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INVESTIGATING INSTITUTIONAL LIMITS TO CLIMATE ADAPTATION: A CASE STUDY OF LANDSLIDE IN THE MOUNTAINS OF NEPAL

Hemant R. Ojha[1,2], Dil Khatri[3, 4], Krishna K. Shrestha[5], Bikash Adhikari[6] and Kushal Pokharel[7]

ABSTRACT

A growing body of research analyses institutional dimensions of adaptation and disaster risk management at the local level, highlighting the positive role of local institutions. However, the question of when institutions could also limit adaptation is much less explored. Drawing on the case of a landslide in the Nepal Himalayas, this paper advances the concept of 'institutional limit', for examining the extent to which local institutions can deliver adaptation outcomes. We show how existing public and community institutions have limited households' capacity to respond to the risk of landslides. The case study demonstrates at least four limits of local institutions: a) inertia created by the social norms and structure embedded in the existing institutions; b) redundancy wherein conventional formal and informal institutions are less relevant to tackle the new challenges posed by climate change; c) fragmentation of institutional efforts involving poor horizontal and vertical coordination among organisations; and d) accountability lapses rooted in the wider political system. We show that most of the local institutions identified in the literature as important sources of resilience have failed to tackle landslides in the highly stratified and politically volatile situation of the Nepal Himalayas where the case study is located. We argue that the notion of 'institutional limit' can enhance our understanding of what institutions can (or cannot) deliver for effective local adaptation. These findings have major implications for the optimism placed on the role and capacity of local institutions to adapt to climate change or manage disaster risks.

Keywords: climate change; community; Himalayas; institutional limit; local government; Nepal.

[1]University of Canberra, Canberra, Australia
[2]Institute for Study and Development Worldwide, Australia
[3]Southasia Institute of Advanced Studies, Kathmandu Nepal, Corresponding email: dil@sias-southasia.org
[4]Swedish University of Agricultural Sciences, Uppsala, Sweden
[5]University of New South Wales, Australia
[6]Institute of Forestry, Pokhara
[7]Independent Researcher

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1. INTRODUCTION

With the growing recognition of climate change impacts as local phenomena affecting specific localities and communities, local institutions have been advocated as key enablers of adaptation (Agrawal, 2008; Malakar, 2012). Studies have demonstrated the significance of local institutions in adaptation to climate change (Agrawal and Perrin, 2009; Adger, 2010; Jones and Body, 2011) or in the management of disaster risks (Wisner et al., 2004; Jones et al., 2013; Shrestha et al., 2019). For instance, based on a meta-analysis of adaptation responses across many developing countries, Agrawal and Perrin (2009) argue that local institutions have a critical role in promoting effective adaptation practices and enhancing the adaptive capacity of vulnerable populations. Researchers around this theme suggest that institutions matter in adaptation in a variety of ways. Drawing on the case studies from Nepal, Jones and Boyd (2011) argue that local institutions play an important role in determining household access to resources on which they depend, eventually shaping the household's ability to identify and manage risks. Local institutions also have a crucial role in mediating external interventions (Agrawal and Perrin, 2009). These analyses have heightened the promise of local institutions, and partly as a result of such studies, community-based adaptation has emerged as a key approach to tackle the impact of climate change (Schipper et al., 2014; Allen, 2006; Ayera and Forsyth, 2009).

Alongside the institutional optimists who highlight the positive role of local institutions in climate change adaptation, others have pointed out that the social organisations and rules which underpin these institutions can create barriers to adaptation efforts (Adger et al., 2009; Jones and Boyd, 2011; Duckers et al., 2015). As Adger et al. (2009) argue, social structure and institutional practice hinder the ability of households to cope with climate risks, or to adapt to changes in the environment. Analysing such social barriers in Nepal through in-depth case studies, Jones and Boyd (2011) show that hierarchical social structure has undermined the adaptive capacity of disadvantaged social groups like *Dalits*. Such social institutions regulate the access to local resources, constraining the ability of the poor and marginalised households to cope with flood hazards, which are increasing under climate change (Cutter et al., 2003; Gaire et al., 2015). These studies demonstrate that local institutions are not necessarily the enabler of adaptation practices (Malakar, 2012; Jones et al., 2013) and raise the question of institutional limits of adaptation.

In this paper, we contribute to the debates on the role of local institutions in climate adaptation and disaster risk management, by exploring various limits of the institutions. Our analysis encompasses both a systematic process of adaptation (i.e., planned adaptation) as well as the abrupt responses to a disaster (i.e., autonomous adaptation), and hence offers an integrated analysis of institutional dynamics of adaptation and disaster response (see Begum et al., 2014). We advance the concept of 'institutional limits', an aspect which has remained relatively unexplored in the adaptation literature. By institutions, we mean both 'rules of the game' and 'social organisations' (North, 1990), and we argue that such an encompassing view helps to understand how existing institutional dynamics constrain communities and groups in their quest to tackle climate and disaster risks. Institutional limits are defined as rules and practices that

determine the extent to which people and communities can adapt to gradual and abrupt effects of climate change or a disaster event. Our definition of the 'local' includes small-scale communities, local governments, and locally functioning units of central government. This means we consider institutions from local community to district level – typically below the provincial level (in the federal system of governance) and national level (in a unitary system of governance). By framing this approach to institutional analysis, our intent is to map out all crucial ways in which institutions shape adaptation practices at the local level in order to be able to ascertain the various limits of institutions. Based on an in-depth ethnographic study of a village where there have been a series of landslides since 1984, this paper argues that although local institutions have a significant role in helping people respond to the impacts of climate change or disasters, they also create barriers and hence limit adaptive practices.

Through the in-depth study of a series of landslide events, we identify four types of institutional limits to shape adaptation and disaster risk reduction. These are: 'institutional inertia', 'institutional fragmentation', 'institutional redundancy' and 'institutional accountability'. Institutional inertia constrains social actors from taking adaptive action and is demonstrated in a variety of ways in terms of how social norms, values and structures constrain the adaptive capability of specific social groups (Adger et al., 2009; Jones and Boyd, 2011). Likewise, institutional fragmentation refers to the lack of effective coordination among various agencies at different levels (Agrawal and Perrin, 2009; Adger, 2010), dividing actors and their initiatives. Institutional redundancy, the third important element of institutional limits denotes a situation in which seemingly strong local institutions fail to respond to disaster risk owing to a limited knowledge in understanding and responding to larger disasters with complex temporal and spatial dimensions (Spiekermann et al., 2015). Finally, institutional accountability is also shown as a key descriptor of institutional limit, with the case demonstrating how the holders of public power failed to foster relationships with affected groups.

The evidence on these forms of 'institutional limits' presented here is striking in environmental and social terms. Nepal has been considered a hotspot of climate risks,[8] not only because of its location in the Himalaya characterised by fragile mountainous terrain, but also due to its volatile socio-political and changing cultural context. About a fourth of the population still lives below the poverty line (CBS, 2011) and the poor people are often the most vulnerable. Nepalese society has been historically organised into a hierarchical structure where pervasive inequalities have not only been determined by the caste-based hierarchies, but also by other social parameters like ethnicity, gender and geography (Lama and Buchy, 2002; Panta and Resurrección, 2014). The rural population has a long history of living on subsistence farming and other natural resources for access to water and forest products. More recently, the outmigration of youths and increased flow of remittance has profoundly influenced how local institutions function (Manandhar, 2016). Such changes have redefined the ways the local institutions play out in the practice of adaptation and disaster risk reduction.

[8] http://maplecroft.com/about/news/ccvi.html (accessed in 7th February 2012).

This paper is structured in six sections. Following the introduction, we first briefly outline study methods (Section Two), and provide a description of bio-physical and socio-economic context of the study site in Section Three. In Section Four, we present findings focusing on how various groups became vulnerable to effects of landslides and also demonstrate the role of local communities and institutions in shaping the ability of different groups to adapt to differential vulnerabilities. We then discuss the four types of institutional limits in Section Five. We conclude the paper by summarising key findings and drawing implications of the institutional limits in the conclusion section.

2. RESEARCH METHODS

This paper is based on an ethnographic case study of a landslide-affected village in Lamjung district in the Nepal Himalayas (Figure 1). The study was part of a four-year research project that had the objective of exploring local institutional responses to climate change. The study comprised six field visits by the four authors between 2011 and 2015, followed by three annual field visits by one of the co-authors during 2016-2019. Field study started in 2012 with a key informant survey in Besisahar, the administrative center of Lamjung district. This enabled us to understand the broad context of landslide risks in the district, and based on the district-wide information, we purposively selected the landslide affected village of Garambesi located in Dhamilikuwa Village Development Committee (VDC, now, Rainas Municipality Ward No 7)[9] for the case study. In selecting this village, we considered different criteria including landslide size, duration, potential causes and responses (or lack of responses) to the landslides due to local institutional challenges. In the case of Dhamilikuwa village, the landslides had over 30-year history and its causes linked to the recurrent monsoon flood in the Chepe River cutting the base of the landslides. The recurrence of the landslides was also linked with development infrastructures including an irrigation canal, feeding water into the landslides. The village, which lies in the Chepe River[10] basin, experienced a number of landslides over the past three decades.

Our research approach focused on understanding the experiences of the local people and other actors to the landslide risks and the responses they have adopted. We chose a river-induced landslide for the case study because it is likely to be associated with the effect of climate change, through its effects on extreme flow events. The landslides were also a disaster event, which required an urgent response to save lives and household resources. The study of the series of landslides addressed both a gradual process of adaptation as well as immediate responses to a hazard, thus offer an integrated analysis of adaptation and disaster.

[9]The Dhamilikuwa VDC along with other five neighboring VDCs were merged to form a new municipality named Rainas Municipality in September 2015.

[10]Chepe, a medium size river, can be crossed during the winter but swells in summer.

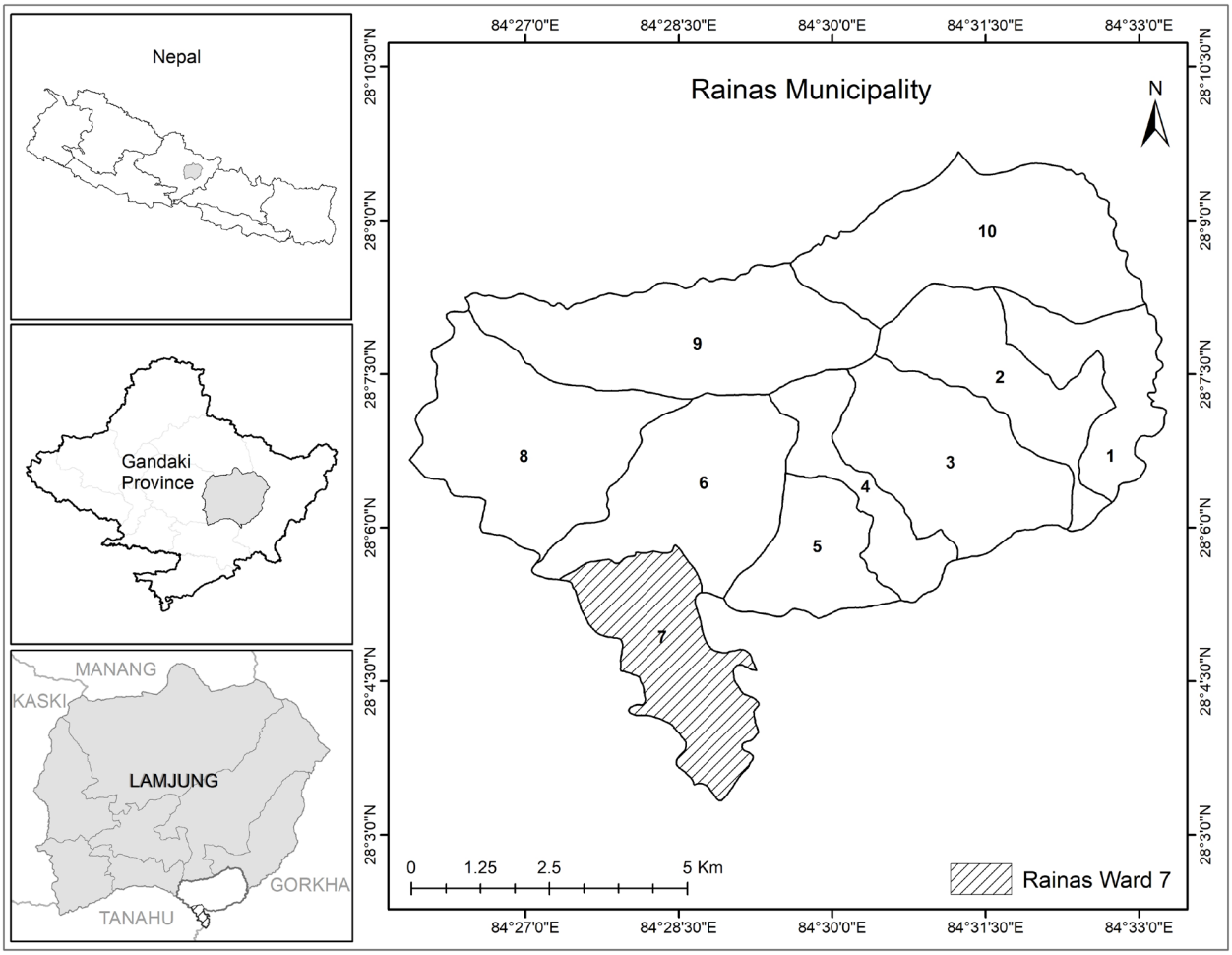


Figure 1. Rainas Municipality ward number 7 in the district of Lamjung in Nepal.

Thirty-two in-depth interviews were held with people at their homes, agriculture fields, village centers, tea shops, and district headquarters. The informants included school teachers, political leaders, women leaders and the households directly affected by the landslides. The first round of fieldwork in 2012 focused on key informant interviews. In the second fieldwork round in 2013, four focus group discussions were held with local leaders, school teachers, women and *Dalits* who were hard hit by the landslides. Discussions focused on various dimensions of vulnerability and institutional responses to the landslides at the community and district levels. In each round of fieldwork, we interviewed the same group of district level actors including government officials related to climate change adaptation or disaster risk management. With some exceptions, we found the same set of people through the four-year period of fieldwork in Lamjung. The concurrent method of interviewing at district, local and community levels enhanced our ability to refine questions and fully contextualise the inquiry. We also conducted institutional mapping exercises with key informants at the local level to figure out how different institutions were related to addressing and responding to landslides. We tracked the responses of the most affected families over four years. We also examined to what extent and in which manner they were supported by local institutions (both formal and informal) at community, local and district levels. Through the extended period of research, we explored the ways in which institutions create limits in managing landslide risks.

The case study site

The political boundaries of the case study site changed over the course of the research that is presented in this paper. At the beginning of the field study, Dhamilikuwa was one of the 52 VDCs in the district which has now become ward no. 7 of Rainas Municipality. After the new constitution in 2015, three tiers of government - central, provincial and local – have emerged, with exclusive and concurrent powers. In the new federal structure, a total of 753 local governments: 276 urban and 460 rural municipalities, 6 metropolises and 11 sub-metropolises have been provisioned. The study area lies at the foothill of the Himalayas in Lamjung (Figure 1), which is listed as Nepal's one of the most climate vulnerable districts in the National Adaptation Program of Action (NAPA) (GON, 2011). As shown on the map (Figure 2), Garambesi village is the one where the community level study was conducted. It lies in Ward no. 7 of the Rainas Municipality on the western side of Chepe River.[11]

In the Garambesi village, a number of small landslides occurred over the past few decades (see Figure 2 for the village location along the Chepe River course). According to the informants, four of these landslides were the major ones: Patpati (started in 1984), Simpani (started in 1996 and further expanded in 2001), Chepe Sangu (re-started in 2011), and Bagar/Tamang tol (started in 2012). The Simpani landslide, which this paper focuses on, is the largest one (covering approximately 30,000 square meters) and was still active during the last round of fieldwork in September 2015, as well as during the follow up visits in 2019. The most recent wave of landmass movement was in August/September 2014.[12] The affected area had previously been inhabited as well as cultivated with maize, rice, lentils and vegetables. It also had a small perennial spring and at least six families living around the area used this as a source of drinking water, particularly in the dry season. The repeated waves of landslides not only swept away the cultivated land located on the slope above the Chepe River but has also displaced six households over the last decade.

The Garambesi village is home to diverse social groups. About 33.3% of people are from so-called higher caste (*Brahmin/Kshetriya*),[13] another 33.3% *Dalit*[14] and the remaining 33.4% from different ethnic groups. The people from so-called higher castes often have privileged positions in the social structure, while *Dalits* are marginalised. The ethnic population in the village mostly comprises those who migrated during the 1960s from neighboring villages of Lamjung, Gorkha and Tanahun districts in search of flat land (*besi*) that is more suitable for agriculture and to have closer access to the road network.[15] The emigrants include *Gurungs* and *Tamangs* who are at the lower rung of the society not only because they are recent settlers but also because they are minority groups in terms of language and religion among others. Such a diversity of social groups in the community creates a condition for differential exposure to risks and differential capability to adapt.

[11] Chepe River which drains down to Marshyandi River, which is one of the tributaries of the Narayani River.

[12] Field observation in October, 2014.

[13] *Kshetriya* are also called as Chhetri and both words are used interchangeably.

[14] Different social groups or so-called caste have different cultural identities space in the social structure. *Brahmins* and *Kshetriya* are traditionally considered 'high caste' and are active in the political and intellectual domains (Gellner, 2007).

[15] Personal communication with village leader in March 2013.

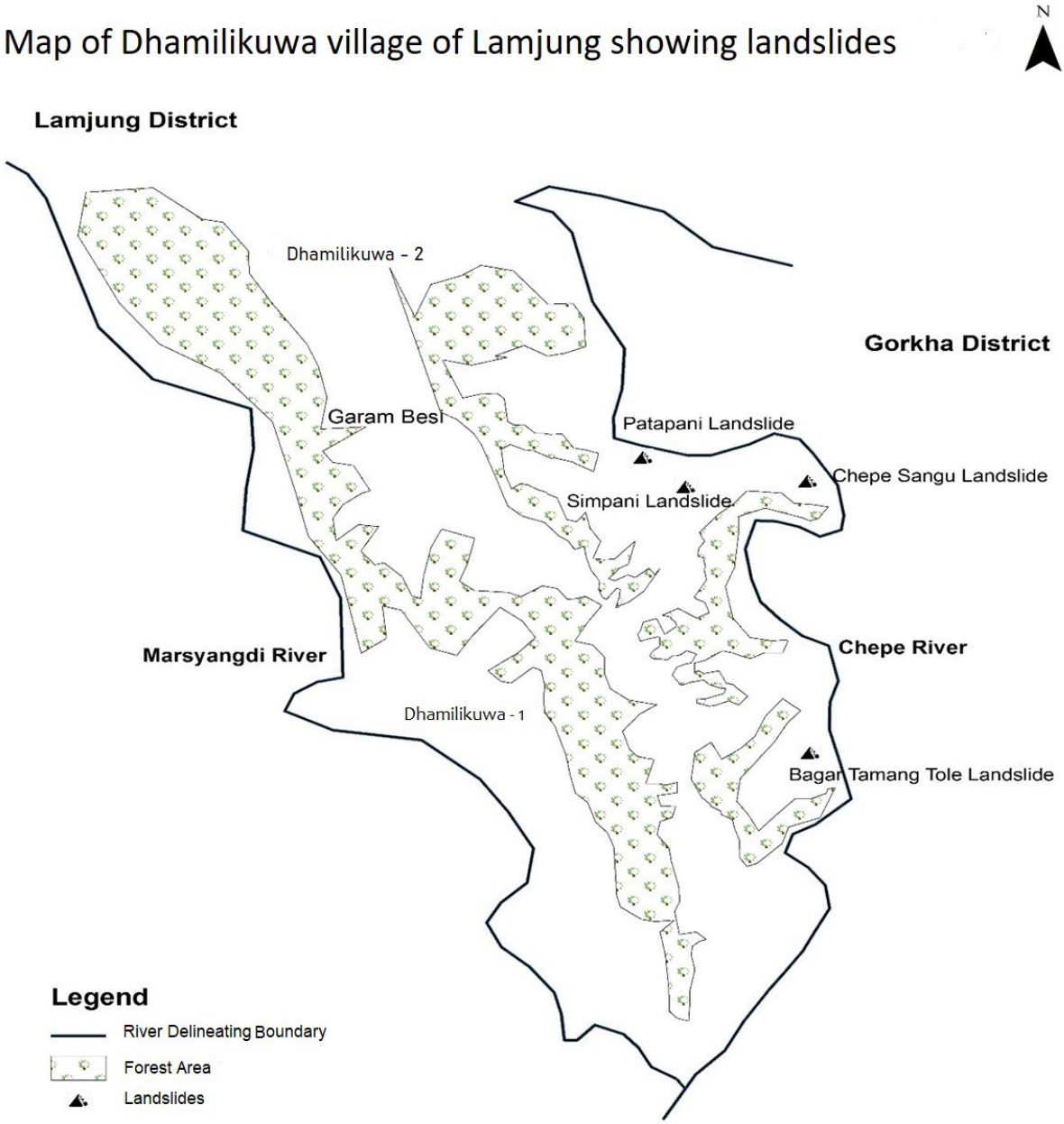


Figure 2. Locations of communities and landslides

Most of the people of Garambesi village affected by the Simpani landslide are small-holder subsistence farmers. The farmland consists of the combination of rain-fed (*bari*) land on the upper slopes (*pakho)* and irrigated rice field (*khet*) in the lower elevation on flat belt (*besi*). Most households struggle to meet basic food security. Local government data shows that about 60% of the villagers produce food for consumption (VDC Profile, 2010). Some families grow cash crop vegetables. In the lower elevation, farmers grow paddy, and the less fertile and unirrigated upland is used for cultivating dryland rice (*ghaiiya*), maize, mustard, lentils, peanuts or thatch grasses.[16] By and large, people continue to rely on agriculture for livelihoods and the Chepe River is a source of irrigation and drinking water.

The village has undergone rapid socio-economic change in the recent decades due to outmigration of youths for employment in the Gulf countries and Malaysia since the early 90s. This trend was

[16] Personal communication with a researcher originally from the village, 17th March 2013.

further reinforced by Maoist conflicts in the turbulent political environment in the post-1990 Nepal. The Maoist war had a strong influence on local politics and institutions. The Simpani landslide started in 1996, the same year in which the Maoist insurgency began. With increased seasonable road access, the village has become connected to the neighboring towns of Turture, Baesjangar, Thatipokhari, Dumre, Damauli and Pokhara. This accessibility has encouraged some farmers to start commercial vegetable cultivation, poultry and animal husbandry. Most households have at least one member who left for jobs, mainly in the Gulf region and Malaysia. Two of the interviewees who recently came back from overseas employment said that a major source of the village economy is now remittance.[17] The outmigration of youths has resulted in scarcity of agricultural labour, directly affecting the agrarian base.

Besides these changes, the development of an irrigation canal has played a crucial role in changing the village economy by improving agricultural production. The *Rainastar Sinchai Yojana* constructed in 1984 was the largest irrigation infrastructure in the district. This irrigation canal fed by Chepe River in an intake about 26 kilometers above the village supplies water to three former VDCs, including the Dhamilikuwa, which lies on the lower end of the canal. Garambesi farmers who live at the lowest end of the canal get less benefit from the irrigation because of water being used up upstream, and in the dry season, they hardly get water. But in the monsoon, the canal often overflows and much of the water comes to Garambesi, flooding downstream settlements and often triggering landslides. As we elaborate below, the villagers attribute the cause of the landslides to this unmanaged canal water flow.

Besides the irrigation committee, Garambesi farmers are also associated with the Champhawati Community Forest User Group (CFUG). The community forest covers an area of 37.7 ha and 165[18] of the 174 households are members of the CF. The forest and irrigation committees play a key role in managing and allocating community resources in the village. Besides the community forest, other institutions are also working in ward 7. Mother groups, called *Aama Samuha* are common in every ward. Several types of farmer groups are formed around specific agricultural products or farming practices, such as fishery and vegetable farming. On the government side, the ward office is the most significant organisation. There is also a field office of the Department of Forest and Soil Conservation, which monitors community forestry groups and regulates private forestry activities. Four political parties have municipal level presence. At least three national non-governmental organisations are active in the area in the field of rural development.

3. FINDINGS

3.1 Vulnerability context: Causes and consequences of the landslides in Garambesi

Households in Garambesi have been affected by the landslide in different ways. Table 1 presents an overview of four landslides including Simpani (Figure 3) affecting various hamlets and settlements.

[17] Interview with a Brahmin man, 15th March 2013

[18] Second Revised Operational Plan of Champawati Community Forest- 2014, Dhamilikuwa-1, Lamjung

In relation to the effect of Simpani landslide, we identified four categories of households (Figure 3): (1) those completely displaced by landslide, leading to landlessness through lack of means to buy land elsewhere and build new houses; (2) those whose houses are at risk and land destroyed but still not much affected as they have adequate capital to shift to new locations; (3) households partially affected by the landslide but with sufficient income to cope with the risk; (4) households that are neither affected nor threatened, but still concerned with the neighbors being affected. The most affected people under category 1 were from an extended family known as *Bharati*. As will be seen their marginality is reflected in their social position, linked to living in a location exposed to landslide risk and because of their limited access to community and local government decision systems.

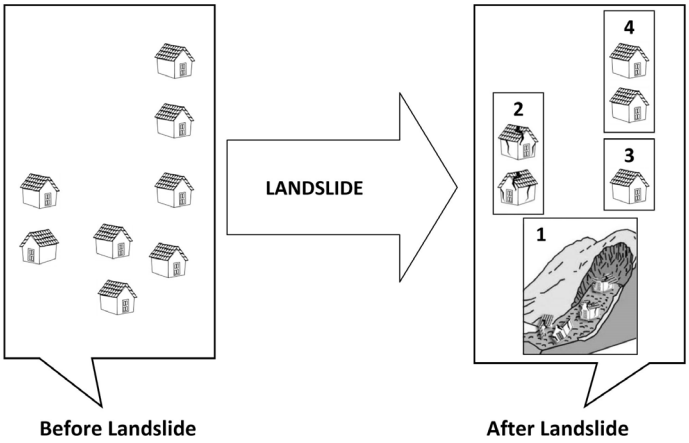


Figure 3. Simpani landslide and affected households

A man from a displaced *Bharati* family (Interviewed in March 2013) recalls the landslide event of 24 July 2001 as following:

> In the morning of 24th July 2001, I woke up at 6 am and went to the nearby well to wash my face. Then I walked down to Chepe Sangu, a small market center, for a cup of tea. I saw people from the other side of the river shouting. They warned that the land was sliding in Simpani by the side of my house. I immediately rushed to my house where I saw that the land had already started to crack. We managed to take out belongings from the house and moved our cattle and goats to a safer place with the help of our neighbors. On the third day, we watched our houses crumbling and being swept away by the landslide.

Table 1: Households affected by major landslides

SN	Toles	No of household	1=directly affected	2= land displaced only	3= partially affected	4=not affected
1.	Bagar gaun	44	0	0	0	44
2.	Chepe sangu	7	0	2	1	4
3.	Simpani	12	3	4	2	3
4.	Sal danda	14	2	0	0	12
5.	Padebesi	6	0	1	0	5
6.	Thulo bagaicha (Talogaun)	91	0	0	0	91

Source: Field study

Our field studies identified a number of contextual factors which differentially predisposed local households to the landslides. Interviews with the most affected households revealed that while heavy rainfall triggering the Chepe River flood may have been the immediate trigger for the landslide, longer term flow characteristics of the Chepe River was also a major factor as there had been scouring of the base of the slope triggering soil erosion and landslides. However, a range of other factors, including development of infrastructure such as irrigation canals, roads, local rules regulating grazing, and water management practices were also strong contributory elements. It is beyond the scope of the study to analyse the biophysical factors contributing to the landslides. However, our field observations and people's perception survey indicate that landslides in the area are not just an effect of river and slope but an outcome of processes of water and land (mis) management as well as climate change and geomorphology.

A key factor that has contributed to the landslides is the Rainastar irrigation canal. One of the members of a *Bharati* family reported that excess water from the canal during the monsoon period was a major factor for repeated surface flooding in the landslide area. He further added that most of the landslide prone areas become a swamp *(daldal)* during the rainy season, making it susceptible to landslips. Another villager of ethnic *Tamang* origin said that the water overflow during the monsoon from the irrigation canal eroded his land in 2012. Further a woman (Interviewed in March 2013), whose family was displaced from a landslide from Garambesi said that it had become very difficult to live around the canal area due to the fear of flooding. She also reported that she had lost three *Ropanies* of land (approximately 0.15 ha) in 2012. Households close to the Simpani landslide were found to be unsafe as the landslide was still active. The villagers were also concerned about the open grazing practice around the landslide site as it damaged the regeneration of all plants.

The households that graze livestock live far from the landslide area. People living in the landslide prone areas blamed these households for not being sensitive to the risks they have been facing. The affected households are also worried about the continuous scouring of the river slope by Chepe River. Frustrated with the behavior of fellow villagers, they have sought support from VDC officer (under the old structure) and district soil conservation office to build some physical infrastructures like check dam using gabion boxes, but the construction has not materialised yet. As we explain below, neither this issue has been taken seriously by the community groups, particularly the CFUG nor by VDC office and district level organisations. The affected and nearby communities have neither responded to the landslides as a united community, nor persisted to find support from external organisations. It is the failure of local communities at multiple fronts.

This account suggests that the households in Garambesi are differentially affected by the landslides and their vulnerability to the landslide risks is determined by the combination of different socio-economic and bio-physical factors. In the following sub-sections, we will examine the institutional responses and their limits.

3.2 Response from community and village institutions

Responses to the Simpani landslide show the limits of local institutions. Instant support offered by neighbours to the affected people was significant. Some neighbouring households helped the *Bharati* families in 2001 to move their belongings before they were swept away by a landslide. Considering the poor condition of the *Bharati* families, most of the villagers supported them to resettle in the nearby government forest, although some *Brahmin* households living distant from the landslide area opposed this. According to a woman member of the *Bharati* family, they were well supported by some neighbours to settle in the common forest land and move to a safer place immediately after the landslide but she was disappointed that some villagers living away from the landslide area did not offer any help, or in fact commented them as illegal forest encroachers.

A local leader from a *Gurung* community (Interviewed in March 2013) reported that the community support to the victims was strong despite some resistance from some villagers. He added:

> When the landslide took away the houses of some of the Bharati families, all villagers agreed to allow the displaced families to rebuild their houses on public land. But it was not easy as people were politically divided. If one party brought a new idea, other parties always objected, no matter how good the idea was. They were always in constant conflict over several issues and the Bharati family resettlement matter was not an exception.

While the *Bharati* families gained relief through settling on public land, they have been living there amid great fear and uncertainty. Although they rebuilt their houses, three of them have not got legal ownership of the land yet. They have tried multiple times to get land registration certificate (*Lal Purja*) from the government but they could not secure the certificate. They went through difficult times during the post-landslide decade and struggled to make a living.

We asked a government official at Besisahar (working with the District Soil Conservation Office (DISCO)), if these families were eligible to obtain title to the land on which they are settled. The official replied that new government rules are stringent. If this case was to be reported to the government, they are likely to be evicted from the land rather than get a land certificate, suggesting some limitations to land policies.

Various community institutions are involved in the management of natural resources such as forest and water but addressing disaster risks such as landslides is beyond their mandate and capability. The major community groups operating in the village are the CFUGs, irrigation committees, women's groups and farmers' groups. During an interview with one of the CFUGs chairpersons, it was said that they had not discussed the landslide in any of the CFUG meetings. The irrigation committee mandate is for the management of the irrigation system and distribution of water. But responses to the landslide have not been on the agenda, even though the overflow of water from the irrigation canal had contributed to the landslides.

Following the July 2001 landslide, the affected households sought support from the village organisations including the Dhamilikuwa VDC. Support from VDC was extremely limited. The

VDC issued a recommendation letter after recurrent requests and follow-up visits of the affected households. But there was no evidence of the VDC supporting the households through follow-up action with the district level authorities. In an interview conducted prior to administrative restructuring, the secretary of VDC (acting then as an in charge in the absence of elected representatives) reported that the VDC had neither technical capacity nor adequate budget to deal with the risks of landslides. This scenario has changed under the federal set up where the local governments are mandated to prepare their disaster response plans and laws. Under section 11 (2) of the Local Government Operation Act (LGOA) 2017, the jurisdiction of local government pertaining to disaster governance has been laid out. The LGOA stipulates the following roles of local governments: devising plans and policies for disaster preparedness, mobilising municipal police for rescue and relief, mapping of risk areas and relocation, coordination with provincial and federal governments and non-governmental organisations, data management and research.

The VDC was not fully functional during the insurgency period as the elected leaders were threatened by the Maoists. In the absence of the locally elected government since 2002, the VDC office had been run by a secretary, who was an official appointed by the District Development Committee. This may have contributed to the weak capacity of the VDC to respond to the landslides.

The fragile political system resulting from the decade-long Maoist insurgency was influential in determining the limit of local institutions in responding to the landslide disaster. Dhamilikuwa and the surrounding areas were considered insurgency hotspots during the war period. One of the Maoist combatant leaders of the Western Nepal was from the village itself and was killed during the conflict. Given such Maoist stronghold in the village, district organisations were reluctant to visit the locality to respond to the landslide. In addition, there was a deep division of society across different political ideologies which affected social solidarity and cohesion. One of the villagers (Interviewed in March 2013) reported, '*These days, the political divisions have become worse. Even to provide basic humanitarian support, i.e., immediate shelter to the landslide victims, various political parties are separated.*' She further added that in some cases, even if the village leaders and their local institutions sent support-seeking applications for the *Bharati* families to the district offices, the politically motivated village-based leaders were not interested to provide follow up action. People affected by the landslide complained that those who had political access did not pay adequate attention to the risks of landslide and were least able to play any role to mediate with external agencies particularly district-based organisations.

The account of the response of village institutions to the affected households in Garambesi showed that the village's social relations and political dynamics have created barriers to effective response to address the risk posed by landslides in terms of generating local level support. Moreover, the local institutional dynamics also hindered the ability of such institutions to facilitate support from external interventions. Lack of cooperation among village level actors – divided across several political and cultural lines – meant that the victims of the landslides did not receive an adequate

response from the village, especially in representing the needs for rehabilitation with the range of disaster management and relief institutions at the district headquarters. Another important insight from this account has been that the village level organisations such as CFUGs and wards were not capable and mandated for understanding the risks and providing response. The post-conflict political environment that Nepal has undergone has not only affected the capability of the ward office to deal with the new form of risks such as landslides but has also weakened the accountability mechanisms.

3.3 Responses from local government and district level organisations

The families affected by the Simpani landslide reported that the support they received from the district organisations was almost none. One of the male members of the *Bharati* family complained that after several round of requests, a team from Besisahar, comprising officials from District Administration Office (DAO), DISCO and District Development Committee (DDC) (which has now become the District Coordination Committee (DCC)) along with police visited the village to assess the landslide damage. According to the DDC officials interviewed in October 2014, the officials advised the affected people to visit the DDC office with a recommendation letter from VDC to receive the relief grant of NRs 5,000 (approximately US $50). However, all three households of the affected *Bharati* family could not get that relief money. Member of each household had to be physically present in the district to claim the money. A woman from his family (Interviewed in March 2013) recalled:

> My brother-in-law went to Besisahar. He had to spend three days to get NRs 5000. He also tried to get support from other organisations, but he could not succeed. He spent almost all that he received on travel, food and accommodation in Besisahar. This made us lose hope of getting further support from district organisations. Later, we were informed that if we went to the DDC, we would get gabion nets for filling the boulders and erecting a loose dam to prevent the river from further scouring the land. We did not go to collect these nets, as we didn't have enough money to bear all the cost to visit Besisahar and transport the nets to the landslide area and fill them up.

Similarly, a man from the *Bharati* family reported that they feared intimidation from police in Besisahar as one of his sons had joined the Maoist party as a combatant. Earlier, police had threatened the family and pressured them to surrender their son to the police. In this way, the affected families were under double threat – one related to the natural environment and another purely political, the latter compounding the former.

A bundle of gabion wire was delivered to the village from the district. The DISCO (which no longer exists in the new administrative setup) had provided nine gabion boxes to help in controlling landslides and an arrangement to carry these to the village. But we saw in our field visits that these nets were lying at the village center. When we asked informants about the nets, they said that they could not pay the labour charges to fill the gabions.

We identified several organisations responsible in the district for disaster risk and environmental

management. In every district, there is a District Disaster Relief Committee (DDRC), which coordinates immediate response in the case of a disaster event. The committee, chaired by the Chief District Officer (CDO) has representatives from different district-level government organisations, including security agencies such as the police and the army, non-government organisations including the Nepal Red Cross and representatives of major local political parties. Like many other districts, Lamjung also had a District Disaster Relief Plan (DDRP) that prescribes organisational roles and procedures for immediate disaster response.

According to the CDO interviewed in Besisahar, the DDRC has played a crucial role in disaster events by mobilising police and army personnel in search and rescue operations and providing relief materials and relief grants to the affected people. In the case of Simpani landslide, it was not possible to send the team for immediate support because of security threats in the locality from the Maoist insurgents. Moreover, according to the Local Development Officer (LDO), administrative head of the DDC, who was also given the authority to coordinate district development activities in the absence of elected representatives, said that mitigating landslide risks and helping in resettlement of the affected households is beyond the DDRC scope of work.

Despite the prominence of climate change discourse and adaptation projects at national and district levels, the DDC with a mandate to coordinate development activities in the district including disaster risk management, had limited awareness on responses to disaster or climate change. Climate change is perceived as a new phenomenon. As the LDO noted, key officials have limited knowledge of how climate change is localised and how it differs from other environment and development challenges in the district. Both LDO and the DDC technical officer thought that there is a need to consider 'environmental aspects' in development using environmental impact assessment tools but were at loss in terms of ways to handle climate and disaster risks in development planning. The main priority of the DDC has been to develop infrastructure, primarily the road network, according to LDO. He admitted that though climate change and disasters are emerging issues requiring more attention, they have not got this in the DDC planning process. A staff member at the DDC mentioned that the DDC lacks resources and personnel to undertake such projects because all the efforts of DDC are concentrated on the road projects being implemented. Already 400 km of the 900 km road planned for the district have been constructed.

A DDC official reported that they have allocated a small amount of budget to deal with the river cutting problem in some parts of the district but controlling a landslide is beyond the scope and capacity of the DDC. In the case of Garambesi, the DDC officials appeared to be surprisingly unaware of the landslides. As one of the planning officers interviewed in March 2013 in the DDC commented, "Until now we have not noticed any cases of landslides in Dhamilikuwa VDC. Land erosion control is our second priority and with limited resources we can only conduct small-scale immediate relief work."

Apart from the government institutions, some non-government organisations are working in Lamjung to implement donor funded projects on climate change and disaster risk management. A

major project running in the district during the study period was USAID funded Hariyoban Project addressing climate change adaptation through preparing community adaptation plan of action (CAPA) to deal with climate change induced problems. However, the project did not have any specific programs in Garambesi as it had its own implementation area in the district.

Despite many organisations at district level with mandates to work on disaster response, Simpani landslide victims received hardly any assistance. Two specific reasons account for this. Firstly, the DDRC mandate has been limited to short-term response i.e., search and rescue, and immediate relief from a disaster event. Secondly, the responsibility to address climate change and manage disaster risks have been fragmented among different organisations. Poor horizontal coordination among institutions at the same level has been an obstacle for organising an effective response. The DDC has not been able to play its role effectively in terms of coordinating development planning and this has been often attributed to a lack of elected government for more than a decade. A study conducted in Lamjung and Dolakha districts, under the research project of which this paper is also a part of, showed that the district level planning has been confined to temporary arrangement where decisions are made through politico-administrative nexus (Khatri et. al., 2016). This has eventually eroded the accountability of the local government and its ability to deal with emerging issues like climate change. The LDO (interviewed in March 2013) admitted that because of the absence of elected representatives, political party cadres and local elites influence the VDC budget decisions. As a result, VDCs such as Dhamilikuwa have never made a decision to address any of the landslides in the area.

The dynamics of disaster governance at the local level pertaining to climate related risks such as landslides have undergone some sweeping changes. With more power and responsibility for the local government, local to mid-scale disaster management has come under the scope of sub-national governments i.e., municipalities. Having said that, challenges exist with overlapping and conflicting constitutional provisions. First, as our accounts showed, there is a lack of coherence and coordination in district level planning. A limited extent of response offered by some district level organisation such as DDC and DISCO has either limited relevance to address the local needs or are hard to access by the people affected by landslides. Second, those organisations considered responsible to deal with the landslides have limited technical ability and financial resources. Finally, because of the volatile political environment leading to the lack of electoral representatives at the local level, there have been weak mechanisms to make the organisations accountable to the local needs.

4. DISCUSSION: HOW DO INSTITUTIONS LIMIT ADAPTATION?

The analysis of the landslide case from Nepal's Garambesi village in Lamjung provides important insights to help us rethink our current understanding on the role of local institutions in shaping vulnerability and capacity to manage risks of climate change and related disasters. First and foremost, our findings about the production of vulnerability resonate with the existing research

such as O'Brien et al. (2007) and Ribot (2011) that people's vulnerability to climate change and disaster (in this case, landslides) is determined not only by the biophysical, but more importantly, by socio-economic and political context. O'Brien et al. (2007) made a clear distinction between these two dimensions as 'outcome vulnerability' and 'contextual vulnerability'. While the former implies a linear result of the projected impacts of climate change on a particular exposure unit, the latter embraces a multi-dimensional view of climate society interactions in the context of political, economic, institutional and social structures. While there is a growing body of literature projecting a positive role of local institutions (for example, Agrawal and Perrin, 2009), this research highlights the limits of these local institutions to address people's vulnerability to climate change. The Garambesi landslides case shows that local institutions have become highly fragmented and less accountable under the post-conflict, transitional politics in Nepal. Hence, they have not only limited the potential to reduce vulnerability but also actively undermined the adaptive capacity of local communities. As we present in figure 4, we identified at least four dimensions of limits of those local institutions, complementing the earlier work that either emphasises the positive role of local institutions (Agrawal and Perrin, 2009) or the ways in which institutions create barriers to adaptation (Adger et al., 2009; Jones and Body, 2011). Below, we discuss these limits.

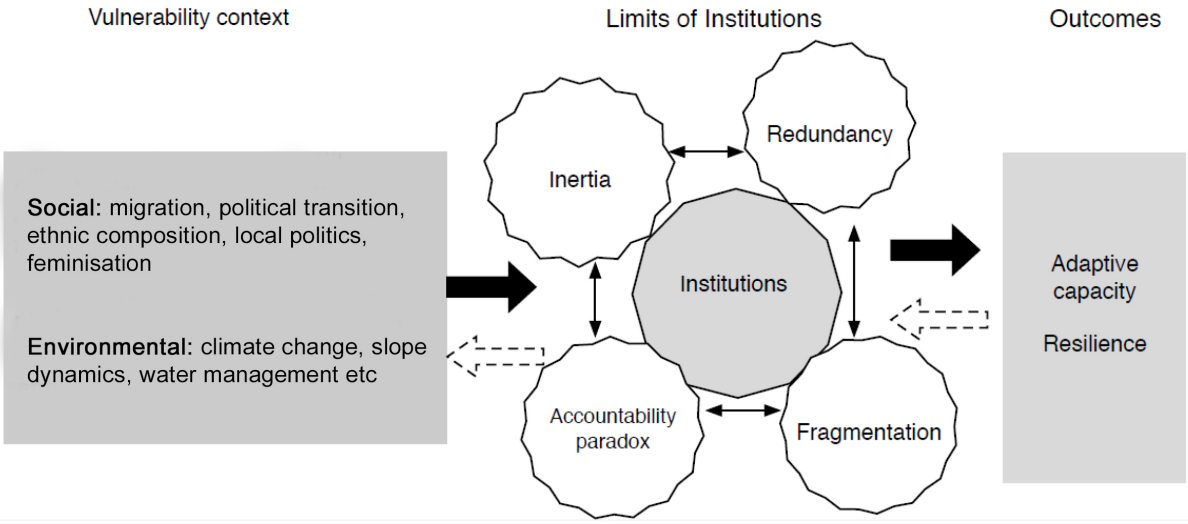


Figure 4. A graphical view of institutional limits
Source: Authors

First, village-level institutions influenced by the underlying socio-political context have inherent **institutional inertia** inhibiting effective and equitable response to climate change and disaster risks. Earlier studies highlighted the role of social rules determining access to natural resources which in turn shapes the adaptive capability of community (Adger et al., 2009) and creates social barriers to adaptation (Jones and Boyd, 2011).

Findings from this case reinforce that these institutions have not always been helpful for addressing landslide related risks faced by the poor and socially marginalised people. This is true with both informal social norms and registered community groups set up for the management of natural resources, for example, CFUGs and irrigations groups. Likewise, institutional inertia has exacerbated the vulnerability of some people (e.g., through improper water management, which

has contributed to landslide risk), consistent with the view that vulnerability is rooted in the social system (Ribot, 2014). As the case shows, a poor *Bharati* family was left in desolation when they had to struggle to cope with the landslide. This is also consistent with earlier studies in Nepal that show gender, class and caste-based inequality create differential distributional impacts (Lama and Buchy, 2002).

Villagers were not only divided across hierarchical social structures based on caste and class; they were more profoundly divided across political ideologies, a common phenomenon in the post-conflict Nepal, where political groups exist in the spectrum between radical Maoists to former royalists. Such a division has not only affected the local collective action around landslide risk management, but also put severe limits on the role of village institutions such as VDC (ward under the new structure) and CFUGs to effectively mediate with external interventions, particularly from the district organisations. A clear example of institutional inertia is that CFUGs in Garambesi are unable to control free grazing in the landslide-prone area despite the widespread success of community forestry across the hills in regulating grazing (Dhakal et al., 2010). Such inaction of the CFUGs has clearly escalated the landslide risk. Likewise, the irrigation group has also faced challenges to organise collective action to make gabion wire walls although a government agency, DISCO gave the gabion net free of cost. Such limits in collective response can be attributed to the unequal participation of marginalised groups in the decision-making processes of village institutions largely controlled by higher caste *Brahmin* and *Chhetri*. To put simply, elite domination in local institutions is a frequently reported issue in Nepal (Iversen et al., 2006; Shrestha, 2012) – and this study extends how this limits adaptive capacity.

Second, the Garambesi case also demonstrates the phenomenon of **institutional redundancy** wherein institutions formed particularly for the management of natural resources have proved unable to tackle new and emerging challenges of climate change and disaster risks. As the Garambesi case showed, these institutions not only have significant knowledge gaps to deal with the other challenges such as landslides, but they also lack the mandate and capacity to do so. Recent literature pertaining to adaptation practices have acknowledged such knowledge gaps as an adaptation limit (Mastrandrea et al., 2010; Moser, 2010). Our case however provides an additional dimension to this body of literature by bringing light to the fact that the existence of robust institutions in one domain (such as community forestry, women groups) does not guarantee that they can cope with new challenges such as climate risks. The existing institutions, especially the formal ones, have specific mandates which are not necessarily helpful for fostering adaptation or managing disaster risks. Addressing landslide risks was beyond their mandate and capacity.

Institutional redundancy is not only limited to the village level institutions. As our case shows, it is also pervasive in district level organisations with limited capability to anticipate climate related risks let alone respond to them effectively. For example, the DDRC seems to be the key institutional mechanism to respond to disaster events, but its role is limited to providing immediate relief post disaster. In the same way, DISCO which is responsible for mitigating risks of landslides is

constrained by technical capability to handle large scale landslides, similar to the case of another large landslide case study we conducted in the district (Pain et al., 2015). The DISCO's actions have also been confined to specific localities. Thus, the existing governance of development planning and disaster management has limited the ability to assist small communities undertake meaningful actions in response to disaster risks (Bakker et al., 1999; Jones et al., 2013).

Third, there is the **accountability paradox** where inadequate mechanisms to hold the local institutions accountable to the public have enhanced people's vulnerability to disaster risks thereby limiting adaptation responses. At the district and the local levels, accountability seems to have been poorly understood. Local and district leaders draw their authority and legitimacy from their allegiance to the leaders in Kathmandu, with limited recognition of local people as the principal source of democratic power (Khatri et al., 2016). This has in part led to what we refer to as the state of accountability paradox in the context of political transition in Nepal. As we found in the Garambesi case, the response from local government (VDC and DDC) and other district-level government organisations was minimal, arguably because of the lack of elected local government (Byrne and Shrestha, 2014). This has clearly affected the capacity of local governments to respond to the disaster risks affecting local communities and families.

The fourth limit is **institutional fragmentation**. Fostering adaptation entails effective coordination among various agencies at different levels (Agrawal and Perrin, 2009; Adger, 2010) and this continues to be a major challenge for both developed (Bauer et al., 2012) and developing countries (Koch et al., 2007). A study on local adaptation planning in Nepal shows that the protracted political transition and the current climate governance has perpetuated the problem of fragmentation (Paudel et al., 2013). This is reflected in the weak horizontal coordination, particularly among district-level organisations, which has emerged as an important factor limiting institutional responses. These organisations have diverse mandates in tackling climate related risks, which requires an effective coordination among them. However, on the ground, we found poor coordination among different organisations at the district level. The DDC or DDRC could have better coordinated actions of diverse district-based government and non-governmental organisations. However, the role of DDRC was limited to immediate relief and activities to mitigate post-disaster risk, with limited planning and coordination work.

5. CONCLUSION

The existing literature has either had an optimistic view of local institutions to manage risks (or enhance adaptation) or explored barriers created by social institutions in adaptation. This paper contributes to the debate on the role of institutions in adaptation and disaster risk management by demonstrating various limits in local institutions to addressing climate-related risks or the vulnerability of people to disaster risks. We presented a case study of a landslide at Rainas Municipality, ward no. 7 in Lamjung District, through which we showed that the landslide exposed differential vulnerabilities with the impact depending on socio-economic status and household's

location in the village. We also discussed the extent, type and efficacy of the responses to the landslide event by various actors in and outside of the local community, highlighting how the combination of four forms of institutional limits shaped the ability of affected families to access support from external agencies in times of disaster impact. The scale and the nature of risk posed by the landslide, which was triggered by the Chepe River but also linked to a number of factors in the local society and environment, was beyond the capacity of a local community and affected households to handle. While the affected households and groups struggled to adapt to the landslides, institutions operating at three levels – community, village and the district – delivered too little to reduce and manage the landslide risk and its impact. What is particularly worrying is that despite radical politics of inclusion and democracy spurred by the civil war in Nepal, the institutional responses were extremely limited for the people in the lower strata of Nepal's social structure.

Four different institutional limits hindered local institutions to effectively and equitably address risks. First, a variety of village level institutions, which are shaped by the underlying socio-political context have demonstrated inherent institutional inertia inhibiting effective and equitable response to climate change and disaster risks. Second, there are well-functioning groups such as forest user groups, which are indifferent to landslide and disaster risks, a state which we have termed institutional redundancy from disaster management and climate change adaptation lens. In other words, the existing, well-functioning institutions are not up to the disaster related challenges the community is facing. Third, the way in which public agencies are structured historically around various resource sectors is not likely to work, as the high level of institutional fragmentation is seldom conducive to adaptive responses and disaster risk management efforts. Finally, accountability paradox in democratic processes is reflected in the way local elected governments are suspended and officials are appointed by the government to run the local governments. Likewise, institutional fragmentation means that there remains a lack of horizontal coordination among organisations at the district level. This state of local governance has undermined accountability and responsiveness of the authority, aspects so crucial in effecting adaptation responses.

This case study reporting institutional limit comes in stark contrast to the growing optimism placed on the capacity of local institutions to manage disaster risks. This confidence placed in the local institutions and community in the adaptation literature appears misplaced as seen from the Nepal case, in a society marred by hierarchical social structure, political upheavals, and limited access and capacity to use relevant knowledge. Analysis in this paper also draws attention to the conventional practice of segregating adaptation and disaster risk management as two separate processes. When it comes to the response to climate-related risks people face, we suggest an integrated way to respond to risks including both response to gradual changes or abrupt disaster events. We see a need to improve the governance of local institutions by fostering collaboration among diverse actors and making them accountable to the needs of people who are exposed to the risks. The new local government with greater power and responsibility to identify and

respond to disaster risks at the local level can consider such local institutional limits and find ways to tackle them, while national and provincial governments need to take more proactive action to strengthen the capacity of local governments. Besides, how the voice of local communities can be augmented before, during and after the disaster events and who can best support and empower such vulnerable groups and how as another important policy and research question emerges.

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