

# Issues and Lessons Learned Regarding Private Housing Reconstruction after Gorkha Earthquake 2015

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## Abstracts

**Background:** The Gorkha Earthquake on April 25, 2015 caused severe damage and destruction in central part which significantly affected the livelihood of people and overall economy in Nepal. The Government of Nepal then formed National Reconstruction Authority (NRA) and was provided the responsibility of reconstruction. Involving myself in this program, I got the opportunity to observe reconstruction closely. This paper mainly implies the issues during the reconstruction phase and point out the valuable lessons learned.

**Issues and challenges:** Reconstruction on private housing with only three lakhs rupees grant from government especially on rural area was a major challenge. Difficult topography, low level of awareness among people, lack of technical and skilled resource person, poor road connectivity to supply materials, rigid guidelines, inappropriate rural models houses, weak government and political instability are the main reasons which hindered the smooth running of reconstruction.

**Methodology:** This study is the result of my own experiences, field survey and other relevant articles and publications. Internet manly played the key role on finding information through which different government sites, articles, journals related to issues were reviewed.

**Key results (Lessons learned):** Nepal is in seismic zone, disaster may likely to happen at any time, so government should well-prepared with advance technical measures and disaster management team. Likewise, involvement of locals (victims) in planning and designing phases would be highly appreciated as it helps to share ideas to build rural friendly model houses which could reflect their local cultures and traditions. Considering urban areas, effective implementation of Building codes and other Legislations is the most important step government should focused on.

Reconstruction program was the first experience for Nepal. The Immature and inexperience followed by the political instability lead to face obstacles which hindered the proper functioning of reconstruction should be taken as a lesson for future.

**Keywords:** *Earthquake; Challenges; Reconstruction; Issues; Government*

## **Introduction**

Nepal is a small landlocked country situated between India in the East, West and South and China in the North. It covers area of 1,47,181 Sq km, in which majority of land is covered with hills and mountains. Nepal located between actives Indian and Tibetan plates which make it susceptible to earthquake and thus it is considered a magnitude of 7 is likely to occur once in eighty years.

The Gorkha earthquake of 2015 lead to a serious terrifying scenario causing heavy casualty loss and physical property damaged, adversely affecting the overall development of the country. The fragile geology, haphazard and unplanned settlements and poor construction practice are the main reasons that have made Nepal highly vulnerable to earthquake impacts. Looking back to history, Nepal is facing earthquake since from 12<sup>th</sup> century and so far, many lives and property have directly or indirectly affected by it. Currently, there are a very few numbers of researches done in the field of post-disaster reconstruction and recovery in the context of Nepal. Thus, there is still a significant gap in the field of reconstruction. So it must be considered a serious issue and therefore policy makers, development experts, civil society and general public should be aware about it. These personnel should not only intend to reduce present vulnerability but also should establish legacy regarding the disaster risk reduction mechanism concerning the future.

This paper focus on the challenges faced during reconstruction after 2015 Gorkha earthquake. Field research involved published news, opinions, questionnaires and my own field experience. The government and other concern authorities need to examine the issues and challenges illustrated here and should consider it in the implementation of post-disaster program in the future.

## Devastation



On 25<sup>th</sup> April 2015, an earthquake of magnitude 7.8 struck Nepal with an epicenter 82km North West of Kathmandu (Gorkha, Barpak) at 11:56 am local time, followed by hundreds of aftershocks with the magnitude above 4. Four aftershocks were greater than magnitude 6.0, including one strong aftershock measuring 6.8 magnitude struck with the epicenter in Dolkha district (May 12, 2015), 76 km North East of Kathmandu which damages the structures that were already weakened by earthquake. It is estimated that the lives of eight million people, almost one-third of the population of Nepal, have been impacted by these earthquakes. The residential and government building, heritage sites, schools, health facilities, rural roads, bridges, water supply system, agricultural land, trekking routes and hydropower plants were directly affected by this earthquake. More than eight thousands people lost their life, and about twenty two thousands were injured. About 800,000 houses were damaged by this earthquake which needs to be reconstructed and about 75000 house were partially damaged which need to be retrofitted. Out of 75 districts, government categorized the 32 districts as the most affected and out of that number, 14 districts (Gorkha, Dhading, Rasuwa, Nuwakot, Kathmandu, Lalitpur, Bhaktapur, Kavrepalanchowk, Sindhupalchowk, Dolakha, Sindhuli, Makawanpur, Ramechhap and Okhaldhunga) were severely affected.

Table: Losses due to the Gorkha Earthquake

Particulars		Nos./Amount
Personal Dead		8,896
Missing		198
Injured		22,302
Affected Families		8,86,456
Displaced Families		6,49,815
House Damaged (Fully)		6,04,930
House Damaged (partially)		2,88,856
Total Material Loss		NPRs. 706 Billion US\$ 7 billion

*Source: Ministry of Home Affairs; \*situation Report of NRCS & #PDNA Report, NPC, the Government of Nepal*

Nepal has to suffer huge financial loss from this natural calamity. From the table, it is estimated that total losses caused by this earthquake was NPR706 billion which is equivalent to USD \$7billion.

### **Materials and Methods**

This paper intends to explore the issues and challenges on ongoing reconstruction program. Basically, the information was collected through interviewing local social workers, victims and local party leader. My personal field-based experiences helped much to gather challenges and issues concerning reconstruction. Internet played the key role through which different government sites, journal related to issues, systematic guidelines to write paper, statistical data and other necessary information were reviewed. Finally, the collected data was then studied and analyzed.

### **Issues and challenges**

Reconstruction on private housing with only three lakhs rupees grant from government especially on rural area was a major challenge. Many people on rural are still under poverty line and this arise a big obstacle to built new house. Although government has prepared many model houses to support and guide rural houses however, the design models are more expensive than the amount provided by government. Even the cheapest model cost more than 3 lakhs to construct.

Government of Nepal had announced to provide the three lakhs rupees in three installments for the earthquake victims. At the same time the guidelines set up by NRA is very rigid which may not be applicable to rural village, as a result of which beneficiaries have not been able to receive the amount in time. The main reason for not being able to receive the 2<sup>nd</sup> and 3<sup>rd</sup> tranches is because the constructed houses do not meet the requirements proposed by the NRA. The government has set the guidelines but not been able to provide sufficient skills necessary to build cost-effective and earthquake resistant house.

Even though Government has proposed model houses (stone masonry with mud and brick masonry with mud), many beneficiaries do not will to design their houses as per catalogue because the prototype houses do not match in the rural context of Nepal. Those houses are really small in size in many cases with only two rooms which are not even enough for nuclear family. People in rural lives in joint family, they need space to store agriculture product like rice, wheat, corn etc. These models do not match the need of people. Similarly, animal husbandry is the main source of people's livelihood in village but the government has not any model for cattle shade. These houses do not represent any caste and cultural groups. The inability to consider local cultural need has led to other problems in reconstruction. People are compelled to construct according to unsuitable design this has lead to dissatisfaction and uncertainty in people's live.

Other major challenge faced in the reconstruction process of Nepal was the political instability and absence of elected local government. Changing of CEO of NRA from time to time has certainly lead cold relation creating trust issues among stakeholders. As a result of which reconstruction process was slowed. Almost after two decade local government was formed in 2017. Previously, due to absence of local government, bureaucrats were leading local level. Absence of local government created difficulties for relief distribution and temporary shelter construction. At the mean time corruptions lead to dangerous scenario where victims were more prone to suffer. Also accurate data could not be collected and took more times for decision making moments which hindered the smooth running of reconstruction.

The difficult topography of Nepal covering with hills and mountains created another obstacle for reconstruction. The supply and transportation of the materials to the affected area is challenging as rural roads are inaccessible during monsoon season. Likewise, manpower and resource person from the government sectors are not enough for community mobilization. Even though some NGOs are seen conducting masons training but they only intend to complete their budget rather than upgrading skills. Mostly fresher Engineers appointed in many affected areas and frequently change in rules from NRA lead to confusion resulting gap in information and skill transfer to local level.

The survey conducted for damage grade assessment was not relevant. Many houses being in good condition was identified as vulnerable. Some people living in dual areas are taking benefit from both sides. Where as in some areas people who are still living in temporary shelter due to

collapse of houses are not in beneficiaries list. This has aroused dispute in village and many of them have develop negative attitude towards engineers and government.

Even though Government hired many Engineers, Sub-Engineers and Assistant Sub-Engineers but it seems that these were large in numbers and Government could not regulate them effectively. As a result of which Engineers are seen making their own rules and regulations in their working area which lead to rise in confusion among locals as one model house are passed forwarded in one area where as similar house are not allowed for tranches in another area.

Recent one, two years have been progressive time for reconstruction as it was running smooth in its pace with some positive outcomes. Then, the pandemic Covid-19 which affected the whole earth became a obstacle for reconstruction as well. Country was lockdown for months and crisis was outrushing in alarming rate affecting the economy. Government had no other option than to postpone the dead line which backwards the reconstruction program.

## **Discussion**

Above mention challenges clearly impede the momentum of reconstruction. After almost couple of years of reconstruction, there does not seem any effective plan and action to address future casualties. Not involvement of local participation in designing and planning has been identified as one of the major flows in reconstruction. Top-down planning approach failed to identify ground level demand of people in terms of housing and livelihood. Lack of local government followed by bureaucratic hassle in the planning and implementation leads to difficulties in smooth running of reconstruction process. When we try to find out the root causes of these problems every issue and challenges is directly linked to political instability. However, government somehow managed to get aid and loan from international platform, which made it possible for planning and mobilization of engineers, logistics and other necessary manpower and equipments. These small welcoming steps can be considered as the positive aspect for functioning of reconstruction process.

## **Lessons learned & Recommendations**

Nepal is in seismic zone, disaster may likely to happen at any time, so high level of political and bureaucratic willingness with advance technical measures and disaster management team is much essential for successful implementations.

Research is of most essential topic which should be in first priority before planning and designing so that model houses would be designed considering people's livelihood, culture and geographical region.

Involvement of locals (victims) in planning and designing phases would be highly appreciated as it helps to share ideas to build rural friendly model houses which could reflect their local cultures and traditions. This would definitely promote local use of materials in reconstruction works resulting cost effective in construction.

Government must ensure that the norms and rules are effectively followed by I/NGOs and other organization so as to assure the quality. Time to time inspection of these organizations from government sector is much needed so that these institutions would not only focus to complete their budget but will be compelled to perform their activities effectively. Additionally, cooperation between local government and the NRA should be improved to adjust impractical policies, and to setup two way channel for sharing information and data.

Landless and marginalized group including single women, senior citizens, people of low income and low caste group should be taken special considerations by the government so that large number of people is not left behind in the process of reconstruction. At the same time enhancing participation of local authorities in reconstruction process helps to generate new ideas which may help to strengthen economic activities and helps to create sustainable livelihood.

Considering urban areas, effective implementation of Building codes and other Legislations is the most important step government should focused on. National building code should be site specific and government should make a provision to strengthen older structures. To produce quality Engineers, engineering syllabus should be revised and must contain practical based knowledge which will broaden their vision and upgrade skills.

Misusing of power and pressurizing to make decision on their favor is one of the most important factors for slow development of nation which is also exists in reconstruction program. To eradicate this corrupt culture, strong laws binding bureaucratic officials, Engineers, political leaders and people should be effectively implemented. This would definitely try to establish a better society where every responsible personnel would be focused on their own task and anyone found guilty should be taken immediate action.

## **Conclusion**

Involving myself as an Engineer in NRA, I got the opportunity to observe this program closely and accordingly the challenges and issues were indentified. It is quite understandable that in country like ours having political transition phase, different institutions and systems are not in order of good performance. As a result of which reconstruction could not perform effectively as expected. Also, this program itself was the first experience for Nepal. Immature National Reconstruction Authority (NRA) followed by inexperience which led to challenges and issues can be taken as a source of lessons for coming days.

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