दक्षता
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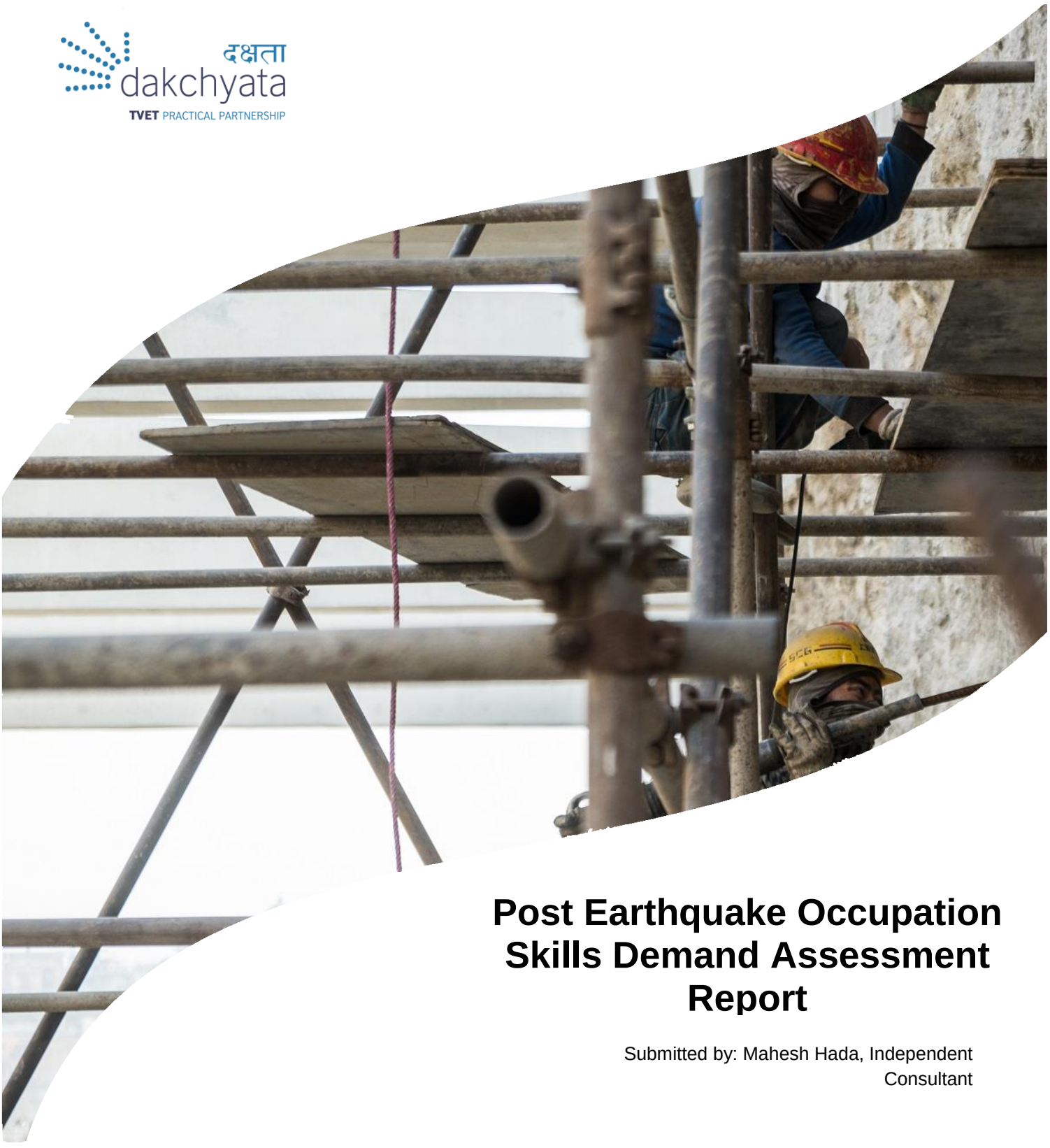
TVET PRACTICAL PARTNERSHIP



# Post Earthquake Occupation Skills Demand Assessment Report

Submitted by: Mahesh Hada, Independent Consultant

Government of Nepal
Ministry of Education

CTEVT 1989

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**Foreword by European Union**

Collectively, the European Commission and the EU Member States active in Nepal are the biggest donor. The devastating earthquake that struck Nepal on 25 April 2015, followed by a second massive earthquake on 12 May and its repeated aftershocks, caused damage to property, infrastructure, cultural heritage and the natural environment of the country. Nearly 9,000 people were killed and 22,000 injured. More than half a million houses were fully or partially damaged, rendering three million people homeless.

After destruction came the challenging task of reconstruction. Following the earthquake, the European Commission responded quickly to Nepal's request for international assistance. EU Commissioner Neven Mimica during his visit to the country in June 2015 for the International Conference on Nepal's Reconstruction had pledged to support post-earthquake reconstruction and recovery in Nepal to substantially support the start-up phase of the recovery. Following which, in the first tranche, NPR 6 billion (EUR 50 Million) was provided to the Government of Nepal's treasury under the Nepal-EU Action for Recovery and Reconstruction (NEARR) budget support programme. Similarly, in the second tranche, EU provided budget support grant of NPR 4.8 billion (40 Million) for reconstruction as part of the EUR 105 million NEARR programme. The grant was released against a set of performance indicators and provides the means to accelerate reconstruction efforts. The budget support uses country owned-mechanisms to give money directly; it reduces transactions costs, strengthens government systems and fosters self-reliance.

Additionally, European Union also contributed in the reconstruction and recovery through WFP/Remote Access Operation which trained/employed mountain porters, guides and mule operators - some of whom lost their tourism industry jobs after the earthquake. The earthquake and the shortages caused by the unreliable flow of goods at the border endangered livelihoods in Gorkha district. European Union's support was instrumental to train/employ more than 19,300 people and granted access to roads, trails and markets for more than 127,000 people, was an important step towards recovering some of these livelihoods and helping the most vulnerable.

Moreover, through TVET Practical Partnership (TVET-PP) which is a flagship skills development programme of the EU Delegation in Nepal, comprising two distinct but interconnected projects: 'Sakchyamta', delivered by the Council for Technical Education and Vocational Training (CTEVT), and 'Dakchyata', managed and delivered by the British Council aims to contribute to Nepal's inclusive and sustainable growth through investment in human capital and by creating better employment opportunities. As Construction is one of the focus economic area of the Dakchyata project, EU hopes that through financing of this report, it has been successful in reviewing and analysing the occupation and skills demand caused by the earthquake, and assess the actions subsequently taken by the Government and other actors. The findings are aimed to support potential grantees in the construction sectors in identifying skills needs and training of personnel to work in post-earthquake reconstruction.

Finally, the European Union will remain engaged to contribute to reconstruction efforts in Nepal through measures which are complementary to the NEARR programme - notably the NEARR Technical Assistance Facility and the accountability initiative with Transparency International Nepal - as well as through on-going policy dialogue and a new budget support programme in the education sector.

*This publication was produced with the financial support of the European Union. Its contents are the sole responsibility of the independent consultant and do not necessarily reflect the views of the European Union or the British Council.*

Acknowledgement

The Dakchyata TVET Practical Partnership (TVET PP) project has entrusted me the responsibility for carrying out a Post-Earthquake Occupation Skills Demand Assessment assignment. Many individuals and organizations have extended their support to the study team in conducting the mapping assignment. Without their cooperation and support, it could not have been possible to construct this report in such an insightful way. The study team is deeply indebted for their cooperation and support, and would like to extend our heartfelt appreciation for them.

On behalf of the study team, I take this opportunity to extend my deep appreciation and thanks to Mr. Sean Curley, Team Leader of the Dakchyata - TVET PP project for his technical guidance to complete this assignment. Similarly, Mr. Rajendra Shrestha, Deputy Team Leader and Mr. Krishna Giri, Monitoring & Evaluation Manager of the Dakchyata - TVET PP project deserved special thank for their critical insights and valuable feedbacks on the draft report.

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Last but not least, my special thanks to Mr. Surendra Mohan Yadav for his diligent job on data collection and analysis for this assignment.

Mahesh Hada
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Demand Assessment Team

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# List of Abbreviation

| | | |
|---|---|---|
| ADB | : | Asian Development Bank |
| CTEVT | : | Council for Technical Education and Vocational Training |
| CSIDB | : | Cottage & Small Industry Development Board |
| DFID | : | Department of International Development |
| DUDBC | : | Department of Urban Development and Building Construction |
| DLPIU | : | District Level Project Implementation Unit |
| FCAN | : | Federation of Contractors' Associations of Nepal |
| HRRP | : | Housing Recovery and Reconstruction Platform |
| ICCO | : | International Cocoa Organization |
| ILO | : | International Labour Organization |
| OJT | : | On-the Job-Training |
| GDP | : | Gross Domestic Product |
| GoN | : | Government of Nepal |
| INGOs | : | International Non-Government Organizations |
| JICA | : | Japan International Cooperation Agency |
| KII | : | Key Informant Interview |
| NSET | : | National Society for Earthquake Technology - Nepal |
| NSTB | : | National Skill Testing Board |
| NRA | : | National Reconstruction Authority |
| PDNA | : | Post-Disaster Need Assessment |
| SDC | : | Swiss Development Cooperation |
| TVET PP | : | Technical Vocational Education and Training (TVET) Practical Partnership |
| USAID | : | United States Agency for International Development |

# Executive Summary

The Dakchyata TVET Practical Partnership (PP) Project commissioned this study on **Post-Earthquake Occupation Skills Demand Assessment** with the prime objective of reviewing and analysing post-earthquake occupation and skills demand, and actions subsequently taken by the government, donors and I/NGOs. A thorough literature review was conducted on post-earthquake reconstruction initiatives by the government, donors, I/NGOs, reviewed and analysed the last two years training data on post-earthquake reconstruction of Housing Recovery and Reconstruction Platform (HRRP), intensive discussions with the National Reconstruction Authority (NRA) and HRRP, and interaction with contractors from Dolkha district are the major sources for this post-earthquake skills demand assessment.

The reconstruction process empowered communities and households to take charge of their own recovery through an **"owner-driven"** reconstruction process wherever possible. Households were facilitated with significant technical assistance to manage reconstruction. Housing reconstruction grants were provided in tranches, conditional on compliance to safe building standards. Large scale cascading training programmes have been implemented by the **27 development partners** to develop required number of skilled mason workers. A significant amount of unskilled work has been undertaken by family members themselves, which to some extent alleviated labour requirement need. Of main concern is the skilled workforce, which constitutes around 46 per cent of the needed labourers. The housing component alone may need over 20,000 masons who are often part-time workers, or migrating between Nepal, India and the Middle East. **This sector of the labour market need to be augmented through large scale geographically distributed training**.

Over the last two year (2016-17) period, 59,555 local people were trained out of a planned total of 80,119 in the 14 most affected earthquake districts of Nepal. Among the imparted skills were mainly in **masonry** followed by **carpentry, electrical, plumbing,** social mobilization, master mason workers and refresher. The total share of masonry training events consists of **84.4 per cent** of the total output followed by the rest of occupations related to construction sector. Out of the total trained 50,330 mason workers, 69 per cent (34,871) of trained falls under short-term category (7-10 days), 29 per cent (14,613) under 50 days (which includes On-the Job-Training (OJT)) category, followed 2 per cent (846) under new mason training (up to 45 days). There is still need to train at least **20,000 new mason workers** so as to meet unfulfilled demand of 70,000 mason workers by organising high quality 50 days training with compulsory provision of OJT.

Relevancy, effectiveness and more importantly employability of short course trained masons is yet to be justified since most of those trained under this stream were household owners rather than existing mason workers. This short-course was intended to impart skills to existing mason workers on constructing earthquake resilient buildings. Looking at the total training output, other construction related occupations such as carpentry, electrician and plumbing consists only 4.8 per cent in total. Thus, it is strongly recommended to impart basic plus upgraded skills on **carpentry, electrical** and **plumbing** to the local people which are in high demand for post-earthquake reconstruction. Hundreds of trained people on these occupations/skills can be gainfully employed if provided 50 days long quality training.

Besides, there is need of **welders, house painters, scaffolders and bar benders** which should also be considered.

During the assessment it was known that less than 50 per cent of trained workers are currently working in reconstruction, as a result of which locals as well as contractors are facing acute shortage of skilled workers. Mostly migrant workers from other districts (Terai belt) are found working on reconstruction. Local workers either migrate to overseas or are in process for out-migration. Thus, it is strongly recommended to emphasize selection of the right candidates for training who have plans and interest to be skilled worker for employment.

Construction work is mostly carried out by sub-contractors also known as *"Naike"* through main contractors. However, most of the *"Naike"* or labour sub-contractors are found to be migrant workers. It is therefore better to train established yet experienced local mason workers to be labour sub-contractor which increases chances of mobilizing local trained mason workers within district for post-earthquake reconstruction as well as for other construction work. It is also recommended to train local contractors on the e-bidding process since most contractors are unfamiliar with these procedures.

In the absence of systematic labour market information, the study team had to rely on available training data from the Housing Recovery and Reconstruction Platform (HRRP). It is therefore recommended that CTEVT is supported in developing and establishing **labour market information system** within provinces particularly focusing on post-earthquake reconstruction and other different economic sectors at large. Further, projects should either directly collaborate with district chapters of Federation of Contractors' Associations of Nepal (FCAN) for post-earthquake reconstruction or encourage its grantees for possible collaboration. Their active participation on reconstruction will have dual impact on capacity building of local contractors as well as bridging gap between trained workforces and contractors.

Considering the essence of the grant scheme component, it is highly recommended that while considering new projects in the construction sector, to select those which emphasize on **building capacity of the entire supply chain model/actors** of the construction sector, rather than just only training. Capacity building of local contractors should be of paramount interest to enable local contractors to bid for local construction opportunities. Skills/occupations of the construction sector with higher employment opportunities should be promoted, as well as those with earning prospects irrespective of market places. These skills are **masonry, electrical, plumbing, welding, scaffolding, bar bending, heavy equipment machine operation,** etc. All these occupations are service oriented by nature with high self-employment prospect.

New projects in the construction sector should ensure that needs and demand of occupation skills for post-earthquake reconstruction are reflected. Project implementers should be able to demonstrate their understanding of real needs and demands of post-earthquake reconstruction, and of the construction sector at large.

## 1. Introduction

Nepal suffered a massive loss of lives and property on Saturday 25 April 2015, when the devastating magnitude 7.6 earthquake struck Nepal. Subsequent aftershocks, including one of magnitude 7.3 near the Chinese border on 12 May, produced additional losses of life and property. Villages were flattened and people were made homeless across 31 districts, with 14 districts suffering the highest impact. Infrastructure was damaged throughout the earthquake zone. As a result of the earthquake, 8,790 people died, and more than 22,300 people were injured. Assessments showed that at least 498,852 private houses and 2,656 government buildings were destroyed. Another 256,697 private houses and 3,622 government buildings were partially damaged. In addition, 19,000 classrooms were destroyed and 11,000 damaged.[1]

The earthquake has impacted the housing and human settlements sector the most. According to Post-Disaster Need Assessment (PDNA) completed in 2015, the total effect (damage and loss) on this sector is valued at NRs. 350,379 million, with total damage valued at NRs. 303, 631 million and total loss at NRs 46,748 million. Nepal is undergoing an intensive reconstruction drive. **Despite the heavy losses suffered, the reconstruction and recovery phase is an opportunity for job creation and employment growth.** It was estimated that large-scale housing reconstruction may generate up to 352 million workdays over the following three years from 2016 - 2018. It was estimated that the labour requirement would peak at 70,000 workers for reconstruction only, which is significant compared to the current estimates of one million workers already involved in the construction sector (ILO).

The reconstruction process empowered communities and households to take charge of their own recovery through an **"owner-driven"** reconstruction process wherever possible. Households were facilitated with significant technical assistance to manage reconstruction. Housing reconstruction grants were provided in tranches, conditional on compliance to safe building standards. Large scale cascading training programmes have been implemented by **27 development partners**[2] to develop required number of skilled mason workers.

A significant amount of unskilled work has been undertaken by family members themselves, which to some extent alleviated labour requirement need. Of main concern is the skilled workforce, which constitutes around 46 per cent of the needed labourers. The housing component alone needs over 20,000 masons who are often part-time workers, or migrating between Nepal, India and the Middle East. **This sector of the labour market need to be augmented through large scale geographically distributed training**.

In order to find out occupation skills on demand for post-earthquake reconstruction, Dakchyata - TVET Practical Partnership (TVET-PP) project has commissioned this assessment study. This study also aims to find out different interventions undertaken by the government and development partners mainly on skills development training for reconstruction. The Dakchyata - TVET Practical Partnership (TVET-PP)

[1] Data taken from PDNA 2015 and subsequent assessments
[2] HRRP Data Portal (www.hrrpnepal.org)

project is funded by the European Union and implemented by the British Council under the leadership of Ministry of Education, Government of Nepal and in coordination with Council for Technical Education and Vocational Training (CTEVT).

The post-earthquake skills demand assessment was carried out mainly referring to available secondary data on reconstruction, and further validated through information from the National Reconstruction Authority (NRA), Housing Recovery and Reconstruction Platform (HRRP), Department of Urban Development & Building Construction (DUDBC) of Government of Nepal (GoN) followed by major projects on reconstruction such as *Baliyo Ghar* of USAID, DFID initiative towards reconstruction. In order to triangulate findings, the consultant visited Dolkha district, one of most earthquake affected districts of Nepal where he had opportunities to interact with local contractors, trained mason workers and district stakeholders involved in the construction sector.

In post-earthquake Nepal, 27 different development partners were found active providing different type and duration of skills development training for reconstruction and thereby able to produce 59,555 skilled and semi-skilled workers out of total planned 80,119 during the last two years period (2016-17) following mainly Post-Disaster Need Assessment (PDNA) recommendation. Among the imparted skills, it was mainly in masonry followed by carpentry, electrical, plumbing, social mobilization, master mason workers and refresher. The total share of masonry event consists of 84.4 per cent on the total output followed by the rest of occupations related to construction sector. Out of the total trained 50,330 mason workers, 69 per cent (34,871) of trained falls under short-term category, 29 per cent (14,613) under 50 days On-the Job-Training category followed by 2 per cent (846) under new mason training. The development partners stressed on producing more and more mason workers in response to demand for reconstruction which is estimated 70,000 new mason workers bythe Post-Disaster Needs Assessment (PDNA). There is still a need to train at least **20,000 new mason workers** so as to meet unfulfilled demand.

The short term seven days course on masonry has been developed by Department of Urban Development and Building Construction (DUDBC)/Government of Nepal (GoN) for existing mason workers aiming to impart skills on construction of earthquke resilience building. However, it was believe that more and more house owners were trained instead of existing mason workers in this occupation following “owner-driven” approach. Similarly, relevancy and effectivness of 50 days-OJT plus new mason training yet to be find out by commissioning separate tracer study since the study team has found migrant workers from Terai belt are engaged in reconstruction projects. In contrast, both local trained and untrained workers in the 14 mostly affected districts were found to be migrating overseas in search of employment.

The assessment findings shows that there is huge demand of **skilled mason workers followed by carpenter, electrician, plumbers, scaffolders** and **welders** where TVET PP project can intervene not only for post-earthquake reconstruction but also contributing towards developing required skilled workforce for the construction sector at large.

## 2. Objective

The major objective of this assessment is to review and conduct analysis of post-earthquake occupation skills demand and the subsequent actions taken. The specific objectives of the assignment are;

- Review donor, I/NGO, and government post-earthquake analysis on occupation / skills demand;
- Review Donor, I/NGO, CTEVT and government post-earthquake activities on short or long term training carried out in the last 2 years and
- Review current labour market information involving post-earthquake reconstruction demand occupations & skills

## 3. Methodology

The entire assessment was based on review of relevant documents from the donors, I/NGOs and government on post-earthquake activities on short or long-term skills development training carried out in the last two years mainly in the construction sector. The Post-Disaster Needs Assessment (PDNA) and subsequent assessments are the primary source of information of this review. Similarly, direct interviews were conducted using structured questionnaires (see annex-1 for the list of key informants) with stakeholders involved in skills development training for safer reconstruction. The questionnaire used for the KIIs is presented at annex-2 of this report. The following tools were applied for the post-earthquake skills demand assessment;

- Review and analysis of donor, I/NGOs, CTEVT and the government engagement on skills development training for safer reconstruction
- Key Informant Interview (KII) with major stakeholders involved in skills development training for reconstruction
- Interaction with mason workers, contractors and district line agencies of Dolkha district of Nepal

## 4. Limitations

The consultant observed the following limitations during the assessment which has much influence in conclusions and recommendations of this assignment;

- The study team had to rely largely on the PDNA report for demand assessment made for reconstruction, thus the study is limited to findings of PDNA report of 2015.

- The study team noted that none of the actors involved in skills development training for safer reconstruction have carried out systematic labour market assessment related to construction sector.

- It is not possible to assess the relevancy and effectiveness of such massive level of training inputs by stakeholders due to the absence of training impact evaluations carried out to date.

- Stakeholders' understanding of post-earthquake reconstruction is often limited to developing mason workers only.

## 5. Study Findings and Discussion

### 5.1 Analysis of Assessment on Occupations/Skills Demand Carried out by the Government, Donors, CTEVT& I/NGOs

**Situation Assessment of Post-Earthquake Reconstruction**

The earthquake has impacted the housing and human settlements sector the most. As per PDNA, the total effect (damage and loss) on this sector is valued at NRs. 350,379 million, with total damage valued at NRs. 303,631 million and total loss at NRs. 46,748 million. The damage accounts for physical housing damage and damage to household goods, the loss for demolition and debris clearance, transitional shelters and rental loss.

Recovery of housing sector is proposed to be based on principles of equity, inclusion and participation of communities through an "**owner–driven"** reconstruction approach while ensuring '**build back better**' consideration. A large-scale impact survey was conducted by the Ministry of Home Affairs (MoHA) during the month following the earthquake. Results show that a total of 498,852 houses have fully collapsed or are damaged beyond repair, and 256,697 have been partly damaged.

The entire housing reconstruction process is likely to take next two –three years through to 2020. The reconstruction process had empowered communities and households to take charge of their own recovery through an "**owner-driven**" reconstruction process wherever possible. Households were facilitated with significant technical assistance to manage reconstruction. Housing reconstruction grants have been provided in tranches, conditional on compliance to safe building standards. Large scale cascade training programmes were conducted as well as on-going to build the necessary pool of trained masons, carpenters and artisans. As per the National Reconstruction Authority (NRA), more than 70 per cent beneficiaries in 14 most affected districts have now come under the reconstruction process. As per the data till February 26, 2018, NRA has signed grant agreements with 610,500 beneficiaries out of 667,662 beneficiaries who were eligible to receive the government grant in the 14 most affected districts. Out of these, 100,236 houses have now been reconstructed while 332,321 houses are under construction. NRA estimates that it would fulfil its target of reconstructing 60 per cent of private houses before the coming monsoon if the present speed of reconstruction continues unabated.

Such a large-scale housing reconstruction need will require significant workforce (estimated at 352 million workdays). Assuming that the majority of the reconstruction would occur in the first three years (2016-18), it was estimated that the labour requirement would peak at **70,000 workers for reconstruction alone**, which is significant compared to the current estimates of one million workers already involved in the construction sector (ILO). A significant amount of unskilled work will likely to be undertaken by family members themselves, which will alleviate some of this need.

Of main concern is the skilled workforce, which constitutes around 46 per cent of the needed labourers. The housing component alone may need over 20,000 masons who are often part-time workers, or migrating between Nepal, India and the Middle East. This sector of the labour market needs to be augmented through large scale geographically distributed training. It is estimated a pair of masons will take 15 days to complete reconstruction of a typical house. Similarly, a pair of masons will take three to seven days to repair and strengthen an average house. If an artisan works for 200 days a year and whole reconstruction programme is uniformly distributed over five years, **17,500 masons** are expected to be required housing. These individuals are employed by the house owners as and when required.

According to the National Reconstruction Authority (NRA) in 2016, it was estimated that **3,000 Master Masons** would be required for reconstruction project. Their role would be to guide and supervise the masons working on house sites. On average four Master Masons were to be allotted to each municipality on a full time basis , and were to be based in respective rural and urban municipalities. It was estimated that **150 junior engineers/ sub-overseers** would be required for reconstruction. For the estimation of the requirement two junior engineer/sub-overseers were allocated for each rural and urban municipality to provide support and guidance to the reconstruction process, provide advice to house owners and to approve the work, and report through the government system for release of subsequent tranches. However, these estimates have not been fully met over the reconstruction period.

However, from the development partner side, no such comprehensive labour market assessments have been carried out yet. Instead, several context analyses of the 14 most affected earthquake districts have been conducted to develop recovery and reconstruction projects. All development partners relied on the Post-Disaster Need Assessment report for their post-earthquake interventions.

## 5.2 Overview of Construction Sector/Industry in Nepal

The Nepalese Construction Industry contributes around 10 to 11 percentage to GDP. It is estimated that this sector provides employment to about one million people. Thus, it is the highest employment generating sector after agricultural. Similarly, about 60 per cent of the nation's development budget is spent through the use of contractors. From this, it is clearly seen that construction is a major sector and any productivity enhancement activity in this sector will have a positive impact in the overall improvement of the national economy.

The Construction industry is one of the important sectors in any economy. Its contribution to the GDP and employment is very significant and plays important role in the development of infrastructure that is essential for the development of all other sectors. Nepalese contractors are now making significant cost savings as local contractors are becoming increasingly technically able to perform the required services, and the reliance on international contractors decreases. So, it is contributing as export industries to the national economy. In developing countries about 60 per cent of the national budget is allocated on development works and significant portion of the development budget is allocated to construction sector in Nepal.

***Construction Sector at Glance***

*Estimated workforce: more than one million of which 90 per cent are believed to unskilled;*

*Second largest employment providing sector of the nation after agriculture;*

*Contribution to GDP 10 per cent*

*60 per cent of total government budget allocated for construction sector*

*Around 12,000 license holders contractors affiliated with FCAN*

*Labour sub-contractors "Naike" are available in the major market centers of mostly affected earthquake districts*

Nepal is entering into the era of building new Nepal. Development activities need to be increased significantly, more than at the present pace to achieve inclusive growth with equal opportunity of employment for improved prosperity of the country and poverty reduction. There is a positive relationship between the development of construction industry and economic development of a country. Nevertheless, despite a workforce of nearly one million, the industry is facing an acute shortage of skilled workers related to construction. At the same time, hundreds of young people migrate overseas daily in search of employment.

## 5.3 Analysis of Government and Non-government Training Activities Carried out Over the Last 2 Years

The Post-Disaster Needs Assessment (PDNA) of 2015 and subsequent assessments estimated a need of **70,000 new skilled mason workers** to rebuild more than 500,000 new houses fully damaged by the earthqauke and to repair partially damanged houses, pubic buildings, etc.

Training in seismically appropriate construction as well as repair and retrofitting of existing damaged buildings for artisans, supervisors and engineers accompanied by awareness generation in the communities should be an integral part of the reconstruction strategy. In response to large demand of construction workers for reconstruction work, many development partners in Nepal accelerated their recovery acitivites by organizing mainly mason training.

The data from Housing Recovery and Reconstruction Platform (HRRP) relevaled that currently **27 development partners including donors** are found engaged with their respective reconstruction activities in 14 most affected earthquake districts, plus three moderatly affected districts with approval

from the National Reconstruction Authority (NRA). The reconstruction activities were implemented through 41 different partner organisations including government by the development partners.

As per HRRP data, out of a planned **80,119 people** to be trained in various skills related to reconstruction, **74 per cent (59,555) had been** trained in different occupations related to reconstruction by the development partners by the end of Dec 2017. The table below presents the different types of training provided by development partners:

**Table 1: List of Different Training for Reconstruction**

| S.N. | Type of Training | Duration | Planned | Trained | Total Trained In percentage |
|---|---|---|---|---|---|
| 1. | Short-term Mason training (curriculum prescribed by DUDBC, others and ToT) | 7-10 days | 40213 | 34871 | 58.55% |
| 2. | Mason Training including OJT (curriculum prescribed by CTEVT L-1) | 50 days | 27260 | 14613 | 24.54% |
| 3. | New Mason training (curriculums prescribed by CSIDB) | Up to 45 days | 1390 | 846 | 1.42% |
| 4. | Short-term Carpentry training | Up to 25 days | 1537 | 927 | 1.56% |
| 5. | Carpentry Training (curriculum prescribed by CTEVT L-1) | 50 days | 1218 | 1086 | 2.04% |
| 6. | Short-term Electrical training | 25 days | 197 | 159 | 0.27% |
| 7. | Electrical Training (curriculum prescribed by CTEVT L-1) | 50 days | 290 | 278 | 0.49% |
| 8. | Short-term Plumbing training | Unknown | 161 | 77 | 0.27% |
| 9. | Plumbing Training (curriculum prescribed by CTEVT L-1) | 50 days | 82 | 82 | 0.14% |
| 10. | Social Mobilization Training | | 184 | 89 | 0.15% |
| 11. | Basic Engineers Training (curriculum prescribed by DUDBC) | 7 days | 2372 | 1726 | 2.90% |
| 12. | Other Training (awareness, refresher etc.) | | 5215 | 4801 | 8.06% |
| | **Total:** | | **80119** | **59555** | **100%** |

Source: HRRP 2018

### 5.3.1 Short-term Training

This seven day training course is targeted at existing mason workers irrespective of their education and competency background. The prime motive of this short-course is to impart skills on construction of earthquake resilence building and curriculum of this course has been developed by Department of Urban Development and Building Construction (DUDBC)/Government of Nepal (GoN). However, the study team found out that instead of providing this short-course to existing mason workers, house owner (earthquake victim) as well as fresh trainees came to participate in the said event with the primary motive of collecting allowances and to rebuild their own damaged houses. As such, the

relevancy of such skills to these trainees is yet to be justified. Further, it would be interesting to assess how many of those trained are currently engaged in reconstruction work by commissioning separate tracer study.

Out of total of 59,555 people trained in reconstruction skills, **34,871** were trained in this short course, constituting **58.55 per cent** of the total numbers trained in masonry. This short-term course was considered as a recovery package by the development partners and at times also considered as an entry point for new development partners such as INGOs, NGOs, Red Cross and business and industries as part of their corporate social responsibility. During this assessment, the study team came to know that ICIMOD have also provided short courses on participatory 3D model and stabalized block production training in Nuwakot. Similarly, IOM was enagaged in providing Training of Trainers (ToT) on social mobilisation training in Dolkha.

### 5.3.2 50 days On-the-Job Training

This is basic level course targets beginers who aspire to be mason workers. The curriculum was developed by the Council for Technical Education & Vocational Training (CTEVT) with technical assistance from the National Society for Earthquake Technology (NSET). By attending this 50 day long course including On-the-job-training (OJT), participants are eligible to appear in skill test exam of level-1 for national certification. This course has been conducted 50 per cent less compared to short-term course on mason. It was introduced later, only after realizing the importance of long-term course with provision of OJT for reconstruction. However, relevancy and employability of this training is yet to be evidenced since the study team found that a majority of construction workers currently engaged in reconstruction efforts are from the Terai belt (migrant workers).

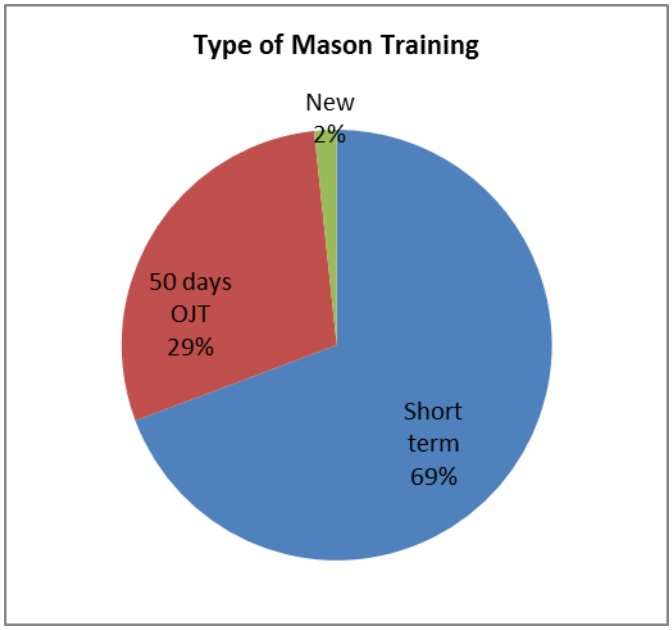
In terms of its share on total trained, this course constitutes **24.54 per cent**. This 50 day mason training course has been mostly provided by the Employment Fund project of HELVETAS jointly funded by DFID and SDC, and the SABAL project funded by Swisscontact and USAID. Most of the graduates of these events went through skill test exam for national certification. According to National Skill Testing Board (NSTB) of CTEVT, during the last four years, 3510 has been tested and certified as mason worker in competency level-1 from the 14 most affected earthquake districts. Similarly, during the study it was known that Indian Embassy in Nepal had planned to train 2,334 people in 50 days mason training in Gorkha & Nuwakot but as of the reporting date, this project has not yet been started. The second largest number (14,613) of people were trained in this occupation responding to the needs of new 70,000 mason workers for reconstruction.

### 5.3.3 New Mason Training

This is yet another basic level training course on masonry which lasts for 45 days and is mainly provided by government offices. The currciculum of this course has been developed by the Cottage & Small Industry Development Board (CSIDB)/(GoN). The board itself has been conducting these events through their district offices in all 14 most affected earthquake districts.

**Figure 1: List of Different Training for Reconstruction**

Combining all three different types of mason training courses, development partners have trained **50,330 local people** from the 14 most affected earthquake districts of which 69 per cent (34,871) of trained graduates falls under short-term category, 29 per cent (14,613) under 50 days OJT category followed by 2 per cent (846) under new mason training. However, as noted above, these figures do not give an accurate picture of the numbers subsequently employed in reconstruction efforts.




In terms of total share in total output of training, masonry alone stands **84.51 per cent**. These findings show that there is ample opportuntiy and scope of skills development training on carpentry, electrical and plumbing occupations for post-earthquake reconstruction.

### 5.3.4 Carpentry Training

To some extent, the development partners engaged in post-earthquake reconstruction have realized the needs of carpentry skills among local people for constructing new earthquake resilent buildings. However, exact number of carpenters required for reconstruction are not known since none of these development partners nor the government have carried out such needs assessments in the most affected earthquake districts. Thus, carpentry and other skills were identified presumably based on the market needs and to some extent with realization. This carpentry occupation mainly refers to construction carpentry.

Housing Recovery and Reconstruction Platform (HRRP) data revealed that out of a planned 1537 carpenters to be produced, only **927 people** were trained in carpentry skills by organizing short as well as 50 days On-the Job-Training (OJT) training. However, target group of this course was unknown. Those who attended 50 days OJT training were able to appear in the skill test exam by National Skill Testing Board (NSTB)/Council for Technical Education and Vocational Training (CTEVT) in compentency level-1.

### 5.3.5 Plumbing Training

The development partners have also extended their support in providing plumbing training for the earthqake victims primarily for employment opportunties. However, market assessments of plumbing occupation were not found during the study. This plumbing occupation refers to household plumbers.

Housing Recovery and Reconstruction Platform (HRRP) data revealed that out of planned 243 plumbers to be produced, **159 local youth** were trained in plumbing occupation combining both short and 50 days

trainings. The study team has found that those who appeared in 50 days training went through skill test exam on competency level-1 for national certification.

### 5.3.6 Electrical Training

This occupation refers to house wiring technicians or building electricians. Some of the development partners were found providing electrical training also aiming to providing electrical services for newly built houses as well as creating employment opportunties. According to HRRP data, out of planned 487 people to be trained in electrical occupation, **437 local youth** were trained by organizing both short and 50 days training.

### 5.3.7 Social Mobilisation Training

Prior to constructing new earthquake resilience house, development partners engaged in reconstruction work have organized social mobilisation training for locals mainly earthquake victims on disaster preparadness, constructing safer houses, etc. Among the development partners, USAID's *Baliyo Ghar* project appears to be on the frontline of providing systematic social mobilisation training by hiring locals to be social mobilisers. This project is following a cascade model of training.

Housing Recovery and Reconstruction Platform (HRRP) data revealed that 89 people were trained to be social mobiliser out of planned 184.

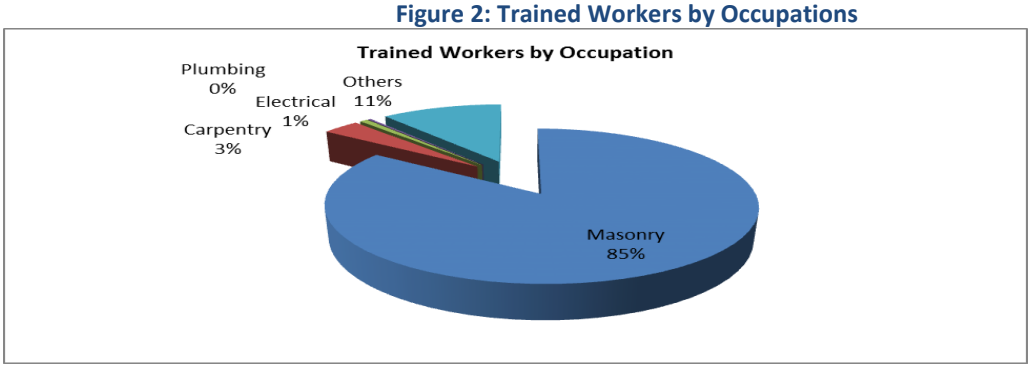
### 5.3.8 Basic Engineers Training

Most civil engineers and civil overseers (CTEVT Diploma holder) who were oriented on safer reconstruction (earthquake resilience), were trained through 7 day training programmes, mainly led by the government agencies following the curriculum prescribed by the Department of Urban Development and Building Construction (DUDBD). According to HRRP, 1726 technicians were trained out of planned 2372. The USAID's *Baliyo Ghar* project has been providing this training.

### 5.3.9 Other Training

Aside from the above mentioned core technical skills, development partners have been found providing other training courses related to reconstruction such as referesher training on masonry, awareness level (disaster preparedness), ToT, etc. According to HRRP, 4801 people were trained out of planned 5215 of different trainings.

**Figure 2: Trained Workers by Occupations**



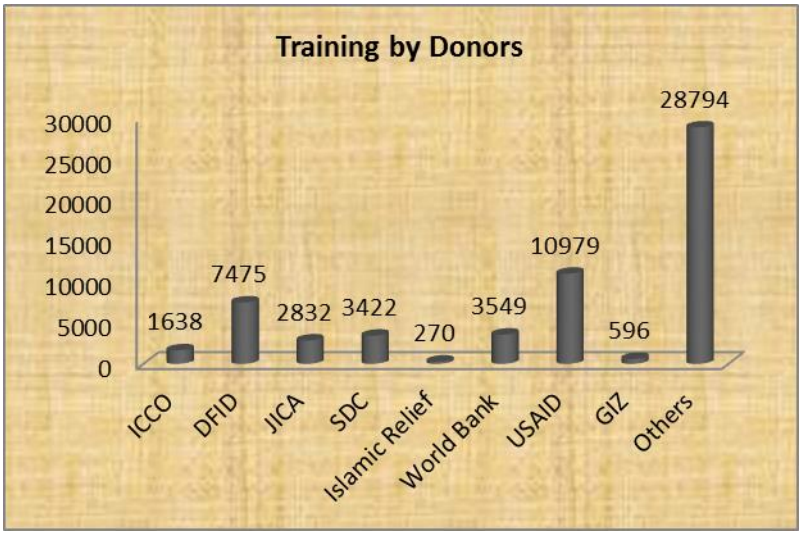
Above data reflects that around 85 per cent (50,330) of the total trained people acquired masonry skills which is indeed a good effort towards developing skilled and semi-skilled mason workers by the development partners for post-earthquake reconstruction. Nevertheless, total unmet demand of new mason workers of 70,000 yet to be fullfilled which means still **19,670 people** need to be trained in masonry skills only for remaining reconstruction work which still may take at least two to three years for completion.

### 5.3.10 Overview of Development Partners Engagement in Training for Reconstruction

In response to Government of Nepal's (GoN) appeal to support in rescue, recovery and reconstruction after the devastating earthquake of 2015, many donors committed to support Nepal's endevaour to "**Build Back Better**" including DFID, USAID, JICA, SDC, ICCO, World Bank, ADB, Islamic Relief, Government of India and many other donors who channelised their respective support through various established international NGOs working in Nepal as well as through new ones. Under the leadership of GoN's line ministries, development partners have formed respective cluster groups to harmonise their efforts towards recovery and reconstruction. Under these initiatives, the shelter cluster was formed, which later changed to Housing Recovery and Reconstruction Platform (HRRP) as the technical wing of the National Reconstruction Authority (NRA) on housing reconstruction.

Among the 'other' category of donors, Nepal Red Cross Society was found at the frontline in providing skills development training in collaboration with their international chapters such as American Red Cross, British Red Cross, etc. Similarly, Save the Children were among the second largest donor under the 'other donor' category, which was found to be involved in providing short and 50 days mason training for reconstruction.

**Figure 3: Training by Development Partners**




The HRRP data revealed that out of a total of 59,555 trained against planned 80,119 by the major donors, USAID has trained largest number of people (10,979 or 18.4 per cent), followed by DFID (7,475 or 12.5 per cent). Similarly, the World Bank has trained 3,549 (6 per cent) followed by SDC 3,422 (5.7 per cent), JICA 2,832 (4.75 per cent), ICCO 1,638 (2.75 per cent) and GIZ 596 (1 per cent), and Islamic Relief 270 (0.45 per cent).

Further, HRRP data revealed that by far the highest number of people were trained by donors falling under the category of 'other', constituting 48.34 per cent (28,794) of the total output. The list of training events provided by development partners is presented in annex-3 of this report.

Among the donors, USAID has been implementing two mega projects, namely: SABAL consortium led by Save the Children, and *Baliyo Ghar* implemented by NSET for reconstruction. Similarly, DFID under its reconstruction initiative has been supporting the HELVETAS Employment Fund project which mainly provides 50 days long training on masonry, carpentry and electrical trades. DFID is also supporting Practical Action mainly on promoting new technology of construction in substitution of bricks and stone wall as well as on developing supply chain of construction materials.

Likewise, World Bank support is channelled through Government initiaitives such as the Poverty Allieviation Fund (PAF), District Level Project Implementation Unit (DLPIU), and Department of Urban Development and Building Construction (DUDBC) and were found mainly engaged in providing short-term training courses on masonry. Similarly, SDC also channelled its suppport through the Employment Fund project implemented by HELVETAS Nepal in providing 50 day long masonry training. Morever, JICA has agreed to reconstruct damaged school buildings of few selected districts among 14 most affected earthquake districts, but this has not yet taken place. However, JICA was found providing short-term seven days courses on mason as well as during the study. Similarly, GIZ and Islamic Relief were also found providing short-term course on masonry. Among the donors which is not listed, ADB has committed to reconstruct damaged school buildings in selected 14 most affected earthquake districts.

Among the above mentioned donors, USAID has been supporting NSET project which will last till 2020 and plans to train more mason workers at different levels, plus social mobilisation, although planned numbers are not yet known. Likewise, DFID and SDC have been continuing support to the Employment Fund to train more people in the construction sector. International Cocoa Organisation (ICCO) funding seems to have stopped for training which has been mainly channelised through INGOs. Similarly, World Bank support will continue to government agencies but training may be at decreasing level. It is worth mentioning here that the World Bank is going to continue its mega project called EVENT-II which has been implemented by the Ministry of Education/GoN and plans to train around 75,000 people in market-oriented skills through out the country, which will likely also include construction sector skills.

Direct government support has focused on the establishment of the National Reconstruction Authority (NRA), the legally mandated agency for leading and managing the earthquake recovery and reconstruction in Nepal. The NRA provides strategic guidance to identify and address the priorities for recovery and reconstruction, taking into account both urgent needs as well as those of a medium-to long-term nature. The NRA's overall goal is to promptly complete the reconstruction of structures damaged by the 2015 earthquake, in a sustainable, resilient and planned manner to promote national interest and provide social justice by making resettlement and translocation of the persons and families displaced by the earthquake.

NRA gives approval to development partners engaged in post-earthquake reconstruction for skills development training as well as other reconstruction initiatives. According to the NRA, **40,175 mason** workers have been trained to date of both nature i.e. short and 50 days On-the Job-Training (OJT). **7,000 people** are currently participating in mason training with the NRA stating an additional **30,000 mason workers still need to be trained in the** next year (throughout 2018/19). This figure from NRA slightly varies from Housing Recovery and Reconstruction Platform (HRRP) data of 59,555 total trained.

NRA has been coordinating with various donors and their partners for skills development training. If we look at the estimated demand of skilled mason workers of 70,000 projected for reconstruction work, the NRA is on track to reach this target: almost 60 per cent of this number have already been trained, 10 per cent are currently enrolling, and the remaining 30 per cent are planned to train next year. However, there are significant caveats to this given the relevancy of the training and trainees as noted above. In upcoming mason training events, NRA plans to promote alternative masonry skills such as **Hollow Block, Interlocking Block, Compressed Earth Brick, and Soil bag** with technical assistance from development agencies such as Practical Action. In addition to NRA, government with support from the World Bank are also engaged in providing training through relevant departments such as Department of Cottage and Small Industry Board (DCSIB), Department of Urban Development and Building Construction (DUDBC) and District Level Project Implementation Unit (DLPIU.

The role of CTEVT in post-earthquake reconstruction, as a coordinating body of TVET sector in Nepal, has been to develop the curriculum for the 50 day earthquake resilience mason training, as well as occupational skill standard of level-1 with technical assistance from National Society for Earthquake Technology (NSET). Similarly, CTEVT has been extending its support services by assessing acquired skills of trained graduates in different occupations for national certification.

## 6. Analysis of current labour market demand for post-earthquake reconstruction

The PDNA report revealed that an estimated 70,000 new mason workers would be needed to reconstruct half a million damaged houses, in addition to the one million existing construction workers. Based on findings of PDNA, development partners have trained 59,555 local people so far, of which **84.5 per cent were trained only in masonry skills (50,330)** followed by carpentry, plumbing, electrician and ToT, refresher and social mobilization. Overwhelming the above figure, there is still a need of training more than 20,000 mason workers so as to meet total unmet demand of mason workers (70,000) for reconstruction. During the study, the study team also came to know that none of the development partners involved in post-earthquake reconstruction had carried out systematic labour market assessment of the 14 most affected districts which means development partners largely relied on the Post-Disaster Need Assessment (PDNA) findings for their recovery and reconstruction initiatives. In the absence of such labour market assessments, it will be difficult to project required number of skilled workers as well as skills/occupations for post-earthquake reconstruction.

This study found (based on several past assessments), that of total numbers trained on masonry skills, the majority of trainees were house owners who came to participate in the short-term seven days

course in order to rebuild their damaged houses following the **owner-driven** approach. However, as noted above, this short-course is designed for existing mason workers to impart skills on constructing earthquake resilient buildings following the prescribed curriculum of the Department of Urban Development and Building Construction (DUDBC) of GoN. Moreover, even trained mason workers who participated in this short course complained of not having adequate skills within seven days to construct earthquake resilient houses. This finding is based on interactions held with mason workers at Singati, Dolkha districts during the field mission.

Another important aspect to be noted here is most of the construction workers in the 14 most affected districts were found working from other districts mainly from Dang, Banke, Baridiya, Pyuthan and Kanchanpur. It is believed that very few 50 day trained mason workers are working in the rural areas of the 14 most affected districts, whereas in the district headquarters, mostly market centred mason workers from other districts are to be found. In contrast, local trained mason workers are mostly working in Gulf countries and in Malaysia, and some even found working in Kathmandu. This is not only the case in the most afffected earthquake districts. In-country migration prevails across Nepal, mainly due to social stigma related to these occupations. If we look at the supply chain of labour force, it is very interesting to see in and out migration.

As per the district chapter of the Federation of Contractors' Associations of Nepal (FCAN) of Dolkha, local trained skilled mason workers charge NRs. 1200 per day and semi-skilled mason workers charge NRs. 800 per day, whereas migrant skilled mason workers from other districts charge only NRs. 800 per day. This differential wage rate among the workers, obviously push local ones to hire cheaper meaning migrant workers. The contractors interviewed also opined that migrant workers are more efficient, productive and less demanding compared to local workers. These migrant workers are mobilised through labour contractors also locally known as *"Naike"* who are apparently from other districts as well.

The earthquake victims after receiving second tranche of housing grant, have expressed their frustration over not having mason workers to complete their houses. Similarly, contractors' association have also expressed same concerns which revealed there is need of skilled mason workers not only to reconstruct private houses but also to construct **public buildings such as schools, government offices, road, hydro power, etc.** Besides mason workers, there is huge demand of carpenters since migrant workers from **Terai belt do not necessarily have required skills of carpentry relevant to hilly context.**

As a consequence, an increasing number of Nepali citizens are pursuing employment opportunities in the informal economy and abroad. There are considerable differences between urban and rural areas: outside of Kathmandu valley, workers are more likely to be women due to the out-migration of men. Moreover, economically-active individuals in the rural districts hit by the earthquake are more likely to be uneducated: 66 per cent of them have no education compared to 31 per cent in Kathmandu valley.

Presently large demand of skilled workforce in construction related occupation is speculated in the domestic labour market based on various factors including post-earthquake reconstruction analyzed in

this study. Scarcity of workforce was already prevailed in the market because of the attraction of foreign employment among youths. Some currently running infrastructure projects such as hydropower, irrigation, and road and bridge construction have suffered due to crisis of skilled workforce. The need of new and reconstruction in the post disaster phase has further multiplied the previous need of **skilled mason workers**. Some junior level technicians in construction sector such as **Carpenter, Electrician, Welder, Plumber and Scaffolder** are also demanded in significant number. Compare to demand of such junior level technicians, as of now development partners have trained very few carpenter, electrician and plumbers which prevailed from the above mentioned training data.

Although signals about the significant demand of construction related skilled workforce are clearly visible in the labour market, there has been a discouraging trend over the last few decades government capital expenditure not being actively allocated or disbursed. Conducive environment has not been prepared yet for the private sector investment. Thus, several engineering related occupations are highly demanded in the labour market mostly in private and informal sector. The construction sector is marked with construction of new housing, apartments, roads, canals, railway lines, airports and hydropower projects. Planned construction of new international airports, mid-hills highway, Kathmandu-Hetauda Tunnel Highway, Kathmandu-Nijgad fast track, several ongoing as well as upcoming hydro-power projects, east-west railways, Hulaki road are some of the upcoming projects which indicate employment potential. Remittance has triggered in-country migration leading to investment in land and housing areas.

The Federation of Contractors' Associations of Nepal (FCAN) has estimated that there are more than one million workers with varying skills. There has been estimation that around **20,000 skilled people** can be immediately absorbed by the sector. If the owners of small/micro construction companies, who want management and some skills training are added, the demand for skills training hikes sharply. New occupations/skills include **safety-security training, Boomer Operator, Machine Operator (excavator, wheel, loader, boomer, batching plants etc), Driller, Blasterer, Lab Technician (to test the construction materials), Tunnel Boring Machine (TBM) Operator and Shortcrete sprayer.**

There is market for skilled workers in most parts of the country, particularly urban areas and in locations where development projects are focusing. Apart from this, there are also significant opportunities in the foreign employment market, where remuneration of skilled workers is three times higher than that of unskilled. The construction sector is estimated to grow by 11.66 per cent in the current fiscal year 2017/18 as compared to that of previous fiscal year. The construction of large projects including **Melamchi Drinking Water Project** and **Upper Tamakoshi Hydro electricity Project** has led to significant growth of this sector. The share of construction sector to GDP is estimated to remain at 7.18 per cent as in the last fiscal year 2016/17[3]. With overall development, the sector has big potential to grow.

Despite such promising potential, during consultations construction sector stakeholders invariably revealed that the sector is facing a crisis of skilled workers and labours as well due to foreign

[3] Economic Survey MoF/GoN 2016-17

employment opportunities available to them. It was known during the consultative meetings that most of the trained people, after getting some practical experience or even before that, leave for foreign employment. This has created a crisis of skilled workers in the construction industry. It was informed that to address the gap in demand and supply, skilled workers are -migrating from India and Bangladesh. This reveals the higher employment potential in the construction sector. The interviewed stakeholders reflected that there is high demand of skilled workers in the construction sector.

As informed by the FCAN officials, more than 95 per cent of the workers are engaged as unskilled labourers. This situation indicates the existing workers, when they start work, have invariably and consistently limited theoretical and practical skills and hence, their engagement is not so productive. They make damages and losses to companies before they have some practical skills. However, before they are fully experienced, they tend to switch to another company. Therefore, the stakeholders stated the high need of skilled workforce and need for skill training for the people, even though they are already engaged in various skills activities.

Based on the consultation with the stakeholders, it was revealed that most of the employees working in construction industries enter as labour and gradually upgrade to semi-skilled, and then skilled workers through 'learning-by-doing' process. During the consultation with stakeholders, it was revealed that **the number of workers in the construction industry who have received formal training is less than 5 per cent**. Therefore, the existing workers are very poor in **theoretical aspect** though they have reasonable practical experiences. Lack of certification and recognition force them to remain as low-paid workers. This demonstrates the requirement for Recognition of Prior learning (RPL). Likewise, employers mentioned that the workers coming from formal training background have limited skills on **practical aspects** and are unable to start working independently. They need to be linked to the real work environment through On-the-Job-Training (OJT) for 3 to 6 months' duration in general. However, the duration of OJT or apprenticeship varies from occupations and learning environment.

The study team visited construction sites in Dolkha district where the initial income of the workers starts from NRs. 600 per day, or around NRs. 13,000 a month. A skilled and experienced mason for example, earns NRs. 1,000-1,200 per day in current market situation. Income level of plumber is higher compared to other categories. If they find a job on pity contract, income prospect is higher than the wage employment. It was further shared that the skills training would help increase remuneration **by at least 30 per cent** of these workers.

To summarize the above findings, the following skills/occupations are in high demand for post-earthquake reconstruction;

**Table 2: Skills on Demand for Post-Earthquake Reconstruction**

| S.N. | Occupations/Skills in Demand | Estimated Number of Workers | Remarks |
|---|---|---|---|
| 1. | Skilled Mason Worker | 19,670 | (Demand of 70,000-Trained: 50,330) |
| 2. | Semi-skilled Mason Worker | 20,000 | PDNA and subsequent assessments |

| | | | |
|---|---|---|---|
| 3. | Carpenter | 4,900 | 350 in each 14 most affected districts |
| 4. | Electrician | 3,500 | 250 in each 14 most affected districts |
| 5. | Plumber | 3,500 | 250 in each 14 most affected districts |
| 6. | Scaffolder | 500 | 35 in each 14 most affected districts |
| 7. | Bar Bender | 500 | 35 in each 14 most affected districts |
| 8. | Welder | 1400 | 100 in each 14 most affected districts |
| 9. | House Painter | 1400 | 100 in each 14 most affected districts |
| 10. | Furniture Maker | 1400 | 100 in each 14 most affected districts |
| 11. | Solar Electrician | 700 | 50 in each 14 most affected districts |
| 12. | Heavy Equipment Operator | 700 | 50 in each 14 most affected districts |

Source: Field Assessment 2018

The study team has made projection on estimated number of required workforce in different occupations related to construction is mainly based on the discussion held with Federation of Contractors' Associations of Nepal (FCAN) to reconstruct remaining new houses plus completion of reconstructed houses in 14 most affected earthquake districts of Nepal. Nevertheless, in order to find out exact number of skilled workers required for construction industry to reconstruct damages caused by the earthquake of 2015 and subsequent aftershocks, a specific labour market assessment should be commissioned. In addition to the existing workforce of one million currently engaged in the construction, 70,000 more construction workers are in demand to construct several mega infrastructure projects such as hydro powers, roads, airports etc.

## 7. Conclusions and Recommendations

Based on the training data provided by Housing Recovery and Reconstruction Platform (HRRP) over the last two years (2016-17) and subsequent analysis of data, interaction with development partners, Federation of Contractors' Associations of Nepal (FCAN), government agencies including National Reconstruction Authority (NRA), on-site validation of post-earthquake reconstruction work in Dolkha, the study team has formulated the following conclusions with subsequent recommendations (way forward) to be considered by those aiming to support skills development in the construction sector;

7.1 As per demand of construction workers by Post-Disaster Need Assessment (PDNA) of 70,000, development partners engaged in post-earthquake reconstruction have trained 59,555 local people in different occupations related to construction sector of which 84.5 per cent (50,330) consist only of mason occupation. Within trained mason workers, 69 per cent have only received 7 days short-courses followed by 29 per cent have received 50 days long OJT training and 2 per cent have received new mason training which last up to 45 days. As noted above, given the significant challenges faced in selecting appropriate trainees for each type of training course, and subsequent retainment of those who have been trained in the labour market, these figures mask the reality that demand for skilled masons is still significantly under met. Thus, it can be concluded that there is still huge demand of skilled mason workers (with a minimum of 50 days OJT) for reconstruction, since trained indivuduals (particularly of short-courses) seems to be not working in their respective profession citing many problems.

***Recommendation:*** It is strongly recommended to train more than **10,000 additional mason workers** which can be easily observed in the job market, if provided high quality 50 days (390 hours) training with compulsory provision of OJT.

7.2 Relevancy, effectiveness, and more importantly employability of short course on masonry has not yet been justified.

***Recommendation:*** This short-course on imparting tools and techniques on earthquake resilience should only be provided to trained mason workers as skills upgrading training rather than to existing untrained mason workers who virtually do not have theoretical knowledge on masonry. Relevancy of such skill upgrading course could be justified by an increase in workers' competencies as well as from incremental income level.

7.3 Looking at the total training output, other construction related occupations such as carpentry, electrician and plumbing consists only 4.8 per cent in total.

***Recommendation***: It is strongly recommended to impart basic plus upgrading skills on **carpentry, electrical** and **plumbing** to the local people which are in high demand for post-earthquake reconstruction. Hundreds of trained people on these occupations/skills can be gainfully employed following provision of 50 day long quality training. Besides, there is need of **welders, house painters, scaffolders and bar benders** which should also be considered while implementing TVET projects for post-earthquake reconstruction.

These abovementioned demand skills/occupations training should be initiated as soon as possible, and be repeatedly provided on a regular basis throughout the remaining reconstruction period which will last at least two to three years. Assistance for permanent housing will need to be tied to the adoption of the improved practices. Where necessary, alternate emerging technologies may be adopted only after thoroughly tested for their safety, acceptability, and replicability.

7.4 During the assessment it became known that less than 50 per cent of workers trained are currently working in reconstruction, as a result of which locals as well as contractors are facing an acute shortage of skilled workers. Mostly migrant workers from other districts (Terai belt) are found working on reconstruction. Locals either migrate overseas or are in process for out-migration.

***Recommendation:*** It is strongly recommended that trainees should be carefully selected, favouring those with plans and interest in becoming a skilled worker for employment. Over the last two years, mostly house owner came to participate in short-term seven days mason training thinking that this would help them to rebuild their own damaged houses, rather than taking skills as a means of employment. Therefore, established mason workers and returnees should

be prioritised for skills training to increase chances of trainees remaining in their respective home towns.

7.5 Construction work is mostly carried out by sub-contractors (also known as *"Naike")* through main contractors. However, most of the *"Naike"* or labour sub-contractors are found to be migrants from other areas, so large scale construction contracts often do not benefit local employment prospects.

***Recommendation:*** It is better to train established yet experienced local mason workers to be labour sub-contractors, which increase chances of mobilizing local trained mason workers within post-earthquake reconstruction districts as well as for other construction work. Needless to say, "*Naike"* play a crucial role in the supply chain of the construction sector. Besides, local contractors should be encouraged to hire local trained skilled workers on reconstruction projects by providing additional incentives, and particularly through negotiating wage rates which could be mobilized through labour sub-contractors. In this regard, public procurement policy could be amended fostering massive utilization of locally trained skilled workforce.

It is also recommended to train local contractors on the e-bidding process since many contractors are unfamiliar with these procedures.

7.6 Most of the development partners involved in post-earthquake reconstruction have been engaged in skills development training focusing mainly on short-term training in response to early recovery - trainees of this type often do not seek to subsequently enter the professions for which they have been trained.

***Recommendation:*** Therefore, good practices from the USAID funded *Baliyo Ghar* project and DFID/SDC funded Employment Fund project should be considered for replication of systematic skills development training for reconstruction, as well as for creating sustainable employment opportunities for trained local people.

7.7 CTEVT is in process of re-structuring under the newly established federal structure of the nation. It is in process of establishing offices in all seven provinces, and decentralized its skill testing system by establishing the required number of skill testing centres in all provinces, and strengthening and upgrading its 21 constituted trade schools across the nation as well as planning to establish model trade schools in each province.

***Recommendation:*** Therefore, there is plenty of room for donor projects to support CTEVT on its decentralization process. In the absence of systematic labour market information from the 14 most-affected earthquake districts, the study team has had to rely on and limit its findings on the basis of analysing data from the Housing Recovery and Reconstruction Platform (HRRP) for this assessment. Thus, CTEVT should be supported in developing and establishing **labour market**

**information system** within provinces, particularly focusing on post-earthquake reconstruction and other different economic sectors at large.

7.8 District chapters of the Federation of Contractors' Associations of Nepal (FCAN)s do not feel they were appropriately consulted in designing and implementing recovery and reconstruction projects by development partners involved in post-earthquake reconstruction. Local contractors were limited to participation through consultation only, rather than productive participation. This has been one of the main grievances of contractors, not only from the 14 most affected earthquake districts but from all district chapters.

***Recommendation:*** Therefore, projects should either directly collaborate with district chapters of the Federation of Contractors' Associations of Nepal (FCAN) as partners in post-earthquake reconstruction, or encourage their project partners to collaborate with district chapters of FCAN mainly on building their capacity as well as training required number of workers for industry. Their active participation in reconstruction will have a dual impact; capacity building of local contractors which will enable them to secure local construction projects, as well as bridging the gap between trained workforces and local contractors.

***Recommendation:*** It is strongly recommended that projects in the construction sector, should aim to emphasize **building capacity of the entire supply chain model/actors** of the construction sector, rather than just only training.

7.9 As per the Federation of Contractors' Associations of Nepal (FCAN), in addition to an existing workforce of one million in the construction sector, 70,000 workers are still in demand to undertake and accomplish ongoing as well as upcoming mega infrastructure projects such as Melamchi drinking water project, upper Tamakoshi hydro-power project, Nijgad fast track, new international airports, road expansion projects.

**Recommendation:** Considering the huge investment in the sector, there is huge demand for skilled and semi-skilled workers in construction and thousands of unemployed youth could be trained in construction related skills for generating sustainable employment opportunities. While designing training courses related to construction sector, FCAN should be fully engaged so as to reflect their needs of skilled workforce. Engagement should be not limited to counselling as per prevailing practices, but rather employers should be encouraged to lead initiatives towards developing required workforce for the sector.

***Recommendation:*** Capacity building of local contractors should be of paramount interest to projects aiming to support reconstruction efforts. This will enable local contractors to avail local construction opportunities. Building capacity of local contractors will have a dual impact on the local economy: better chance of mobilization of local trained workforce, alongside supporting the local economy through mobilization of local supply chain actors such as input suppliers,

labour sub-contractor "*Naike*" etc. Good practices of such interventions should be brought forward for advocating at the policy level.

***Recommendation:*** Last but not least, emphasis should be placed on skills development for occupations in the construction sector with higher employment as well as earning prospects. These occupations include **masonry, electrical, plumbing, welding, scaffolding, bar bending, heavy equipment machine operation** etc, all of which are service oriented by nature with high self-employment prospects, reducing the need to rely on other contractors for work.

**Annex-1: List of Key Informants**

| S.N. | Name of KII | Designation | Name of the Organization |
|---|---|---|---|
| 1. | Mr. Raj Kaji Shrestha | Senior Divisional Engineer | National Reconstruction Authority (NRA), Kathmandu |
| 2. | Mr. Sagar Acharya | District Chief | NRA, Dolkha |
| 3. | Mr. Uttam Poudel | National Information Manager | Housing Recovery and Reconstruction Platform (HRRP) |
| 4. | Dr. Sujan Piya | Head, Agriculture/ Market Development | Practical Action |
| 5. | Mr. Bjorn Soderberg | Managing Director | Build Up Nepal |
| 6. | Mr. Ganesh Bhandari | Information Officer | National Society for Earthquake Technology – Nepal (NSET), Dolkha |
| 7. | Mr. Ram K. Sharma | Communication Officer | *Baliyo Ghar*, NSET |
| 8. | Mr. Rameshwor Upreti | District President | Federation of Contractors' Associations of Nepal (FCAN) Dolkha |
| 9. | Mr. Yudhisthar Khadka | Chairperson | Bhivu Rural Muncipality, Singati, Dolkha |
| 10. | Mr. Tara Bhakariya | Project Manager | Skills for Safer Reconstruction Project |
| 11. | Mr. Bhanu Pandit | Senior M&E Officer | Employment Fund/ HELVETAS |
| 12. | Mr. Subash Sudedi | Team Leader | ENNSURE/HELVETAS |
| 13. | Mr. Deepak Poudel | Director, Curriculum Division | Council for Technical education and Vocational Training (CTEVT) |
| 14. | Mr. Damodar Devkota | Deputy Director | National Skill Testing Board/ CTEVT |
| 15. | Mr. Krishna B. Pokharel | Executive Director | FCAN |
| 16. | Mr. Suroj Poudel | Information Officer | Department of Urban Development and Building Construction (DUDBC) |

**Annex-2: Questionnaire for Key Informant Interview (KII) – Development Partners**

Name of the Key Informant: …… Designation: ……..

Name of the Organization: ……

Address: …… Contact Number: ……..

Area Coverage: ……

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1. How your organization engaged in post-earthquake reconstruction training and who support you for your reconstruction project?

2. How you assess demand of occupations related to construction sector?

   Market Assessment: □ Sub-sector analysis: □ PDNA: □ others: □

3. How many you have trained so far and in which occupations related to construction sector?

| S.N. | Name of Occupations | Duration of Training | No. of People Trained |
|---|---|---|---|
| | | | |
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4. What is the main purpose of your skill development training related to construction sector?
   To build own houses: □ for employment generation: □ other purpose: □

5. Who deliver skills development training for your organization at your working areas?
   Local CBOs □ Private Training Providers □ CTEVT Trade School □ Others □

6. Does your organization have own training curriculum or you used from other sources?

7. Do you any data on number of skilled and semi-skilled people require for reconstruction work for at least 2 years?

    - High Skilled Workers (Engineers): ……..
    - Skilled Workers (trained and experiences mason workers): ……..
    - Semi-skilled Workers (poses with basic skills): ……..
    - Construction labour: ……..

8. Can you share your plan of reconstruction project, particularly of construction work, an estimated number of people plan to train over next 2 years in construction sector?

*Thank you for your precious time and sharing your thoughts.*

**Questionnaire for Key Informant Interview (KII) – Government Agencies**

Name of the Key Informant: …… Designation: …….

Name of the Agency: ……

Address: …… Contact t Number: ……..

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9. How your agency engaged in post-earthquake reconstruction activities?

    Policy Formation: □ Developing Guideline for Reconstruction: □ Implementation: □

    Curriculum/OSS Development: □ Others: □

10. Is there any policy in place for post-earthquake reconstruction? How effective this policy has been applied and how monitoring mechanism has been developed for effective implementation of these policies, act and regulations?

11. Do you have any idea, how many people were trained by the actors involved in post-earthquake recovery and reconstruction, particularly in the construction sector and in which occupations?

    2.1 Name of the Occupation: No. of People Trained:
    2.2 Name of the Occupation: No. of People Trained:
    2.3 Name of the Occupation: No. of People Trained:

3. Do you have any idea, how these actors come-up with above mentioned occupations as relevant for post-reconstruction work?

4. In your opinion, what was the purpose of these training events?

Response to need of reconstruction: □
Creating employment opportunities through skill development training: □
Construction of own house: □
Others: □

5. In your opinion, in which occupations related to construction sector will have high demand considering pace of reconstruction and market demand for at least 2 years?

6. . . . What are basis of your demand projection?

7. In your opinion, are all these trained workers are qualified enough to build earthquake resistance building following building construction code?

If yes then please give the reasons: …….

If no then please give the reasons: ……

8. How many number of people government has planned to train over next two years for post-earthquake reconstruction?

9. Do you have any idea on number of training curriculums developed so far on earthquake resistance?

10. Are you satisfied with the existing delivery of skills development training for reconstruction by I/NGOs (development partners)?

If yes then please give the reasons……

If No then please give the reasons…….

In your opinion, in which occupations related to construction sector is in high demand for post-earthquake reconstruction?

*Thank you for your precious time and sharing your thoughts.*

**Annex-3: List of Training Events by Development Partners**

| S.N. | Name of the Development Partners | District Coverage | Training Activities | Target/ Planned | Trained |
|---|---|---|---|---|---|
| 1. | CARE Nepal | Dhading, Gorkha & Sindhupalchowk | Short-term training | 1583 | 1583 |
| 2. | Action Contre La Faim (ACF) | Rasuwa & Nuwakot | Short-term training | 210 | 210 |
| 3. | Action Aid | Dolkha | Short-term training | 51 | 51 |
| 4. | Good Neighbors Nepal | Gorkha | Short-term training | 421 | 299 |
| 5. | ACTED [DFID/ECHO(Europea n Commission)] | Okhaldhunga & Ramechhap | Short-term training | 150 | 150 |
| 6. | ADRA [ECHO(European Commission)/ADRA] | Dhading & Kavreplanchowk | Short-term training | 729 | 716 |
| 7. | AMDA-M | Dhading | Short-term training | 813 | 813 |
| 8. | Mercy Corp Nepal | Kavre, Sindhupalchowk & Dolkha | Short-term training | 677 | 619 |
| 9. | Foundation De France | Sindhupalchowk | Short-term training | 851 | 426 |
| 10. | Architecture Sans Frontiers Nepal (ASF Nepal) | Dhading | 50-days OJT (mason) | 30 | 25 |
| 11. | Build Change | Dolkha, Sindhupalchowk, Kavreplanchowk, Rasuwa & Nuwakot | Short-term training | 870 | 413 |
| 12. | Bread for the World | Dolkha | Short-term training | 57 | 57 |
| 13. | Christian Aid | Dhading, Dolkha, Gorkha & Sindhupalchowk | Short-term training | 949 | 967 |
| 14. | CARE Nepal | Dhading, Gorkha & Sindhupalchowk | Short-term training | 1532 | 1532 |
| 15. | CARITAS-L | Dolkha | 30 days Mason Training | 11 | 11 |
| 16. | CARITAS Nepal | Dolkha, Kavre & Sindhupalchowk | Short-term training | 451 | 456 |
| 17. | CDRA Nepal | Kavre | Short-term training | 71 | 71 |
| 18. | Mennonite Central | Ramechhap & Lalitpur | Short-term | 108 | 103 |

| | | | | | |
|---|---|---|---|---|---|
| | Committee | | training | | |
| 19. | VG Group | Kavre | Short-term training | 58 | 58 |
| 20. | Catholic Relief Services | Gorkha | Short-term plus 50 days mason | 3391 | 2303 |
| 21. | SABAL/USAID | Makwanpur, Kavre, Ramechhap, Sindhupalchowk | 50 days mason plus others | 2997 | 2442 |
| 22. | Cottage & Small Industry Development Office/NRA | Ramechhap | 50 days mason | 100 | 100 |
| 23. | CTEVT | Rasuwa | Short-term training | 16 | 16 |
| 24. | Concern Worldwide | Sindhuli, Dolkha & Gorkha | Short-term training | 84 | 43 |
| 25. | Dan Church Aid | Dhading, Gorkha, Lalitpur & Bhaktapur | Short-term training | 517 | 460 |
| 26. | Department of Urban Development & Building Construction DUDBS/GoN-WB | Kavre, Dhading, Dolkha, Ramechhap | Short-term training | 676 | 672 |
| 27. | Embassy of India Kathmandu | Gorkha & Nuwakot | 50-days OJT Mason | 2340 | - |
| 28. | EWDE - DiakonieKatastrophenhilfe (DKH) Nepal | Lalitpur | Short-term training | 380 | 190 |
| 29. | Global Action Nepal | Dolkha | 30 days mason training | 45 | 44 |
| 30. | GIZ | Rasuwa, Nuwakot & Dhading, Sindhupalchowk | Short-term training on mason, carpentry, electician, | 618 | 647 |
| 31. | GOAL/ECHO (European Commission) | Rasuwa | Short-term training | 101 | 101 |
| 32. | District Cottage & Small Industry Dev. Offices/GoN | Dhading, Kavre, Okhaldhunga, Rasuwa, Sindhupalchowk | Short plus 50 days OJT on mason | 1334 | 971 |
| 33. | District Level Project Implementation Unit/GoN-WB | Gorkha | 50 days OJT | 2160 | 1195 |
| 34. | Poverty Alleviation Fund/GoN-WB | Dhading, Dolkha, Gorkha, Sindhupalchowk & Ramechhap | Short-term training | 1931 | 1392 |
| 35. | ADH, Germany Grant | Sindhupalchowk | Short-term training | 119 | 68 |
| 36. | EF/HELVETAS DFID/SDC | Sindhuli, Dhading, Dolkha, Gorkha, Kavre, Makwanpur, Okhaldhunga, Ramechhap | 50-days OJT (mason) and few events on | 9270 | 8886 |

| | | | | | |
|---|---|---|---|---|---|
| | | | carpentry | | |
| 37. | Habitat for Humanity International/ASF | Kavre & Nuwakot | Short-term plus 50 days OJT | 275 | 273 |
| 38. | ICCO Cooperation/ ECHO (European Commission) | Makwanpur | Short-term (mason) & plumber | 127 | 112 |
| 39. | ICDC/KKS Germany | Dhading | Short-term training | 36 | 36 |
| 40. | ISAP/Peace Wind Japan | Bhaktapur & Sindhupalchowk | Short-term training plus 50 days OJT | 406 | 370 |
| 41. | Islamic Relief | Nuwakot | Short-term training | 210 | 210 |
| 42. | JICA | Gorkha & Sindhupalchowk | Short-term training | 3518 | 3447 |
| 43. | Karuna Foundation | Rasuwa | Short-term training | 23 | 23 |
| 44. | Kam For Sud | Okhaldhunga & Ramechhap | 50 days mason and carpentry | 99 | 99 |
| 45. | Lumanti/Cord Aid | Kathmandu, Lalitpur, Makwanpur & Rasuwa | Short on masonry and electrician L-1 | 214 | 170 |
| 46. | Lutheran World Federation | Kathmandu, Lalitpur, Dolkha, Kavre, Rasuwa & Sindhupalchowk | Short on masonry and carpentry L-1 | 755 | 732 |
| 47. | Luther World Relief | Gorkha | Short term training | 86 | 86 |
| 48. | MEDAIR | Okhaldhunga & Ramechhap | Short-term training | 778 | 427 |
| 49. | Malteser International | Nuwakot | Short term training | 25 | 29 |
| 50. | NAF/ASIA ONLUS | Rasuwa | Short term training | 30 | 30 |
| 51. | Nepal Red Cross Society | Bhaktapur, Kavre, Kathmandu, Dhading, Lalitpur, Dolkha, Gorkha, Sindhuli, Ramechhap, Okhaldhunga, Makwanpur, Nuwakot, Ramechhap, Rasuwa,Sindhupalchowk, | Short term training on mason and carpentry | 6350 | 5729 |
| 52. | NDS/Medico International | Gorkha | Short term training on carpentry | 120 | 28 |
| 53. | Namaste Nepal | Kavre | Short term training | 246 | 211 |
| 54. | Norlang SAHAS | Rasuwa | Short term training | 50 | 50 |
| 55. | National Reconstruction Authority | Dolkha, Gorkha, Okhaldhunga & Sindhupalchowk | Short term training (BBS mason and stone and mud model framework) | 319 | 318 |

| | | | | | |
|---|---|---|---|---|---|
| 56. | BaliyoGhar-NSET /USAID (0ct-15 to Sep-20) | Dhading, Dolkha, Nuwakot | Short term plus 50-days OJT (mason) | 19108 | 8951 |
| 57. | Nepal Youth Foundation | Gorkha & Kavre | Short term training | 396 | 345 |
| 58. | OM-Nepal | Rasuwa | 50 days OJT On mason & carpentry | 120 | - |
| 59. | OXFAM | Dhading, Gorkha, Nuwakot & Sindhupalchowk | Short term plus 50 days OJT and electrician, carpentry | 3095 | 2427 |
| 60. | Practical Action | Gorkha | Short term on electrician and plumbing L-1 | 47 | 47 |
| 61. | Plan International | Dolkha, Makwanpur & Sindhupalchowk | Short term training | 1018 | 1024 |
| 62. | Rural Reconstruction Nepal (RRN) | Ramechhap | Short term training plus 50 days mason, carpentry training | 95 | 95 |
| 63. | Others | Gorkha, Dolkha, Lalitpur, Sindhupalchowk | Short term training | 599 | 378 |
| 64. | Save the Children | Dolkha, Gorkha, Nuwakot, Sindhupalchowk | Short term plus few 50 days OJT | 1936 | 1856 |
| 65. | SRRP-Swisscontact | Sindhuli | Short plus 50 days OJT | 886 | 1023 |
| 66. | Tear Fund | Makwanpur | Short term training | 725 | 711 |
| 67. | United Mission to Nepal | Dhading | Short term training | 603 | 543 |
| 68. | UNDP | Dolkha, Kavre & Sindhupalchowk | 50 days of OJT | 784 | 553 |
| 69. | UN Women | Gorkha & Sindhupalchowk | Short plus 50 days OJT | 100 | 100 |
| 70. | NJS/World Renew | Nuwakot | Short term training | 162 | 168 |
| | **Total:** | | | **80,119** | **59,555** |