

Responding to Landslides in Nepal

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Recommendations

- *Landslides must be given greater priority in Nepal's disaster risk management programming and not just addressed as short term emergencies. Like climate change they need to be seen as long term events.*
- *There is a need to restructure existing relevant government agencies in ways that develop, consolidate and streamline their mandate, technical capacities and long term strategic vision to address landslide risk, management and response.*
- *District-level and any future sub-national government structures must develop capacities to oversee and enforce environmental planning standards in rural infrastructure development since poorly constructed rural roads and irrigation structures are the main triggers of landslide events.*
- *Interventions at community level should focus less on formulaic committee formation and training for disaster response, and develop context specific landslide risk and infrastructure monitoring capabilities. These must build on the existing community level institution.*

Background

The recent earthquake (April 2015) has drawn attention to the significance of landslides in Nepal's mid hills. According to one account the earthquake triggered 547 landslides, and most of these occurred in the seven most earthquake affected districts. Earthquakes are treated as a short term emergency although they will have long term effects for households. However landslides don't just happen and need to be seen differently and treated as complex long term events: they arise through multiple interconnected causes, they usually have a long history and their nature changes over time. Treating them as emergencies will at best be ineffectual but can make things worse.

Attention to the significance of landslides is long overdue. The frequent, generally localised and therefore relatively small scale nature of landslides has made them relatively invisible in Nepal's disaster risk management planning

framework and adaptation planning. Reporting on them tends to be conflated with flood events. However the cumulative death toll due to landslides over time is likely to be comparable to those caused by infrequent earthquakes. Moreover there is evidence that the frequency of landslides is increasing due to the expansion of rural roads in particular¹. These are often poorly designed, badly constructed and are not maintained. Drawing from the findings of a four year study of three case study landslides² in the mid-hills of Nepal³ and other comparable research in Nepal four major findings can be identified. These are relevant to improving the disaster risk management response to landslides.

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¹ See Petley, D.N., Hearn, G.J., Hart, A., Rosser, N.J., Dunning, S.A., Oven, K. and Mitchell, W.A. (2007) Trends in landslide occurrence in Nepal. *Nat Hazards* 43:23-44.

² Case study reports of Bhoje, Dhamilikuwa and Bhirkot landslide will be published shortly.

³ The study investigated two landslides in Lamjung (in the village of Bhoje and Dhamilikuwa) and one in Dolakha (Bhirkot). The study was part of a four country research programme on Climate Change and Rural Institutions funded by the Danish Foreign Ministry and led by the Danish Institute for International Studies (DIIS). ForestAction and SIAS are research partners in Nepal.



Photo 1: Bhoje Landslide, Lamjung
(Photo: Bikash Adhikari, 2014)

Landslides are long term events with complex causes

In all three case studies a specific landslide event with particular effects on households was identified. This was sometimes but not always linked to a heavy rainstorm. But in all cases a longer history of the landslide was reported and this could be traced back many years. In one case (Bhoje in Lamjung district) a small landslip at the base of a terraced and irrigated slope had occurred more than 20 years ago and left unchecked it had gradually grown in scale and effect. Now it threatens the physical existence of a village and is all but untreatable.

Landslides must be regarded as complex phenomena and not just as one off emergencies. They are, like climate change, long wave events with uncertain trajectories and outcomes.

In a second village (Dhamilikuwa in Lamjung district) the longer history of landslide event could be linked to long term seepage from an irrigation canal and poor water management practice even though a particularly heavy storm triggered the most severe event. In the third village (Bhirkot in Dolakha district), a poorly aligned and constructed road by a contractor in the early 1990s taking a short cut for reasons of profit, undercut the stability of the slope in an already structurally unstable area. This set in motion a gradual process of land slippage. Twenty years later, a second feeder road put in by the Village Development Committee (VDC) at the top of the slope was poorly aligned and constructed leading to concentration of run off when it rained. A heavy storm simply provided the trigger for a major landslip.

Inherent structural instability of the Himalayas underlies the risk of landslides occurring. The earthquake may have triggered landslides that had no previous history. Equally landslides can induce floods downstream and have wider spatial effects. Accordingly, landslides must be regarded as complex phenomena and not just as one off emergencies. They are, like climate change, long wave events with uncertain trajectories and outcomes. They also require long term strategic responses.

The impacts of landslides on communities are localised, socio-economically differentiated and there are both short and long term effects

In all three case studies there were no fatalities from the specific landslip, in common with many landslides. Landslides rarely affect all households in a village, which is why fatalities from landslides on average are quite low. Rather the effects of landslides are concentrated on particular parts of a slope

and affect specific households. Given the socially differentiated nature of Nepalese villages, poor people tend to live in the landslide prone areas. These are likely to be the *Dalit* populations or ethnic minorities. Landslides can damage or destroy their houses, damage standing crops and even destroy their land. Destroyed fields in contrast to flooded land cannot be recovered.

The evidence from the case studies shows that in the immediate aftermath of the landslide, the villages provided strong support to the affected households indicating a community level social contract. Shelter, assistance in recovering goods and in some cases food was given. This helped the affected households.



Photo 2: Dhamilikuwa Landslide, Lamjung
(Photo: Bikash Adhikari, 2014)

But recovery of households to pre-landslide economic status is difficult. In extreme cases, the total loss of land means that poor households are forced to migrate, and move to Kathmandu⁴. In others cases, households take loans which are difficult to pay off. In Dhamilikuwa, three poor households were forced to squat on common land on which 15 years later they had still not got security of tenure. Many are pushed, through debt, into deeper poverty as their only remaining asset of land has fallen in value due to the landslides. This was found with the affected *Dalit* families in Bhirkot.

In contrast richer households who are affected are likely to have greater resources to draw on. They may have larger landholdings, not all of which has been affected by the landslide. They are likely to have members of the household who are more educated and working in urban areas or overseas from which they can draw remittances. In many cases they are the early migrants out of the landslide area to towns and elsewhere as was found in Dhamilikuwa.

Village level action in responding to landslides varies between villages but in the short term provides more assistance to affected households than the government response

Villages not only provide immediate relief but also provide some support to households to help them recover. In one village the Community Forest User Group provided free timber to help house reconstruction. A local cooperative provided a grant to affected households. This level of provision is greater than that provided by government for relief and recovery to affected households.

Villages differ however in their ability to seek and demand government assistance in dealing with the landslide and its effects. In the strongest case in Bhoje, a cohesive and relatively homogenous community was through political connections able to lobby a Minister in Kathmandu to provide a response. More often village level action is limited and little external support is generated.

Interventions to support village level action in relation to landslides are limited to formulaic committee formation and immediate disaster response.

⁴ A recent study of the reasons for migration to one informal settlement in Kathmandu found that 10% of the informants cited the loss of land due to a landslide as the reason for migration.

Interventions to support village level action in relation to landslides are limited to formulaic committee formation, training for emergency response and immediate disaster relief. They appear to ignore existing village practices of immediate support and do not address context specific risk management. Further their technical nature ignores the fundamental need for political accountability to motivate effective government response.

Government response is usually a case of too little too late

When a landslide happens, District government has a mandate to provide immediate financial relief and the Red Cross provides, in addition, non-food materials. If that relief is not provided directly to affected households, it was reported that the time and money costs of collecting that statutory relief from district headquarters outweighed the value of



Photo 3: Bhirkot landslide (with affected school), Dolakha
(Photo: Bikash Adhikari, 2015)

Dealing with large scale landslides either proactively or after the event is beyond the mandate of both the Soil Conservation and Watershed Management Department and that of the Department of Water Induced Disaster Prevention.

the relief obtained. The technical response to the landslide involves the construction of gabions and bio-engineering but this is limited in scale and requires villagers to undertake the work. The responsible District Soil Conservation Office has a limited budget and technical capacity. Dealing with large scale landslides either proactively or after the event is beyond the mandate of both the Department of Soil Conservation and Watershed Management and that of the Department of Water Induced Disaster Prevention. It also appears that the District authorities play little if any role in approving or enforcing environmental standards for rural infrastructure construction.

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