac{1.96^2 * 0.5(1-0.5)}{0.0846^2 * 5733}\right)} = 131$$

With CI of 95%, population proportion of 50%, and population size of 5,068, the study sample is 131 with real value being $\pm 8.46\%$ of the Household Survey value. In setting the margin of error or the significance level, there is no magical number and it is the value acceptable to the researcher and the audience. A higher level of significance or margin of error means that there is a larger chance of being wrong, but also it is easier to conclude that the coefficient is different from zero (Hair Jr. et al., 2009; Hazerlrigg, 2009). The study has been conducted during the Coronavirus (COVID-19) pandemic and lockdown in the country, thus the sample size for the study has been limited to only 131.

The survey has been conducted using a structured questionnaire. The survey questionnaire included two sections.

- a) Section A covered socio-demographic data such as respondent's age, marital status, ethnicity, education, residing ward, and occupation of the respondent. Though not central to the study, the socio-demographic data helped the researcher in giving an overview of the research conducted.
- b) Section B covered the ranking of disasters and community opinion on DRR activities and initiatives at the local level. This section aimed to get an overview of the perception of the community on different disasters existing in the community.
- c) Section C covered the perception of the community on different topics such as DM approach of LG, and included questions such as different initiatives and projects launched by LG.
- d) Section D covered whether development activities has triggered disaster in the community.
- e) Section E covered community perception on initiatives or projects launched by LG.
- f) Section F covered community perception on challenges faced by LG.

The questions were multiple choice rank order questions, open-ended questions, closed-ended with fixed responses and few questions that used 5 point Likert scale questions (Strongly Agree, To Some Extent Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree).

For quantitative data analysis, SPSS has been used to perform the data analysis. Descriptive analyses were performed and presented in form of stack bar diagrams, pie charts and tables. Qualitative data were compared with those from the quantitative data and presented in a juxtaposed table.

4. Literature Review

The geological process has been shaping the earth's surface. When these processes affect the communities through the loss of life, material, economic or environmental condition and is beyond their capacity to cope using their resources is considered as a disaster (UNISDR, 2017a). These processes are known to us as natural hazards such as earthquakes, landslides, volcanic eruptions, tsunamis, floods, droughts, forest fires, and tornadoes. These hazards are natural phenomena, and often cannot be prevented fully, but their scale or severity can be reduced through the implementation of various strategies and actions (UNISDR,

2017b). Sendai Framework for Disaster Risk Reduction 2015–2030 has highlighted that proactive planning and investing in DRR based on accurate risk assessment can prevent future disaster losses and contribute to sustainable development (UNISDR, 2015).

In 2008, the Constituent Assembly (CA) declared Nepal the Federal Democratic Republic. Later in 2015, the CON was promulgated, envisioning three tiers of governance structure including the federal, provincial and local level of government. The local level consists of both rural and urban municipalities (Kelly, 2016). In the context of Nepal, federalism has been a monumental paradigm shift from the previous governance system. The country has shifted to federalism from the unitary model of governance with more power devolved to LG. In 2017, after 2 decades of gap Nepal's local leaders were elected (Acharya, 2018).

CON (2015) has stated disaster management power is provided to the local level as per Schedule-8, "Local Level Power" of CON, 2015 but Schedule-9 "List of Concurrent Powers of Federation, Provincial and Local level" of CON states that the disaster management is also part of Federation, Provincial and Local Level as well. Local level is responsible for dealing with natural and anthropogenic disasters in their constituency. Disaster management is part of federal, provincial and local levels. LGs are the closest governance unit to the community and they are in a better position to engage the local community in DRR activities and can address the concerns of the community efficiently and effectively. Disasters are often local events thus local knowledge and measures are essential for effective management of disasters and vulnerabilities (Bollin, 2003). In the context of Nepal, despite the devolution of power to local levels, LGs are facing different problems and have not been effective. LGs face many problems from insufficient laws, staff, and infrastructures to mobilizations of economic resources (Chaudhary, 2019).

DRRMA 2017, considered as an umbrella act, has also followed the restructuring of the state and has made provision for DRRM at the federal, provincial and local levels. The act has been promulgated as per article 296(1) of CON. In the act, part 7 of the DRRM Act 2017, the act describes the role of district and local disaster management committee and in point 17 it especially describes the local disaster management committee and activities to be conducted by the committee. The act envisions a disaster management committee in each rural municipality and municipality of Nepal. Nepal et al., (2018) argue that DRRMA 2017 can be a milestone in disaster management in Nepal incorporating a proactive disaster management approach. In addition, the authors argue that, in addition to arrangement plan and institutional set up, it is necessary to supplement stakeholder's capacity and skill to operationalize the aim of the relevant and related acts and policies.

In addition to CON 2015 and DRRMA 2017 other legal instruments for DRR are Building Act 2055, and Local Governance Operation Act 2017, Climate Change Policy 2011, Land Use Policy 2012, Water Induced Disaster Management Policy 2015; National Reconstruction and Rehabilitation Policy 2015; National Disaster Response Framework 2013, Basic Guideline related to Settlement Development, Urban Planning and Building Construction 2016; National Urban Development Strategy 2016 are important legal and Policy framework (MOHA, 2018).

According to Acharya (2018), local government has several challenges such as (a) lack of capacity of LG to institutionalize federalism, (b) lack of engagement with citizens for

building partnerships, (c) enhancement required in technical, administrative and fiscal capacity of LG for effective service delivery, and (d) prepare essential laws, acts and regulations for implementing constitutional granted exclusive and concurrent rights. Besides, a study conducted by Nepal et al. (2018) expressed their view that in Nepal disaster policies are focused on the response and relief phase rather than preparedness and mitigation. But the DRRRMA 2017 is a milestone in DM approaches in Nepal incorporating a proactive DM approach.

The Mercy Corps (2019) conducted a study “Budget governance for disaster risk reduction and climate change adaptation under Nepal's new federal system” in seven municipalities (Bhajani, Kailari, Krishnapur, Laljhadi, Parashuram and Suklaphanta) of Nepal. It argues that mayor, deputy mayor, or ward chairpersons have a strong influence in decision. Thus, party agendas are also in the development planning process. Visible investments are prioritized such as the development agenda of roads, irrigation, electricity and others. But both the elected officials and bureaucrats have not been properly trained on integrating DRR and Climate Change Adaptation (CCA) with development. LG lack and require more technical capacity and knowledge to conduct such assessment. LG have very little incentive in integrating DRR and CCA in development. In analyzing the budget of the LG in the study area, the allocated budget was low (For Environment and Disaster Management) ranged from 0.7 to 3.4 % of the total annual budget. Many investments that have an impact on DRR and CCA have not been categorized into the “Environment and Development” section. Similarly, DRC (2019) argues that very limited fund has been allocated to DM and LG have very little incentive in integrating DRR and climate change adaptation with development.

5. Study Findings

This section discusses the findings of the study from the survey and IDI. Secondary literature has also been used to support the findings of the study.

5.1 Socio-Demography of Survey Respondent

Table 1 shows the age, education level, and gender of the survey respondent. The sample size of the survey was 131 community members of Shankharapur Municipality.

Table 1

Respondent Demography

Age	N	Percent	Education Level	N	Percent	Gender	N	Percent
18-27	32	24.40%	Illiterate	19	14.50%	Female	50	38.20%
28-37	31	23.70%	Middle School	19	4.50%	Male	81	61.80%
38-47	35	26.70%	Primary School	11	8.40%			
48-57	16	12.20%	SLC Pass	34	26.00%			
58+	17	13.00%	Informal	9	6.90%			
			College/University	39	29.80%			
Total	131	100%		131	100		131	100

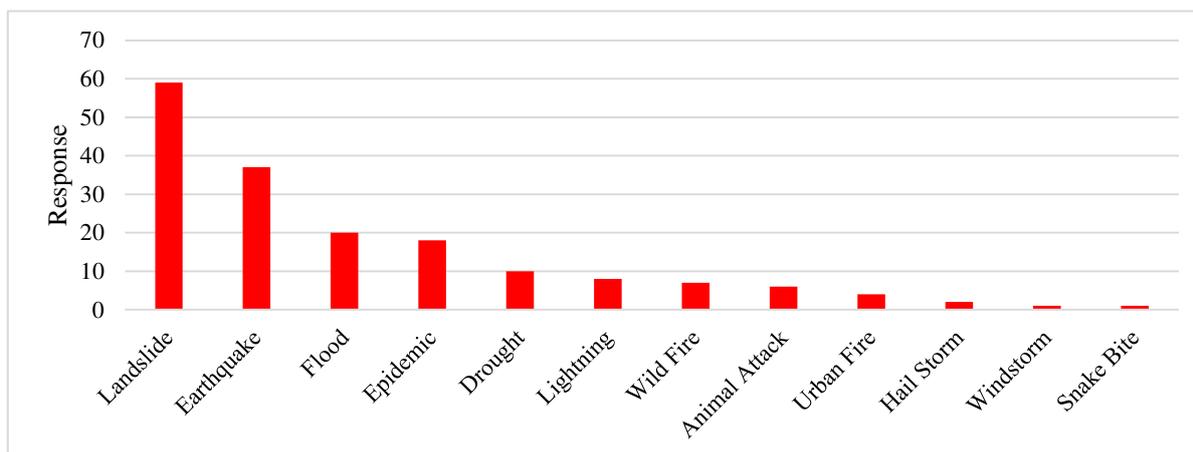
Note: N = Frequency, SLC = School Leaving Certificate

5.2 Disaster Scenario in the Community

The respondents were asked to rank different disasters they have faced in the community in last 5 years through a multiple-choice question. Landslide has been considered as the major disaster by the community, followed by earthquake, flood, epidemic, and others (Figure 2). In the national context, Landslide (128 people) and Flood (96 people) have claimed most of the lives and the most recorded incident in the years 2017 and 2018 (MOHA, 2019). Although the earthquake affected the community five years ago, damaged buildings still remind community members of the effect of the disaster. From the reconstruction effort initiated after the Gorkha earthquake, only 58% of the reconstruction has been completed in the municipality (Shankharapur Municipal Office, 2019b). On the national level, data from 1971-2018, the epidemic has been a major cause of death in Nepal. The latest data on the 2017-2018 trend shows the death from epidemic has been on the decrease but still is one of the major disasters impacting the number of people in Nepal (MOHA, 2019).

Figure 2

Recurring Disaster in the Community



Note: n= 131 (Sample Size), Survey conducted on 2019

Figure 3

Collapsed Building by Gorkha Earthquake in Shankharapur Municipality



Figure 4

A Landslide in the Shankharapur Municipality



5.3 DRR Activities and Projects Launched in the Community

From the interviews with the municipality DRR focal person and the NGO officials, following activities has been identified as being carried out in the community.

- Local DRRM Act endorsed but not contextualized as per the multi-hazard-based disaster risk profile.
- Building of retention wall to control landslide in few locations.
- Provision for IEA and EIA.
- Animal and Crop Insurance for risk transfer.
- Risk-sensitive land use plan being prepared.
- Formation of DRR committee in the municipality and ward level but not established in all wards.
- Allocation of DRR funds.
- Disaster Management Fund Mobilization Guidelines prepared as per the new guidelines from the Ministry of Federal Affairs and General Administration, with the allocated fund for relief only.
- Local Disaster Management Plan (LDMP) prepared but not endorsed by LG
- Emergency Disaster Response Plan has been prepared.
- Local Emergency Operation Center established, and its SOPs endorsed, but not operational due to lack of radio equipment and staff.
- Disaster information management platform (DIMP) and Mobile-base application prepared but not in operational stage due to lack of workforce.
- Existing geodatabase of six wards but has not been accessible due to poor IT capacity.
- DRR portal established but not functional.
- Open spaces identified.
- Search and rescue materials and fire safety materials stockpile.
- Creation of search and rescue task force.
- Training to incorporate personal fire safety and rescue to the public and private entities, follow up training not provided.
- Community fire alert sirens were installed in six places (Urban areas).
- Reviving ponds in ward 6 to strengthen fire preparedness (used as water storage for firefighting vehicles (Still under construction)).
- Installation of Fire Hydrant in ward 6.

While comparing the DRR activities and projects launched by LG and in collaboration with NGO, several activities have not been achieved such as implementation of LDMP (a major component for reducing the effect of disaster through preparedness, mitigation and response plan), operationalization of local emergency operation centre, the disaster information management platform (though not in an operational stage), and installation of EWS in the community (only fire alarms but EWS for landslide, and flood not installed). The fund for Disaster Management Fund Mobilization Guidelines should be revised so that funds can be used beyond relief materials and in the spirit of the DRRMA 2017 which incorporates all aspects of DRRM. The formation of DRR committee in all wards and enforcement of building code due to lack of workforce were also required.

Figure 5

Rescue and Relief Equipment and Material Inventory of Shankharapur Municipality

**Figure 6**

Pond at Sankhu, Ward 6 being Revived For Strengthening Fire Preparedness



Several activities and projects launched with support from Non-Governmental Organizations (NGOs) has not been continued or sustained by the municipality after the NGOs handed the project over to the LG. During the interview, the municipality DRR focal person stated that the municipality lacks manpower in continuing the project and proper handover documents were not prepared by the municipality DRR focal person predecessors. Due to the lack of a proper handover document, it is difficult to track what activities were conducted in the past. NGO personnel during the interview stated that the focus of elected officials is on tangible development, such as roads and water taps. DRR is not prioritized in the planning process. Few elected ward officials are proactive, and they include new and continue with ongoing projects but they don't prioritize DRR.

Despite the several initiative and projects launched by LG for DRR, the community perceive LG has been following a reactive approach (see Figure 7). The LG Disaster Management Fund Mobilization Guidelines is also reactive, as the funds can only be mobilized for relief work. The LG has launched several initiatives (DIMP, disaster information mobile platform) but not being able to continue its functioning. It seems the LG has been following a reactive approach for DM in the municipality. Following a reactive approach will be costly for the LG in the future. Investing in DRR will decrease the investment requirement in the response phase, and proactive planning and investing in DRR can prevent future disaster losses and contribute to sustainable development (UNISDR, 2015).

5.4 Community Perception Whether LG is Proactive or Reactive in DRR

During the survey of the community members, the respondents were asked, whether LG is proactive regarding DRR activities in the community. The majority of the community member responded to strongly disagree (36%). When asked whether LG is focused on relief distribution rather than reducing disaster or its impact, majority of the respondent agreed (36%).

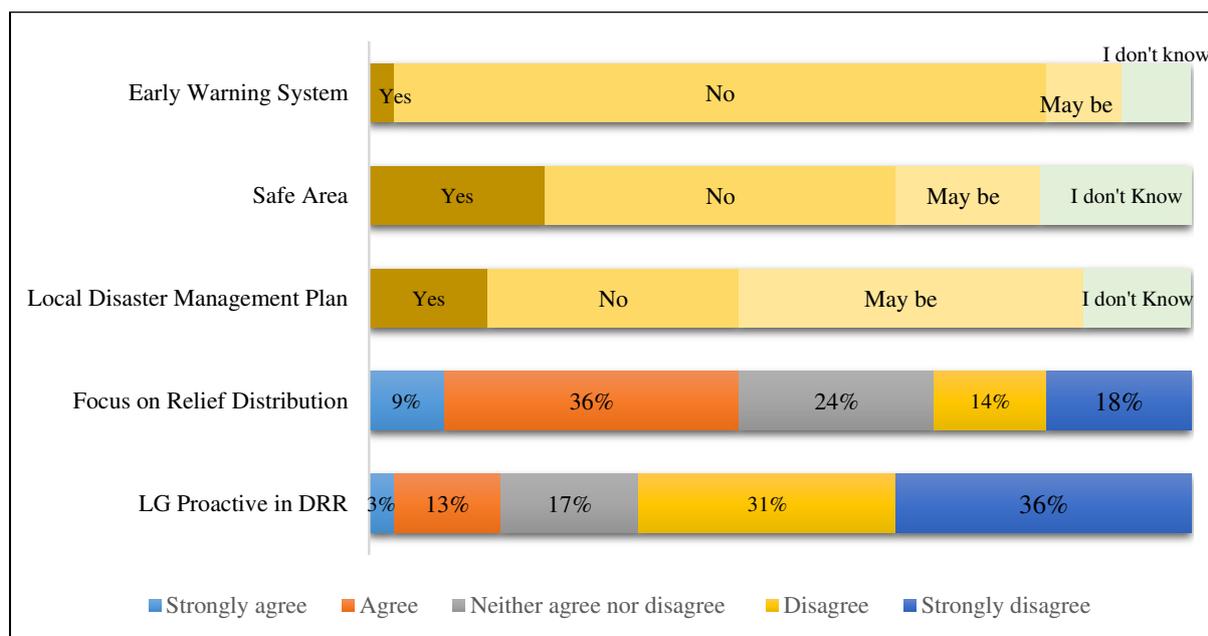
To measure the proactiveness of LG, following questions including closed-ended with fix responses and 5 point Likert scale questions were asked to the respondents such as wheth-

er LDMP has been developed or not? Are there any DRR educational program initiated by LG to sensitize community members? Is there any safe area to assemble during disaster? and has the community installed EWS in the community?

42% of the respondents stated “maybe” the LG has prepared LDMP. During the IDI with the municipality DRR focal person, it was stated that the LDMP has been prepared but not endorsed by the LG. The majority (61.1%) of respondents said LG has not introduced DRR educational program in the community. Regarding designated safe areas during the disaster, the majority of the response was 'no' (42.7%). Although a safe area has been identified by the LG, the majority of the community members were not aware of it. Majority (79.4%) of respondents said 'no', and EWS has not been installed in the community. During the interview with the municipality DRR focal person stated, the focal person is not aware of the EWS in the community. Few community members during the survey stated there are fire alarms installed in the urban area. These findings of the survey have been presented in a stacked bar in Figure 7.

Figure 7

Community Perception on Whether LG is Reactive or Proactive in DRR



Note: n = 131 (Sample size)

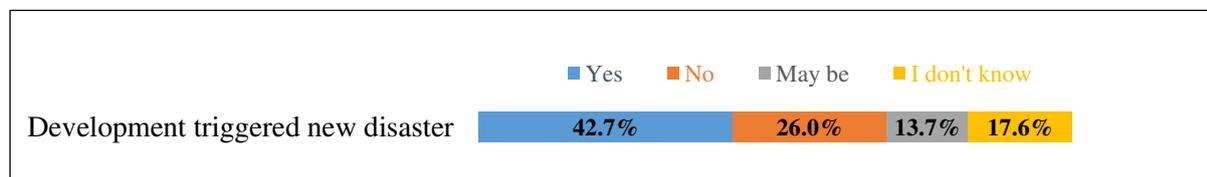
5.5 Community Response on Development Triggering New Disaster

During the survey of the community members, the respondents were asked whether development has triggered new disasters in the community. Majority (43%) of the response was 'yes', and the development activities have triggered new disasters such as landslides in the municipality. These findings of the survey have been presented in a stacked bar in Figure 8. A newspaper article has stated in Chhap Bhanjyang, Shankharapur Municipality sixty houses are at risk of landslide, 6.29 acres of land, and three feet road have sunk in. Communi-

ty claims that extensive use of excavators on road construction has caused this problem (Khabarhub, 2020).

Figure 8

Development Activities has Triggered New Disaster

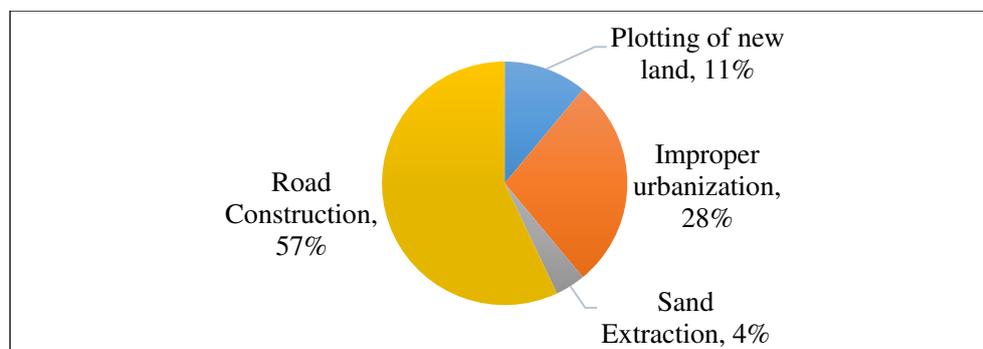


Note: n=131 (Sample size)

Majority (42.7%) of respondents said the development has triggered new disasters, and only those respondents stating ‘yes’ were further asked an open-ended question about different development activities that have triggered disasters in the community. Their responses have been coded in themes and after analyzing the data, 57% stated construction of the road as a major cause leading to disaster such as landslides, especially the use of heavy machinery during road construction. As followed by, 28% of the respondents stated improper urbanization has made the community more vulnerable, similarly 11% of the respondents stated plotting of land will trigger future disaster, and 4% respondents stated sand extraction from the river in the future would be a cause of disaster in the community. Figure 9 shows the pictorial presentation of thematic analysis showing different development activities triggering disasters in a pie chart.

Figure 9

Pie Chart on Thematic Analysis of Development Activities Triggering Disaster



Note: n=131 (Sample size)

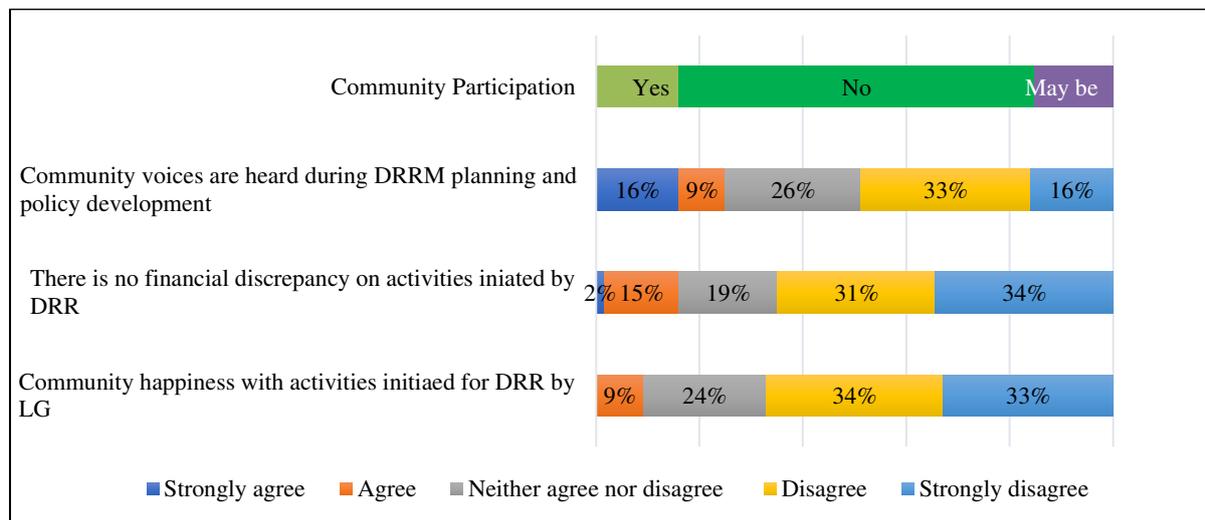
5.6 Community Perception on Initiatives or Projects Launched by LG

During the survey, respondents were asked whether the community is happy with initiatives or projects initiated by the LG, and the majority of the respondent disagreed (34%) with the statement. When respondents of the survey were asked regarding their participation in the DRR planning process, majority responded ‘no’ (69%). Regarding whether community voices are heard during the planning process, majority (33%) disagreed that community voices were heard during the DRR planning process. Regarding the statement that no financial

discrepancy exists in DRRM activities, the majority responded ‘strongly disagree’ (34%) (The fund's allocation is not separated between DRR and DM, but a combined pool of funds is created). The findings of the survey have been presented in a stacked bar in Figure 10.

Figure 10

Stacked Bar Diagram on Initiatives or Projects Launched by LG



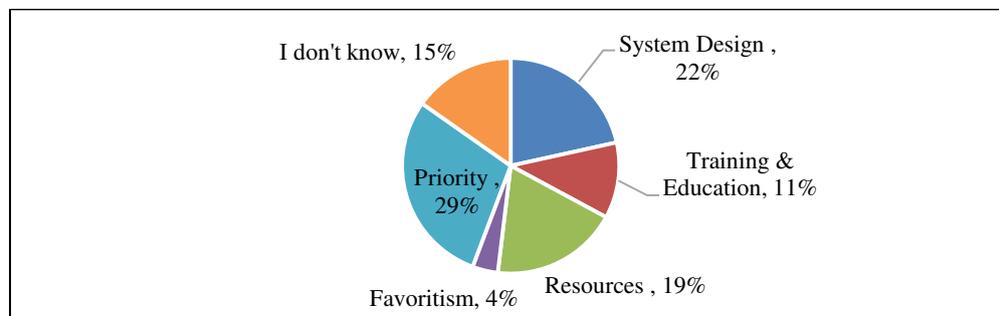
Note: n=131 (Sample size)

5.7 Community Perception on Challenges Faced by LG in Carrying out the Mandate of DRRMA 2017

The survey questionnaire included open-ended questions regarding challenges faced by LG. The community perceptions about the challenges faced by LG were manually coded and thematically categorized as System Design (bureaucracy procedural hassle due to bureaucratic structure, transparency, coordination, and monitoring of development activities), Training and Education (Training and Education factor related to Disaster Risk Reduction), Resources (Human and Financial), Favoritism (Party based activities rather than need-based) and Priority (reactive approach and unmanaged development activities).

Figure 11

Pie Chart Diagram on Community Perception of Challenges Faced by LG



Note: n=131 (Sample size)

According to Figure 11, the highest 29% of the respondent stated LG “Priority” was lacking in DRR and they were focused on development activities such as roads triggering other disasters such as landslides in Shankharapur Municipality. 22% of the respondent stated “System design” such as hurdles and hassle were created by bureaucratic procedure, lack of transparency in planning and policymaking, lack of coordination, proper monitoring of development activities and enforcement of the policy. 19% of the respondent stated “lack of resources” both financial and human resources as a challenge of local government. 11% of the respondents stated “lack of training and education” as a challenge of local government, 4% of the respondent stated favouritism by local government such as working on for vote bank and supporters of the cadres rather than the general public and 15% respondents stated they did not know what were the challenges faced by LG.

5.8 Challenges Faced in Implementation of DRR Initiatives and Project

To further understand the challenges faced by LG, IDI was conducted with the municipality DRR focal person. The interviewee stated challenges faced by LG in the implementation of DRR initiatives and projects were the difficulty implementation of building codes, as municipality lacked the manpower to enforce building codes; the trained human resources of LG leave the municipality for a better opportunity. The municipality lacks financial resources in hiring trained manpower to undertake DRR activities. After the tenure of the project is completed, there are no refresher training done, as the local NGO that implemented the program doesn't have any funds to conduct, and neither does the municipality. Due to limited funds, the local government has not been able to actively work for mitigating disaster.

According to the elected official of the municipality, the LG has been raising funds through taxes, but it is not enough. The LG lacks resources to stabilize the current landslide in their constituency and their current resources is not enough to do so.

NGO representative stated that leadership played a huge role. In neighbouring Changunarayan Municipality, the leaders were proactive. The LG in collaboration with NGOs could achieve a lot in DRR. Whereas in Shankharapur, the leaders are reactive in nature, except for few. There exists a challenge of institutional memory in the organization and human resources. NGO representative stated in the past “there was one IT officer which we coordinated with. He was not the dedicated personnel for DRR, but when he was there, he had all the information regarding DRR initiatives and projects. But as people are posted from one place to another institutional memory is lost, as there is lack of mechanisms to record institutional memory”. Regarding budget, the local government has enough budget, but it's just that the priority is not DRR.

Civil Society Leader stated that policy and laws relating to DRR were not implemented in the municipality. EIA or any other engineering assessment couldn't be done properly due to lack of trained manpower. Although DRR and development go hand in hand, DRR is not integrated into the development process. The development activity such as the construction of roads has further triggered disaster in the community.

To explore further on challenges faced by LG in fulfilling the DRRMA 2017 mandate through activities and projects launched by LG, interviewees of IDI were further asked questions on DM approach of LG, development and disaster, DRR financing, budget and transparency, and workforce related to DRR. Table 2 shows the response of respondents of IDI

with findings of the survey conducted with the community members. Secondary data has also been presented in few sections of the table to further explain the qualitative and quantitative data.

Table 2

Juxtaposed Qualitative and Quantitative Findings to Show Challenges of Shankharapur Municipality in Disaster Risk Reduction

Quantitative	Qualitative
Disaster Management Approach: Reactive or proactive approach in disaster management	
LG is focused on relief distribution than DRR	According to the elected officials “The relief for landslide and COVID-19 response has drained our resources thus our main challenge is the lack of resources”.
Majority: Agree (36%), (Figure 7)	NGO representative stated that the leaders in the neighbouring municipality elected officials were proactive and they were able to achieve a lot in DRR. Whereas in Shankharapur, the local elected officials were reactive in terms of DRR, except for a few ward chairmen.
LG is proactive in DRR	
Majority: Disagree (36%), (Figure 7)	According to the municipality DRR focal person, there are incidences of landslides in remote areas of the municipality, which are difficult to access and due to lack of funds the LG has not been able to mitigate the loss of the disaster or reduce the occurrence of such disaster.
Disaster and DRR: <i>Development has triggered disaster in the community</i>	
The development has triggered the new disaster	According to the civil society leader, “Landslide has been an emerging disaster in the community, the incident of the landslide has been triggered by development activities. Roads are constructed without proper study and the use of heavy machinery in the construction of these roads has increased the incidents of landslides. New landslides are likely to occur where they have built roads using excavators in Chhap Bhanjyang and Laphsiphedi located, at ward 1”. The municipality's priority is development but not sustainable development.
Majority: Yes (42.7%), (Figure 8)	
Development activities triggering disaster	According to the municipality DRR focal person, development is the priority of the community member, these activities are initiated and conducted without properly consulting the municipality and without studies such as Initial Environmental Evaluation or Environmental Impact Assessment. The LG lacks trained manpower for the enforcement of rules and regulations during development activities.
Haphazard Road construction (57%), (Figure 9)	
Community per-	The DRR expert and NGO personnel state that local leaders are elected for a term of 5 years. They must show tangible development for re-election in the next election. The LG has focused on the construc-

ception on challenges faced by LG Majority: Lack of Priority (34%), (Figure 11)	tion of roads and water taps. The issue is not development, but rather unsustainable development practices done by them. The reason for the lack of DRR integration in development is the lack of incentive for doing so, as per the DRR expert.
Finance	
LG financial activities are without any financial discrepancy Majority: Strongly Disagree (34%), (Figure 10)	According to the DRR expert, there is rampant mismanagement of funds/embezzlement at the local level. The municipal elected official stated the LG is in talks with the neighbouring municipality for establishing a joint fire brigade for all the participating municipalities. Analyzing the municipality budget, in the year 2019/21, Municipality allocated a fund of 2,38,50,000.00/- (NRS) in Environment and Disaster management. The budget represents 3% of the total budget of 826,784,367.00/- (NRS). The municipality was able to spend 195,89,115.00/- (NRS) or 82.13% of the total allocated budget in disaster management. The municipality does not own the fire brigade but for the operation of it, 1,000,000 or 40% of the allocated fund has been spent (Shankharapur Municipal Office, 2019b).
Budget & Transparency	
An adequate budget is allocated for DRRM Majority: Neither agree nor disagree (38.9%), (Figure 10)	According to an NGO representative “the local government has enough budget, but it’s just the priority has not been DRR”. Civil society leaders stated that local government has enough resources, but they are not concerned to work in DRR. Concerning the total budget for DRR under the title environment and climate change is 2% (20,100,000 Nepalese Rupees) of the total budget for disaster risk reduction and management (Shankharapur Municipal Office, 2020).
Transparency in activities conducted by the LG. Majority: Strongly Disagree (35%)	As the activities of the municipality are not transparent, the community is not aware of the budget allocation.
Workforce: Adequate workforce for DRR	
LG has enough manpower to do DRR activities, Majority: Disagree (37%)	NGO Representative stated, “as people are posted from one place to another knowledge will be gone along with-it institutional memory as there is no system for recording institutional memory”. DRR focal person states, lack of trained manpower is a hurdle as they are in short supply of it. As the municipality doesn’t generate

enough revenue, they are not able to afford and retain experienced and trained manpower. These workforces opt for a better opportunity.

6. Conclusion

Considering the fact that the LG (municipalities) know better ground reality and expectations of the local population, a legal mandate related to the DRR was given to them through DRRMA 2017. To examine whether the local governments are functioning as per the act or not, a case study was conducted in the Shankharapur Municipality in Kathmandu Valley, Nepal. The findings of this study reveal that the community are not happy with the initiatives that are undertaken by the municipality. Development activities such as the construction of roads and taps by LG has further triggered new disasters in the community. As the LG has been following a reactive approach for DM, LG is not being able to control or mitigate the natural hazards to prevent likely disasters in the days to come. It clearly indicates that the local government is not truly fulfilling the constitutional obligations related to the DRR. This unexpected result is caused by several factors including lacking technical experts, financial resources, awareness level and most importantly not prioritizing the DRR activities in the planning (also considering disaster cycle) and budgeting of the municipality. These constraints can be overcome by some policy decisions that include, among others, giving continuity to ongoing DRR activities and preparing annual plans and budgets accommodating, among others, ideas of local people and experts. Since the case study was conducted in a municipality situated at the Mid-hill region of Nepal, the results and recommendations are useful for municipalities located in rural villages of the region. It may not be applicable to Metropolitan or Sub-metropolitan cities of the area, where socio-economic circumstances are entirely different than discussed in this paper. These findings will be useful for policymakers and DRR practitioners in understanding the challenges of rural municipalities and in strengthening their capacities to create a disaster-resilient community.

References

- Acharya, K. K. (2018). Local governance restructuring in Nepal: From government to governmentality. *Dhaulagiri Journal of Sociology and Anthropology*, 12, 37-49. <https://www.djsa.info/djsa/index.php/djsa/article/view/8/6>
- Basu, M., Srivastava, N., Mulyasari, F., & Shaw, R. (2013). Making cities and local governments ready for disasters: A critical overview of a recent approaches. *Risk, Hazards & Crisis in Public Policy*, 4(4), 250–273. <https://doi.org/10.1002/rhc3.12039>
- Bhandari, D., Neupane, S., Hayes, P., Regmi, B., & Marker, P. (2020). Disaster risk reduction and management in Nepal: Delineation of roles and responsibilities. *Kathmandu: Oxford Policy Management*. [https://www.preventionweb.net/files/72985_delineationofresponsibilityfordisas\[1\].pdf](https://www.preventionweb.net/files/72985_delineationofresponsibilityfordisas[1].pdf)
- Bhattarai, T. N., Nagao, T., & Lohani, T. N. (2020). State of seismic hazard analysis: Reviewing the needs after Mw 7.8 Gorkha, Nepal earthquake. *Journal of Development Innovations*, 4(1), 48-63. <https://www.karmaquest.org/journal/index.php/ILGDI/article/view/59/44>
- Bollin, C. (2003). *Community based disaster risk management approach: Experience gained in Central America*. GIZ. https://www.preventionweb.net/files/5470_encommunitybaseddrm.pdf
- Chaudhary, D. (2019). The decentralization, devolution and local governance practices in Nepal: The emerging challenges and concerns. *Journal of Political Science*, 19, 43–64. <https://doi.org/10.3126/jps.v19i0.26698>
- Constitution of Nepal 2015. Nepal Law Commission, Government of Nepal. <https://www.lawcommission.gov.np/en/archives/category/documents/prevaling-law/constitution/constitution-of-nepal>
- Creswell, J. W., & Clark, V. L. P. (2011). *Designing and conducting mixed methods research*. Thousand Oaks: CA: Sage.
- Daniel, W. W., & Cross, C. L. (2018). *Biostatistics: A foundation for analysis in the health sciences*, (11th ed.). Wiley.
- Democracy Resource Center (DRC) (2019). *The roles of local governments in disaster management and earthquake reconstruction*. https://asiafoundation.org/wp-content/uploads/2019/08/Nepal_Role-of-Local-Government-in-Disaster-Management.pdf
- Disaster Risk Reduction and Management Act 2017. Nepal Disaster Risk Reduction Portal, Government of Nepal. <http://drrportal.gov.np/uploads/document/1509.pdf>
- Gaire S., Delgado R. C., & González, P. A. (2015) Disaster risk profile and existing legal framework of Nepal: Flood and land slide. *Risk Management Healthcare Policy* 8:139–149. <https://doi.org/10.2147/rmhp.s90238>
- Ghazoui, Z., Bertrand, S., Vanneste, K., Yokoyama, Y., Nomade, J., Gajurel, A. P., & van der Beek, P. A. (2019). Potentially large post-1505 AD earthquakes in Western Nepal

- Revealed by a lake sediment record. *Nature Communications*, 10(1), 1–9. Retrieved from <https://doi.org/10.1038/s41467-019-10093-4>
- Hair Jr, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2009). *Multivariate data analysis* (7 ed.). Upper Saddle River, NJ: Prentice Hall.
- Hazerlrigg, L. (2009). *The handbook of data analysis*. (M. Hardy, & A. Bryman, Eds.) London, UK: Sage.
- Kelly, R. (2016). Stock-taking of fiscal decentralization policy in Nepal. *Journal of Fiscal Federalism*, 1(1), 1.
- Khabarhub (2020). 60 houses at Shankharapur municipality at risk of landslide. <https://english.khabarhub.com/2020/31/123999/>
- Kusumasari, B., Alam, Q., & Siddiqui, K. (2010). Resource capability for local government in managing disaster. *Disaster Prevention and Management: An International Journal*, 19(4), 438–451. <https://doi.org/10.1108/09653561011070367>
- Mercy Corps (2019). Budget governance for disaster risk reduction and climate change adaptation under Nepal's new federal system (Policy Brief). https://reliefweb.int/sites/reliefweb.int/files/resources/Policy%20Brief_Nepal%20Budget%20Governance%20Zurich.pdf
- Ministry of Home Affairs (MOHA) (2015). *Nepal disaster report 2015*. Government of Nepal. <https://www.dpnet.org.np/uploads/files/Nepal%20Disaster%20Report%202015%20018-10-06%2006-30-47.pdf>
- Ministry of Home Affairs (MOHA) (2018). *National DRR policy and strategic action plan and strategic action plan 2018-2030*. <http://drrportal.gov.np/document/category/ndrrpsap>
- Ministry of Home Affairs (MOHA) (2019). *Nepal disaster report 2019*. Government of Nepal. <http://drrportal.gov.np/uploads/document/1594.pdf>
- National Planning Commission. (2015). *Nepal earthquake 2015: Post disaster needs assessment Vol. A: Key Findings*. Government of Nepal. https://www.npc.gov.np/images/category/PDNA_Volume_A.pdf
- Nepal, P., Khanal, N. R., & Sharma, B. P. P. (2018). Policies and institutions for disaster risk management in Nepal: A review. *Geographical Journal of Nepal*, 11, 1-24.
- Shankharapur Municipal Office. (2019a). *Shankharapur municipal profile*. <https://shankharapurmun.gov.np/sites/shankharapurmun.gov.np/files/documents/from%20press.pdf>
- Shankharapur Municipal Office. (2019b). *Yearly progress summary 2076*. <http://shankharapurmun.gov.np/sites/shankharapurmun.gov.np/files/documents/pragati%20for%20website.pdf>
- Shankharapur Municipal Office. (2020). *Policy and budget program 2020/21: Book of Shankharapur municipality*.

<https://shankharapurmun.gov.np/sites/shankharapurmun.gov.np/files/%E0%A4%A8%E0%A4%BF%E0%A4%A4%E0%A4%BF%20%E0%A4%A4%E0%A4%A5%E0%A4%BE%20%E0%A4%95%E0%A4%BE%E0%A4%B0%E0%A5%8D%E0%A4%AF%E0%A4%95%E0%A5%8D%E0%A4%B0%E0%A4%AE.pdf>

Shrestha, S., Bajracharya, A. R., Bajracharya, L., Shrestha, N., & Maharjan, M. (2016). Earthquake damage assessment in the traditional town of Sankhu, Kathmandu. *Journal of the Institute of Engineering*, 12(1), 27-38.

Shrestha, R. (2019). *Governance and institutional risks and challenges in Nepal*. <https://www.adb.org/sites/default/files/publication/543056/governance-institutional-risks-challenges-nepal.pdf>

Survey Department, Government of Nepal (2021). Map of Nepal (April 2021). Retrieved from <http://www.dos.gov.np/downloads/nepal-map> on December 30, 2021.

United Nations Office for Disaster Risk Reduction [UNISDR]. (2013). *Making cities resilient: Summary for policymakers*. UNISDR. https://www.preventionweb.net/files/33059_33059finalprinterversionexecutivesu.pdf

United Nations Office for Disaster Risk Reduction [UNISDR] (2015). Resolution A/RES/69/283 (Sendai framework for disaster risk reduction 2015–2030). <http://www.unisdr.org/we/coordinate/hfa-post2015>

United Nations Office for Disaster Risk Reduction [UNISDR] (2017a). *Disaster*. December 5, 2020. <https://www.undrr.org/terminology>

United Nations Office for Disaster Risk Reduction [UNISDR] (2017b). *Mitigation*. December 5, 2020. <https://www.undrr.org/terminology/mitigation>

Wendelbo, M., China, F. L., Dekeyser, H., Taccetti, L., Mori S., Aggrawal, V., Alam, V., Savoldi, A., & Zielonka, R. (2016) The crisis response to the Nepal earthquake: lessons learned. *European Institute for Asian Studies, Research Paper*. Brussels, Belgium. <https://www.eias.org/wp-content/uploads/2016/02/The-Crisis-Response-to-the-Nepal-Earthquake--Lessons-Learned-colour-1.pdf>