

Earthquake Disasters in Nepal and implications for EnLiFT Project

Hemant Ojha, Naya Paudel, Krishna Shrestha, Ian Nuberg, Edwin Cedamon, and Anthony Zwi

25/08/2015

1. Introduction

The aim of this paper is to assess the impacts of recent Earthquake disasters in Nepal with a view to synthesise key implications to the present and future activities of the EnLiFT project operating in Lamjung and Kavre districts. Nepal's 11 districts including the capital city of Kathmandu have been badly affected by two major earthquakes on the 26th of April and the 12th of May 2015. These earthquakes, as well as hundreds of aftershocks that followed, killed nearly 9,000 people, injured more than 22,000, and damaged over one million houses and historic monuments and public infrastructure¹. The National Planning Commission (NPC) of Nepal has estimated the damage at US\$ 7 billion², approximately one third of Nepal's gross domestic product. The two earthquakes have triggered over 3,000 landslides in the Nepal Himalayas with the imminent risk of devastating floods with the onset of monsoon in July 2015. The poor, women, girls and elderly people are severely affected. Displaced populations are also vulnerable to abuse, neglect, marginalisation and exploitation. Nepal Government estimates show that the earthquake has increased poverty by 2-3% from its pre-existing base of 26% population below the poverty line.

The main purpose of this report is to provide a rapid assessment of the effects earthquakes in the project districts and implications for the project 'Enhancing Livelihoods and Food Security through Agroforestry and Community Forestry in Nepal (EnLiFT)'. The basic premise is that the recent disasters have considerably changed the context of case study sites and the effects of the disasters will have long-lasting imperatives. The project has the responsibility to adapt to the new situation within the given mandate, and the opportunity to be more relevant and useful to enhance food security and livelihood in Nepal. In so doing, we first present the context of the earthquake disaster in Nepal, followed by an

¹ <http://drrportal.gov.np/home>

² Nepal Earthquakes: Post-Disaster Needs Assessment, National Planning Commission, Kathmandu, Nepal, Executive Summary, p 8.

assessment of effects in EnLIFT project districts. We then present EnLIFT responses and plans over the remaining period of the project.

2. Background

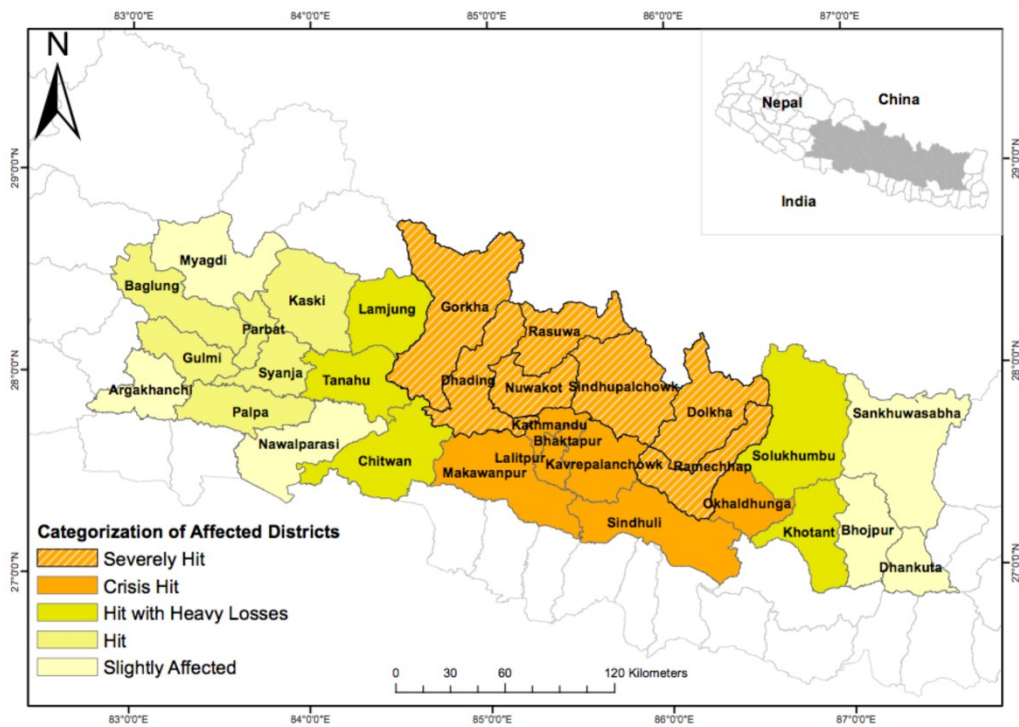
Nepal has a long history of active seismic activity, with eight major earthquakes causing extensive damage recorded since 1255AD (Chamlagain 2009) with the 1934 quake proving particularly destructive, resulting in 8,519 recorded deaths (Shakya et al. 2013). Smaller tremors occur regularly in Nepal due to its location in the Himalayan arc, squeezed between the Indian and Eurasian tectonic plates. Several active faults exist in inhabited areas, with populations having to contend with the landslides, in addition to increasingly frequent extreme weather events resulting from unprecedented Himalayan climate change.

As a post-conflict State with significant past and present impediments to democratic development, Nepal relies on assistance from international agencies and its peoples' livelihoods depend extensively on remittances from Gulf countries, which contribute 28.2% of the country's GDP (ADB 2014) in a low HDI context (UNDP 2014: 37). In addition, Nepal is one of the rapidly urbanising countries in Asia that has resulted in unplanned cities with high population density (Muzzini and Aparicio 2013). The country also has a hereditary cast system that has produced significant social inequality, and rural-urban and regional divides in the provision of infrastructure and availability of and access to services.

Nepal has an unwieldy disaster risk reduction policy and research architecture composed of governing and research bodies that have demonstrated limited capacity to effectively communicate and coordinate activities with one another. This ranges from the Nepal Risk Reduction Consortium (NRRC) established in 2011, which claims to 'bridge the spectrum of activity of development and humanitarian expertise, supporting the Government of Nepal in implementing a long term [DRR] Action Plan' (NRRC 2014a: 3); the National Seismological Centre (NSC) established in 1978; the National Society for Earthquake Technology (NSET), which organises earthquake-resistant building training for masons and training for civil engineers so that they can in turn train semi-skilled labourers (Chamlagain 2009: 70); and the Nepal Geological Society, which has been instrumental in disseminating relevant research findings and bringing together international disaster specialists (Chamlagain 2009: 70).

Although more than a 15 districts have been directly affected by the two earthquakes, 11 districts in particular experienced more devastation than others: Gorkha, Sindhupalchowk, Nuwakot, Kathmandu, Lalitpur, Bhaktapur, Dolakha, Kavre, Ramechhap, Rasuwa and Dhading (see Figure 1, which presents five different effect categories from slightly affected to severely hit).

FIGURE 1: CATEGORIES OF EARTHQUAKE-AFFECTED DISTRICTS



Source: GoN/MoHA as of 21 May 2015

Nepal also has a National Action Plan on Disaster Management in Nepal (NAPLDM) whose scope includes disaster preparedness, disaster response; disaster reconstruction and rehabilitation, disaster mitigation. 2008 saw the launch of the National Strategy for Disaster Risk Management in Nepal (NRCS et al 2008). Years before the 2015 earthquake, Chamlagain (2009: 66) stated that while Nepal had, since the establishment of the NSC, performed a significant amount of research on earthquake data in the region and on seismotectonics, the country had not undertaken enough efforts to assess the level of seismic hazard, something which he attributes to lack of and improperly managed ‘human resources’. Chamlagain (2009: 66) also laments the fact that policymakers rarely consider the research that is carried out in the area of hazard assessment when drafting national

development policy³. Political crisis has prevented a core element of legislation for disaster preparedness from being approved by the Parliament; the National Strategy for Disaster Risk Management (NSDRM) drafted in 2009 has yet to be made into law.

3. Earthquake effects in ENLIFT Project districts

One of the EnLift Project districts (Kavre) has been among the badly affected districts. Lamjung was also the neighboring district to Gorkha, which was at the epicenter of April 25 Earthquake. Sindhupalchowk, which is one of the two satellite districts, has been damaged even more seriously. Various field visits by project teams after the earthquake have generated important information about the extent and nature of damage in the project districts. The extent of damage caused by the earthquakes in the six primary research sites is summarised in Table 1.

In Kavre and Lamjung, although few human casualties were reported from the project sites, most houses were destroyed either completely or partially. Many of them are uninhabitable. Some of the community forestry user group leaders, who have been working closely in various capacities in the EnLIFT project are living in temporary shelters and are in need of support for shelter reconstruction.

Based on the preliminary assessment on the devastation in six project sites, Chaubas and Dhungharka were among the most affected followed by Mithinkot in Kavre. Dozens of houses including those of LRPs and CFUG leaders were destroyed. There was loss of livestock and small number of human casualties were reported. While Lamjung had relatively less impact, majority of houses in Dhamilikuwa and about 50 houses in Trandrang Taxar were either partially or completely damaged. There were however no reports of any damage or human casualties in Nalma.

Following the preliminary assessment of the earthquake, couple of visits by EnLIFT team, both within Nepal and from Australia, were made to appraise the post-earthquake situation in the EnLIFT sites. This report synthesises the notes and reporting of EnLIFT researchers and provides a short overview of the activities undertaken in the post-earthquake scenario.

³ Thomson, 2015 personal communication

Table 1: Kavre

Name of CFUG	Total HHs	Completely Collapsed*	Severely Damage*	Partially Damage*	Human casualty	Human injured	Loss of Cattle		
							Buffalo	Cow	Goat
Kalapani	325	43	315	113	0	9	6	2	13
Sa.Pa. Ru.Pa.	285	15	55	84	0	4	2	0	10
Fagarkhola	89	30	80	35	1	1	2	0	4
Chapani	134	27	122	40	1	1	0	0	1
Dharapani	77	14	72	19	0	0	1	0	4

*Houses and animal shade combined

Table 2: Lamjung

Name of CFUG	Total HHs	Completely collapsed	Severely damaged	Partially damaged	Human casualty	Human injury	Loss of cattle		
							Buffalo	Cow	Goat
Tandrang Taxar	155	42	113	2					
Dhamilikuwa	971	762	209						
Nalma	63	19	44						

A team of EnLIFT researchers visited Dhamilikuwa on 3 July, 2015 to assess the post-earthquake scenario. The team reported that there were few houses down due to the earthquake, but the communities were greatly affected in some way or other. Though there were few houses standing, cracks were distinct from outside. Some were badly damaged from inside. In some cases, the wooden beam, which are still popular among houses outside major cities, were dislocated and had a risk of crumbling, provided another tremor, enough to pull it apart, would occur. It was apparent, in some cases that there was a dire need of demolishing the houses and rebuilding it. During the time of the visit, people were still seen living under tarpaulin and temporary shelters. In other cases, people slept and spend most of their time under their veranda to make sure they had enough time to manage if another quake would occur. It was apparent that people have been going through traumatic situations. It seemed that earthquake was something expected to recur. Nevertheless, people had been coping with the situation and trying to regain their lives to normalcy. In most of the discussions with the people with their houses damaged, many opined that they would start the reconstruction after the monsoon is over. Moreover, it

appeared that they were waiting for the harvesting season to be over, so that they could more concentrate on reconstruction.

During field visits, it was clear that people would bring the issue of earthquake, even when the discussion was focused on something else. This was understandable. Local people were seen to accept the disaster as a natural fact, although many of them complained about the responses from the government and non-government organisations. It was revealing to see local people focusing on rice planting amidst this disastrous situation. Securing food for coming months was firmly on people's priority, even when the house they have is severely damaged and they are living in a temporary shelter. There is a good degree of optimism among local people who are generally helping each other to rebuild their houses and lives.

4. EnLIFT Responses

As a project concerned with food security and livelihoods, well connected with community based organisations and research NGOs, and with research field sites in some of the most affected areas, EnLIFT has aimed to be informed and responsive to the problem. This has, however, been constrained by the general mandate of the project, its source of funding and its own resources and capacity. Its responses have taken the following forms:

- Immediate response by Nepal project team to take stock of the situation and express solidarity and empathy with the local communities affected, requiring a short-term change from regular research activities to relief activities (May 11, 2015)
- Visit by UniADE and UNSW researchers to Nepal - discussions in Kathmandu and the districts (June/July 2015)
- Policy lab organized by EnLiFT exclusively focusing on the options and opportunities to increase the flow of timber (June 19 2015)
- Joint field visit of EnLiFT researchers and the Director General of Department of Forest, CFD chief and DFO in Kavre and research sites to explore and understand the need for timber harvesting from community forest areas (May 16, 2015). There was a serious meeting among the DoF officials and DFO officials on exploring ways to simplify timber harvesting and transport to respond to the increased timber need.

- Written communications to government bodies such as submitting recommendations to Nepal Department of Forest on timber supply enhancement strategy from community forestry
- Updating baseline study in the sites following the earthquakes

Some of the important EnLIFT responses are outlined below:

Immediate Responses (May 2015)

A meeting among the Enlift Nepal team leaders was convened at IUCN on 11 May, 2015 which was primarily aimed at discussing on the post-earthquake planning of the project activities. Among the present were Mr Krishna P Pokhrel (chief of community forestry division), Yam Malla, Swoyambhu M Amatya, Ram Chhetri, Racchya Shah, Rajendra Khanal, Rahul Karki and Naya S Paudel. The following points highlight the discussions and the decisions made during the meeting.

The meeting recognised that the whole country and its people were involved in the rescue and relief operations. In this scenario, some of the partners of the Enlift project like IUCN, ForestAction, NAF, Search Nepal among others, also provided small relief, focusing in their project sites. It was seen as important to show solidarity with those affected. At that time, the level of devastation -loss of life and property was not quite clear in our project site Kavre and intended satellite site Sindhupalchowk.

The meeting decided to express our solidarity towards helping the victims in the project sites. For this, every individual member of the Enlift project was requested to contribute or help generate relief fund that will be mobilized to support the victims of the earthquake in the project sites. IUCN opened a special bank account for the purpose from which all the money collected from EnLift Funds will be mobilised to the affected project sites. Actual material will be decided based on the volume of the funds.

The meeting also decided that in the prevailing context economic loss, psychological trauma, social chaos and physical difficulty (many people are taking shelter outside of their houses) it will not be appropriate to carry out routine field level activities.

In the mean time project team members will continue to work on the write up, analysis and written deliverables during this period. Meanwhile, ACIAR Forestry Programme Manager also provided some guidance on how the project team could operate in such situation (Tony Bartlett basecamp posting May 3 2015 – see Box below)

ACIAR Programme Manger advice to EnLiFT

- First priority is to continue to allow project staff to deal with the aftermath of the terrible earthquake;
- Normal planned project activities should be put on hold until the overall situation improves;
- As soon as it is practical project staff should attempt to visit each of the project sites to establish the impact of earthquake on the communities we are working with and on the existing and planned project activities;
- The project management team should then prepare a short summary report and communicate their views of what are the needs and appropriate responses to the ACIAR Forestry RPM - some preliminary advice may be able to be given in the forthcoming annual report due at the end of May;
- In the interim project funds can continue to be used to pay salaries, to facilitate travel and to do urgent repairs to project related resources;

The meeting planned to assess the situation by the end June and decide on the continuation of the activities. The team also planned to be in field for relevant work including relief and rehabilitation work in collaboration with other agencies.

Visits to EnLIFT sites in post-earthquake scenario

Team of EnLIFT researchers have made a series of visits to two districts (Kavre and Lamjung) after the earthquake to assess the situation as well as to provide support to the community members in the research sites. EnLIFT member organisations have managed to collect and distribute relief material as well financial resources to selected community members, particularly engaged in EnLIFT project. This contribution was however voluntary and was made by the efforts of the staff of those organization.

Apart from the regular visits made by EnLIFT researchers, the project coordinated a visit for high level government officials to Kalopani CFUG of Dhunikharka. The team comprised of Dr. Rajan Pokharel (DG of Department of Forests), Krishna P Pokharel

(community forestry division chief), Ganesh Ray (DFO, Kavre), Naya S Paudel, Madan Bashyal and Govinda Paudel (EnLiFT), Shanta Neupane (central member-FECOFUN), Binod Sapkota (Chair, - FECOFUN Kavre), Shiva Ram Thapa (Ilaka Forest Officer), and executive committee members of Kalopani community forestry user group led by chairperson Lal Bahadur Shrestha. The team visited the forests, had a brief discussion with the chairpersons of a dozen CFUGs in Dhungharka and reflective meeting in Banepa at the end. The visiting team observed the demo plots established in the site. Though the plots were established prior to the earthquake, it impressed the government officials who also advised to follow scientific management interventions.

Review and planning meeting (June 2015)

A meeting of research team was held on June 26, 2015 in Kathmandu. It was participated by Australian researchers from both UniAdel and UNSW. The meeting had an important agenda to review the post-earthquake situation and any implications for the EnLiFT project. Several points were raised in the discussion:

- The situation in the research field site is now completely different after the earthquake. What we do at field needs to be responsible, responsive and relevant in line with earthquake-induced changes. We have the paradox of what can be done given the structural constraint and so we need to think rigorously and work accordingly. In line with the broader objective, theme leader can think of revisiting the plan.
- Earthquake induced current scenario has in variety of ways affected our understanding and initial frameworks on food security pathways, institution among others. A small baseline study on how earthquake has affected our understanding and frameworks would be helpful; the associated costs of conducting this in current shrinking budget structure is concerning.
- Based on the presentation above we do not see any major changes required which cannot be implemented due to earthquake, so we can continue with the 5th quarter (July-December 1015) program plan. However, some activity have window of opportunity and we need to capitalize that.
- As government has already collected the hamlet and HH level data on earthquake induced loss, it was decided that rather than carrying separate baseline we need to

focus on a study how has earthquake impacted the AF/CF contribution to food security.

- Baseline doesn't primarily meant collecting primary information by project team - this can be done in three steps i) collect field level data from different sources ii) analyze and review iii) reiterate and design our activity accordingly.
- This project is uniquely placed to study earthquake and its impact on food security? At least documentation of the changes. Based on this we can also try to see its impact on UUL. Similarly, we also can see the impact on food security when larger section of VDC budget goes in disaster response.
- What are the principles that the project should be thinking through as to how to adapt and respond to this catastrophic situation - safety procedures, support to community, reorienting priority?
- Several questions were also raised:
 - a. Can we rethink our activity in such a way that there is some priorities to those who are mostly affected or are in dire need?
 - b. How can we be more responsive to new institution coming in?
 - c. What support can be done to field level institution, support structure or activities that connect with our research?
 - d. As our project was designed taking satellite districts in mind - what to do with the satellite district which are also highly affected by recent earthquake hit?
- Naya Sharma Paudel, Bishnu Hari Pandit and Deepak Tamang have been elected to prepare a page plan how to move ahead in supporting earthquake affected people - where and what you want to work and the fund required or so?

5. Lamjung field visit by UNSW team (July 3-4, 2015)

Three researchers from UNSW – Krishna Shrestha, Hemant Ojha and Anthony Zwi) – made a field visit to Lamjung district – focusing on Dhamulikuwa and then holding a district level stakeholder meeting at Beshisahar.



Field visit in Dhamilikuwa VDC

The picture above shows the extent of damages in some of the houses in Dhamilikuwa VDC. As mentioned above, the majority of houses there are severely or partially damaged.



(Note: We need consent from this person if this report is to be made public.)

Meeting with district stakeholders, Beshisahar

A field trip report has already been posted in the basecamp (Hemant Ojha, basecamp report, 17 July 2015), in which one of the topics of interests was understanding people's responses to the effects of the earthquake. In Dhamilikuwa, although few houses were flat due to the earthquake, almost all in the community have been affected. As Ojha's report in

the basecamp explains:

“An elderly person showed us a nice and safe-looking house on the road and said, “As you can see, this house looks all good from outside, but you will see all cracks inside. The wooden beam has been dislocated and the wall can crumble any time. It needs to be destroyed and rebuilt”. As we walked along the road, we could see cracks on the walls of almost all houses. We also saw temporary tarpaulin camps where people have been staying after the earthquake. One woman showed us that her family sleeps on the Veranda outside so they can run away quickly in case of another earthquake. People are heavily affected and mentally disturbed but are also coping really well”.



The team also explored people’s strategy and plans about rebuilding houses and about the demand for timber from community forestry. The note highlights:

When we asked when and how they will rebuild the houses, most said that they will start once the monsoon is over and the key agriworks are completed. The CFUG also discussed about the arrangement to provide timber and poles to needy households but few have come to ask for this due to the monsoon season. CFUG leaders are aware of the increased demand for the timber in the next harvesting season. Given this, CFUG leaders expect some technical advice on how they can obtain more timber than usual. They are also slightly concerned over the possible legal complications and complexity involved in getting clearance from the DFO. This is something the EnLIFT team can help with in the coming weeks”.

Helping CFUG to help earthquake victims

In the post-earthquake scenario, most of the rescue operation, at least in the EnLiFT project sites, is over. Most of the effort is being laid on relief of the victims. Subsequently, rehabilitation and reconstruction of houses and infrastructures destroyed will be of utmost priority in the country. Among those, timber and other forest products for example bamboo will be highly demanded. In response to the crisis, it will be critical to address some of the policy issues to ensure smooth supply of timber and forest products needed for reconstruction. As an initiative, Enlift project will closely engage with the Department of Forest and FECOFUN in the policy process towards increasing timber supply for the reconstruction work - e.g. relaxing timber harvesting and transportation/ demonstration of low cost housing etc. This will initially focus in worst affected sites of the Enlift project in Kavre and Lamjung.

Chappani (Chaubas): This group has 4 demo plots in their CF with different objectives. They have harvested about 4600 cft timber out of which about 400 cft has been distributed to earthquake victim HHs and rest is stored in a depot, which will be sold later after the rainy season (Naya Report, Basecamp, July 24).

People's responses to earthquake in EnLIFT sites

The major earthquake of April 25 and subsequent tremors have destroyed houses, and have weakened the foundations of the remaining houses. Fearing that their houses would collapse, user group members have been strongly demanding for pole/posts and trees for re-construction. However, the issue is not only with estimating the proper volume of timber to meet the demand. The problem lies with the fact that the OPs of the CFUGs are yet to be renewed, which would not allow the user groups to harvest timber from their forest. The level of frustration among the people could be witnessed through their statements, where they are not in favor of abiding by the rules/regulations that would not allow them to utilize the forest resources in this adverse situation. However, in one of the discussions in Kavre, the user group members also assured the visiting team of government officials that they will not be selling timber outside of the group and rather use it for construction of their houses, animal sheds, and toilets. Therefore they urged the government officials to relax the timber supply provisions for certain time period.

The CFUG members too had been discussing issues related to timber availability and use

focusing on the rehabilitation and reconstruction of those mostly affected by the earthquake. It was observed that the CFUG leaders were aware of the increased demand of timber in the next harvesting season. However, the major concerns remained on meeting additional timber demand and seek some technical advice on how they can obtain more timber than usual. Legal complexities and fear of legal actions however remained an issue for the CFUG leaders and thus expect some advises to sort the issue.

EnLIFT working with the Government of Nepal

The government team visiting to Kavre had couple of discussion with the local user group members. During the visit, they also assured the people to support their demand to the extent possible in order for their overcome the difficulties during the crisis. Ganesh Ray, DFO, Kavre, said that “40,000 houses out of 85,000 houses in Kavre district had been damaged due to the earthquake. In order to provide 50 cft timber to each house, community forests alone may not be enough to supply the amount. Moreover, in cases where the OPs have already expired, the DFO has been thinking on ways to extend the period of those OPs.

Likewise, Rajan Pokharel, DG of Department of Forest, opined that ‘about half million houses have been collapsed or seriously damaged throughout the country. There is a need of about 25 million cft timber for the reconstruction even if the distribution is calculated to 5 cft per household. However, extracting this huge amount of timber is really a challenge. Out of possible solutions, the DG expressed that the extension of the duration of OPs, for those which have expired, would be one of the options. Other solution could be to carry out silvicultural activities in the forests. For example, thinning operation will supply lots of pole/posts and timber which could be used in reconstruction of the damaged houses. The monsoon is coming soon. So, at this stage very few households are actually thinking of building house before rainy season. Lots of houses will be built during next winter season. By this time, we can renew the OPs, carry out silviculture operations, and amend OPs if necessary, the DG further expressed.

Among other possible solutions, the Assistant Forest Officers of Kavre expressed that there is a need to encourage people to make use of bamboos for the temporary housing, since demand of timber surpasses the supply. For building houses, mostly during winter, we can

think of harvesting big trees and distribute the timber (instead of giving trees to each house).

6. Conclusion and way forward

The earthquake effects will continue to influence the project activities. The project will need to adjust some of its activities and make it more relevant in the new context.

1. It is critical to work closely with DoF and CFUGs to enhance the supply of timber for rebuilding houses, drawing on our research on CF theme. We will follow up on the implementation of our recommendation from EPL on simplifying timber harvesting and transportation in order to ease earthquake victim's access to timber. We will support Chaubas Saw Mill management to expedite their operation and support supplying timber to the needy households.
2. In our scientific outputs we will include disaster risk as an important determinant of food security and livelihoods.
3. We will focus on Kavre (Chaubas) and Lamjung (Dhamilkiuwa) on CF OP, silviculture, forest management and enterprise related activities of the project
4. Reinforce generalizable lessons – how to think about such impact, need for flexibility, recognising that the research will be affected and needs some rethinking, attention to needs of project team members and partners in the research, etc.

Appendix 1: EnLiFT Policy Feedback to Nepal Government



EnLiFT: Enhancing livelihoods and food security from agroforestry and community forestry in Nepal

June 23, 2015

Krishna Pokhrel
Head, Community Forestry Division
Department of Forest
Kathmandu

Subject: Recommendation to enhancing timber supply based on Policy Lab discussion on 19 June, 2015.

Dear Sir,

Based on the deliberation during the last EnLiFT Policy Lab at IUCN on 19th June 2015, we have consolidated the following three recommendations that can be implemented in immediate term to increase timber supply for the post-earthquake reconstruction period in the affected districts.

Key Recommendations

- a. Extend the tenure of OP until 2073 so that CFUGs whose OPs has expired can also harvest timber following existing growing stock and AAC and will revise their OPs later on. Also allow them to harvest timber even if their OP is recently renewed or approved.
- b. Simplify the process of harvesting and sale of timber from private forests and allow farmers to sell timber from their private land even if these farms are not registered as private forests. Also simplify the registration process by relying on VDC recommendation.
- c. Allow harvesting and collection throughout the year for this year by dissolving the provision 16.2 of Forest Regulation that prohibits collection of timber from forest (both CF and PF) during the month of Ashad, Shrawan, Bhadra and Ashwin.

Naya Sharma Paudel
ForestAction Nepal
Lalitpur, Nepal (Ph.: 5552924; 5550631)

Email: nspaudel@gmail.com

Naya Sharma Paudel
Nepal Project Leader
EnLiFT Nepal