NEPAL EARTHQUAKE 2015

Post Disaster Needs Assessment

VOL. A: KEY FINDINGS

GOVERNMENT OF NEPAL
NATIONAL PLANNING COMMISSION
KATHMANDU 2015

NEPAL EARTHQUAKE 2015

Post Disaster Needs Assessment

VOL. A: KEY FINDINGS

GOVERNMENT OF NEPAL
NATIONAL PLANNING COMMISSION

Nepal Earthquake 2015
Post Disaster Needs Assessment
VOL. A: KEY FINDINGS

Copyright © 2015

Published by
Government of Nepal
National Planning Commission
Singha Durbar, Kathmandu
Tel: (+977)-014211136
Fax: (+977)-014211700
Email: npcs@npc.gov.np
Web: www.npc.gov.np

All rights reserved. No parts of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior permission.

All Photos by ADB/Nepal Resident Mission

Designed and Processed by Print Communication Pvt. Ltd.
Tel: (+977)-014241355, Kathmandu, Nepal

Cover Illustration by Nem Bahadur Tamang

Printed in Nepal

THE PRIME MINISTER

KATHMANDU
NEPAL

Message

This Post Disaster Needs Assessment (PDNA) is the outcome of an exhaustive participatory exercise led by the National Planning Commission (NPC) with generous assistance of national experts and institutions, neighbouring countries and development partners. As a result of the two major earthquakes that struck Nepal on 25 April and 12 May 2015, nearly 9,000 lives and over a half a million homes have been destroyed. This is a colossal loss for an impoverished country like ours at a time when we were focused on attracting investments to put Nepal on a path of high and sustained economic growth.

Though there has been an acute need to augment our capacities, efforts on relief and early recovery have gone on undaunted over the past few weeks. This PDNA exercise was launched simultaneously to take stock of our damage, loss and needs so far. This report now equips us with a well rounded view of the scale of devastation and an outline recovery strategy to chart the course for reconstruction and rehabilitation. The assessment and recovery planning process has paid particular attention to the issue of social inclusion of the most marginalised and vulnerable groups, including women, children, the aged, persons with disabilities.

In the wake of this tragedy also comes an opportunity for us and the international community to put the new Sendai Framework for Disaster Risk Reduction (SFDRR) adopted in March 2015. Three major issues highlighted in SFDRR will play a key role: the concept of 'Build Back Better'; a move away from silos to working on integrated model of recovery which takes into account environmental factors, underlying vulnerabilities and community knowledge; and recognition of the importance of various stakeholders, with particular emphasis on communities themselves.

While the earthquake has severely shaken the country, the people of Nepal are resilient and are already finding ways to rebuild their lives. The months and years ahead will give shape to our vision of a progressive yet eco-sensitive Nepal. I congratulate my colleagues in the National Planning Commission and line ministries, as well as our development partners in achieving the mammoth task of carrying out this PDNA in a very short time through a credible, participatory process. I seek and invite durable national and international partnerships to forge ahead with a program of swift and effective recovery that will pave the way for national economic rejuvenation.

Sushil Koirala.

Sushil Koirala
Prime Minister and Chairman
National Planning Commission

VICE-CHAIRMAN

GOVERNMENT OF NEPAL
National Planning Commission
KATHMANDU

Preface

The major earthquakes of 25 April and 12 May this year devastated parts of central Nepal. While the country has not faced a disaster of this magnitude for over 80 years, the people are confronting this adversity bravely and proving their resilience to the world. Our immediate neighbours and the global community at large stood in solidarity with us by sending unprecedented volumes of technical, financial and humanitarian aid.

It is now necessary to plan for long-term reconstruction to restore not only lost assets but also to rebuild lives. The challenge ahead is to craft and execute a reconstruction plan that takes into account the aspirations of people as well as the constraints posed by time and funds. The preparation of a comprehensive reconstruction plan needs proper assessment of the damage, loss and recovery needs. The Post Disaster Needs Assessment (PDNA) is based on an agreed upon methodology acceptable to the international community. Conducting PDNA after a disaster is never easy, but after two disasters in succession, it was even more daunting.

The National Planning Commission (NPC) took on this challenging task with the help of all line ministries of the Government, and a core group of development partners led by the United Nations, the World Bank, the Asian Development Bank, the European Union, and the Japan International Cooperation Agency. We also benefited immensely from the regional and global experiences of senior experts from neighbouring countries and other development agencies. More than 250 national and foreign experts worked round the clock to produce this assessment covering 23 sectors in less than one month.

We focused not only on the product, but also on the process. Several rounds of consultations and discussions were held with diverse stakeholders to make the process transparent and participatory. This began with a two day orientation to familiarize stakeholders about the use of PDNA techniques. Consultations were also held with members of parliament, experts on disaster management and heritage conservation, development partners, private sector, civil society, academics, political leaders and the media. The NPC welcomed guidance and critical feedback to ensure that the PDNA is representative and robust. We were clear, however, that the PDNA had to be realistic and credible, and that it ought not evolve into a wish list of long-term wants.

Indeed, we see the PDNA as a living document that will undergo revisions as better data becomes available. It is not a final document cast in concrete. The report has kept in mind what is desirable and what is possible. The objective is to estimate damages and losses and to arrive at estimated needs to mobilize funds and to launch immediate recovery. The next step is to start a detailed damage assessment sector by sector with the purpose of reconstruction. It is then that the more ambitious projects of national significance will dovetail with the findings of the PDNA.

Nepal has grown from strength to strength after every disaster in the past. I have faith in the hard work, determination and resilience of our people. We have the commitment and persistence, but we will also need generous support from friends and institutions within Nepal and from outside.

Hundreds of colleagues worked tirelessly to produce this PDNA in two volumes. My sincere thanks are due to the Members of the National Planning Commission (NPC), officials and staff of the NPC Secretariat and line ministries, and national institutions. I look forward to their continued support in realizing the goals identified in this PDNA report.

Prof. Dr. Govind Raj Pokharel

Foreword

The earthquakes of 25 April and 12 May 2015 have been a terrible calamity for Nepal as they affected almost half of its districts, including hard-to-reach isolated mountainous areas. Approximately 9,000 people lost their lives and more than 22,000 people were injured. As per the latest estimates, more than half a million houses collapsed or are damaged. The scale of destruction is immense. This catastrophe has tested the nation in many ways. Nepal has not experienced a tragedy on such a scale in close to a century. It was a disaster which largely affected rural areas, with the most poor and vulnerable disproportionately impacted.

As long-standing development partners, we extended our complete support to the Government of Nepal. Humanitarian assistance was mobilized from all parts of the world. As a large number of aftershocks were felt, the people were left shaken. They needed help and a steady assurance of safety.

Despite the hardships the people had to face, they showed tremendous resilience and community solidarity. It was as if the people had imbibed the indomitable spirit of the Himalayas. They came together to reclaim their life from the extensive destruction. It was time to come to their assistance for their short and long term recovery.

At the request of the Government of Nepal, a comprehensive assessment of the damages and losses caused by the earthquake was undertaken as the first step towards recovery planning. It helps identify recovery needs as well as strategy required for its implementation. The government requested development partners to provide technical assistance for conducting such an assessment. In a short span of one month, the assessment was conducted under the strong leadership of the National Planning Commission with the participation of various ministries of the Government of Nepal, the private sector and civil society as well as bilateral and international donors and agencies, mobilizing a large number of sector experts. It became an unprecedented exercise with more than 250 national and international experts participating in it, and assessing damages and losses. On the basis of these findings, they identified recovery needs, developed first cost estimates for these needs and recommended implementation arrangements. Altogether 23 thematic areas were covered, which were grouped under four broad sectors. In terms of richness of data and breadth of analysis it was a remarkable exercise, steered by a highly collaborative arrangement between the National Planning Commission, the development partners and other stakeholders.

We feel a great sense of satisfaction in presenting the PDNA, which has been organised into two volumes. The first volume includes the key findings of the PDNA, while the second volume is a compendium of sector reports. The analysis included in these reports presents a solid foundation for a recovery plan. It represents an excellent beginning upon which the Government of Nepal in a collective effort with the private sector, civil society and international partners can undertake the gigantic task of recovery planning and implementation.

This is just the beginning and we have a long way to go before the people fully recover. But it is possible. In these trying times, we stand united with the Government of Nepal in supporting its recovery efforts. A special orientation towards the poorest and most vulnerable should guide all efforts.

To undertake this arduous journey we are committed to continue this collaboration with the Government of Nepal and other stakeholders in all the sectors included in the PDNA. This offers a unique opportunity to build back better a more resilient and inclusive Nepal that can continue progressing on its development pathway towards a more prosperous democratic country with better opportunities for all.

Kenichi Yokoyama
Country Director
Asian Development Bank
Nepal Resident Mission

H.E. RensjeTeerink,
Ambassador, Delegation
of the European Union
to Nepal

Tsutomu Shimizu
Chief Representative
Japan International
Cooperation Agency,
Nepal Office

Jamie McGoldrick
UN Resident and
Humanitarian
Coordinator, Nepal

Johannes Zutt
Country Director
World Bank, Nepal

Acknowledgements

The Post Disaster Needs Assessment (PDNA) of Nepal Earthquake 2015 is prepared by the National Planning Commission (NPC) of the Government of Nepal (GoN) under the overall leadership of the Honourable Vice Chairman Professor Dr. Govind Raj Pokharel. Honourable Members Professor Dr. Govind Nepal, Dr. Chandra Mani Adhikari and Dr. Swarnim Waglé steered the process of PDNA preparation and provided technical guidance. Sectoral assessments were carried out under the leadership of Honourable Members Dr. Yagya Bahadur Karki, Dr. Bhartendu Mishra, Dr. Prem Prasad Dangal and Dr. Bimala Rai Paudyal. Mr. Lal Shanker Ghimire, Joint Secretary at NPC, served as the Lead Focal Point.

Together with the NPC, the Core Coordination Team included Her Excellency Ms. Rensje Teerink, European Union Ambassador to Nepal; Mr. Jamie McGoldrick, United Nations Resident Coordinator and Resident Representative of United Nations Development Programme; Mr. Renaud Meyer, UNDP Country Director; Mr. Kenichi Yokoyama, Country Director, Asian Development Bank; Mr. Johannes Zutt and Mr. Takuya Kamata, Country Director and Country Manager, respectively, the World Bank; and Mr. Tsutomu Shimizu, Country Representative, Japan International Cooperation Agency.

NPC Member Secretary Mr. Sharada Prasad Trital and Joint Secretaries, Mr. Purushottam Ghimire, Mr. Pushpalal Shakya, Mr. Gopi Nath Mainali, Dr. Teertha Raj Dhakal and Mr. Bishnu Prasad Nepal coordinated and facilitated the sectoral assessments. Mr. Suresh Prakash Acharya, Regional Administrator of Eastern Development Region, and Senior NPC Advisors Mr. Kishore Thapa and Dr. Venkatachalam Thiruppugazh provided substantive inputs throughout the process. His Excellency Mr. Urs Herren, Ambassador of Switzerland to Nepal, helped convene early discussion on the PDNA process.

Twenty three sector teams and over 250 experts from the Government and development partner agencies undertook an intensive exercise of data collection, field visits and verification in just three weeks, a tight timeline given the scale and magnitude of the disaster. This was possible only because of the excellent cooperation between the Government of Nepal and development partners. The NPC thanks senior officials from all participating ministries for their immense contribution to the PDNA process.

Sector teams headed by GoN Joint Secretaries and experts from lead agencies were guided and supported by the PDNA Secretariat, led by Mr. Krishna S. Vatsa (UNDP), Mr. Hemang Karelia (World Bank) and Mr. S.V. Anil Das (ADB). The Secretariat also comprised experts from the European Union (Mr. Ricardo Zapata-Marti and Mr. Roberto Jovel), and staff representing the United Nations System (Ms. Shairi Mathur, Ms. Cecilia Aipira, and Mr. Julian Schweitzer), the World Bank Group (Mr. Sudyumna Dahal and Mr. James Newman), and the Japan International Cooperation Agency (Ms. Maki Tsumagari). Mr. Andreas Roettger (European Union) and Mr. Rajib Upadhya (World Bank) provided overall coordination support. The logistics of PDNA secretariat and workshops were efficiently handled by Ms. Alina Thapa (World Bank). Crucial research inputs were received from Mr. Anshu Sharma and Mr. Nisarg Dave, mapping support was provided by Mr. Prabhat Kumar (UNDP) and Mr. Abyaya Neopane assisted with comprehensive data analysis. Ms. Chitra Padmanabhan and Ms. Sumitra Srinivasan provided editorial assistance for the PDNA report. Special thanks to Mr. Hari Marasini for layout and design of this report.

The NPC is grateful to the Global Facility for Disaster Reduction and Recovery (GFDRR)

for financially supporting the PDNA Secretariat and several consultative meetings and workshops. The NPC is also grateful for the technical support from the following partners: Department for International Development (DfID), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Government of Norway, Government of Switzerland, Government of Finland, United States Agency for International Development (USAID), and European Investment Bank (EIB). The support from the UN Country Team in Nepal as well as external experts from UN agencies is greatly appreciated. NPC is particularly indebted to the Government of India for its generous technical assistance, especially in organizing a swift professional outreach of world-class experts on disaster management.

In this unprecedented exercise, the NPC consulted with a wide range of stakeholders including Members of the Legislature-Parliament, former Ministers, former office bearers of the NPC, political leaders, disaster management experts, and citizens. It received tremendous support from all arms of the government and the society at large: civil servants, security personnel, media, private sector, civil society and academia.

A full list of other contributors to the PDNA report is included in Annex 1. To all the contributors, NPC expresses its deepest gratitude and appreciation.

Contents

Executive Summary

Background

Nepal is the 11th most earthquake-prone country in the world.[1] Ever since the first recorded earthquake of 1255 AD that killed one-third of the population of the Kathmandu Valley and its King, Abhaya Malla, Nepal has experienced a major earthquake every few generations. The last great earthquake (of magnitude 8.4) in 1934 AD resulted in more than 10,000 deaths in the Kathmandu Valley. Most of the infrastructure and major heritage sites had to be rebuilt. There have since been earthquakes causing severe human and physical loss in 1980, 1988 and 2011.

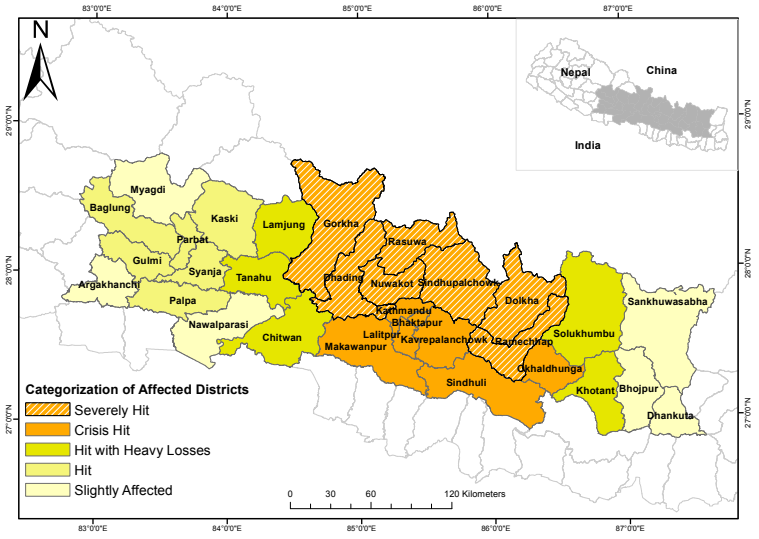
On Saturday, 25 April 2015 at 11:56 local time, a 7.6 magnitude earthquake as recorded by Nepal's National Seismological Centre (NSC), struck Barpak in the historic district of Gorkha, about 76 km northwest of Kathmandu. Nepal had not faced a natural shock of comparable magnitude for over 80 years.

The catastrophic earthquake was followed by more than 300 aftershocks greater than magnitude 4.0 (as of 7 June 2015). Four aftershocks were greater than magnitude 6.0, including one measuring 6.8 which struck 17 days after the first big one with the epicentre near Mount Everest. To date, there are over 8,790 casualties and 22,300 injuries. It is estimated that the lives of eight million people, almost one-third of the population of Nepal, have been impacted by these earthquakes. Thirty-one of the country's 75 districts have been affected, out of which 14 were declared 'crisis-hit' (see Figure 1) for the purpose of prioritizing rescue and relief operations; another 17 neighbouring districts are partially affected.

The destruction was widespread covering residential and government buildings, heritage sites, schools and health posts, rural roads, bridges, water supply systems, agricultural land, trekking routes, hydropower plants and sports facilities. The geodetic network centres including horizontal and vertical control points have been damaged in a manner that will affect reconstruction planning. Rural areas in the central and western regions were particularly devastated and further isolated due to road damage and obstructions. In the worst hit areas, entire settlements, including popular tourist destinations like Langtang, were swept away by landslides and avalanches triggered by the earthquakes. Due to the weakened, ruptured, and destabilized slopes and surfaces, the vulnerable areas have now become even more susceptible to flooding and landslides that can occur during the monsoon.[2]

Hundreds of historical and cultural monuments at least a century old were either destroyed or extensively damaged. Over half a million houses were destroyed. The damage exposed the weaknesses of houses that did not have any seismic-resistant features or were not in accordance with the building codes. The disaster also highlighted aspects of inequities in Nepali society spanning geography, income and gender. Poorer rural areas have been more adversely affected than towns and cities due to their inferior quality of houses. More women and girls died than men and boys, partly because

FIGURE 1: CATEGORIES OF EARTHQUAKE-AFFECTED DISTRICTS



Source: GoN/MoHA as of 21 May 2015

[1] UNDP (2009)

[2] American Geophysical Union.

of gendered roles that disproportionately assign indoor chores to women.

The time and day the first earthquake was experienced saved thousands of lives. Being a Saturday, the weekly holiday, schools across Nepal were closed on 25 April. The death toll of young people could have been much higher considering that nearly 7,000 schools were completely or significantly damaged. Similarly, if the earthquake had struck at night, and not in the middle of the day, there would certainly have been greater casualties.

Relief Operations and External Assistance

The Government of Nepal (GoN) made an official request for international assistance within hours of the 25 April earthquake. Nepal's National Disaster Response Framework (NDRF) served as a key tool for coordination of earthquake response, facilitating decisions and instructions from the central government. The first meeting of the Central Disaster Relief Committee (CDRC) was held two hours after the first earthquake, with the National Emergency Operation Centre (NEOC) providing an initial report to the CDRC recommending a focus on Search and Rescue (SAR), and lifesaving actions. Financial resources from the Prime Minister's Disaster Relief Fund were immediately allocated, and the government's Cluster mechanisms, comprising 11 sectors, were instantly activated.

The death toll of young people could have been much higher considering that nearly 7,000 schools were completely or significantly damaged

Several donor meetings were convened to seek international assistance for search and rescue and immediate relief operations. Though Nepal did not have an integrated national search and rescue capacity formed prior to the event, the trained human resource of the Nepal Army (NA), Nepal Police (NP) and Armed Police Force (APF) carried out effective SAR, despite several limitations. The Indian National Disaster Response Force (NDRF), Indian Air Force and Indian Army Medical Corps were the first foreign contingents to land in Kathmandu within hours of the disaster to help launch relief operations.

Over time, 134 international SAR teams from 34 countries responded to Nepal's request for help. The Ministry of Home Affairs (MoHA) reported that "for SAR, 4,236 helicopter flights were used (GoN/private), with 7,558 persons rescued by air and 4,689 persons rescued by land." More than 90 percent of the security forces were mobilized to focus on SAR. Overall, 22,500 civil servants, 65,059 staff of the Nepal Army, 41,776 staff of Nepal Police and 24,775 staff of the Armed Police Force, as well as 4,000 government and private health workers were mobilized to aid rescue and relief efforts.

Emergency relief and humanitarian assistance to the affected population was provided with the active support of and contribution by over 60 countries as well as the United Nations and other international agencies. Fixed wing and rotary aircrafts from friendly countries were engaged in carrying out numerous sorties to bring relief supplies into the country and to distribute them in remote areas. A newly constructed humanitarian staging area at the Tribhuvan International Airport (TIA) facilitated the receipt of cargo by air and by truck immediately after the earthquake so that distribution around the country could commence.

A UN flash appeal for support was launched on 29 April 2015 for a sum of US$ 422 million to meet critical humanitarian needs for the following three months. Till date, US$ 129.1 million or 31 percent of the appeal has been met.[3]

Transit shelters were established immediately in Kathmandu with official support in designated public spaces. However, the supply of non-food items, particularly tarpaulins, proved inadequate as the fear of being trapped drove many families, including those whose houses had not been damaged, to seek temporary shelter in the open.

As is typical in disasters, community members particularly youths were galvanized into action, digging out neighbours from the rubble, and providing whatever assistance they could before the arrival of rescue and relief teams. Local governments were also hamstrung, having been under-staffed for years and working without any elected officials. Many local authorities lost family members and their houses were destroyed as well. Furthermore, the remoteness of several villages in the affected areas, coupled with poor weather, hampered relief operations during the initial days. Many district level offices providing public services were severely damaged or reduced to rubble, as a result of which many of-

[3] OCHA (2015)

ficials started functioning out of tents and temporary shelters.

The network of NGOs and local affiliates of INGOs based in Nepal swiftly rallied to support community rescue and relief efforts. Several volunteer groups, especially of youth and professionals like doctors and engineers, were active in treating the wounded, setting up temporary shelters, supplying food and attending to vital needs.

Disaster Effects

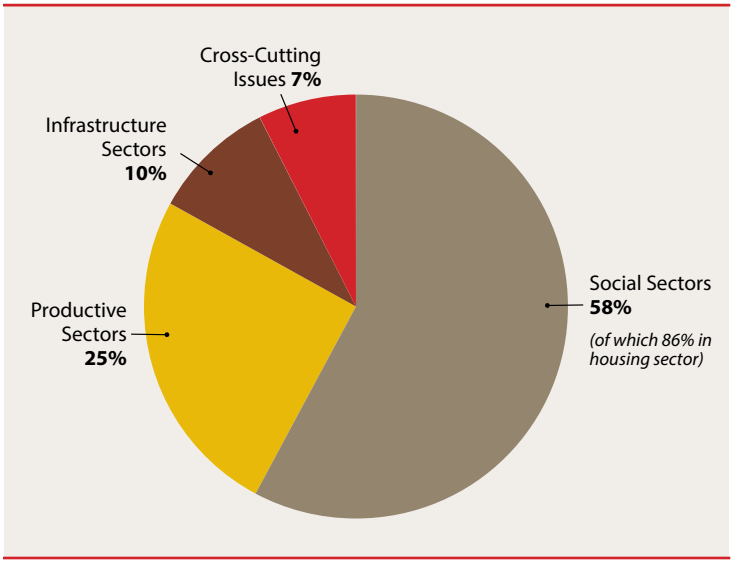
The humanitarian challenge became immediately apparent as millions of people whose houses were either destroyed and those who were fearful of imminent aftershocks started camping out in the open. This put a tremendous demand on the government and philanthropic associations for materials to erect makeshift shelters and to supply essentials. More than a month after the disaster, tens of thousands of people are still reported to be living either in temporary or transitional shelters in spaces presumed to be safe from landslide and rain. The distribution of relief materials proved challenging because of the remoteness of many villages, rugged terrain, threat of landslides, and logistical difficulties. In the earliest days, when the coordinating authority of the District Administration Offices had yet to be fully asserted, there were also duplication and imbalance in the supply of relief materials benefiting the more accessible villages disproportionately.

TABLE 1. SUMMARY OF DISASTER EFFECTS

	Disaster Effects (NPR million)			Distribution of Disaster Effects (NPR million)		Losses in personal income (NPR million)
	Damages	Losses	Total	Private	Public	
Social Sectors	**355,028**	**53,597**	**408,625**	**363,248**	**45,377**	**-**
Housing and Human Settlements	303,632	46,908	350,540	350,540	-	-
Health	6,422	1,122	7,544	1,394	6,150	-
Education	28,064	3,254	31,318	2,365	28,953	-
Cultural Heritage	16,910	2,313	19,223	8,948	10,274	-
Productive Sectors	**58,074**	**120,046**	**178,121**	**158,079**	**20,043**	**17,124**
Agriculture	16,405	11,962	28,366	25,813	2,553	4,603
Irrigation	383	-	383	-	383	
Commerce	9,015	7,938	16,953	16,953	-	2,667
Industry	8,394	10,877	19,271	19,271	-	3,654
Tourism	18,863	62,379	81,242	75,105	6,137	6,200
Finance	5,015	26,890	31,905	20,937	10,969	-
Infrastructure Sectors	**52,460**	**14,323**	**66,783**	**17,281**	**49,502**	
Electricity	17,807	3,435	21,242	15,569	5,673	-
Communications	3,610	5,085	8,695	1,712	6,983	
Community Infrastructure	3,349	-	3,349	-	3,349	-
Transport	17,188	4,930	22,118	-	22,118	
Water and Sanitation	10,506	873	11,379	-	11,379	-
Cross-Cutting Issues	**51,872**	**1,061**	**52,933**	**1,755**	**51,178**	**-**
Governance	18,757	-	18,757	-	18,757	-
Disaster Risk Reduction	155	-	155	-	155	-
Environment and Forestry	32,960	1,061	34,021	1,755	32,267	-
Total	**517,434**	**189,027**	**706,461**	**540,362**	**166,100**	**17,124**
Total (US$ million)	**$5,174**	**$1,890**	**$7,065**	**$5,404**	**$1,661**	**$171**

Source: Estimations by PDNA Team

FIGURE 2: SHARE OF DISASTER EFFECTS ACROSS SECTORS



Source: Estimations by PDNA Team

Subsistence-based households are badly affected in rural areas as the earthquake hit Nepal only a few weeks prior to the start of the paddy planting season. An overwhelming majority of the estimated losses and damages have been to private property such as residential buildings, commercial buildings, farmland, and livestock. Public property, such as roads, schools, utilities, heritage monuments, and hospitals, have also suffered damage in severely affected districts. According to UNFPA, about a million children and more than 1.4 million females of reproductive age live in the 14 districts; and approximately 138,000 of the female population are or will be pregnant in the next 12 months. Of this figure, 18,600 will need obstetric care.

It is estimated that the total value of disaster effects (damages and losses) caused by the earthquakes is NPR 706 billion or its equivalent of US$ 7 billion

It is estimated that the total value of disaster effects (damages and losses) caused by the earthquakes is NPR 706 billion or its equivalent of US$ 7 billion. Of that amount, NPR 517 billion (or 76 percent of the total effects) represents the value of destroyed physical assets, and NPR 189 billion (24 percent of the total effects) reflects the losses and higher costs of production of goods and services arising from the disaster (see Table 1). These estimates are based on the aggregation of information and data collected across sectors of social and economic activity and checked to avoid duplication of numbers.

The relative distribution of effects, that is, damages versus losses – is typical of disasters caused by natural events of geological origin, whereby the larger fraction of disaster effects represents the destruction of physical and durable assets.

The share of estimated total disaster effects among the main sectors of social and economic activity (see Figure 2) reveals that the most affected are social sectors (58 percent of the total effects), which includes housing. This is followed by productive sectors (25 percent), infrastructure (10 percent) and cross-cutting issues (7 percent).

When considering individual sectors of social and economic activity, the distribution of disaster effects provides direction to the recovery and reconstruction strategy (see Figure 3). The most affected sector, housing and settlements, sustained about 50 percent of the destruction and production decline caused by the disaster, followed by tourism at 11 percent. The environment, education, finance and agriculture sectors represent between 4-5 percent each of the total disaster effects.

The effects of the disasters illustrate that the estimated value of total damages and losses (changes in flows) is equivalent to about one third of the Gross Domestic Product (GDP) in FY 2013-2014. In addition, the estimated value of damage is equivalent to more than 100 percent of the Gross Fixed Capital Formation (GFCF) for FY 2013-2014. To put it differently, if all other capital formation activities were stopped, it would take Nepal more than one year to rebuild the fixed capital that was destroyed by the earthquakes. Furthermore, the estimated production losses represents about 10 percent of the added value of all goods and services produced in one year in the country, which will result in a slowdown of the economy in the short term, despite the fact that the estimated losses for some sectors like cultural heritage and environment, among others, would unfold over several years.

Disaster effects are spread unevenly between public and private sectors. The private sector has sustained about 3.3 times the value of damages and losses in comparison with the public sector (see Figure 4), which provides a first indication of the relative efforts that each sector must invest during recovery and reconstruction. While the government plans to utilize most of its resources to assist the poorer strata and rural population

to revive the social and productive sectors, it is critical to ensure availability of finance through banking and non-banking institutions including cooperatives for the recovery of the private sector.

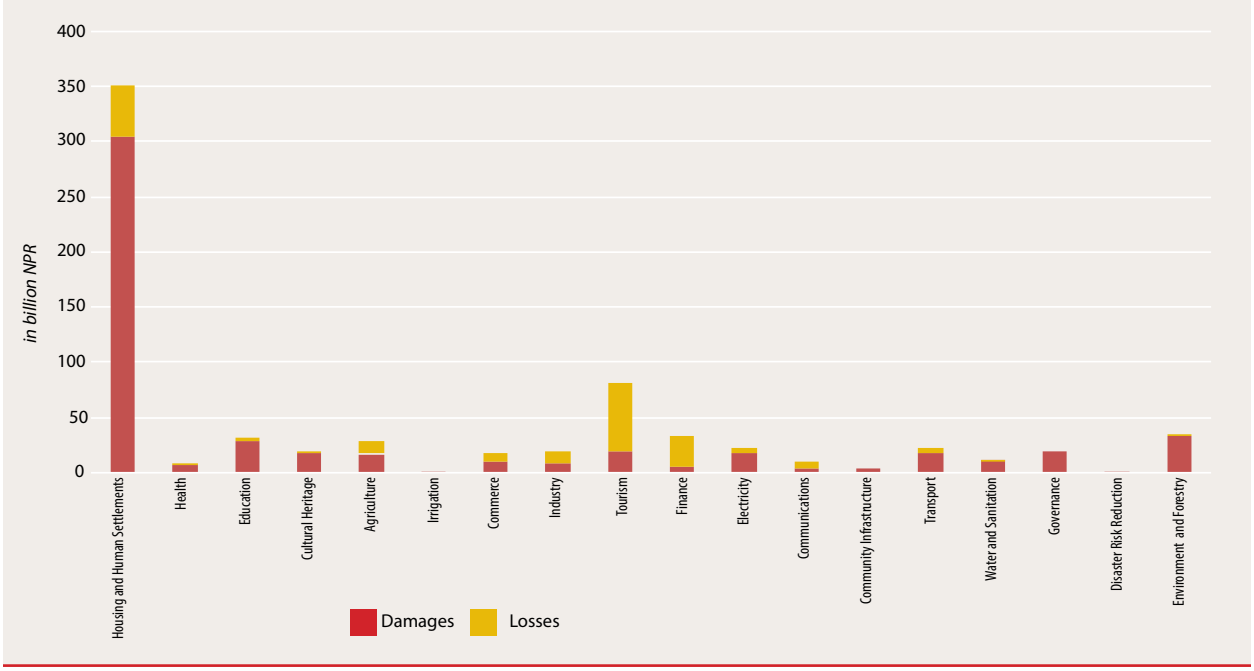
With the exception of the Kathmandu Valley, the central and western regions that have been affected by the earthquake are essentially rural. They are heavily dependent on agriculture for livelihood, which the earthquakes and the ensuing landslides have damaged. Furthermore, these districts have a generally higher per unit livestock than the national average, indicating that the widespread loss of livestock, which is another main source of income for rural households, will potentially cause a severe income shock in the short term. Some of the affected districts such as Gorkha have a skewed female population due to male out-migration, which means women will take on a larger responsibility of rebuilding sectors like agriculture and livestock. These rural districts also face a wide revenue-expenditure gap, suggesting the need for transfer of funds to meet the local development and reconstruction tasks in the years ahead. Further, they account for about 20 percent of strategic road networks and 23 percent of total schools. About a quarter of total hydroelectricity generated in the country is also affected by the earthquake.

The 14 worst-affected districts have a particularly high absentee population, which migrates overseas for jobs, and their remittances constitute an important share of household incomes. Tens of thousands of workers have returned from overseas to help reconstruct their houses in the quake-affected areas. The enhancement of entrepreneurial skills and physical connectivity of the affected areas to market centres, within and outside the district headquarters, is critical, considering that the severely affected districts together account for 30 percent of the total cottage industries in the country. Restoration as well as rebuilding of earthquake-resistant school buildings and community centres will also be equally important to support both learning in a secure environment and to help the local authorities to efficiently manage resources and relief operations at times of emergency.

Poverty and Human Development

Consumption based poverty – defined as the percentage of Nepalis living below the national

FIGURE 3: DISASTER EFFECTS ACROSS SECTORS



Source: Estimations by PDNA Team

The earthquakes will end up pushing an additional 2.5 to 3.5 percent Nepalis into poverty in 2015-2016 which translates into at least 700,000 additional poor

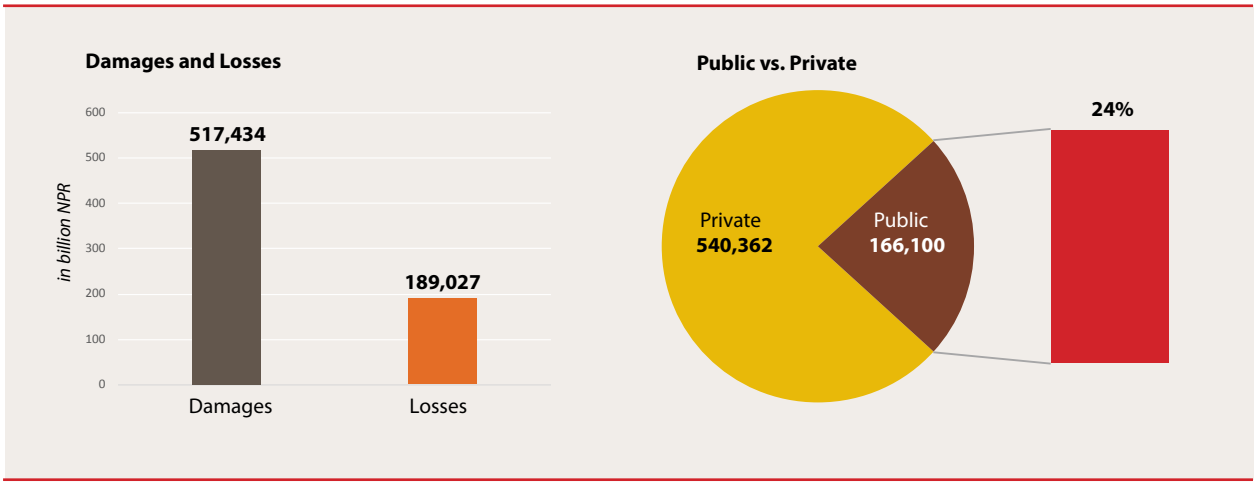
poverty line of Rs.19,261 (per person per year) – stood at 25.2 percent in FY 2010-2011 which represents a spectacular decline from when poverty was measured using similar data in FY 1995-1996. However, the earthquake has exposed one of the weaker aspects of the poverty reduction experience in the country, namely the high degree of vulnerability.

Preliminary assessment of incidence and impact suggests that the earthquakes have disproportionately affected the poorer, rural locations relative to the urban and less poor areas. Even within the relatively prosperous areas that have been affected, for example the Kathmandu Valley, households that were already either poor or vulnerable have been particularly exposed. According to the World Bank's simulations, the earthquakes will end up pushing an additional 2.5 to 3.5 percent Nepalis into poverty in FY 2015-2016 which translates into at least 700,000 additional poor. Roughly 50 to 70 percent of the increase in poverty will come from rural central hills and mountains where overall vulnerability prior to the earthquake was already high. Additionally, the deterioration of water and sanitation services, disruption of schools and health services, and the possible increase in food insecurity may lead to a bigger impact on multidimensional poverty.

Nine of the 14 severely affected districts have human development index (HDI) scores lower than the national average, indicating their lagging status in average income, education and health outcomes. The population in the lowest two income quintiles is likely to be particularly affected. The loss of poorly built residential houses, farmland and livestock will amplify the income shock and push poor households below the poverty line for an extended period if reconstruction and rehabilitation activities are delayed. The geographical disaggregation of disaster effects will have negative impacts on individual households, decreasing personal capital and incomes. Such impact includes losses in equivalent employment and in imputed personal income to the tune of NPR 17,124 million (see Table 1). Further, an analysis of the data for each affected district, in combination with the data on population, reveals that the average values of disaster effects per person range from a high of NPR 255,860 per person in Dolakha to NPR 43,800 in Makawanpur, with an average of NPR 130,000 per person across the 14 most-affected districts (see Table 2).

The pre-disaster HDI in the country was 0.491. The data included in Table 2 reveals that the poorer population residing in the six lowest-HDI districts that witnessed disaster effects above NPR 130,000 per person are in Dolakha, Sindhupalchowk, Gorkha, Nuwakot, Rasuwa and Dhading, which confirms that the poorest and the most vulnerable people usually sustain the worst impact of disasters. Further, the inhabitants in the higher-HDI districts of Kathmandu, Lalitpur, Bhaktapur, Kavrepalanchowk

FIGURE 4: DISTRIBUTION OF DISASTER EFFECTS



Source: Estimations by PDNA Team

and Makawanpur sustained disaster effects lower than the average value of NPR 130,000 per person. These facts, coupled with the distinction between the urban and rural economy of such districts, need to be taken into consideration in the formulation of the recovery and reconstruction strategy in view of the differential impact felt by the population of each district.

Gender Equality and Social Inclusion

The disadvantaged social groups in the poorer districts have suffered the largest damage and loss. The majority of the agricultural and informal sector workers are female due to the low capital entry requirement of the informal sector and lack of livelihood options. The widespread loss of food stocks, potential loss in crop productivity and loss of livestock as well as small scale enterprises will likely cause a severe income shock for women who rely on this sector.

A narrow asset base, burden of domestic work, limited access to economic resources combined with the lack of alternate livelihoods also mean that recovery for women may take longer than for men who have more livelihood options. Dalits and other marginalized groups, and people living in remote geographical regions who are already deprived of access to social services, will face similar challenges.

The housing sector, which is the hardest hit, has a bearing on gender equality and social inclusion. Women, Dalits and some ethnic groups have limited ownership of land, which could hinder their participation in the housing recovery programme and the benefits accruing from them. Senior citizens, female-headed households and people living with disabilities (PLWDs) have also been heavily affected as many do not have the means to reconstruct their houses.

The destruction of water supply and sanitation facilities will have a direct negative impact on women and girls as they will now have to fetch water from greater distance. The work burden on women, and the disproportionate cost borne by them in the household economy, not only limits the time they can spend in economic activities but restricts them spatially and culturally to activities that are compatible with their domestic obligations.

TABLE 2. PER CAPITA DISASTER EFFECTS AND PRE-DISASTER HDI IN MOST-AFFECTED DISTRICTS

District	Per capita Disaster Effects, NPR/ person	HDI
Dolakha	255,860	0.459
Sindhupalchowk	233,370	0.455
Gorkha	209,080	0.481
Nuwakot	204,930	0.466
Rasuwa	179,700	0.461
Dhading	149,580	0.461
Kavrepalanchowk	119,200	0.520
Ramechhap	112,740	0.468
Bhaktapur	78,770	0.573
Okhaldhunga	74,500	0.468
Sindhuli	57,865	0.440
Lalitpur	52,765	0.601
Kathmandu	49,495	0.632
Makawanpur	43,760	0.497

Source: Estimations by PDNA Team and UNDP

Families are deploying different coping mechanisms to deal with the disaster, including distress sales of assets and receipt of remittances. However, for vulnerable families, the loss of assets combined with the loss of family protection, and desperation for alternate livelihoods could have disastrous consequences on women, girls and children who may face heightened risk of sexual and gender-based violence, human trafficking, child marriage, and child labour.

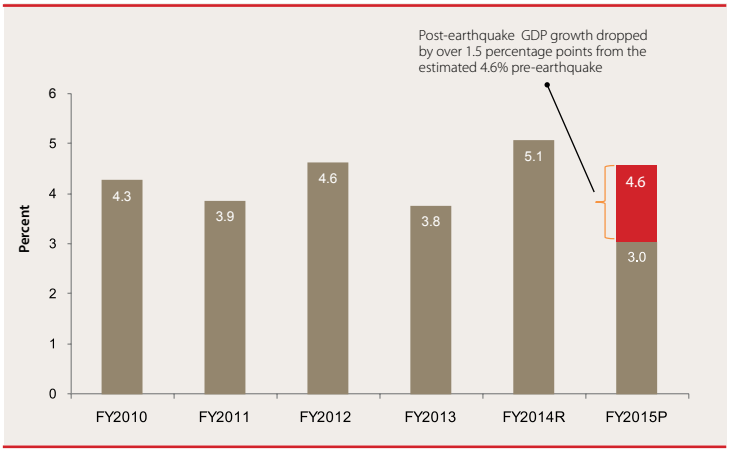
Macroeconomic Impact

After decades of political instability, Nepal had begun gearing up for a higher trajectory of economic growth. The earthquake upsets the nation's high aspirations for swifter economic progress in the short run.

REAL SECTOR

Annual economic growth in FY 2014-2015 is expected to be the lowest in eight years, at 3 percent (basic prices). The earthquakes suppressed an earlier projection of 4.6 percent by over 1.5 points (see Figure 5). Compared to FY 2013-

FIGURE 5: IMPACT ON GDP GROWTH



Source: CBS
Note 1: R (revised); P (projected)

2014, when growth exceeded 5 percent, the lost momentum through foregone production in just less than three months (between late April and mid-July 2015), valued at NPR 52 billion, is a major setback.[4] The losses will continue to accumulate during FY 2015-2016 and beyond until major sectors recover fully.

The economic activity that has been the hardest hit is that of real estate, renting and business services, with annual growth projection revised downwards from 4.8 percent to 0.8 percent. There has been a massive destruction of owner-occupied dwellings[5] and public assets worth over NPR 300 billion. Partly because of their exposure to residential finance and real estate, the banking and financial institutions (BFIs) are likely to see modest deterioration in the quality of loan portfolios, impacting the solvency of institutions, micro and large, and the overall flow of credit. The insurance sector faces claims exceeding NPR 16 billion; a large share of this is re-insured abroad, but local liability remains substantial.

Annual economic growth in FY 2014-2015 is expected to be the lowest in eight years, at 3 percent (basic prices)

In agriculture, the harvest of rice and maize had already been disappointing. What the earthquakes did additionally was to destroy the stockpile of stored grains and devastate the livestock sector, which accounts for over 23 percent of value added in agriculture. The loss of over 17,000 cattle and about 40,000 smaller, domesticated animals has resulted in the downward revision of the projected growth in agriculture from 2.2 percent to 1.8 percent this year.

In services, tourism has been adversely affected with every nine in ten planned foreign arrivals cancelled in the aftermath of the quakes which occurred during the first of the two major seasons of the year. The main earthquake and prolonged aftershocks caused damage to seven out of 10 World Heritage sites in the Kathmandu Valley and affected popular trekking routes. Destroyed tourism-related supply of services and decreased tourist spending are likely to lead to a loss of NPR 62 billion over the next two years. Conditional on low or no seismic activity over the coming months, tourism can rebound somewhat by the autumn, and strongly by next spring's climbing season.

In the social sectors, education is expected to record slower growth because of disruptions spanning several weeks, while the health services sector has recorded a modest uptick in its growth even though it accounts for only 1.7 percent of GDP. The largest contributor to value addition in services comes from the wholesale and retail (trading) industries. There has been an estimated decrease of about NPR 7 billion in the tradable 'margin' of goods after the earthquake within FY 2014-2015. Women are emerging as traders in Nepal, and might have been disproportionately affected in some sectors. Of the 19 export products prioritized in the national trade integration strategy of 2010, women are the primary producers of more than half of them.

A majority of the large manufacturing industries located in the plains were not directly affected. But they have felt the externalities of falling national demand and fleeing workers. Private construction in the immediate aftermath of the quakes came to a halt. In the FY 2015-2016, however, labour demand for demolition, clearing of debris, and reconstruction of destroyed and damaged dwellings and other physical infrastructure will grow. This will increase demand and earnings for skilled and unskilled labour in ancillary industries.

In the electricity sector, as a result of increased water flow, there has been no notable drop in power production after the earthquakes even though about 115 MW of hydropower facilities are estimated to have sustained damage. All the transmission facilities are in operation. How-

[4] The economic impact on GDP, estimated at NPR 31 billion (in basic price), is the difference between the Gross Value Added estimated just prior to the earthquake on April 22 and the revised projection of June 6.

[5] The System of National Accounts (SNA) 1993 defines services of owner-occupied dwellings as "own household unincorporated enterprises that produce housing services for their own consumption." These are included within the production boundary of the SNA.

TABLE 3. SUMMARY OF TOTAL NEEDS

SECTOR	Total Needs (NPR million)	Total Needs (US$ million)	Share of Needs by Sector
Social Sectors	**407,747**	**4,077**	**60.9%**
Housing	327,762	3,278	49.0%
Health	14,690	147	2.2%
Nutrition	5,036	50	0.8%
Education	39,706	397	5.9%
Cultural Heritage	20,553	206	3.1%
Productive Sectors	**115,618**	**1,156**	**17.3%**
Agriculture	15,561	156	2.3%
Irrigation	467	5	0.1%
Commerce	20,051	201	3.0%
Industry	7,357	74	1.1%
Tourism	38,710	387	5.8%
Finance	33,472	335	5.0%
Infrastructure Sectors	**74,266**	**743**	**11.1%**
Electricity	18,586	186	2.8%
Communications	4,939	49	0.7%
Community Infrastructure	4,450	45	0.7%
Transport	28,185	282	4.2%
Water and Sanitation	18,106	181	2.7%
Cross-Cutting Issues	**71,873**	**719**	**10.7%**
Governance	18,442	184	2.8%
Disaster Risk Reduction	8,204	82	1.2%
Environment and Forestry	25,197	252	3.8%
Employment and Livelihoods	12,547	125	1.9%
Social Protection	6,398	64	1.0%
Gender and Social Inclusion	1,086	11	0.2%
Total	**669,505**	**6,695**	

Source: Estimations by PDNA Team

ever, about 800 km of distribution lines at different voltage levels and 365 transformers at different capacity are out of service. For generation plants under construction, about 1,000 MW of hydropower projects, owned both by independent power producers and the Nepal Electricity Authority, have been partially damaged.

FISCAL AND MONETARY SECTORS

Public revenues have taken a direct hit in the aftermath of the quake. It is now certain that the target for revenue collection in the current fiscal year, of NPR 423 billion, will not be met. With only NPR 390 billion expected to be raised by mid-July 2015, there will be a shortfall of about 8 percent. This sets up a much lower base for FY 2015-2016, where the target now is to raise only between NPR 460 and NPR 480 billion against a projection of NPR 512 billion prior to the earthquake. Of the five major sources, customs and those deemed non-tax revenue have seen the largest drop in collection. This is because of reduced imports, including luxurious items such as motorized vehicles. A preliminary debt sustainability analysis indicates that Nepal may be able to maintain its current low debt distress rating. However, close monitoring and concessional support will be needed to cope with the upward pressure.

Broad money is not expected to grow by more than 17.5 percent and inflation is expected to be contained within single digits during FY 2014-2015. However, the differences in sector specific inflation rates will be amplified going forward as demand for reconstruction inputs increase. In FY 2015-2016, as a result of an expansionary budget, and, likely supply-side bottlenecks, an inflationary pressure is expected to build up further. There will also be an upward pressure on wages of both skilled and unskilled workers.

EXTERNAL SECTOR

As a result of the earthquake, export-oriented industries have been damaged. Further, domestic consumption of items that are normally exported have increased, reducing estimated exports by about 6 percent, as compared with the previous year. Imports are likely to expand as a result of increased demand for machinery parts, food, medicines, and construction materials. The fall in the world price of petroleum products checked the growth in import bills this year.

There is an expected surge in both international transfers and remittances. However, the trade imbalance will worsen this year and the next. Exports are unlikely to pick up rapidly because of the uncertain investment climate. Imports are expected to grow by about 18 percent in FY 2015-2016.

The recently secured political consensus to promulgate a new constitution at the earliest adds optimism towards restoring the trajectory of higher economic growth

Overall, the narrative of the Nepali economy is one that has struggled with the challenge of triggering sustained growth, yet was supported by a reasonably comfortable fiscal space and balance of payments (BoP). With the need for rehabilitation and reconstruction looming large, the challenge ahead is to garner resources from within and abroad in a manner that does not strain macro-prudential norms and disciplines on internal and external borrowing. The recently secured consensus among the largest political parties to promulgate a new constitution at the earliest adds optimism to efforts aimed at restoring the trajectory of higher economic growth. A push towards economic reforms has to continue so that the investment climate is friendlier.

Financial Requirements

The nation will require substantial external assistance to meet the rehabilitation and reconstruction costs, estimated to be at least NPR 669 billion or US$ 6.7 billion (see Table 3) over a number of years depending on the sector. Furthermore, the government's revenue growth has slowed down in the short term, as a result of disrupted business activities. The slack in aggregate demand coming from the private sector and the costs to rehabilitate and reconstruct public goods such as schools, hospitals, heritage monuments, roads, energy projects, and water supply systems, among others, will exert substantial pressure on public finances as will announced subsidies to private home owners. There are limits to internal borrowing. To finance the rehabilitation and reconstruction cost, the government has set up a National Reconstruction Fund of NPR 200 billion, to which it has already committed NPR 20 billion.

Towards Resilience

DISASTER RISK REDUCTION AND BUILD BACK BETTER

In the recovery and reconstruction phase it is critical to prevent actions that end up creating disaster risks by increasing public awareness, and investing in the principle of Build Back Better (BBB). Noting the limited priority and resources given to Disaster Risk Reduction (DRR) prior to the earthquake, improvements are urgently needed in the DRR system in Nepal in the short (up to one year), medium (two to three years), and long (four to five years) term to enhance the resilience of the country.

Short-term priorities include:

- reconstruction of damaged DRR assets and improvements on BBB principle;
- measures to improve preparedness, response, relief and logistics systems;
- measures to strengthen information and communication capacities for relief, response and recovery; and
- measures to enhance multi-hazard risk monitoring, vulnerability assessment, risk information dissemination and awareness.

Medium to long term priorities include:

- improvements in legal and institutional arrangements;
- measures to mainstream DRR into the developmental sector, particularly housing, private and public infrastructure, social sectors (health and education), and livelihood; and
- measures to improve integration of climate change adaptation and DRR.

The government will develop a seismic policy and set up a network for seismic monitoring throughout the country, and promote seismological research. The policy will include the revision of building codes, development of building by-laws for all municipal areas, application of Mandatory Rule of Thumb (MRT) in rural areas, and development of risk-sensitive land use plans for all the municipalities of the country. The recovery programme must make Nepal more earthquake-resistant. Along with seismic policies, the government will implement a number of DRR measures targeting secondary disasters. It will undertake risk assessment which provides a basis for mitigation measures at the community level. As part of the recovery programme, the government will support early warning and preparedness measures and support strengthening and retrofitting of schools and hospitals that are critical to risk reduction in Nepal. To effectively mainstream DRR in development planning, the government will also undertake a number of measures to strengthen disaster risk governance.

PATHWAYS TO RECOVERY

As the earthquakes in Nepal have left a large part of the country shaken, the need for recovery is immediate and urgent. People have already initiated their efforts for recovery, and they expect the government to help in the process as quickly as possible. As the government prepares to develop a large-scale recovery programme on the basis of the PDNA results, there is a widely shared realization that it has to be a multi-pronged effort with a strong orientation towards the poorest and the most vulnerable. While the government would plan, organize and facilitate the recovery programme, it has to be supported by other sectors of Nepali society and economy— the private sector, NGOs, and international development partners.

The total recovery needs of NPR 669 billion or US$ 6.7 billion take into account the cost of reconstruction with better specifications, equipment, improved governance and risk reduction. While calculating the recovery needs, it does not consider the replacement value, particularly with respect to the housing sector. It specifies a core house with a minimum area as the recovery need, and estimates the total needs on the basis of the cost of construction per square feet.

In view of exceptionally huge recovery needs, the government would need to undertake a sustained effort to mobilize financial resources. As is the case in most recovery programmes, the resources would be pooled through several windows of funding: own resource mobilization including budgetary reallocations, grants from multilateral and bilateral agencies, contributions from the private sector and citizens, loans from IFIs, and reallocations from existing project portfolios. The resources would be pooled in a way that it would keep the debt ratio within manageable levels, and utilize grants assistance to the extent possible.

A recovery programme involves implementing a large number of activities in a relatively short period of time, which requires enormous preparation in institutional, financial and logistical terms to support implementation. It also calls for relevant technologies, regulations, and innovations to meet the demands arising from the extremely dynamic context of the recovery programme. The objective is to promote the principle of BBB in recovery and reconstruction. Given the recurrence of disasters and vulnerability of the country, it is only appropriate that recovery and reconstruction should be implemented in a way that it contributes to the resilience of the country, reflected in its economy, social cohesion and governance.

There are several aspects of recovery which can be implemented only by developing a national consensus. Strong political will, sustained resource mobilization and continuous dialogue with the affected people, are among the most important prerequisites of a recovery programme. The provision of income generating activities, skills development and community mobilization are catalytic for swift recovery and enhanced resilience. In addition to existing institutional arrangements of the government's social assistance programme for vulnerable groups, cash transfers will be essential to support vulnerable single women and widows, PLWDs, Dalits, disadvantaged groups, and children from households that have suffered catastrophic economic losses.

Women and marginalized groups have unique capacities to drive resilience building of communities, given the right support. Overall, women's dominance in the agricultural and informal sector means that they will play a critical

Strong political will, sustained resource mobilization and continuous dialogue with the affected people, are among the most important prerequisites of a recovery programme

Nepal also needs to tap unconventional assets at its disposal such as the growing financial and technical clout of the diaspora, skills of temporary migrants, the spirit of volunteerism of its youth at home and abroad, and new sources of philanthropy

role in the recovery and rebuilding of Nepal if supported appropriately. Equitable economic growth can lead them out of their disadvantaged conditions, increase resilience and lead to higher rates of economic growth. Post-disaster recovery will therefore be more effective and sustainable if gender equality and social inclusion are acknowledged as one of the key guiding principles of implementation.

The recovery strategy would have special focus on the restoration and reconstruction of all damaged and collapsed historic buildings including refurbishment of cultural institutions and museums. Expertise is needed in the fields of structural and seismic engineering, architecture and conservation as well as other areas related to preserving cultural heritage. It will be imperative to rope in specialists in intangible heritage such as anthropologists, art historians, linguists, ethno-musicologists, among others, to investigate losses and help communities identify ways to revitalize their traditions. The impact of investing generously in the preservation and conservation of Nepal's cultural heritage, including capacity building and upgrading of skills and knowledge, will have a positive effect on the intangible culture.

While the earthquake recovery in Nepal will draw upon all the good practices followed in other recovery programmes in South Asia and elsewhere, it has to be developed and implemented in a way that is uniquely Nepali. The people of Nepal have demonstrated considerable resilience in coping with many adversities. Nepal also has a lot of experience in recovery and reconstruction following natural disasters and conflicts in the country. The government will draw upon its own national experiences and resources to support recovery and develop institutions, pools of resources and practices to implement recovery, knowing that the challenges of difficult terrain can be handled by creating strong social capital and effective local governance. Nepal also needs to tap unconventional assets at its disposal such as the growing financial and technical clout of the diaspora, skills of temporary migrants, the spirit of volunteerism of its youth at home and abroad, and new sources of philanthropy.

Post Disaster Needs Assessment: *Process and Methodology*

Process

Within three days of the second earthquake on 12 May 2015, the Government of Nepal convened a meeting of local development partners and called for a Post Disaster Needs Assessment (PDNA) to be carried out under the leadership of the National Planning Commission (NPC). The purpose was to assess the impact of the disaster and define a recovery strategy, including its funding implications, for the restoration of livelihoods, economy and services, rehabilitation and reconstruction of housing and infrastructure to ensure a resilient recovery. The PDNA follows a methodology jointly developed by the European Union, the World Bank and the UN system that incorporates a collection of analytical methods, tools and techniques developed for post-disaster assessments and recovery planning, ensuring sector to sector comparability and homogeneity in the definition of basic concepts of damages, losses and post-disaster recovery needs. The assessment builds on the initial and detailed sector damage assessments undertaken by central and local governments and the clusters established by the government with support from development partners.

A high-level oversight mechanism was set up at the NPC under the leadership of its Vice Chairman, directly assisted by a core group of NPC Members to oversee the preparation of PDNA. Other Members in charge of specific sectors assumed a lead role in coordinating and overseeing the assessment of their respective portfolios. In addition, the NPC also invited a team of distinguished advisors embedded in its Secretariat from Nepal and abroad.

A Core Coordination Team was constituted under the leadership of the NPC, including Heads of Agencies from the following donor partners: the Asian Development Bank (ADB), the European Union (EU), the United Nations (UN/UNDP), the World Bank (WB) and the Japan International Cooperation Agency (JICA). Representatives from these agencies formed the core PDNA Secretariat providing daily guidance to the assessment teams.

Following a two-day workshop on the methodology and scope of the PDNA, over 250 officials and experts from the government and 30 development partner agencies were organized into 23 thematic groups. Each group had a dedicated Joint Secretary assigned from the directly relevant line ministry and the NPC to work together with a lead agency on the part of development partners. These joint teams undertook an intensive exercise of data collection, field visits and verification in just over three weeks, from 22 May to 10 June, a tight timeline, given the scale and magnitude of the disaster.[6] An intermediate milestone for the PDNA report is the presentation of key findings at the International Conference on Nepal's Reconstruction (ICNR) on 25 June.

Methodology

The PDNA for the Nepal earthquakes is an assessment led by the National Planning Commission covering 23 thematic areas as follows:

- **Social Sectors:** Housing, Health & Population, Nutrition, Education, and Cultural Heritage
- **Productive Sectors:** Agriculture, Irrigation, Commerce & Industry, Tourism, and Financial Sector
- **Infrastructure Sectors:** Electricity, Communications, Community Infrastructure, Transport, and Water, Sanitation & Hygiene
- **Cross-cutting Sectors:** Governance, Disaster Risk Reduction, Environment & Forestry, Employment & Livelihoods, Social Protection, Gender Equity & Social Inclusion, Poverty and Human Development, and Macroeconomic Impact Assessment.

With a few exceptions, assessment covers 31 districts affected by the earthquakes, of which 14 districts are the worst affected. All the sector

The assessment covers 31 districts affected by the earthquakes, of which 14 districts are the worst affected

[6] The PDNA provides informed estimates of the damages, losses and needs in each of the 23 sectors and themes it covers. This is sufficient to show the approximate overall damages, losses and needs, as well as the relative impact between sectors.

Based on the estimation of damages and losses as well as qualitative impacts, each sector has specified recovery needs and suggested implementation arrangements

teams assessed damages, losses and needs in these 14 districts. In respect to the remaining districts, they have been covered by the sector teams on the basis of availability of data, which implies that there are variations in geographical coverage across the sectors.

The sector teams conducted the assessment through:

- the collection of pre-disaster baseline data to compare with post-disaster conditions;
- the evaluation of disaster effects and impacts in each sector to determine the overall recovery needs;
- the prioritization of these recovery needs by way of a recovery strategy; and
- a recovery strategy that suggests appropriate interventions to meet priority recovery needs.

Most of the sector teams conducted field visits to assess the destruction of housing, infrastructure and social amenities, and estimate the impact on production of goods and delivery of services. They assessed how the disasters affected governance arrangements and brought out the context of risks and vulnerabilities in each sector. In the course of the assessment, a number of cross-cutting issues such as gender and social inclusion, disaster risk reduction and governance have been addressed. Each sector has also discussed the impact of the disaster in qualitative terms and outlined the emerging issues arising from the disaster.

Most of the sectors have valued the effects, which includes the value of damages to infrastructure and assets, as well as losses due to changes in financial flows, in Nepali Rupees and US dollars. A number of assessments in social and productive sectors have also estimated the household impacts in terms of decline in personal income and access to social services. The values assessed by all the sectors have been aggregated, and the total value of damages and losses caused by the earthquakes has been arrived at. The cross-sectoral linkages have made it possible to avoid double or multiple counting in estimating the value of effects.

The aggregate value of damages and losses as well as qualitative information available through a household survey has facilitated the estimation of economic impact at macro and micro levels, and on human development. Two independent chapters are devoted to the assessment of these impacts.

Furthermore, the national accounts data freshly released by the Central Bureau of Statistics (CBS) were used as a benchmark to guide the assessment of change in flows across 15 major economic sectors.

Based on the estimation of damages and losses as well as qualitative impacts, each sector has specified recovery needs[7] and suggested implementation arrangements. This includes the cost of reconstruction of destroyed assets, provision of services, improved specifications and risk reduction measures. The cost of recovery needs has not been estimated at the replacement value; rather, a cost estimate has been provided on the basis of fiscal prudence and acceptable levels of recovery. The total cost of recovery, which includes the cost of reconstruction of destroyed assets, has been arrived at through aggregation of the cost of recovery needs of all sectors. An overarching strategy has also been suggested for the recovery programme covering all the sectors.

[7] Recovery needs are derived on the basis of disaster effects and disaster impacts in each sector. Recovery needs are determined for four components: (i) the reconstruction of damaged infrastructure and physical assets; (ii) the resumption of production, service delivery and access to goods and services; (iii) the restoration of governance and decision making processes; and (iv) the reduction of risks.

SOCIAL SECTORS

Housing and Human Settlements

Health and Population

Nutrition

Education

Cultural Heritage

1. Housing and Human Settlements

The 2015 Nepal earthquake caused widespread destruction of housing and human settlements. Nearly 500,000 houses were destroyed and more than 250,000 houses were partially damaged. While rural areas bore the brunt of the earthquake, the effects of the disasters were visible among a diverse range of communities and settlements, including remote mountain villages, roadside market towns, heritage settlements, peri-urban neighbourhoods and emerging cities, and several dense neighbourhoods in the Kathmandu Valley. A large number of women, who engage in income-generating activities from their homes, incurred additional losses of home based economic resources and assets essential for their livelihood and well-being. Some social groups, particularly the elderly, people living with disabilities (PLWDs) and female-headed households, may face difficulties in rebuilding their homes due to the fact that most of them live on the verge of poverty and have limited resources. Housing recovery strategies will, therefore, work towards enforcing the rights enshrined in the Interim Constitution and enunciated through Acts such as the National Shelter Policy, which requires the state to make land and housing available to people from economically weak sections as well as those residing in unsafe settlements. Therefore, while recovery will necessarily need to focus most on rural recovery, strategies for reconstruction will have to reflect the diversity that characterizes the affected communities and settlements.

The large-scale destruction of housing resulted primarily from the seismic vulnerability of unreinforced masonry houses that predominate throughout the country. Most houses (58 percent of all housing construction) are low strength masonry stone or brick masonry with mud mortar, without seismic-resilient features. These intrinsically weak and brittle buildings suffered widespread damage and collapse throughout the 31 districts that experienced intense ground shaking. Other common building types such as cement-mortared masonry and reinforced concrete (RC) frame buildings were somewhat better off but still suffered significantly due to deficiencies in material, design, detailing and craftsmanship.

Based on the damage data collected by the Ministry of Home Affairs (MoHA), the district level distribution of building types defined in the 2011 National Census, and the differential fragility of buildings assessed by the National Society of Earthquake Technology (NSET), the distribution of damage to housing structures is estimated as follows:

Nearly 500,000 houses were destroyed and more than 250,000 houses were partially damaged

This data provides the fundamental baseline for defining damages, losses and needs in the housing sector.

Damages and Losses

Damages are defined as the combined replacement cost of destroyed houses, the repair cost of partially damaged houses, the replacement cost of household goods destroyed, and damages to the real estate sector. Losses are the combined cost of demolition and clearing, costs of provision of transitional shelter, rental losses, and financial losses sustained by the real estate sector.

Recovery Needs

It is critical to ensure that recovery efforts do not end up recreating the vulnerability that led to the disaster in the first place. Therefore, recovery and

TABLE 1.1: NUMBER OF HOUSES DAMAGED[8]

	Low Strength Masonry	Cement Mortared Masonry	Reinforced Concrete	Total
Fully Damaged	474,025	18,214	6,613	498,852
Partially Damaged	173,867	65,859	16,971	256,697

[8] Housing damage information is as of May 28,2015, received through the Ministry of Home Affairs DRR Portal (http://drrportal.gov.np/)

reconstruction needs underline the importance of rebuilding houses and settlements according to disaster-resistant standards such as BBB. It is important to see that urban reconstruction follows principles of urban resilience. The overall needs are defined as the combined cost of:

- a disaster-resilient core house for those households whose homes are fully damaged;
- repair and seismic retrofitting of partially damaged houses;
- shelter during the transitional phase;
- demolition and clearance;
- real estate recovery including house pooling;
- re-clustering for households facing high, site-related risks;
- training, facilitation and quality assurance for owner-driven reconstruction (ODR); and
- risk-sensitive urban and rural settlement planning.

The number of houses to be reconstructed has been calculated on the basis of number of households made homeless. Considering the number of households per house for each district, the total requirement was calculated as 609,938 houses to be constructed. This number may change after the detailed household-level assessment. The damages, losses, and recovery needs are summarized in the table below.

Reconstruction Principles and Strategy

The key principles for reconstruction have been identified as follows:

- Reconstruction should empower communities to take control of their recovery, facilitated through the ODR approach.
- Reconstruction should apply "integrated safer settlement" principles where appropriate, involving the principles of holistic habitat development with an emphasis on basic services and community infrastructure.
- Reconstruction should become a vehicle for building long-term community resilience.
- Reconstruction should strengthen the local economy through processes supportive of the poor, marginalized and informal sector. It should provide an opportunity for the poor to upgrade their overall living and economic conditions.
- Reconstruction should ensure sustainable and environmentally conscious processes that keep in mind issues such as climate change, natural resource management and scientific risk assessments.
- Reconstruction should be equitable and inclusive, with equal rights to land and property accorded to women.
- Reconstruction should be initiated through targeted strategies that address the specific needs of the diverse communities and settlements affected by the earthquakes.

The transitional phase will focus on facilitating temporary shelter solutions for households made homeless by the earthquakes, conducting demolition and debris clearance operations as well as other activities for long-term recovery. To ensure safety of the temporary shelters being erected by affected people, GoN has issued a detailed design guideline.

The long-term recovery activities will be based on a uniform, transparent and comprehensive house-by-house damage and eligibility survey. This survey will serve as the basis for beneficiary identification and as the baseline for the devel-

TABLE 1.2: SUMMARY OF DAMAGES AND LOSSES

Subsector	Disaster Effects (NPR million)			Share of Disaster Effects	
	Damage	Loss	Total	Private	Public
Homes destroyed	258,442	-	258,442	258,442	-
Homes damaged	24,598	-	24,598	24,598	-
Household goods	16,382	-	16,382	16,382	-
Real-estate sector	4,210	20,000	24,210	24,210	-
Demolition and removal of debris	-	9,941	9,941	9,941	-
Transitional sheltering costs	-	14,968	14,968	14,968	-
Rental losses	-	1,999	1,999	1,999	-
Total	**303,632**	**46,908**	**350,540**	**350,540**	**0**

opment of a management information system to plan and monitor recovery activities. Other early activities for long-term recovery include large-scale communication of the government's reconstruction programme, communication of safe construction practices (since many have already started rebuilding) and the setting up of a cascading socio-technical facilitation mechanism for recovery support at the national, district and local level.

The basic structure of the housing recovery programme will be based on the ODR approach. Identified beneficiaries will receive reconstruction assistance (financial, technical and social) that will empower them to lead their own recovery efforts once it is verified that they have complied with safe construction standards. Reconstruction efforts need to take a comprehensive view of settlements, including community infrastructure and services. At the local level, consultative processes with the community should be undertaken to identify community infrastructure that needs to be built, repaired or enhanced.

Some houses and settlements that face a high risk (such as a landslide) may need to be re-clustered. However, the relocation of settlements must be resorted to only when no other in situ solution is possible. A comprehensive geophysical risk assessment will be undertaken to inform the resettlement decision and planning.

Specific strategies will be needed to address the complexities involved in the recovery of urban environments. Tools and activities to support urban recovery would include monitoring systems for urban displacement and migration, detailed hazard mapping, participatory planning exercises, risk-sensitive urban planning, rapid urban expansion studies, facilitated management structures (bringing together communities, government and the private sector), and rental stock support and more.

The National Geodetic Control Network, under the Survey Department of the Ministry of Land Reforms and Management, plays an important role in development and infrastructure planning for the country. The Geodetic Network centres including horizontal and vertical control points have suffered damage in the earthquake and restoration of the same is vital for carrying out post-earthquake reconstruction planning and implementation. This work is proposed to be undertaken as part of Settlement Planning for which a separate budget has been allocated.

Beyond ensuring that all houses are rebuilt to hazard-resistant standards, recovery and reconstruction aims to address the underlying processes that create vulnerability (even beyond the areas affected by the earthquake). As such, recovery should foster reformative rather than restorative processes, tackling the underlying causes of vulnerability and risks on the basis of in-depth studies. Common causes of vulnerability include low awareness of risks, lack of training of artisans, engineers and builders in safe construction practices, lax enforcement of building standards, and lack of high technical capacities in the engineering practice.

Beyond ensuring that all houses are rebuilt to hazard-resistant standards, recovery and reconstruction aims to address the underlying vulnerability

TABLE 1.3: SUMMARY OF RECOVERY NEEDS

	Financial Year (NPR million)					Total
	2015-16	2016-17	2017-18	2018-19	2019-20	
Recovery Activities	**24,968**	**8,941**	**5,114**	**-**	**-**	**39,023**
Demolition and rubble removal	6,000	3,941	-	-	-	9,941
Provision of temporary shelter	14,968	-	-	-	-	14,968
Planning of reconstruction	2,000	2,000	2,273	-	-	6,273
Training and quality control	2000	3000	2841			7,841
Reconstruction Activities	**45,000**	**55,000**	**78,000**	**63,189**	**47,550**	**288,739**
House reconstruction	40,000	40,000	60,000	60000	47025	247,025
Repair and retrofitting	3,000	12,000	15,000	1189		31,189
Clustering costs	2,000	3,000	3,000	2000	525	10,525
Total Needs	**69,968**	**63,941**	**83,114**	**63,189**	**47,550**	**327,762**

Implementation Arrangements

The following steps are necessary to ensure a strong recovery and reconstruction effort:

1. An extraordinary mechanism should be instituted to facilitate and oversee the entire reconstruction effort over a period of up to five years.
2. A high-level body with representation from key ministries should be established to provide guidance on key policy matters.
3. An experienced technical committee should be set up to provide advice on a variety of technical issues that are expected to arise during the course of planning and implementation of the project.
4. A housing reconstruction policy should be developed to cover all types of affected social groups and locations with detailed policy packages for reconstruction of houses, repairs and retrofitting. A financing policy with clear modalities of grants, loans and owner contribution, among others, would also be needed to ensure fair and transparent use of reconstruction funds.
5. A house-by-house damage assessment and eligibility survey should be conducted as soon as possible. Eligible beneficiaries will be required to sign an MoU with the government before receiving any recovery support package.
6. A massive awareness programme for house owners on all aspects of the policies and standards of reconstruction process, including repairs and retrofitting, should be developed and implemented along with wide distribution of manuals and handouts especially in rural areas to guide owner-driven reconstruction of houses.
7. Improved reconstruction guidelines should be developed to cover multiple building typologies, and simple methods of repair and retrofitting of non-engineered buildings. It should also include guidelines on salvaging and proper reuse of salvaged materials to ensure good quality construction.
8. A comprehensive, multi-tier and hands-on training certification programme should be developed for an estimated 20,000 masons, carpenters, master masons, engineers and community organizers so that they can be immediately mobilized for the reconstruction programme.
9. Trained socio-technical facilitation teams and mechanisms should be created to provide an interface between the government and house owners to make the latter aware of the recovery programme and their entitlements; help them open bank accounts, access material supplies; participate in training programmes; provide technical advice to them at the time of construction; identify and support redressal of grievances; and assist in the certification of stages of construction for financial disbursement.
10. A robust and transparent system for cash transfers linked to certification of compliance to standards should be set up. Special assistance packages should be designed for vulnerable families, female-headed households, remote areas, heritage settlements, and urban areas.
11. Communities requiring relocation on account of high risk areas should be consulted with a view to building a consensus on the issue, particularly with regard to linking clustering with livelihoods as well as socio-cultural sensitivities.
12. A geophysical survey of earthquake-hit settlements should be conducted to understand the level of disaster risk prior to rebuilding cluster settlements.
13. Appropriate policy frameworks and mechanisms should be put in place to promote insurance of the housing stock created under recovery and reconstruction initiatives.

2. Health and Population

Nepal made significant progress in improving health outcomes, with a maternal mortality ratio of under 200 per 100,000 live births and infant mortality rate of 46 per 1,000 live births in 2011. According to 2014 Nepal Human Deveopment Report, life expectancy at birth was estimated to be 69. Total Fertility has declined significantly to 2.6 births per woman in 2011 from about 5 births per woman in 1990. With the twin responsibilities of regulation of the sector and provision of health services, the Ministry of Health and Population (MoHP) has a network of 4,118 health facilities which range from central level specialized hospitals to Health Posts and Urban Health Centres at the Municipality level for the delivery of healthcare services. Besides this, more than 350 health facilities nationwide in the private sector cater to the healthcare demands of the population. Out of the total public health facilities, 19 percent and 23 percent, respectively, are located in the most-affected (14) and moderately affected (17) districts.

Damages and Losses

The health and population sector has been severely affected as is evident from damages and losses to health infrastructure and disruption of healthcare service delivery, along with the deaths of 8,702 persons (45 percent male and 55 percent female) and injuries to 22,303 individuals. A total of 446 public health facilities (consisting of five hospitals, 12 Primary Health Care Centres, 417 Health Posts, and 12 others) and 16 private facilities were completely destroyed and a total of 765 health facilities or administrative (701 public and 64 private) structures were partially damaged. Nearly 84 percent (375 out of 446) of the completely damaged health facilities are in the 14 most-affected districts. As a result, the ability of health facilities to respond to health care needs has been affected and service delivery is disorganized. Consequently, vulnerable populations, including disaster victims, were further disadvantaged in accessing health services in remote areas. A total of 18 health workers and volunteers lost their lives and 75 were injured, adding further challenges in the delivery of health services.

Similarly, the existing capacity of the MoHP in general, and that of concerned District Health Offices and health facilities in particular, have been stretched to ensure the resumption of disrupted health services as well as to coordinate with concerned agencies and stakeholders for the management of increased case load for treatment, including trauma cases.

The total monetary value of damages and losses due to the earthquakes is estimated to be NPR 7.5 billion out of which the share of the public sector is 81.5 percent, the rest being in the private sector, including non-governmental and community owned service providers. While the value of damages is estimated to be NPR 6.4 billion, the estimate of losses is NPR 1.1 billion. The severely affected 14 districts account for around 89 percent (including 32.8 percent of central hospitals and health infrastructures) of the total damages and losses while other districts account for 11 percent. Gorkha, Sindhupalchowk and Dolakha are the hardest hit districts in terms of the effects of the earthquake accounting for 20.2 percent of damages and losses, following the central level health infrastructure which alone accounts for 32.8 percent of damages and losses.

Recovery Needs

The total recovery needs for the health and population sector is estimated to be NPR 14.7 billion. Out of the total need, NPR 195 million is required immediately, mainly for resumption of services in the affected areas and particularly for temporary structures on rent, drugs and supplies, prevention of outbreak of vector-borne diseases, and treatment of those affected by the earthquake. Implementation of such activities has already been initiated by the MoHP. The budgets for the intermediate term (over FY 2015-2016) and medium term (FY 2015-2016 to 2019-2020) needs are estimated to be NPR 1.3 billion and NPR 13.1 billion, respectively. A comprehensive plan of activities has been developed for the continuation of treatment of the injured, regularization of service delivery, repair and reconstruction of damaged health facilities, and to make the sector better prepared for fu-

Work will be initiated for setting up of hospitals and rehabilitation centres, and strengthening of institutional capacity for disaster preparedness

TABLE 2.1: SUMMARY OF DAMAGES AND LOSSES

Subsector	Disaster Effects			Share of Disaster Effects (NPR million)	
	Damage	Loss	Total	Private	Public
Facilities destroyed	4,904	-	4,904	760	4,144
Facilities damaged	1,159	-	1,159	456	703
Equipment and logistics	360	-	360		360
Demolition and removal of debris	-	79	79	16	63
Treatment services for injured	-	671	671	162	509
Provision service delivery for affected population	-	297	297	-	297
Governance and risk management	-	74	74		74
Total	**6,422**	**1,122**	**7,544**	**1,394**	**6,150**

ture disasters. Of the overall budgetary needs, the district level needs are 57.2 percent, while the rest is accounted for by central level needs.

Recovery Strategy

The MoHP has adopted a three pillar strategy for recovery and reconstruction in the immediate term (until mid-July 2015), intermediate term (over the FY 2015-2016) and medium term (FY 2016-2017 to FY 2019-2020) implementation framework.

- **The first pillar** is to furnish the districts with necessary logistics and human resources by mid- July 2015 to ensure follow-up treatment of those injured, resume health services, and enable the district offices and facilities to deal with foreseen risks and vulnerabilities of an immediate nature by providing necessary logistics such as drugs and supplies and a budget for preparedness and rapid response.
- **The second pillar** is to replace the temporary arrangements (for example, sheds or tent) with short-term arrangements to ensure the continuity of service delivery, cater to the changing pattern of health care needs, and provide routine services in an uninterrupted manner. This would also include demolition of damaged buildings, accomplishment of repair works and reinstitution of peripheral health facilities by setting up pre-fabricated structures. Similarly, work will be initiated for setting up of hospitals and rehabilitation centres, and strengthening of institutional capacity for disaster preparedness.
- **The third pillar** is chiefly focused on the reconstruction of the sector from a longer term perspective to build back better which would entail setting up of new physical health infrastructure. This will be done after carrying out a more rigorous assessment of the existing network of health facilities and their capacities giving due consideration to geography and size of catchment population.

Implementation Arrangements

Recovery and reconstruction of the health and population sector will be guided by a Central Coordination Committee for Recovery and Reconstruction led by the MoHP and will include development partners. Based on the finalized implementation plans, budgets will be allocated to districts on the basis of identified needs and resource availability. While major infrastructure and equipment, routine drugs and supplies, and major human resources will be provided by the central government, the activities will be accomplished by the concerned districts based on a guideline to be developed by MoHP. Recovery and reconstruction initiatives will be implemented until 2019-2020.

TABLE 2.2: SUMMARY OF RECOVERY NEEDS

	District level (NPR million)	Central level (NPR million)	Total (NPR million)
Immediate term	86	109	195
Intermediate term	1,150	197	1,348
Medium term	7,171	5,977	13,147
Total needs	**8,407**	**6,283**	**14,690**

3. Nutrition

Undernutrition has been a longstanding problem in Nepal. The key indicators of child undernutrition such as stunted growth and wasting currently stand at 37.5 percent and 11.3 percent respectively at the national level. The most recent pre-earthquake data collated from the 2014 Multiple Indicator Cluster Survey (MICS) and the 2014 Small Area Estimation (SAE) indicates a high rate of child undernutrition in the affected districts. Infant and Young Child Feeding (IYCF) practices were also found to be sub-optimal in those districts.

Losses

Given its cross-cutting nature, the nutrition sector does not have a separate infrastructure to operate nutrition programmes. Nutrition- specific interventions are provided through health facilities and the community-based extension services provided by Female Community Health Volunteers (FCHVs). Nutrition-sensitive interventions are provided through related sectors such as education, agriculture, and water, sanitation and hygiene. Hence, the damage caused by the earthquake to these sectors is bound to have an impact on nutrition levels as well. A post-earthquake assessment found that food consumption practices have worsened in the affected districts, falling below the levels captured in the pre-earthquake assessment data. This will directly affect the nutritional status of the affected population, particularly children under five years of age, and pregnant and lactating women who constitute the primary vulnerable groups as far as undernutrition is concerned. Approximately 250,000 children from the ages of six months to 59 months, and 135,000 pregnant and lactating women were affected by the earthquake in the 14 districts.

Recovery Needs

Experiences from other countries show that underlying factors such as food insecurity, poor access to water, sanitation, hygiene, poor caring practices and disease outbreaks inevitably have a gradual impact on the nutritional status of the affected population. The post-earthquake assessment found that the earthquakes triggered changes in food consumption patterns ahead of the monsoon. This too is bound to have implications with regard to the nutritional status of the affected population, particularly children and women. This situation may be further exacerbated in the case of Dalit communities, whose food sufficiency level is the lowest among all. The combination of cultural norms (women and girls eat last in the family) and the impact of the disasters on food security and nutrition could be detrimental to women, particularly pregnant and lactating mothers. Food supplements should be provided to pregnant women to reduce malnutrition and anaemia as well as to act as an incentive for women to visit pre-natal clinics. Targeted nutrition programmes for the elderly and Dalit children, pregnant and lactating mothers and senior citizens are also essential.

Approximately 250,000 children from the ages of six months to 59 months, 135,000 pregnant and lactating women were affected by earthquake in the 14 districts

TABLE 3.1: SUMMARY OF RECOVERY NEEDS

	Financial Year 2015-16 (NPR million)	Total
Recovery Activities	5,036	5,036
Supplementary food assistance	3,080	3,080
Promotion of production and utilization of local foods	1,640	1,640
Maternal Infant and Young Child Nutrition (MIYCN)	52	52
Management of severe acute malnutrition	150	150
Micronutrient supplementation	68	68
Training/capacity enhancement	7	7
Nutrition survey/assessment and monitoring activities	40	40
Total	**5,036**	**5,036**

Special efforts will be made to work through community leaders, Health Facility Management Committees and FCHVs

Recovery Strategy

Recovery activities have been proposed to address the immediate as well as longer term needs of the people affected by the earthquakes. Supplementary food assistance and Multiple Micronutrient Powder (MNP) supplementation to the vulnerable groups has been planned for the initial year. These activities will be carried out in conjunction with routine nutrition services provided by the health system, homestead food production, enhanced education and counselling on optimal Maternal Infant and Young Child Nutrition (MIYCN), management of Severe Acute Malnutrition (SAM), efforts to promote increase in production as well as utilization of nutrient-rich agriculture, including livestock products and capacity enhancement, all of which will continue as medium and long-term recovery measures. Nutrition assessments and monitoring are also being planned to monitor and guide the interventions. The total budget estimate for this is NPR 5 billion (US$50.4 million).

Special efforts will be made to work through community leaders and Health Facility Management Committees as well as FCHVs to ensure that the most vulnerable groups like the Dalits and female-headed households, among others, are included.

The overall recovery strategy will be aligned with Nepal's Multi-sector Nutrition Plan (MSNP) through multi-sector, multi-stakeholder and multi-level coordination and collaboration.

4. Education

Damages and Losses

The total damages and losses in the education sector is estimated at NPR 31.3 billion. More than 80 percent of this has occurred in the 14 most-affected districts. The damages to educational infrastructure and physical assets are estimated at NPR 28 billion and the losses are pegged at NPR 3.2 billion. Public schools accounted for 92 percent of the total damages and losses. Early Childhood Development (ECD) centres and school education subsectors accounted for 90.2 percent of the total damages and losses, followed by 7.9 percent in higher education and 1.6 percent in Technical and Vocational Education and Training (TVET) institutes. Community learning centres and public libraries were also affected in these areas. The damages and losses reported in this assessment should be viewed as lower bound estimates owing to the underreporting of private institutions, limitations in the approach to reporting damage, and the use of conservative unit costs.

Educational services in the affected areas were severely disrupted by the earthquake. This is likely to have an impact on enrolment, attendance and internal efficiency, leading to an increase in the number of out-of-school children. It may also lead to an increase in the number of children with disabilities or significant injuries who may be unable to access education. With an increase in the demand for additional labour both at home and in the market, it is reasonable to assume that some children, particularly in the higher grades, may become less regular or drop out eventually. There may be a decrease in their motivation to learn. It is, therefore, expected that the affected schools might experience a decline in the learning outcomes of children in the short to medium term.

Recovery Needs

The total needs for recovery and reconstruction are estimated at NPR 39.70 billion (US$ 397.1 million) out of which NPR 5.18 billion (US$ 51.8 million) for recovery activities and NPR 34.5 billion (US$ 34.5 million) for reconstruction. The recovery and reconstruction needs for the short, medium and longer term are shown in Table 4.2 below.

Recovery Strategy

In the short term, the focus will be on the resumption of educational services through establishment of temporary/transitional learning spaces and provision of textbooks/learning materials, debris removal, detailed structural assessments of facilities, and development of appropriate designs, prototypes and institutional arrangements for reconstruction. Psychosocial support and short-term training in construction-oriented trades will also be conducted.

Educational services in the affected areas were severely disrupted by the earthquake, which is likely to impact enrolment and attendance, leading to an increase in the number of children out-of-school

TABLE 4.1: SUMMARY OF DAMAGES AND LOSSES

Subsector	Disaster Effects (NPR million)			Share of Disaster Effects	
	Damage	Loss	Total	Private	Public
ECD	402	12	414	302	112
School	24,642	3,191	27,833	1,162	26,671
TVET	487	7	494	10	484
Higher Education	2,430	42	2,473	891	1,582
NFE/LLL	23	1	24	-	23
General Governance and Administration	79	2	82	-	82
Total	**28,064**	**3,254**	**31,318**	**2,365**	**28,953**

Note: Needs for School and ECD subsectors have been merged

TABLE 4.2: SUMMARY OF RECOVERY NEEDS

	Financial Year (NPR million)			Total
	2015-16	2016-17	2017-18	
Recovery activities	4,559	164	461	5,184
Reconstruction activities	1,785	13,840	18,897	34,522
Schools 1-12	1,574	12,595	17,319	31,488
Technical	31	205	277	513
Higher education	113	902	1,241	2,256
NFE	3	11	12	26
Administration	64	125	49	238
Total	**6,344**	**14,003**	**19,358**	**39,706**

Medium term needs will be dominated by the reconstruction and retrofitting of school/college buildings and allied structures to build back better. This will require improvements in policies, guidelines and systems for improved safety, which will take into account the need for rationalization of the number and location of current schools. In Nepal's School Sector Reform Plan (SSRP) there is a provision for merger and consolidation of many scattered and poorly endowed schools into a smaller number of larger and better schools. Indeed, many existing primary schools could be turned into early child development centres and some secondary schools could be downgraded to primary schools. Instead of setting up or upgrading schools in every settlement, serious consideration would be given to investing in fewer but better equipped earthquake resistant schools with more open space, playgrounds, better amenities, and trained teachers.

Human resource needs at various levels will be strengthened to ensure compliance and quality assurance at all phases of reconstruction and rehabilitation. The focus will also be on curriculum reforms from a DRR and resilience perspective. In the long run, the focus will be on developing a nationwide policy and implementation plan for education safety across the country. Subsequent subsectoral plans and programmes will take on board such long term developmental measures to ensure that physical construction is extensively supported by interventions to increase the quality of education and enhance the learning environment.

Although Nepal has achieved gender parity for school enrolment at the primary school level, girls still lag behind at the secondary and tertiary education levels. As families struggle to cope with the impact of the earthquake, there is an added risk of girls being pulled out of school to help in productive activities. Another imminent risk to girls in schools is that of child and early marriage, which is still common in Nepal. Sustained monitoring of school attendance rates for boys and girls will be critical for taking corrective measures to stem the incidence of children dropping out of school. Reconstruction of adequate and segregated school toilets should be prioritized to provide access to hygienic and private sanitation facilities for adolescent girls.

The overall recovery strategy will prioritize the needs of the 56 affected districts in a phased manner, but it will gradually extend its ambit to include all educational institutions across the country. The major elements of the strategy include restructuring the system of the Ministry of Education (MoE) to respond more effectively to multi-hazards; strengthening the systemic capacity to deal effectively with post-disaster response, recovery and reconstruction on the basis of the BBB approach; and interventions in non-structural aspects. The special needs of girls, children from poor households as well as children living with disabilities will be taken into account by adapting existing policies (such as, separate toilets in Temporary Learning Centres (TLC), targeted incentives and mid-day meals). Given that private educational institutions (schools, TVET institutes and university

colleges) are not funded by government resources, provisions will be made to provide them with access to soft loans for reconstruction in return for meeting the requisite safety standards.

Implementation Arrangements

Implementation arrangements for recovery and reconstruction will vary among different subsectors of education. Dedicated mechanisms will be instituted within the Ministry or Department of Education (DoE), the Council for Technical, Educational and Vocational Training (CTEVT) and universities (including third party verification) to ensure strict adherence to norms and standards in the design and construction of all educational facilities. In the school subsector, the number of design and construction supervision engineers and sub-engineers will be increased at all levels by hiring additional human resources, and technical expertise for speedy recovery, compliance and quality assurance. TVET and higher education subsectors will be required to establish coordination committees within their respective agencies and to assign specialized institutions within their ambit to manage and oversee the overall safety and quality.

5. Cultural Heritage

Damages and Losses

The earthquake affected about 2,900 structures with a cultural and religious heritage value. The list of damaged or destroyed structures was compiled by Ministry of Culture, Tourism and Civil Aviation (MoCTC), the Pashupati Area Development Trust, and the Buddhist Philosophy Promotion and Monastery Development Committee. Major monuments in Kathmandu's seven World Heritage Monument Zones were severely damaged and many collapsed completely. In addition, in more than 20 districts, thousands of private residences built on traditional lines, historic public buildings as well as ancient and recently built temples and monasteries were affected by the earthquakes, 25 percent of which were destroyed completely. The total estimated damages to tangible heritage amounts to NPR 16.9 billion (US$ 169 million).

The baseline information on the size and nature of damage to the buildings, and the effects on its occupants, varies widely. While detailed documentation is available on monuments within the Kathmandu Valley and some major sites in the districts, there is a lack of precise information on the condition of buildings in remote areas. It is estimated that the decline in revenue from ticket sales at monuments within the Kathmandu Valley will amount to losses worth NPR 600 million (US$ 6 million) over the next 12 months. Places of worship such as temples and monasteries also provide occasions for revenue generation, such as during religious festivals and performances when shrines receive substantial monetary offerings. The preliminary monetary loss was set at 10 percent of the physical damage or close to US$ 17 million.

Recovery Needs

The cost of reconstruction has been calculated at the estimated value of damages plus 20 percent to build back better through the use of high quality building materials and structural improvements for seismic strengthening. The cost of recovery includes the professional services provided by technical experts, capacity building support to the Department of Archaeology (DoA), and support to the preservation of intangible cultural heritage (ICH) by means of specialized training for craftspeople, among others.

Recovery Strategy

The most pressing and immediate need is the protection of valuable rubble with archaeological value, the compilation of a complete inventory with more information on the condition of structures and related social impacts. A clearly laid-out database is required to collate baseline information on each site, ranging from its exact location details, including GPS data to photographic documentation, historic information, a brief description of damage suffered (if any); and a detailed needs assessment to support restoration planning.

The earthquake affected about 2,900 heritage structures with cultural and religious values

TABLE 5.1: SUMMARY OF DAMAGES AND LOSSES

Subsector	Disaster Effects (NPR million)			Share of Disaster Effects	
	Damage	Loss	Total	Private/ community*	Public
Heritage sites in 16 districts	7,875	1,409	9,284	-	9,284
Monasteries & historic structures (older than 100 years)	5,300	530	5,830	5,830	-
Monasteries & historic structures (less than 100 years old)	2,835	283	3,118	3,118	-
Temples in remote areas	900	90	990		990
Total	**16,910**	**2,313**	**19,223**	**8,948**	**10,274**

** Almost all the monasteries are under community ownership and management.*

A master plan with a clear priority list can be created once the baseline facts are in, such as the historic value of a monument and the religious and cultural activity associated with it. The priority list includes not only World Heritage Monument zones but also structures in remote areas that are lesser known. The master plan will ensure that local communities benefit from such rebuilding efforts. Furthermore, the massive loss of life caused by the collapse of historic buildings makes it mandatory to rethink existing conservation laws. Restrictions on modern materials in conservation work need to be reviewed and defined anew in accordance with the principle of DRR and BBB.

In general, priority will be given to repairing and retrofitting damaged buildings before reconstructing collapsed structures. Material shortages pose a serious challenge to this effort. There will be a huge demand for timber. While addressing this need, the government will be sensitive to environmental concerns. There will also be problems in sourcing special bricks required for conservation of monuments. The government will bring out a policy to mandate the construction of environment friendly brick kilns. Moreover, Nepal is lacking in highly trained artisans to manage the huge volumes of work. Training programmes will also be required to support the development of additionally skilled artisans.

Cultural activities developed around religion play an important role in providing support mechanisms for men and women individually and at the community level. The loss of livelihood assets centred around such activities could have a serious impact on the preservation of traditional skills in textile products such as the traditional Dhaka cloth weaving, which is predominantly practiced by women, and metal work done by men. Indigenous and ethnic communities, too, have a strong and unique cultural heritage, which is an important part of their identity. Recovery interventions, particularly to do with housing and relocation should preserve rather than undermine these aspects of Nepal's proud cultural heritage.

Implementation Arrangements

The DoA, which is the official executing agency for heritage conservation and also the custodian of Nepal's museums, has in the past handled an average budget of less than NPR 200 million (US$ 2 million) annually. Since the workload is expected to increase tenfold, the DoA will need to hire additional staff and experts, and procure equipment and logistical support.

New ways of sharing responsibilities as well as engaging different partners and agencies must be identified to accelerate the documentation, planning and restoration processes.

TABLE 5.2: SUMMARY OF RECOVERY NEEDS

	Financial Year (NPR million)						Total
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	
Recovery Activities	52	46	41	41	41	35	255
Capacity building workshops, specialized training, ICH conference, marketing training, festivals and exhibitions	20	13	8	8	8	8	65
Professional support to the Department of Archaeology, e.g hiring of additional staff and capacity building	22	22	22	22	22	22	130
Experts	11	11	11	11	11	5	60
Reconstruction Activities	3,383	3,383	3,383	3,383	3,383	3,383	20,298
Restoration and reconstruction cost of historic structures in 16 districts and cultural institutions and museums	1,575	1,575	1,575	1,575	1,575	1,575	9,450
Restoration and reconstruction of monasteries (historical)	1,060	1,060	1,060	1,060	1,060	1,060	6,360
Restoration and reconstruction of monasteries (less than 100 years old)	567	567	567	567	567	567	3,401
Restoration of temples in remote areas	180	180	180	180	180	180	1,080
Hardware support to the Department of Archaeology	1	1	1	1	1	1	6
Total	**3,435**	**3,429**	**3,424**	**3,424**	**3,424**	**3,418**	**20,553**

A mechanism for the coordination of all cultural heritage activities will be created under the overall authority of the MoCTC, with the participation of the MoPIT, MoUD, MoFALD, MoHA, UNESCO Kathmandu, reputed national and international experts and, where appropriate, representatives from concerned development partners.

For the implementation of restoration activities, responsibilities should be affixed at three levels:

- The restoration of village monasteries, temples and non-listed monuments shall be the responsibility of local communities. The DoA should act as the overall advisory agency, but day-to-day responsibilities in the management, procurement of materials, reporting and financial accounting will lie with the local communities.
- The restoration of listed monuments, including the World Heritage Sites, will continue to be under the direct supervision and management of the DoA.
- Large-scale restoration projects that are financed by private and/or international development partners should be implemented on a turn-key basis under close supervision by professionals from the industry, with DoA providing oversight.

Internationally supported restoration and rebuilding programmes on such a large scale will strengthen Nepal's professional corps and its institutions. Based on the DRR/BBB principle, the restored historic monuments will have a longer life span in which they will continue to attract the attention of Nepali citizens and foreign visitors alike. The fillip provided to tourism during the reconstruction period will benefit local businesses such as hotels, restaurants, and crafts stores, among others.

New ways of sharing responsibilities as well as engaging different partners and agencies will be identified to accelerate documentation, planning and restoration processes

PRODUCTIVE SECTORS

Agriculture

Irrigation

Commerce and Industry

Tourism

Financial Sector

6. Agriculture

Damages and Losses

The agriculture sector suffered massive damages and losses. The earthquakes damaged crop lands, physical infrastructure, poly houses, livestock shelters, agriculture tools, equipment and machineries, mills, office buildings, service centres, laboratories, and the premises of government installations. Production losses occurred both in crop and livestock subsectors including crops, animal fodder, fruit, potatoes, mushroom and vegetables, livestock, poultry, fish and fingerlings, animal feed, egg, honey and food grains, and seed stocks. The production losses include the value of lost crops, increased costs of production and estimated production loss in subsequent seasons. Damaged land, houses and livestock shelters, disrupted market systems, death or injury of livestock, lack of veterinary medicines, damages and losses in fish ponds and raceways, lack of labour in villages, lack of food and cash among families, and the shock and stress of the earthquakes exacerbated by frequent aftershocks have significantly affected the production flows. The stored seed is buried under the rubble. A part of the standing spring rice and maize crops can still be harvested; however, farmers have no storage facilities whatsoever. Deaths and injuries among technicians, damage to office buildings and equipment as well as service delivery stations affected agricultural service delivery to a great extent. The earthquake has had a serious impact on agriculture-based livelihoods in the affected districts, increasing the vulnerability of rural communities to hunger and food insecurity.

In Nepal, agriculture is dominated by women. The feminization of agriculture is the consequence of an increase in the migration of men to cities in Nepal and beyond. This also means that more women than men in this sector will feel the full brunt of the effects of the earthquakes and will also struggle the most to recover. Their vulnerability is compounded by their limited ownership of agricultural land, limited access to extension services and inputs, as well as limited options for alternate livelihoods. These constraints hold true for caste-based and ethnic minorities as well.

The estimates of the value of damages and losses are summarized in table below. Based on the data made available from the district-level line agencies, the total damages and losses in agriculture sector amount to about NPR 28.3 billion (about US$ 283.6 million). Since new data on both losses and damages is still coming in, this figure could change once the situation becomes much clearer.

Recovery Needs

Recovery in the agriculture sector focuses on immediate activities aimed at the restoration of production levels in crop, livestock and fisheries. Reconstruction includes replacement of tools and machineries, restocking of lost animal stock, reconstruction/rehabilitation of agriculture infrastructure, fish ponds and raceways and small farmer-managed irrigation systems.

The estimated total value of damages and losses is in agriculture sector is about NPR 28.3 billion

TABLE 6.1: SUMMARY OF DAMAGES AND LOSSES

Subsector	Disaster Effects (NPR million)			Share of Disaster Effects	
	Damage	Loss	Total	Private	Public
Crops, fishes and bees	9,005	9,213	18,218	16,578	1,640
Livestock and poultry	7,400	2,718	10,117	9,207	911
Irrigation	-	31	31	28	3
Total	**16,405**	**11,962**	**28,366**	**25,813**	**2,553**

TABLE 6.2: SUMMARY OF RECOVERY NEEDS

	Financial Year (NPR million)			Total
	2015-16	2016-17	2017-18	
Recovery Activities	3,579	-	-	3,579
Supply of agriculture inputs	2,755	-	-	2,755
Supply of fishery inputs	9	-	-	9
Supply of livestock inputs	815	-	-	815
Reconstruction Activities	7,189	3,594	1,198	11,981
Replacement of agriculture inputs/tools/machineries	840	420	140	1,399
Reconstruction of agricultural infrastructures	977	489	163	1,629
Reconstruction of fish ponds and race courses	15	7	2	24
Restocking livestock	1,381	691	230	2,302
Replacement of livestock inputs/tools/machineries	115	58	19	192
Reconstruction of livestock infrastructures	3,861	1,930	643	6,435
Total	**10,768**	**3,594**	**1,198**	**15,561**

The agriculture sector accounted for 34.1 percent of GDP in 2013-2014 and employed 76 percent of the labour force

Based on 30 percent of the losses as the recovery costs and 130 percent of the damages as reconstruction costs, the overall recovery and reconstruction is estimated at NPR 15.5 billion (about US$ 155.6 million), out of which NPR 3,579 million (about US$ 35.8 million) is required for immediate recovery envisaged in the short term for the next 12 months, and almost NPR 12 billion (about US$ 119.8 million) is required for reconstruction of the sector in the medium-term over a period of 36 months.

Recovery Strategy

Under the leadership of the Ministry of Agricultural Development (MoAD), implementation will be done by the Department of Agriculture (DoA), District Livestock Service Office (DLSO) and Nepal Agriculture Research Council (NARC) with support from development partners, particularly the ones with proven technical expertise and clear comparative advantages. Given the urgency of the situation, a fast track institutional mechanism with the required delegation of authority will be applied, and activities under both recovery and reconstruction will have to start simultaneously. Cash/ voucher transfers will be encouraged for inputs, including fertilizers, at subsidized prices in areas where markets have become functional. Overall, the sector implementation arrangements will align with the government's overall priorities for the agriculture sector as reflected in the Agriculture Development Strategy (ADS) as well as the MoAD's Immediate Plan of Action for earthquake recovery. The interventions will take their cue from the focus of the Hyogo Framework for Action and Sendai Framework on DRR to build back better.

The medium-term recovery interventions should aim at strengthening the value chains, ensuring the integration of smallholders, mainstreaming of crop diversification, adoption of good agricultural practices as well as climate change adaptation measures that contribute to DRR. Livestock shelters will be given utmost priority and restocking of livestock would strictly target the most vulnerable households for which livestock represent a significant source of food and nutrition security. Recovery and reconstruction interventions will devote special attention to the aspect of gender difference in agriculture. A robust monitoring and evaluation (M&E) system will be put in place to ensure efficiency and transparency of implementation that gathers gender disaggregated information.

7. Irrigation

The agriculture sector accounted for 34.1 percent of GDP in 2013-2014 and employed 76 percent of the labour force. A total of 2.5 million hectares (ha) of the country's land is arable, of which 1.77 million ha is irrigable and 1.35 million ha has access to irrigation water. The PDNA in the irrigation sector focused on 31 affected districts, including the 14 most affected districts. Irrigation in these 31 hilly and mountain districts is provided by an estimated 1877 small- and medium-scale farmer-managed irrigation schemes, which covered about 121,900 ha of land before the earthquake.

Damages and Losses

The infrastructure and functionality of about 290 of these 1,877 irrigation schemes was reported to be affected to various degrees by the earthquake. It is, however, estimated that damage to about 30 percent of the schemes remained unreported. Typical damage includes small and major cracks on reinforced cement and concrete (RCC) canals, falls or other structures due to ground shaking; displacement of canals due to loss of gradient; degradation or washing away of RCC canal sections due to landslides and rock fall; and damage to retaining walls. In many instances, sections of RCC canals cracked due to faulty construction. Many landslide-prone areas have been weakened by the earthquake. It is expected that monsoon rain will cause many of these areas to fail. These hidden damages were accounted for by adding 30 percent to the immediate post-earthquake visual damage estimates. Finally, many district offices of the Department of Irrigation (DoI) and Department of Local Infrastructure Development and Agriculture Roads (DoLIDAR) were damaged. District offices in Dhading, Dolakha and Nuwakot have to be rebuilt.

Damages to the irrigation infrastructure and sector district offices are estimated at NPR 382.8 million. Losses in agriculture production due to non-availability of irrigation water on 10,783 ha has already been mentioned in the section on agriculture. Direct losses in irrigation fee collection were estimated at NPR 0.4 million.

Right over water for agricultural purposes is mainly attached to land right, which automatically excludes a vast majority of women considering the huge disparity in land distribution, with women owning only 10.7 percent of the land in Nepal. Furthermore, there is little recognition of the fact that women are stakeholders and actors in water management too, and that the importance of their skills, knowledge and labour contributions in that area are undervalued. As irrigation is an integral part of agriculture, it is imperative that women become more involved in irrigation and related activities. The long-term reconstruction activities proposed under irrigation should take into account women's needs and priorities by involving them in the planning and designing phase of reconstruction activities.

Recovery Needs

Recovery and reconstruction of office buildings and irrigation schemes according to the BBB approach is estimated to cost about NPR 467 million. The details are presented in the table below.

Damages to the irrigation infrastructure is estimated at NPR 382.8 million. Direct losses in irrigation fee collection were estimated at NPR 0.4 million.

TABLE 7.1: SUMMARY OF DAMAGES AND LOSSES

Subsector	Disaster Effects (NPR million)			Share of Disaster Effects	
	Damage	Loss	Total	Private	Public
Irrigation schemes	304	-	304	-	304
Office buildings	79	-	79	-	79
Total	**383**	**-**	**383**	**-**	**383**

TABLE 7.2: SUMMARY OF RECOVERY NEEDS

	Financial Year (NPR million)				Total
	2015-16	2016-17	2017-18	2018-19	
Recovery Activities	48	10	0	10	69
Inventory and design	38	0	0	0	38
Retrofitting guidelines	10	10	0	10	30
Reconstruction Activities	40	179	179	0	399
Reconstruction of irrigation systems	40	132	132	0	304
Reconstruction of buildings	0	47	47	0	95
Total Needs	**88**	**189**	**179**	**10**	**467**

Recovery Strategy

The general approach to recovery and reconstruction is to restore the performance of the irrigation sector as soon as possible, with the objective of minimizing economic losses in the agriculture sector. Given the limited international experience in designing and building small-scale irrigation schemes that are earthquake-resilient as well as the absence of local experience and capacity on this subject, it is not appropriate to wait for new design/retrofitting guidelines to be prepared before starting work on rebuilding/repairing the damaged irrigation schemes. However, swift improvements based on the BBB approach can be brought about by enhancing the quality of the construction. The cost of piloting and preparing retrofitting/new design guidelines, as well as capacity building in construction supervision, was estimated at 10 percent of the cost of repairing/rebuilding the damaged irrigation schemes. Based on available guidelines, the cost of building new, earthquake-resilient offices and retrofitting the damaged ones is estimated at 20 percent more than the estimated repair/reconstruction cost.

The physical reconstruction of the irrigation schemes may not take more than 12 to 15 months as it is planned to contract these directly to Water Users' Associations

The strategy for reconstruction and recovery will follow a three-stage approach:

1. Short- term recovery activities will be the focus during 2015-2016. With DoI's technical guidance and provision of tools and materials such as pipes, cement, high grade plastic sheet, farmers will be able to clean obstructed canals, repair small and medium cracks, consolidate landslide-prone areas or even install temporary pipes in most damaged areas. This could help save part of the monsoon paddy crop. A precise inventory of the damages will be possible after the monsoon as more damages are expected to emerge during that season. This inventory should be completed in four months. This will be followed by detailed design for about a month. The cost of the inventory and detailed design is estimated at 1 percent of the cost of damages.
2. Medium term reconstruction activities will be carried out in FY 2016-2018. The physical reconstruction of the irrigation schemes should not take more than 12 to 15 months as it is planned to contract these directly to Water Users' Associations (WUA). Reconstruction and retrofitting of office buildings will take up to 2.5 years including six months for survey and detailed designs, eight months for tendering and awarding contracts, and one year for construction.
3. Long- term reconstruction activities will be carried out in FY 2018-2019. Possible design options for building and retrofitting more earthquake resilient irrigation schemes will be identified and tested through pilots in earthquake-affected districts. This task may take up to four years.

Implementation Arrangements

In view of the limited budget required for reconstruction and recovery, it is proposed to absorb the cost of reconstruction through development partner funded and government projects currently under implementation. These include the Community Managed Irrigated Agriculture Sector Project (CMIASP) and Water Resource Project Preparation Facility (WRPPF) funded by the Asian Development Bank (ADB); the Irrigation and Water Resource Management Project (IWRMP) financed by the World Bank (WB); and the Medium Irrigation Project (MIP) financed by the government.

8. Commerce and Industry

The commerce and industry sectors play a key role in the economy, contributing substantially to employment and ensuring access to services and goods. While medium and large-scale enterprises provide access to formal sector employment opportunities, a substantial number of jobs are provided by micro enterprises which constitute the largest share of this sector, the majority of them being informal. Prior to the earthquake, it was estimated that there were 174,823 micro enterprises in the 14 affected districts as assessed through the Household Survey. Of these, 57,308 cottage and small industries were registered with the Department of Cottage and Small Industries; 3,919 medium and large industries were registered with the Department of Industries (DoI); and an additional 122,026 commerce firms were registered with the Ministry of Commerce and Supplies. While up-to-date and representative gender-disaggregated data on the sectors could not be accessed, available information points to the fact that while women have a high presence in micro- and small enterprises as owners, managers and workers, they are under-represented in these functions in larger enterprises in both the commerce and industry sectors.

Damages and Losses

The commerce and industry sectors were affected in the following ways:

- **Physical damage:** Compared to larger establishments which suffered less extensive physical damage, a substantial number of household-based micro enterprises suffered major damage to their premises or collapsed completely. In addition, damage to stocks of raw materials or finished goods has led to a further decline in production and sales.
- **Lack of labour:** Following the earthquake, a large number of local, non-migrant workers absented themselves from their workplace either out of fear or to help out their families. The resulting lack of labour disrupted operations to a great extent.
- **Reduced demand:** While it is expected that the demand for certain products, such as those related to construction, will increase in a post-earthquake scenario, demand in general has fallen for a number of reasons such as lower domestic consumption due to lower purchasing power of consumers, a reduced desire to purchase non-essential goods/services, and a drastic reduction in tourism.
- **Damage to trade-related infrastructure:** Roads, bridges and customs points were severely affected, which has significant implications for both merchandise and services trade.

Larger establishments suffered less physical damages, while substantial number of household-based micro enterprises suffered major damages

Total damages and losses in commerce and industry sectors are listed below. The detailed damages and losses information available for 14 districts have been extrapolated to derive the estimates for 31 districts based on data from the manufacturing census.

Beyond the immediate effects in terms of damages and losses, the earthquakes are likely to generate negative impacts in the sectors overall

TABLE 8.1: SUMMARY OF DAMAGES AND LOSSES

COMMERCE	Disaster Effects (NPR million)			Share of Disaster Effects	
	Damage	Loss	Total	Private	Public
Commercial establishments of all types	9,015	7,938	16,953	16,953	-
Total	**9,015**	**7,938**	**16,953**	**16,953**	**-**
INDUSTRY					
Industrial establishments of all types	8,394	10,877	19,271	19,271	-
Total	**8,394**	**10,877**	**19,271**	**19,271**	**-**

in terms of business survival and performance, with the exception of the construction subsector, which is likely to witness a spurt in activities. Among other impacts, the low business performance in these sectors is likely to translate into a decreased revenue flow for the government as well as employment losses, thereby resulting in increased individual and household poverty.

Recovery Needs

To mitigate these negative impacts and allow for the sectors to recover and contribute to overall reconstruction efforts, a strategy comprising both policy measures and practical assistance to the most affected micro, small and medium enterprises (MSME) is proposed. Suggested policy measures include an adjustment of rules regarding loan

TABLE 8.2: SUMMARY OF RECOVERY NEEDS FOR COMMERCE SECTOR

	Financial Year (NPR million)					Total
	2015-16	2016-17	2017-18	2018-19	2019-20	
Recovery Activities	**1,938**	**1,326**	**446**	**196**	**130**	**4,036**
Demolition and rubble removal costs	216	55	-	-	-	271
Working capital	1,445	778	-	-	-	2,223
Additional services needs assessment (value chain analysis)	8	20	3	-	-	31
Capacity building for providers of non-financial and financial services	43	79	52	-	-	175
Delivery of additional non-financial and financial services to final beneficiaries	193	386	386	193	128	1,286
Establishment of institutional mechanisms for channeling support	32	8	4	3	2	50
Reconstruction Activities	**9,609**	**6,406**	**-**	**-**	**-**	**16,015**
Reconstruction of premises and replacement of assets	9,609	6,406	-	-	-	16,015
Total	**11,547**	**7,731**	**446**	**196**	**130**	**20,051**

TABLE 8.3: SUMMARY OF RECOVERY NEEDS FOR INDUSTRY SECTOR

	Financial Year (NPR million)					Total
	2015-16	2016-17	2017-18	2018-19	2019-20	
Recovery Activities	**2,035**	**1,124**	**112**	**49**	**33**	**3,353**
Demolition and rubble removal costs	202	50	-	-	-	252
Working capital	1,764	950	-	-	-	2,714
Additional services needs assessment (value chain analysis)	2	6	1	-	-	9
Capacity building for providers of non-financial and financial services	11	20	13	-	-	45
Delivery of additional non-financial and financial services to final beneficiaries	48	96	96	47.945	32.335	320
Establishment of institutional mechanisms for channeling support	8	2	1	1.115	1.115	13
Reconstruction Activities	**2,403**	**1,601**	**-**	**-**	**-**	**4,004**
Reconstruction of premises and replacement of assets	2,403	1,601	-	-	-	4,004
Total	**4,438**	**2,725**	**112**	**49**	**33**	**7,357**

rescheduling, temporary time-bound fiscal concessions on materials that are key for reconstruction, measures to strengthen the links between the supply and demand of labour, and infrastructure-related measures to boost trade. For severely-affected micro- and small enterprises, a two-pronged support strategy is proposed, starting with immediate assistance for rubble removal and restoration of the working capital of the affected enterprises and, secondly, assessing their need for and securing their access to supplementary financial and non-financial services to ensure that the businesses – especially those headed by women and youth -- are built back better in terms of management capacity, sustainability and resilience. This latter dimension entails:

- analytical work (such as sector-based value chain analyses) to identify needs;
- capacity building of local business service providers; and
- delivery of support to earthquake-affected MSMEs through both financial services (such as micro-insurance schemes or financial literacy), and non-financial services (such as upgrading technical or managerial skills or business linkages programmes).

Recovery Strategy

It is proposed that at least 65 percent of this budget be allocated to high-priority target groups needing specific support, namely women, youth and migrant workers returning home. Although women's participation in the sector is lower in comparison to men, women are over represented in the informal micro enterprise subsector due to its low capital requirement and low entry barriers. However, women may also be the hardest hit as the informal sector is often uninsured, characterized by limited assets, and is less resilient to disasters. Recovery should invest in the informal sector and marketplaces to bring social and economic change for women through the provision of market access, skills development and access to finance.

Ten Enablers for Private Sector to Contribute to Nepal's Economic Recovery

Nepal's productive capacity and livelihoods recovery should happen along with physical reconstruction

1. Deliver a rapid assessment of losses and reconstruction needs, payment of insurance claims and provide concessional re-start-up capital.
2. Reform labor regulations to add flexibility to the market and create new jobs, especially in reconstruction opportunities. Provide tax incentives for job creation.
3. Manage international contractors to ensure that new expertise is brought in with a strong local component compliance. Ensure relief and recovery efforts include Nepali manufacturers/services in their supply chains.
4. Private sector to be identified as partners of government that will carry out relief/reconstruction/ rehabilitation work on government's behalf.
5. Establish temporary Fast-Track administrative approvals to facilitate private sector operations and reconstruction.
6. Reposition Public-Private Dialogue at the Prime Minister's level and commit to improving Nepal's business climate as top national priority regardless of political allegiance.
7. Undertake a supply chain assessment of the 14 hard hit districts for re-establishment of the chains.
8. Provide short-term fiscal policy support to affected business sectors as well as safeguards against price escalation and inflation, with a focus on the 14 worst affected districts.
9. Advocate the introduction of private equity financing mechanism in Nepal and help establish venture capital companies (with domestic investors) with focus on MSMEs.
10. Restore trust and instill confidence that – "We are back in business".

(Source: FNCCI, CNI, FNCSI)

It is proposed that the implementation of the practical component of the strategy targeting affected MSMEs rely as much as possible on existing institutions. Central-level coordination and monitoring functions will be ensured by the ministries responsible for the commerce and industry sectors. At the district level, it is proposed that business recovery centres (BRCs) are set up to:

- channel immediate direct support to earthquake-affected MSMEs (in demolition and rubble removal, working capital restoration);
- support the strengthening of capacity of existing providers of non-financial and financial business services; and linking affected MSMEs with these service providers.

9. Tourism

Damages and Losses

The overall impact of the earthquake on the tourism sector goes beyond the 14 affected districts, which have suffered significant physical damage to well-known tourism destinations like Chitwan and Pokhara in terms of a sharp fall in the number of tourists. The negative repercussions of the disaster are likely to translate into a reduced number of tourist arrivals over the next few years, reduction in tourist spending per day from US$43 to US$35 (as per industry sources), which will significantly affect revenues. Other nations that have experienced similar disasters have generally taken several years to recover fully with regard to tourist arrivals. It is estimated that the overall impact of the earthquakes on the Nepali tourism industry will be a reduction of about 40 percent on average over the next 12 months, and a 20 percent reduction in the next 12 to 24 months.

The effects on the sector are as follows:

- About NPR 16 billion worth of hotel properties were fully or partially damaged in the affected areas.
- Domestic airline operators reported total monthly income losses to the tune of NPR 400 million for the month following the earthquake.
- Tourist accommodations of different categories were either fully or partially damaged in the Langtang, Gorkha-Manaslu, Khumbu, Charikot, Kalinchok, Jiri, Dhanding, and the Rolwaling area. A few hotels in the Kathmandu Valley (including Nagarkot) were damaged extensively, while a majority of hotels developed minor cracks.
- A portion of key tourism monuments and heritage sites were turned to rubble.
- With respect to tourism infrastructure, about 150 km of trekking trails were significantly damaged. Another 200 km require maintenance and repair since access to rural areas is impeded.
- Tourist numbers are expected to decline by about 90 percent between May and July 2015.

A further implication concerns the loss of jobs and revenue that the sector has provided to the country over the years.

The negative repercussions of the disaster is likely to translate into a reduced number of tourist arrivals over the next few years significantly affecting revenues

TABLE 9.1: SUMMARY OF DAMAGES AND LOSSES

Subsector	Disaster Effects (NPR million)			Share of Disaster Effects	
	Damage	Loss	Total	Private	Public
Hotels and others	16,295	-	16,295	16,295	-
Homestays	1,720	495[9]	1,720	1,720	-
Eco-lodges	415	-	415	415	-
Trekking trails	426	5,711	6,137	-	6,137
Tour operators	7	4,924	4,931	4,931	-
Tourism revenues	-	47,013	47,013	47,013	-
Air transport revenues	-	4,720	4,720	4,720	-
Restaurant revenues	-	11	11	11	-
Total	**18,863**	**62,379**	**81,242**	**75,105**	**6,137**

[9] Losses under homestays are included under the housing sector and not included in the total

Recovery Needs

TABLE 9.2: SUMMARY OF RECOVERY NEEDS

	Financial Year (NPR million)		Total
	2015-16	2016-17	
Recovery Activities	10,866	5,209	16,075
Demolition and rubble removal	3,018	755	3,773
Promotion campaign costs	2,730	2,520	5,250
Loan rescheduling	5,118	1,934	7,052
Reconstruction Activities	18,571	4,064	22,635
Hotels	15,643	3,911	19,553
Homestays	2,064	-	2,064
Eco-Lodges in Conservation Areas	498	-	498
Trekking trails	358	153	511
Tour Operators Office	8	-	8
Total	**29,437**	**9,273**	**38,710**

Implementation Arrangements

The earthquake is likely to have inflicted profound impact on the wider economy and mountain livelihoods unless a number of mitigating initiatives are pursued. These efforts need to target the global tourism market and convince potential visitors to come to Nepal, which will help affected tourism entrepreneurs in rural and urban areas.

The recovery strategy has four distinct phases:

1. Identify and assess unaffected and safe tourist destinations.
2. Create a 'safe trekking system' for mountain tourism in Nepal.
3. Rebuild and redevelop damaged areas and enterprises following improved guidelines and regulations of the 'safe trekking system'.
4. Identify and develop new tourist products and services. Some of these phases can be sequential or run in parallel depending on the needs.

10. Financial Sector

Damages and Losses

Operational disturbances in financial infrastructure caused by the earthquake were short-lived outside the earthquake-affected areas. However, the damage to physical infrastructure of banks in affected areas as well as damage to the headquarters of the National Rastra Bank (NRB) has been extensive. Despite this, most depositors regained access to their accounts swiftly, which has been key to maintaining public confidence in the sector.

The credit portfolios of microfinance and cooperatives are likely the most severely impacted because people from low income sections in rural areas have lost lives and livelihoods. Most of the borrowers in the affected areas have seen their income flows affected, and lack alternative income-earning opportunities. If individuals withdraw their savings to deal with an emergency, it could translate into modest liquidity and solvency pressures on the microfinance sector in affected areas, impacting its capacity to assist communities. Many borrowers face a conundrum – they have lost livelihoods, face a disruption in their income flows, and require loans to rebuild livelihoods, but their lack of a stable source of income may deter credit providers from extending loans to them.

Additionally, the damages and economic disruption caused in the wake of the earthquakes could lead to a deterioration of asset quality of the loan portfolios of Banks and Financial Institutions (BFI) on account of:

- having to restructure the debts of otherwise viable businesses (including MSMEs), which would need additional finance;
- damage to uninsured real estate collaterals in light of the fact that under-insurance is widespread and weak administration leads to claims being denied; and
- contagion to BFIs from losses in the microfinance sector.

The NRB's decision to provide zero interest refinancing of loans to be on-lent at 2 percent for rebuilding houses might also involve fiscal adjustment of interest subsidy.

Recovery Needs

Total needs for recovery are estimated at NPR 33.4 billion that includes NPR 6.5 billion for reconstruction works. The headquarters of the NRB need to be rebuilt as a built-to-purpose and well-equipped modern central bank along with a Disaster Recovery Site (DRS). Similarly, the damaged branches and other assets of BFIs will also need to be rebuilt along the principle of earthquake resilience.

Recovery Strategy

The recovery strategy will be based on a three pronged approach:

Credit portfolios of microfinance and cooperatives are the most severely impacted because people from low income groups in rural areas have lost lives and livelihoods.

TABLE 10.1: SUMMARY OF DAMAGES AND LOSSES

Subsector	Disaster Effects (NPR million)			Share of Disaster Effects	
	Damage	Loss	Total	Private	Public
Damage to BFI infrastructure	1,885	-	1,885	1,565	320
Damage to Central Bank Infrastructure	3,130	-	3,130	-	3,130
Cost of Potential Loan Loss/ Restructuring	-	16,542	16,542	13,730	2,812
Technical Assistance Required for MFIs	-	340	340	300	40
Concessions for Housing Reconstruction	-	6,808	6,808	2,269	4,539
Cost of potential liability of Insurance Companies	-	3,200	3,200	3,072	128
Total	**5,015**	**26,890**	**31,905**	**20,937**	**10,969**

TABLE 10.2: SUMMARY OF RECOVERY NEEDS

	Financial Year (NPR million)			Total
	2015-16	2016-17	2017-18	
Recovery Activities	18,480	6,959	1,452	26,891
Cost of Potential Loan Loss/ Restructuring	12,407	4,136	-	16,543
Technical Assistance Required for MFIs	150	100	90	340
Concessions for Housing Reconstruction[10]	2,723	2,723	1,362	6,808
Cost of potential liability of Insurance Companies	3,200	-	-	3,200
Reconstruction Activities	**3,492**	**1,324**	**1,765**	**6,581**
Cost of Re-building NRB with Modern Infrastructure and workstations	1,324	1,324	1,765	4413
Cost of Re-building infrastructure of BFIs/SACCOs	2,168	-	-	2,168
Total	**21,972**	**8,283**	**3,217**	**33,472**

Widespread use of insurance as a disaster risk mitigation mechanism to be promoted through investments in financial education and awareness

1. FINANCIAL SECTOR STABILITY:

- Diagnosis of the impact of real estate losses in the affected areas on BFIs and insurance companies;
- Diagnosis of the financial condition of micro-finance institutions (MFIs), Financial Intermediary Non-Governmental Organizations (FINGO) and Financial and Multipurpose Cooperatives (FINCO) in affected areas;
- Restructuring of loans;
- Recapitalization fund; and
- Increase of capital in Deposit and Credit Guarantee Fund (DCGF).

2. ACCESS TO FINANCE:

- Special cash transfer account scheme by recalibrating Know Your Customer/Customer Due Diligence (KYC/DD) guidelines for those who have not been brought into the banking network;
- MFI liquidity facility;
- Technical assistance to MFIs;
- Rebuilding livelihoods in affected communities;
- Rebuilding infrastructure assets, recovering data and enhancing Management Information System/Information Technology (MIS/IT) structure;
- Capacity building at sectoral and institutional levels;
- Insurance product development and technical assistance;
- Recapitalization fund for MFIs, FINGOs and FINCOs; and
- Effective regulation and supervision of Savings and Cooperatives (SACCO).

3. ECONOMIC RECOVERY AND FINANCE:

- Refinancing facility to support the recovery of households.
- Capacity building to expand insurance coverage with enhanced legal and regulatory framework.

Implementation Arrangements

In addition to the reconstruction of damaged assets and strategic NRB buildings, the government will continue to carry out reforms designed to assess and mitigate risks to the financial sector which have been amplified by the earthquake. It aims to establish a legal framework for financial crisis management, strengthened risk-based supervision of BFIs, conduct in-depth diagnosis of the regulatory framework of insurance companies and FINCOs, and consolidate the payments system. Carefully designed regulatory forbearance will allow BFIs to restructure the debts of viable/eligible MSMEs and other borrowers for a limited period of time. A more widespread use of insurance as a disaster mitigating mechanism should be promoted through investments in financial education and awareness.

[10] This concession could be considered for extension to other sectors such as hydropower, education and tourism enterprises as the full scale of loss becomes evident over time.

INFRASTRUCTURE SECTORS

Electricity

Communications

Community Infrastructure

Transport

Water, Sanitation, and Hygiene

11. Electricity

About 115 MW hydropower generation facilities under operation out of the 787 MW total installed capacity in the country (on-grid and off-grid) were severely damaged, while 60 MW were partially damaged.

The assessment for the electricity sector covers the entire country, with a focus on the 14 most-affected districts. It includes the following: On-grid and off-grid generation; transmission and distribution systems owned by the public utility company Nepal Electricity Authority (NEA), community managed and operated rural electrification entities, hydropower generation facilities owned by Independent Power Producers (IPPs) as well as community-based micro hydropower projects (MHP), solar home systems (SHS), small solar home system (SSHS), and Institutional Solar PV system (ISPS) owned by local communities and individual households, and promoted by Alternative Energy Promotion Centre (AEPC).

Damages and Losses

Major on-grid and off-grid damages were found in electricity generation facilities. About 115 MW hydropower generation facilities under operation out of the 787 MW total installed capacity in the country (on-grid and off-grid) were severely damaged, while 60 MW were partially damaged. About 1,000 MW of hydropower projects under construction owned by IPPs and NEA, were partially damaged.

Damage to substations, transmission lines, and civil structures was reported. Despite this, at the time of the assessment all 42 substations and 57 transmission lines were in operation. About 800 km of distribution lines at different voltage levels (33 kV, 11 kV and 400 V), and 365 transformers at different capacities (from 15 to 300 kVA), were damaged and are not operational. For the off-grid electricity services, about 262 MHP facilities and 115,438 SHS or small SHS, and 156 ISPS, were damaged and are not operational.

A summary of damages and losses is presented in a table below. For the estimated duration of recovery and reconstruction period, the loss of revenues is estimated at NPR 3,338 million for IPPs in power sale revenues and about NPR 97 million for the government in royalty payments by NEA and IPPs, and no loss of revenue for NEA since cost of purchase of electricity is higher than retail tariff. The cost of recovery on the lines of the BBB approach is estimated to be NPR 18,586, with NPR 5,693 million envisaged for public assets and NPR 12,893 for private assets (Table 11.2).

About 603,000 households have lost access to electricity (91,200 of the households are on grid electricity) due to house collapse or damage to electricity

TABLE 11.1: SUMMARY OF DAMAGES AND LOSSES

Subsector	Disaster Effects (NPR million)			Share of Disaster Effects	
	Damage	Loss	Total	Private	Public
Generation	**12,134**	**3,435**	**15,569**	**14,072**	**1,497**
NEA	1,400	-	1,400	0	1400
IPPs	6,329	3,338	9,667	9667	0
Local communities	4,405	-	4,405	4405	0
Government royalty	-	97	97	0	97
Transmission	347	-	347	0	347
NEA	347	-	347	0	347
Distribution	**2,812**	**-**	**2,812**	**1497**	**1315**
NEA	1,315	-	1,315	0	1315
Consumers	1,497	-	1,497	1497	0
Civil Structures	514	-	514	0	514
NEA	514	-	514	0	514
Contingencies	2,000	-	2,000	0	2000
Total	**17,807**	**3,435**	**21,242**	**15,569**	**5,673**

TABLE 11.2: SUMMARY OF RECOVERY NEEDS

Asset Category	Reconstruction (in million)			
	Total		Public (NPR)	Private (NPR)
	NPR	US$		
Generation	12,537.0	125.37	1,440.0	11,097.0
Transmission	417.0	4.17	417.0	-
Distribution	3,118.0	31.18	1,322.0	1,796.0
Civil Structures	514.0	5.14	514.0	-
Contingencies	2,000.0	20.00	2,000.0	-
Total	**18,586.0**	**185.86**	**5,693.0**	**12,893.0**

supply facilities. Assuming that new houses will be built on time, it will still take 12 to 24 months for the electricity services to be restored to the affected households.

Recovery Needs

The recovery of electricity in grid and off-grid can be achieved through alternative sources of electricity supply. The commonly used alternatives in Nepal are import of electricity from India, diesel generation sets, and rooftop solar panels. The following initiatives for recovery in the short, medium and long term are suggested:

- Measures in the short term include reduction of load shedding, distribution of solar lanterns in affected households, and repair and maintenance of partially damaged power plants, transmission lines and distribution lines.
- Medium term measures include the timely completion of hydropower projects which are in an advanced stage, and completing the ongoing cross-border transmission line that will facilitate additional imports of electricity from India.
- Long-term measures include the reconstruction of damaged hydropower plants.

Loss of access to electricity has considerable impact on people's ability to practice their livelihoods and generate incomes, particularly in the case of rural communities engaged in small and medium scale enterprises. Loss of access to electricity has also had a negative impact on women who use it for productive activities and household work. Electricity also works as a deterrent to violence, and in the absence of a steady power supply, women may face an added risk of violence.

Implementation Arrangements

A Master Plan for Rural Electrification, a Transmission System Master Plan, and an Integrated River Basin Development Planning that includes a Hydropower Generation Master Plan, will be initiated soon to ensure coordinated approach for generation, transmission and distribution system development and rural electrification programmes.

On-grid facilities: NEA and IPPs will be responsible for assessment, planning and implementation of recovery for their respective hydropower facilities that were damaged due to the earthquakes. The government will have to assess the fragility of the river basins hard-hit by earthquakes so that, based on the level of disaster risks, adaptive measures can be undertaken in case of existing and under-construction hydropower plants, and to inform the planning of upcoming hydropower projects.

The recovery process will include the following:

1. **Generation:** Carry out a rapid dam safety assessment of all major hydropower dams in the earthquake-affected areas to ensure full recovery or increased resilience to future earthquakes and to inform recovery investment plan accordingly.
2. **Transmission:** To avoid potential risks of interruption due to earthquake effects, a walk-through inspection along the transmission line in earthquake-affected areas is required to check foundation stability, structural defects and landslide risks, and to prepare and implement the investment programme as needed.
3. **Distribution:** In accordance with the Distribution Master Plan and international standards for the distribution system, plan new feeders in close coordination with the housing sector to ensure recovery of electricity services in new settlement areas as soon as new houses are rebuilt.

Off-grid facilities: AEPC will be responsible for the implementation of recovery and reconstruction with respect to off-grid electricity services. Community and individual households should be encouraged to play an active role in restoring or rebuilding the affected schemes. The off-grid initiatives for recovery and reconstruction will adopt international technical standards for design and installation of specific MHPs and Solar Systems and follow the Master Plan to ensure optimization of site and size selection of MHPs, and better coordination with grid extension plan.

12. Communications

Service providers were able to restore most of their networks with limited disruption. Public service broadcasters played a crucial role in keeping the people informed

The communications sector covers the policy, regulatory and operational aspects of the strategic public and private telecommunications networks (both fixed and mobile); internet service providers; postal services, print and broadcast media (newsprint, radio, television), and cable television operators.

Damages and Losses

The total damages and losses in economic flows are estimated at NPR 3.6 billion (US$36.10 million) and NPR 5 billion (US$ 50.85 million), respectively. The cost of recovery and reconstruction is estimated at NPR 4.9 billion (US$49.39 million).

The disasters demonstrated very clearly the critical role of the communications sector (telecommunications and broadcasting in particular) in Nepal. While network congestion and downtime were experienced, service providers were able to restore most of their networks. Operators faced operational losses due to network downtime and the provision of free services to customers. Public service broadcasters played a crucial role in keeping the people informed. Post-disaster relief efforts relied heavily on telecommunications, internet and broadcast media.

The long-term recovery goal for the communications sector is to rebuild and put in place a future proof communications infrastructure and services sector that will serve the needs of a digital Nepal. In line with this vision, the reconstruction effort should be anchored in a future proofed approach, that ensures increased investments in the telecommunications sector, the establishment of a resilient public service broadcast sector, and the convergence of the Information and Communications Technology (ICT) sector that will enable Nepal to make the best use of the opportunities provided by technological developments.

Recovery Needs and Strategy

While communication service providers have already invested resources in the recovery phase, the key priorities are to ensure that:

- the worst hit districts receive both telecommunications and internet services on a priority basis;
- displaced communities are provided access to internet services;
- towers are constructed at critical sites both within Kathmandu Valley and in the 14 affected districts so that service interruptions are minimized in the event of another

TABLE 12.1: SUMMARY OF DAMAGES AND LOSSES

Subsector	Disaster Effects (NPR million)			Share of Disaster Effects	
	Damage	Loss	Total	Private	Public
Ministry of Information and Communications and related agencies	818	-	818	155	663
Telecommunication operators	1,736	4,550	6,286	1,191	5,094
Internet Service Providers	21	467	488	92	395
Postal Sector	510	-	510	97	413
Television Broadcasters	248	50	298	57	242
News papers	143	-	143	27	116
Radio Broadcasters	56	18	74	14	60
Cable Television	79	-	79	79	-
Total	**3,610**	**5,085**	**8,695**	**1,712**	**6,983**

disaster. These towers should be shared among all operators;
- NRB finalizes its mobile financial services regulations on a fast track basis;
- an emergency public service broadcasting studio infrastructure is built and Radio Nepal and Nepal Television are merged into a single public service broadcasting agency on a fast track basis; and
- the construction of the disaster recovery integrated data centre commences immediately.

The recovery strategy is to ensure that networks are built back better and are resilient to disasters. An emergency telecommunications network strategy will be developed and executed within the next six months. The broadband policy will be implemented; an integrated Information Communication and Technologies (ICT) policy will be drafted and adopted, recognizing technology and service convergence of the communications and IT sectors. In order to ensure that the telecommunications sector continues to see private investments, the policy and regulatory framework will be reviewed and revised, particularly in the areas of licensing, spectrum management, the rural telecommunications development fund, and sector taxation rationalization.

Due to their cross-cutting nature, ICT and telecommunications constitute crucial economic infrastructure. Their early recovery and restoration is important for the resumption of economic and public service delivery activities. The government has invested in cross-sectoral ICT infrastructure (such as a government integrated data centre) and service frameworks such as Nepal e-Government Interoperability Framework (Ne-GIF) and NEA. Their adoption and mainstreaming across all government agencies will be fast tracked. The government's DRR strategy should include ICT. As a critical sector, fuel and power supply to the telecommunications sector must be prioritized. Cross-sector infrastructure sharing (rights of way of power, transport, roads, urban common infrastructure) will be facilitated by the government. The digital National Identification Programme will be executed fast as it impacts service delivery in the post-disaster and recovery phase.

Integrated ICT Framework

ICT can play a transformational role in creating an efficient MIS infrastructure resulting in all-round efficiency gains and enhanced transparency in government institutions. To overcome the limitations of largely fragmented approach of ICT deployment in government agencies, an initiative is required for integrating these agencies on a shared ICT platform to enable interoperability and data sharing. Such initiative could offer the following benefits, and aid the efficient management and monitoring of recovery and reconstruction programme:

- Enhanced business continuity and high availability of resources
- Reduced total cost of ownership (TCO) of government ICT resources
- Compelling value proposition realized in terms of modularity and scalability advantages in the face of increasing demand for IT services
- Comprehensive security regime through centralized pooling of security tools and resources
- Multiple channels of service delivery using mobile and smart devices towards realizing the potential of device independence
- "Anywhere – anytime" delivery of services through Internet or mobile telephony, especially benefiting remote areas of Nepal
- Facilitating data analytics for macro-planning purposes
- Positive transformative impact due to enhanced efficiency in government and business operations resulting in enhanced image of Nepal being investor-friendly
- Potential to significantly complement GoN's efforts aimed at transforming governance and reorienting the same towards generating favorable policy outcome

TABLE 12.2: SUMMARY OF RECOVERY NEEDS

	Financial Year (NPR million)				Total
	2015-16	2016-17	2017-18	2018-19	
Reconstruction Activities	2,801	1,813	300	25	4,939
Ministry of Information and Communications and related agencies	399	200	200	-	799
Telecommunication operators	466	52	-	-	518
Internet Service Providers	6		-	-	6
Postal Sector	371	371	-	-	742
Television Broadcasters	513	342	-	-	856
Newspapers	193		-	-	193
Radio Broadcasters	148	99	-	-	247
Federation of Nepal Cable TV providers	79		-	-	79
Build Back Better of Access and eGovernment infrastructure	625	750	100	25	1,500
Total	**2,801**	**1,813**	**300**	**25**	**4,939**

Implementation Arrangements

The Ministry of Information and Communications (MoIC) in collaboration with the Nepal Telecommunications Authority (NTA) will spearhead the planning and implementation of the post-disaster strategy. Service providers will be consulted closely in the process. The Rural Telecommunications Development Fund (RTDF) Disbursement Committee will speed up the implementation of programmes so that telecommunications and internet access can be restored and made more resilient.

The MoIC and NTA will also work on reviewing and revising the policy and regulatory framework with respect to the above mentioned priorities. Finally, the high level Infrastructure Promotion Committee will accelerate a cross-sector infrastructure sharing policy

13. Community Infrastructure

Community infrastructure are small-scale facilities planned, built, owned, and operated and/or maintained with the active involvement of the community. On a day-to-day basis, local service structures or life-line structures are crucial to the community; however, due to low levels of socio-economic development and complex topography, community infrastructure development in Nepal is still at its early stage.

Government polices define community infrastructure as covering seven sectors: rural transport; water supply and sanitation; irrigation; electricity; community buildings; social infrastructure; and solid waste infrastructure. However, in order to avoid duplication, the damages and losses related to rural roads, irrigation, electricity and drinking water are covered in separate sector reports. The damages and losses sustained by the remaining components of community infrastructure – trails, bridges, footpaths, community buildings and other such works managed by community -- amount to NPR 3.3 billion (US$ 33.5 million).

Damages and Losses

Community infrastructure was affected severely in affected districts. Roads, bridges and trails were damaged or swept away by the earthquake and landslides; irrigation, micro-hydro and drinking water schemes were also affected, becoming completely non-operational due to changes in the hydrological regime in certain cases; electricity networks that connected houses, as well as solar installations, were damaged; community buildings used for meetings, social events and child care collapsed; and many of the micro infrastructure facilities such as ponds, dug-wells or threshing/drying areas were damaged.

Damage to community infrastructure such as rural roads and community water sources can have a negative impact on the livelihoods as well as on time it takes to avail these resources from alternative sources. Rural roads link women and men to districts and urban markets; their destruction could mean that people may no longer be able to earn a livelihood at the time when they need it the most. Damage to community buildings used by women such as women's groups and cooperatives also means that women no longer have a place for social interactions, exchanging information and learning new social and economic skills. The recovery strategy will ensure that women and marginalized groups participate and benefit from rural community reconstruction programmes and cash-for-work programmes.

Recovery Needs

The long-term recovery goal for community infrastructure is to rebuild to better resilient standards, and to expand it in order to make them

Damage to community infrastructure can have a negative impact on the livelihoods as well as on time availability of resources from alternative sources

TABLE 13.1: SUMMARY OF DAMAGES AND LOSSES

Subsector	Disaster Effects (NPR million)			Share of Disaster Effects	
	Damage	Loss	Total	Private	Public
Trail Bridge	119	-	119	-	119
Foot Trails	350	-	350	-	350
Community Buildings	2,502	-	2,502	-	2,502
Micro Community Structures	379	-	379	-	379
Total	**3,349**		**3,349**		**3,349**

TABLE 13.2: SUMMARY OF RECOVERY NEEDS

	Financial Year (NPR million)		Total
	2015-16	2016-17	
Reconstruction Activities	3,062	1,388	4,450
Foot Trail	289	114	403
Trail Bridges	98	39	137
Community Buildings	2,063	813	2,876
Other small/ micro community infrastructure*	612	423	1,035
Total	**3,062**	**1,388**	**4,450**

** Community drinking water wells, water ponds, rainwater collection tanks, drying floors.*

Priority will be given to areas that are at risk from landslides and floods, and economic opportunities to be created for relocation of populations to safer areas

more accessible to the poor and marginalized groups. The damage to rural community structures has thrown up significant issues pertaining to their design and maintenance, widening the scope of sustainable community development in the process. Damage to grassroot infrastructure limits the community's access to the entire network of institutional structures that drive community development efforts of the government, NGOs, and development partners. It also makes it difficult for people to access the technological and market opportunities that the private sector can provide.

Recovery Strategy

In line with this vision, the reconstruction effort should keep the following in mind:

- It should be anchored in a highly participative approach with mechanisms involving the poor and marginalized sections of the population, and women.
- There should be a streamlined approval, implementation, monitoring and reporting, process for rapid disbursement of funds, to enhance accountability and transparency;
- There should be improved institutional mechanisms for operations and maintenance, including sustainable cost recovery;
- Priority should be given to areas that are at risk from landslides and floods, and economic opportunities should be created for populations to relocate to safer areas;
- Dedicated efforts should be made to promote suitable technologies, light weight construction material, local materials and earthquake-resistant designs, and to incorporate the role of the private sector.

Based on these enhanced criteria, reconstruction and recovery costs have been estimated at NPR 4.4 billion (US$ 44.5 million). This is in addition to the costs estimated for community-level works in the sectoral reports on transport, irrigation, drinking water, and electricity.

Implementation Arrangements

For this the existing system of governance and implementation will need to be strengthened. Planning and prioritization for restoring or reconstruction should be done in a participative manner, formalizing community platforms alongside assessment by local bodies such as VDC, DDC and municipalities (MNC). Local bodies (DDC/MNC/VDC) should lead the community infrastructure reconstruction, supported by MoFALD. Technical support should be provided by DoLIDAR and/or District Technical Offices (DTO), which needs to be strengthened.

14. Transport

Damages and Losses

A small percentage of the Strategic Roads Network (SRN) was completely damaged or washed out due to the earthquake. Side drains, culverts, retaining walls as well as pavements were damaged, and some sections were partially or fully damaged due to landslides. The total estimated damages amount to NPR 4.6 billion (US$45.9 million), and the total losses are estimated at NPR 526 million (US$5.26 million).

Losses in the SRN include the cost of equipment operation (NPR 15.3 million) to open the road after the earthquakes; an additional cost of NPR 498 million (30 percent of damage cost) for monsoon risks and inflation, and losses of vehicle operating cost of about NPR 12.6 million. [11]

In the Local Road Network (LRN), the estimated damages and losses are NPR 12.5 billion (US$124.85 million) and NPR 4.2 billion ($42.74 million), respectively. Extensive road blockages were reported in the District Road Core Network (DRCN) for a number of days, while the Village Road Core Network (VRCN), most of which were in a non-motorable condition even before the 25 April earthquake, have suffered further blockages. Rural road closure for a year would lead to an economic loss of about NPR 4 billion, giving rise to non-motorized transport as an alternative mode of transport. This amount has not been included as a transport sector loss because it affects many other sectors and may be reflected elsewhere.

Blockage of rural roads can create challenges for women and men in accessing essential services such as health facilities. Road networks also play a very important role in linking farmers, especially women who depend more on agriculture, to districts and urban markets. Disruption in roads may create market disruption at the time when it is crucial for the rural poor to earn a livelihood. Road damage has further affected ethnic minorities who, as it is, are disconnected from district headquarters due to the remoteness of their settlements. Nevertheless, rural road rehabilitation offers a opportunity for women, youth, Dalits and other social groups to learn new road construction skills as well as earn a much needed income at a time of distress.

In civil aviation, the estimated damages and losses are NPR 114 million and NPR 130 million, respectively. Tribhuvan International Airport (TIA) and 13 domestic airports experienced only minor damages to airside and landside facilities. The air transport operations, too, did not suffer closure. The number of flights significantly increased at TIA due to rescue and relief operations immediately after the earthquakes. The Civil Aviation Authority (CAAN) incurred revenue losses due to waivers of charges

Blockage of rural roads will create challenges in accessing essential services and marketing agriculture produce to districts and urban markets

TABLE 14.1: SUMMARY OF DAMAGES AND LOSSES

Subsector	Disaster Effects (NPR million)			Share of Disaster Effects	
	Damage	Loss	Total	Private	Public
Strategic Road Network (SRN)	4,589	526	5,115	-	5,115
Local Road Network (LRN)	12,485	4,274	16,759	-	16,759
Civil Aviation	114	130	244	-	244
Total	**17,188**	**4,930**	**22,118**		**22,118**

Note: Strategic urban roads are included in SRN and the remaining municipal roads are in LRN.

[11] Damage cost is the cost of specific repair and reconstruction, while loss is the cost of road opening plus 30 percent for additional cost due to increase in price and additional risks in monsoon triggered by the earthquake.

for landing, cargo handling and airport terminal fees, reduction of passengers on regular flights and additional operational expenses for 24 hour operations of TIA.

Recovery Needs

Recovery needs are estimated at NPR 9 billion for SRN, at NPR 19 billion for LRN and at NPR 114 million for civil aviation. The total recovery needs, assessed as damage cost plus 20 percent of the damage cost for BBB designs and 30 percent of damage cost for additional damages in the monsoon and inflation costs, stands at NPR 28.2 billion (US$282 million) for the transport sector. The majority of recovery needs are in LRN because it was not designed to be disaster resilient due to the relatively low traffic volumes. It is an urgent that normal accessibility to remote areas is restored as quickly as possible.

Fast track repairs of minor damages and opening of blocked roads within six months

Recovery Strategy

The guiding principles for recovery works include:

- fast track repairs of minor damages and opening of blocked roads in the short term (within six months);
- speedy and efficient construction or rehabilitation of various components of the road using the BBB approach, employing relaxed procurement regulations in the medium term (within 24 months);
- speedy and effective procurements of long-term works using the BBB approach; and
- improvement of the reliability of highways, feeder roads, district roads and village roads that may not have been affected by the earthquakes but would constitute a basic access to the more damaged and populated areas.

SRN constitutes a crucial economic infrastructure. Its early recovery will work towards the early recovery of economic activities in the country. LRN contributes to the economic activities of rural communities and helps promote agricultural production and technology transfers from urban areas. It also contributes to the development of the social sector, such as health and education, by providing rural communities easier access to social amenities (hospitals and schools). Losses due to blockages in LRN arise more in agriculture, education and health sectors. On the other hand, closure of SRN and airports is expected to cause losses to the tourism sector, but there was no serious damage to SRN and airports this time.

Implementation Arrangements

The design philosophy, procurement modalities, and implementation strategies will be different for works in the short, medium and long term for a particular type of transport infrastructure.

TABLE 14.2: SUMMARY OF RECOVERY NEEDS

	Financial Year (NPR million)					Total
	2015-16	2016-17	2017-18	2018-19	2019-20	
Reconstruction Activities	**1,935**	**11,521**	**4,910**	**4,910**	**4,910**	**28,185**
Strategic Road Network						
Highways and Feeder Roads	691	1,859	1,147	1,147	1,147	5,992
Bridges	803	1,873	-	-	-	2,676
Buildings		349	-	-	-	349
Local Road Network						
District Road Core Network	252	5,951	2,445	2,445	2,445	13,539
Village Road Core Network	75	1,489	1,317	1,317	1,317	5,515
Civil Aviation						
Airports	95	-	-	-	-	95
CAAN HQ, Academy, Safety, Fire Building	19	-	-	-		19
Total	**1,935**	**11,521**	**4,910**	**4,910**	**4,910**	**28,185**

Short-term works should be completed with existing government resources, including existing contractors for government works. Variation orders or direct contracting should be considered for these works. Labour-based approaches using local workers will be considered for repair works and earthworks in rehabilitation. Medium-term works require the recruitment of fresh consultants for designs and contractors for civil works, but fast track procurement should be considered to complete the works as early as possible. Long-term works requires more cautious designing and procurement of large contracts, which shall follow the standard procedure.

The design philosophy for works in the medium and long term will be based on assessments of risks. Due to the nature of disaster recovery works, executing agencies should establish the most efficient implementation arrangement. Special provisions will be considered by the government for this purpose. The Government's Cabinet decisions on procurement in special circumstances under the provisions of Article 41 (1) (gha 3) of the amended Public Procurement Act (PPA) 2063, Article 66 of the PPA, 2063, and under the provisions in the bilateral or multilateral agreement as per Article 67 (1) (kha) for foreign funded projects may be taken as a reference. Budget requirements for the roads, including both SRN and LRN, will be NPR 183 (FY 2014-2015); NPR 7,744 (FY 2015-2016); NPR 8,010 (FY 2016-2017); NPR 6,641 (FY 2017-2018); and NPR 5,493 million (FY 2018-2019), respectively. Urban roads in Kathmandu are to be a part of urban recovery planning of the Kathmandu metropolitan area.


LONDON
LONDON

15. Water, Sanitation, and Hygiene

Damages and Losses

The damages and losses for water, sanitation and hygiene (WASH) have been calculated on the basis of rapid assessments undertaken by Water Supply and Sanitation Offices at the district, divisional- and sub-divisional level in the 14 most-affected districts declared 'crisis-hit' by the government. The Department of Water Supply and Sewerage (DWSS) also worked out estimates for an additional 17 districts that were classified by the government as moderately affected by the earthquake. These assessments were validated through field visits to nine of the most-affected districts by a team of experts comprising government agencies and concerned development partners. In addition, consultations were held with representatives of relevant line agencies and development partners to better understand the effects of the disaster on the functioning of the water and sanitation sector, and to solicit their suggestions on determining needs and formulating a recovery strategy. The net total value of damages and losses to the water and sanitation sector is estimated at NPR 11.4 billion at pre-disaster prices, of which NPR 10.5 billion pertains to infrastructure and physical assets. The total needs for recovery and reconstruction, using the BBB approach, is estimated at NPR 18.1 billion, of which 25 percent is needed for FY 2015-2016, 40 percent for FY 2016-2017, and 35 percent for FY 2017-2018.

The findings of the sector assessment show that out of a total 11,288 water supply systems in the 14 most-affected affected districts, 1,570 sustained major damages, 3,663 partial damages, and that approximately 220,000 toilets were partially or totally destroyed. Likewise, of the total 16,433 water supply systems in the 17 moderately affected districts, 747 sustained major damage, 1,761 were partially damaged, and approximately 168,000 toilets were partially or totally destroyed. In addition, six DWSS buildings completely collapsed, and a further 47 suffered partial damages in the affected districts.

Recovery Needs

The total recovery needs are estimated at NPR 18.1 billion (US$ 181 million) that includes NPR 12.1 billion (US$ 121 million) for reconstruction activities.

Recovery Strategy

Short-term activities will build on ongoing emergency response and run through to July 2016. They will accord priority to:

- temporary or provisional repairs to water systems;
- rebuilding of toilets and hand-washing facilities;
- resumption of the Open Defecation-Free (ODF) campaign;
- household water treatment;
- restoring and strengthening institutional capacity to coordinate and address short-term recovery needs; and
- disaster preparedness measures.

Rehabilitation of damaged projects will also be carried out during the period.

Medium to long-term recovery activities will be implemented from July 2016 through to July 2018, with a sharp focus on BBB. Priority will be accorded to:

- the continuing rehabilitation and construction of new rural and urban water systems;
- implementation of the water safety plan;

Out of 11,288 water supply systems, 1,570 sustained major damages, 3,663 partial damages, and almost 220,000 toilets were damaged

TABLE 15.1: SUMMARY OF DAMAGES AND LOSSES

Subsector	Disaster Effects (NPR million)			Share of Disaster Effects	
	Damage	Loss	Total	Private	Public
Water Systems	8,394	873	9,268	-	9,268
Sanitation	2,112	-	2,112	-	2,112
Total	**10,506**	**873**	**11,379**	**0**	**11,379**

TABLE 15.2: SUMMARY OF RECOVERY NEEDS

	Financial Year (NPR million)			Total
	2015-16	2016-17	2017-18	
Recovery Activities	**249**	**2,402**	**3,354**	**6,006**
Institutional capacity development	39	63	55	158
Meeting municipal standards for new urban population		2,003	3,005	5,009
Upgrading water quality	210	336	294	839
Reconstruction Activities	**3,025**	**4,840**	**4,235**	**12,101**
Water Systems	2,099	3,358	2,938	8,394
Sanitation	528	845	739	2,112
Recovery in Melamchi, NWSC, PID, STUIP, STWSSP supported schemes	84	134	118	336
Infrastructure for resilience	315	504	441	1,259
Total	**3,274**	**7,242**	**7,589**	**18,106**

- resumption of the Social Movement for Sanitation;
- implementation of urban sludge management;
- community and institutional capacity building in disaster risk management;
- strengthening governance, especially among service providers;
- strengthening sector monitoring, including for equity; and, completing the planned sector reform processes that are embodied in the Sector Development Plan.

Rehabilitation of water supply to ease the burden of women and girls will be expedited.

The destruction of critical infrastructure such as water sources can have a profound effect on the ability of women and men to engage in economic activities. The disruption in water supply has had a disproportionate negative effect on women and girls who are traditionally responsible for 75 percent of all household water management for the reason that the time taken to fetch water has increased up to three hours in some of the affected areas. The destruction of toilets, compounded by the lack of water and poor living conditions that do not afford women and girls much privacy, have had a serious impact on the personal hygiene of women and adolescent girls. Rehabilitation of water supply is urgently needed not only to ease the burden of work on women and girls but also as a disease prevention measure. Construction of public and private toilets with proper lighting should be part of the housing programme to alleviate the problems of privacy faced by women and girls.

Implementation Arrangements

The aim of the recovery and reconstruction strategy is to ensure that the sector is placed in a better and more resilient state than its pre-earthquake status as quickly as possible so that it can resume progress towards achieving the national goal of universal access to water supply and sanitation. The strategy is intended to restore infrastructure and governance and ensure that access to water and sanitation services are more equitable; services are developed to a higher standard; and governance is strengthened by enhancing sector coordination, professionalism and accountability.

Implementation of the recovery strategy should be through existing sectoral policies and institutional arrangements, with the Ministry of Urban Development (MoUD) providing coordination and strategic leadership. Although the recovery strategy focuses primarily on earthquake-affected districts, this should not be at the cost of slowing down water and sanitation development in other parts of the country through the Sector Development Plan, as it will facilitate a more effective and efficient delivery of the recovery strategy.

To ensure that recovery is effective, it is essential that roles and responsibilities, jurisdiction and resource envelopes are clearly established through consultation with key sector actors. This should set out the underlying principles of the recovery strategy, including a result-based management approach, monitoring and accountability. High-level technical and strategic guidance for implementation should be developed at an early stage. Dedicated task teams should undertake this work under the coordination of the Sector Efficiency Improvement Unit (SEIU) under the overall guidance and supervision of MoUD. The implementation mechanism should seek to further strengthen the decentralization process and capacity building at the local level to ensure that interventions are sustainable.

CROSS-CUTTING SECTORS

Governance

Disaster Risk Reduction

Environment and Forestry

Employment and Livelihoods

Social Protection

Gender Equality and Social Inclusion

16. Governance

Damages and Losses

The ability of the government to lead the post-earthquake recovery work has been severely affected by damage to government infrastructure, the loss of and damage to equipment and materials in government offices, as well as vital government records.

In total, 1,711 central, district, municipal and village structures were fully or partially damaged of which 1,109 were army structures[12]. The remaining 602 structures ranged from district courts, police buildings, VDCs, DDCs and MNCs, district administration offices, prisons, central ministry buildings, and the district treasury comptroller office, among others. A detailed assessment of sports facilities and training centres by the Ministry of Youth and Sports (MoYS) is also covered in the assessment.

Of the 580 VDCs in the most affected districts, 507 (87 percent) have their own office premises. Some of them were reduced to rubble, while others developed severe cracks, experienced a shift in the foundation, lost their roofing, and equipment. Before the buildings can be rebuilt, the debris and rubble will have to be removed, and the severely damaged buildings will have to be pulled down.

Immediately after the earthquake, local government structures reoriented their work to coordinating relief work initiated by the government as well as NGOs. The destruction of many business premises that provide a source of revenue for government indicates a reduction in the budget for the affected districts over the coming financial year due to lost revenues. This will further affect the ability of local bodies to deliver services.

Recovery Needs

The strategy for recovery of the governance sector involves:

- rebuilding and repair of government infrastructure;
- ensuring capacity for service delivery; and
- strengthened coordination within state institutions.

These interventions will build the capacity of government services to deliver interventions aimed at recovery, enhance systems of accountability, re-issue government records where lost or destroyed, and also increase awareness and enforcement of building codes.

Recovery Strategy

To achieve this, the staffing and financial management capacities of the government will need to be augmented at the district, municipal and village level. About 116 engineers and 116 accountants will be needed for the 14 most-affected districts covering 580 VDCs. In recognition of the ongoing process of federating the unitary state of Nepal, the district level needs to be strengthened for recovery planning and implementation. Once there is clarity on how this can dovetail with the provincial level, then permanent appointments could be made. At the municipal level, too, the recruitment of planning and accounting personnel as well as technical officers should be prioritized.

The figures for repair and rebuilding are estimates and government engineers will continue to develop detailed structural assessments and designs. As the assessment becomes richer, it will become necessary to identify the number of buildings owned by or rented by the government – as in the case of police and VDCs, and devise appropriate mechanisms for financing their repair or reconstruction.

The sector provides for the strengthening of government capacity to deliver recovery services as well as for collaboration with civil society that has a sizable presence in the ongoing humanitarian work. The sector gives particular attention to strengthening of government services at the district and village level. The District Disaster Management Committee (DDMC) will be strengthened through a secretariat to ensure that it is able to function as the main coordinating body for response; this secretariat can also serve the DDRC during the relief phases of any possible future crises.

The ability of the government to lead the post-earthquake recovery work has been severely affected. Rebuilding and repair of government infrastructure is critical for ensuring service delivery to people

[12] While the cost of damage to army infrastructure is included in this assessment, the recovery needs are not covered.

TABLE 16.1: SUMMARY OF DAMAGES AND LOSSES

Description	Disaster Effects (NPR million)			Share of Disaster Effects	
	Damage	Loss	Total	Private	Public
Appellate Attorney	8	-	8	-	8
Auditor General	340	-	340	-	340
Bar Association	21	-	21	-	21
Border Office	43	-	43	-	43
Central Registration Department, Narayan Bhawan (Women Development Training Centre)	85	-	85	-	85
DDC building	604	-	604	-	604
District Administration Office	638	-	638	-	638
District Attorney	45	-	45	-	45
District Court	295	-	295	-	295
DOLIDAR Building, Shree Mahal, Pulchowk	213	-	213	-	213
DTCO	85	-	85	-	85
Ilaka Office	128	-	128	-	128
Judgement Execution Directorate	17	-	17	-	17
Kathmandu Metropolitan City, Bagh Durbar	213	-	213	-	213
Ministry of General Admin	298	-	298	-	298
Ministry of Home Affairs	298	-	298	-	298
Municipal Building	551	-	551	-	551
Municipal Ward Building	625	-	625	-	625
National Human Rights Commission	866	-	866	-	866
Nepal Army	4,845	-	4,845	-	4,845
NPC	850	-	850	-	850
OPMCM	850	-	850	-	850
Police office	319	-	319	-	319
Police post	281	-	281	-	281
Prisons	3,640	-	3,640	-	3,640
Supreme Court	51	-	51	-	51
VDC building	757	-	757	-	757
Sports facilities and training centres	1,797	-	1797	-	1797
Total	**18,757**		**18,757**		**18,757**

TABLE 16.2: SUMMARY OF RECOVERY NEEDS

	Financial Year (NPR million)			Total
	2015-16	2016-17	2017-18	
Recovery Activities	1,530	871	628	3,029
Building Capacity for Service Delivery	1,439	768	534	2,741
Promote coordination and participation	91	103	94	288
Reconstruction Activities	5,138	5,138	5,138	15,413
Reconstruction of Buildings and Facilities	5,138	5,138	5,138	15,413
Total	**6,668**	**6,008**	**5,766**	**18,442**

17. Disaster Risk Reduction

Damages and Losses

The DRR system assets comprising search and rescue (SAR), seismological observation networks, hydro-meteorological networks, and Emergency Operations Centres (EOCs) at the district and national level were affected by the earthquakes. The damages to DRR assets is estimated at NPR 155 million (US$ 1.55 million), with the highest damages reported on SAR-related assets. While the investment in DRR assets has been relatively low in past years, in the context of the earthquake and the acute risk of cascading disasters Nepal faces, it's imperative to develop a robust DRR systems in place during the recovery and reconstruction phase.

Recovery Needs

In the recovery and reconstruction phase it is critical to prevent actions that end up creating disaster risks by increasing public awareness, considering the increased risk of landslides induced by the earthquake in the forthcoming monsoon (June – September). Noting the limited priority and resources given to DRR prior to the earthquake, improvements are urgently needed in the DRR system in the short (up to one year), medium (two to three years), and long (four to five years) term to enhance the resilience of the country.

Short-term priorities include:

- reconstruction of damaged DRR assets and improvements;
- measures to improve preparedness, response, relief and logistics systems;
- measures to strengthen information and communication capacities for relief, response and recovery; and
- measures to enhance multi-hazard risk monitoring, vulnerability assessment, risk information dissemination and awareness

Medium to long term priorities include:

- improvements in legal and institutional arrangements;
- measures to mainstream DRR into the developmental sector, particularly housing, private and public infrastructure, social sectors (health and education), and livelihood; and
- measures to improve integration of climate change adaptation and DRR, policy guidelines, institutional development.

The combined recovery and reconstruction needs for the DRR sector are estimated at NPR 8.20 billion (US$ 82.0 million), with the total additional recovery cost amounting to NPR 7.69 billion (US$ 76.99 million), and the reconstruction needs estimated at NPR 504.44 million (US$ 5.04 million).

Recovery Strategy

The Disaster Risk Reduction initiatives will go beyond Building Back Better and focus on the underlying risk even in non-affected areas. A holistic approach will be adopted to reduce risk in all hazard prone areas of Nepal to reduce vulnerability, with a focus on Kathmandu valley. The micro-zonation studies undertaken by experts in 2002 point out to a high level of seismic risk in the Kathmandu valley and surrounding areas. Population and building stock have grown manifold since then. Hence government will reassess the vulnerabilities and risks. Based on the assessment, long-term risk reduction measures will be

While the investment in DRR assets has been relatively low in past years, in the context of the earthquake and acute risk of cascading disasters it's imperative to establish robust DRR systems

TABLE 17.1: SUMMARY OF DAMAGES AND LOSSES

Subsector	Disaster Effects (NPR million)			Share of Disaster Effects	
	Damage	Loss	Total	Private	Public
Emergency Operation Centres	3	-	3	-	3
Hydro-meteorological observation networks	42	-	42	-	42
Search & Rescue and Fire Services	96	-	96	-	96
Field office buildings of water induced disaster prevention department	14	-	14	-	14
Total	**155**	**0**	**155**	**0**	**1 55**

undertaken by implementing building codes, enforcing appropriate techno-legal regime, motivating people to retrofit unsafe structures, and adopting risk sensitive land-use planning for future development. The government will partner with expert agencies for planning and assessing risks as well as for risk reduction and mitigation.

Implementation Arrangements

The reconstruction and recovery programme for the DRR sector will be implemented by NPC and key ministries- such as MoHA, MoFALD, MoUD, Ministry of Industry (MoI), and Ministry of Science, Technology and Environment (MoSTE) collaboratively[13] in close coordination with national DRM focal point system including the national DRM platform and the Nepal Risk Reduction Consortium. The implementation of activities will be as follows:

- Seismic hazard monitoring - MoI, through the National Seismological Centre
- Risk monitoring and early warning for hydro-meteorological hazards - MoSTE, through the Department of Hydrology and Meteorology
- Activities related to preparedness and response such as the functioning of EOCs, SAR, logistics hubs - MoHA, though MoFALD and districts for enhancing preparedness/ response effectiveness through community involvement and information coordination could to be handled by MoHA
- Building code and safer construction practices – MoUD, through Department of Urban Development and Building Construction (DUDBC) and MoFALD, municipalities, and VDCs
- Mainstreaming DRR into recovery across social sectors, focusing on health and education - MoHP and MoE
- Resilient livelihoods focused on agriculture and tourism - MoAD and MoCTA
- Mainstreaming Disaster Risk Management (DRM) into development planning - NPC

Within the framework of the recovery programme all these ministries will closely collaborate with each other and with any agency designated for overall national recovery coordination. The key thrust of the recovery strategy for the DRR sector is to prioritize those interventions in ensuring resilient recovery and in addressing immediate risks, while enhancing capacities to manage and reduce multi-hazard risks in the medium and long term.

The inequities experienced by women and vulnerable groups limit their ability to respond and adapt to disasters. Meaningful participation of women, men and other social groups in the design, implementation and monitoring of national and community DRR programmes will be critical.

TABLE 17.2: SUMMARY OF RECOVERY NEEDS

	Financial Year (NPR million)			Total
	2015-16	2016-17	2017-18	
Recovery Activities	**1,403**	**2,956**	**3,341**	**7,700**
Enhancing multi hazard risk monitoring, vulnerability assessment, risk information dissemination and awareness	105	230	665	1,000
Improving Legal and Institutional Arrangements	59	299	312	670
Improving preparedness, evidence based response, relief and logistics system, public education	1,061	1,937	1,693	4,691
Strengthening Information and Communication capacities for relief, response and recovery	112	167	145	423
Improving integration of climate change adaptation and DRR, policy guidelines, institutional development	25	90	185	300
Mainstreaming DRM into development sectors	41	234	341	615
Reconstruction Activities	**504**	**-**	**-**	**504**
Emergency Operation Centres	7			7
Hydro-meteorological observation networks	343	-	-	343
Search & Rescue and Fire Services	140	-	-	140
River/ Flood Protection Embankments	14	-	-	14
Total	**1,907**	**2,956**	**3,341**	**8,204**

[13] The Disaster Management Bill that is being considered could result in creation of a dedicated agency for DRR, in which case it may lead the implementation

18. Environment and Forestry

Large landslides, mudflows and other large-scale dislocation of hillsides inflicted damage in forest areas. There was sustained damage to nature tourism infrastructure such as nature trails, trekking routes and sites in protected areas (PAs). Damage to Renewable Energy Technology (RET) solutions such as improved cook stoves (ICS) and biogas are paramount as these lead to improvements in the lives of rural communities and also lead to significant positive environmental outcomes (e.g. reduced deforestation; reductions in GHG emissions).

Damages and Losses

An analysis of damages and losses in this sector shows that the damage was mainly of three types:

- destruction of forests, including in PA;
- destruction of installed environmentally friendly technologies; and
- destruction of office buildings, furniture, equipment and other assets of government institutions and community-based natural resource management institutions.

The maximum losses in terms of value are from the loss of ecosystem services. Large areas of natural forests that were destroyed, compromised the capacity of natural forest ecosystems to deliver important ecosystem services– or simply the benefits people receive from ecosystems. Beyond this, the earthquake has significantly worsened waste management, in particular in camp sites where affected communities have been residing after their houses were damaged. Although waste generation has increased, proper waste management systems are still not in place. In addition, clearing, transporting and safe disposal of waste, including the segregation of potentially harmful substances from the debris and rubble is another major problem. All these entail huge losses, both financial and environmental. Moreover, pollution from brick manufacture to meet the reconstruction demand will be significant. The cost of debris management has been incorporated in housing and human settlements section.

The earthquake negatively impacted local natural resources, governance and administration. A large number of Community Forestry User Group (CFUG) members and executive members were directly affected by the disasters, and numerous offices of government departments and community institutions were damaged, greatly reducing the capacity of the government as well as local communities in delivering services and enforcing laws in the affected districts. Another major impact is the increased risks from environmental hazards such as landslides and glacial lake outburst flood (GLOF) events. Both hazards have the potential for huge damage to lives and livelihoods in remote mountain areas, and landslide debris can also cause flooding and sedimentation downstream, which is likely to be a problem in the coming monsoon. The total figure of damages and losses to the sector was NPR 32,960.3 million and NPR 1,061.0 million, excluding the loss of ecosystem value to the tune of NPR 34,021.3 million.

Although the improved cooking stoves and biogas plant damages have been included in the private sector, the recovery cost is linked to government subsidy, with the individual owner having to pay only the potential 50 per cent additional cost.

Recovery Needs

The total recovery and reconstruction needs were estimated at NPR 25,197 million, with NPR 6,773 million for reconstruction, and NPR 18,424 million for recovery. The overall objective of the reconstruction and recovery programme is to increase the resilience of ecosystems, the environment, and vulnerable communities to future anthropogenic and natural shocks such as earthquakes and climate change by enhancing their management, and working with other sectors to promote sound development.

Reconstruction activities will restore government and community offices and buildings. Measures such as reforestation and afforestation

Large areas of natural forests were destroyed, compromising the capacity of natural forest ecosystems to deliver important services and benefits to people

TABLE 18.1: SUMMARY OF DAMAGES AND LOSSES

Subsector	Disaster Effects (NPR million)			Share of Disaster Effects	
	Damage	Loss	Total	Private	Public
Forestry related infrastructure	2,043	-	2,043	-	2,043
GoN offices	1,258	-	1,258	-	1,258
GoN equipment and furniture	6	-	6	-	6
CFUG offices	695	-	695	-	695
CFUG equipment and furniture	85	-	85	-	85
Impact on forestry, watershed, biodiversity, NTFP	**29,344**	**143**	**29,486**	**-**	**29,486**
Forest area loss	29,259	0*	29,259	-	29,259
Encroachment and illicit felling	-	104	104	-	104
NFTP collection loss	85	38	123	-	123
Environment	**1,573**	**918**	**2,492**	**1,755**	**737**
Air pollution due to brick industry	-	737	737	-	737
Cooking stoves	1,139	157	1,296	1,296	-
Biogas	435	24	459	459	-
Total	**32,960**	**1,061**	**34,021**	**1,755**	**32,267**

**Loss in ecosystem services such as forest´s contribution in controlling soil erosion and loss of soil nutrient, carbon sequestration and environmental amelioration is estimated to be NPR 34,715,364,285 (US$ 347,153,643) which is intangible, and not included in the table.*

TABLE 18.2: SUMMARY OF RECOVERY NEEDS

	Financial Year (NPR million)						Total
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	
Recovery Activities	4,917	5,001	3,929	3,030	2,780	3,040	22,697
Forest management	3,040	2,280	2,280	2280	2280	3040	15,200
Environment restoration	1,877	2,721	1,649	750	500	0	7,497
Reconstruction Activities	900	700	600	300	-	-	2,500
Forestry infrastructure	900	700	600	300			2,500
Total	**5,817**	**5,701**	**4,529**	**3,330**	**2,780**	**3,040**	**25,197**

will also be implemented to urgently restore damaged forest areas in ecologically fragile and hazard-prone areas. Re-installation of renewable energy technologies such as improved cooking stoves and biogas will also be prioritized. Recovery activities will include measures to build the capacities of communities, including those in PAs, to help reduce threats to forests and ecosystems. Supporting CFUGs in rehabilitating and restoring their forests, including short term targeted livelihood support to help rebuild environmental incomes from natural resources, is important. Recovery activities will also provide for safe, sound and environmentally friendly management of solid and hazardous waste. Finally, management of the large amount of debris and rubble is an important recovery activity while measures to reduce pollution from the huge amount of brick production post-earthquake are urgent. In order to achieve these, policy adjustments and incentives to promote climate-smart, environmentally friendly (green) technologies will be promoted as well.

Recovery Strategy

In addition to the recovery programme, the followingthree principles should be applied to all other sectors:

1. Ensure that reconstruction and recovery activities are environmentally sustainable, mindful of aspects such as recycle and reuse of debris; are appropriate to the region, and

capable of withstanding future disasters, including those posed by climate change.

2. Enforce environmental impact assessment/ initial environmental assessment during reconstruction in order to avoid future disasters.
3. Ensure that timber and fuel wood collection complies with existing forest management plans, and promote alternative energy and energy-efficient technologies to reduce pressure on forests.

Implementation Arrangements

The reconstruction and recovery programme for the sector will be jointly implemented by MoFSC and the MoSTE, which will coordinate closely with other lead ministries and sectors to develop detailed implementation plans for each sector, and also participate actively in any future national recovery coordination body to ensure that green principles and resilient practices are adopted. An extraordinary mechanism (EOM) is suggested, through which respective departmental projects will be aligned, coordinated and implemented through an Implementation Working Group chaired by respective departments. All recovery and reconstruction work at the district level will be coordinated through the District Disaster Relief Committees. The field-level implementation will be executed through district offices and local forestry user groups. Local community institutions will be duly involved together with other actors including NGOs, development partners and other institutions.

19. Employment and Livelihoods

A comprehensive Disaster Resilient Livelihoods Strategy is to be developed for continuum from immediate income generation to medium and long-term employment recovery.

Damages and Losses

The earthquakes affected the livelihoods of about 2.287 million households and 5.6 million workers across 31 affected districts, resulting in losses amounting to 94 million workdays and NPR 17 billion of personal income in FY 2015-2016. Although personal income loss is equivalent to only 2 percent of the total disaster effect, it is important to highlight that annual labour earnings in Nepal are extremely low. Therefore, even a minor income loss has serious implications for poverty in the country.

Agriculture: It is expected that 46 million workdays would be lost in the agriculture sector, resulting in a personal income loss of NPR 4,603 million over the next 12 months. This will particularly affect women who make up 60 percent of the agricultural labour force. Damage to stored seeds and tools will hinder the resumption of agricultural activity. Hence, some rural households will be unable to sustain their subsistence existence in the short term and will need to purchase products that they would otherwise have produced themselves. A surge in child labour may occur, as younger household members might be forced to interrupt their education and take up income generating activities to support their families.

Commerce and Industry: At least 860,000 workers in commerce and industry, of which approximately 33.9 percent are women, have been affected by the earthquakes. As many as seven million workdays in the commerce sector and 10 million in the industry sector are expected to be lost, resulting in a personal income loss of NPR 2,667 million and NPR 3,654 million respectively over the next 12 months. Household-based and micro enterprises are the most severely affected, with approximately 50 percent having sustained damage to premises, tools and equipment. About 74,500 home- based workplaces are permanently destroyed. Shops and industrial establishments in urban centres such as Kathmandu struggle with temporary labour shortages, as workers have returned to their home communities. Absent workers will experience significant personal income loss,[14] as will those who have remained in urban centres.

Tourism: The global press coverage of the earthquakes will likely discourage international tourism in the short and medium term. At least 84,000 workers in the tourism sector, 52 percent of them being women, have been affected by the earthquakes. As women tend to occupy less skilled jobs such as housekeeping and waitressing, they are often the first to be laid off, while managerial positions primarily held by men are maintained. About 29 million workdays are expected to be lost in the tourist sector, resulting in a personal income loss of NPR 6,200 million over the next 24 months.

It is unlikely that households will be able to reconstruct and fully repair their dwellings and places of work before the onset of the monsoon.

TABLE 19.1: WORKDAYS LOST AND INCOME LOSS PER SECTOR

SECTOR	LOST WORK DAYS			LOSSES IN PERSONAL INCOME (millions)	
	Total	Women	Men	NPR	US$
Agriculture	46,431,436	28,137,450	18,293,986	4,603.30	46
Commerce	7,898,324	2,796,371.97	5,101,952	2,667.10	26.7
Industry	10,822,634	4,270,250.29	6,552,384	3,654.50	36.5
Tourism	29,662,443	15,424,470.46	14,237,973	6,200.20	62
Total	**94,814,838**	**50,628,543**	**44,186,295**	**17,125**	**171**

[14] The Disaster Management Bill that is being considered could result in creation of a dedicated agency for DRR, in which case it may lead the implementation

On the other hand, workers in construction may experience increased labour demand and a rise in wages. Across Nepal, the main challenge will be to meet the demand for skilled workers in construction, which represents some 40 percent of the needed workforce. It is estimated that large-scale housing reconstruction may generate up to 352 million workdays over the next five years. Given Nepal's high dependency on remittances, it is likely that overseas migration will continue to be a key option for jobseekers, especially youth.

Recovery Needs

In response to the earthquakes, a comprehensive *Working out of Disaster, Building Resilient Livelihoods Strategy* is proposed to bridge the continuum from immediate income generation to medium and long-term employment recovery. The estimated budget for the strategy amounts to NPR 12.5 billion.

Recovery Strategy

The key short-term priority is to provide income opportunities to enable farmers and micro entrepreneurs to rebuild their workplaces. In the medium term, the recovery of employment and livelihoods will be promoted through rehabilitating the capacities of people and institutions. It is therefore crucial to provide disaster-affected workers with skills development opportunities to address the demand for skilled labour during the recovery process, and to promote sustainable jobs. At the same time, targeted support should be provided to micro and small enterprises to facilitate local economic recovery. In the long term, systematic support, through i.e. Employment Intensive Investment Programmes, will continue to promote job-rich recovery and the promotion of resilient livelihoods.

Due to large-scale male migration, women have crossed all traditional barriers of gender division

TABLE 19.2: SUMMARY OF RECOVERY NEEDS

	Financial Year (NPR million)						Total
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	
Recovery Activities	**5,927**	**3,247**	**3,247**	**63**	**63**	**-**	**12,547**
Awareness and sensitizing measures to mainstream occupational safety standards and non-discriminatory practices during reconstruction and recovery - 14 districts	2						2
Skills training programs-focused on disaster resilient skills development for rebuilding (masons, carpenters, contractors), entrepreneurship, financial literacy, including to migrants	2,514	-	-	-	-	-	2,514
Cash for work and labour-based programs focused on rebuilding public and private assets pertaining to livelihoods	3,393	-	-	-	-	-	3,393
Establish employment information/ facilitation centres districts (including on migration) - 14 districts	14	-	-	-	-	-	14
Mainstream child labour issues and concerns in all programme activities	3	-	-	-	-	-	3
Skills provision coordination mechanism	1	31	31	1	1		65
Establishment of Labour Management Information System	-	200	200	-	-	-	400
Employment facilitation services – 31 districts	-	31	31	31	31	-	124
Migrant resource centres – 31 districts	-	31	31	31	31	-	124
Skills training programs	-	1,257	1,257	-	-	-	2,514
Labour- based programmes through community contracting	-	1,697	1,697	-	-	-	3,394
Total	**5,927**	**3,247**	**3,247**	**63**	**63**	**-**	**12,547**

The main challenge will be to meet the demand for skilled workers in construction, which represents some 40 percent of the needed workforce

of labour and socio-cultural norms that confine them to subsistence agricultural and household activities. Women in general have been more negatively affected in the agriculture sector, the tourism sector as well as in the informal sector where they dominate. For that reason they may face more challenges in re-establishing their livelihoods and micro enterprises due to the lack of insurance underinvestment in the sector, limited assets and access to resources, and low resilience to disasters. Recovery efforts should focus on skills development, providing access to credit, and direct access to external markets for women entrepreneurs to reduce their reliance on agriculture and local tourist markets and enhance their resilience to future disasters. There should be affirmative action in ensuring the participation of, and benefits to, women and Dalit communities in cash-for-work programmes, which can resuscitate collapsed household economies.

During the recovery, efforts should also be made to address existing gender norms and social inequalities. This includes ensuring the participation of women and vulnerable groups such as Dalits and indigenous communities in short-term employment and skills development programmes. Simultaneously, continuous monitoring and awareness raising is necessary to minimize child labour during the reconstruction process.

Implementation Arrangements

The implementation of the above strategy and programmes cannot be undertaken by a single ministry or entity. It requires a comprehensive effort of the Ministry of Labour and Employment (MoLE), MoE, MoFALD, MoYS, MoI, and MoCS as well as Ministry of Finance (MoF) and NPC. The National Employment Policy, 2015, will help guide the overall coordination at inter-ministerial level. More specifically, it is suggested that:

- cash-for-work/labour intensive programmes could be implemented through MoFALD;
- skills training could continue through private and public partnership, but a coordination mechanism should be established at the national and district level under MoE, guided by a steering committee;
- a labour management information system should be situated under the auspices of MoLE;
- raising awareness on the issue of child labour concerns can be led by MoLE, trade unions, and the private sector; and
- employment information services and efforts to promote safe migration closely respond to the needs of young people, involving all ministries, organizations, trade unions and the private sector and, as such, could be led by MoLE.

20. Social Protection

The objective of social protection is to help households manage risks (including vulnerabilities across the life-cycle stages) and cope with adverse events. Reflecting the constitutional provision of social protection as a right, Nepal's social protection system has broadened in terms of range of schemes. However, the baseline situation of the social protection system inadequately covers a range of risks and vulnerabilities.

Losses

Following the earthquake, households have faced negative incomes and consumption shocks, resulting in a greater need for social protection and insulation from vulnerabilities. Using welfare analysis, it is estimated that the earthquake would cause average household consumption in most affected districts to decline by 20 percent. The conditions of households that were already vulnerable prior to the earthquake are likely to be exacerbated.

As shown in Table 20.1, about NPR 23.5 billion is needed to restore consumption of vulnerable groups (households with PLWDs, single women, children and elderly) in the most affected 14 districts to their pre-earthquake levels. This estimate increases to about NPR 32.7 billion if vulnerable households in all the 31 affected districts are covered.

As shown in Table 20.1, the estimated welfare losses further increase to NPR 47.5 billion if all households in the most affected 14 districts are covered. If all households in the affected 31 districts are covered, the estimated welfare losses reach the figure of NPR 63 billion.

A majority of the informal sector workers are women who are more vulnerable than men, and the agriculture sector is dominated by them. The loss of agricultural inputs may lead to a severe decline in agricultural productivity in the coming season. Female farmers who are dependent on the sector may take longer to recover than their male counterparts, who are more reliant on the non-agricultural sector. The more deprived sections such as Dalits, marginalized ethnic minorities and people living in remote geographical regions are deprived of access to social services as it is. In addition to the government's existing institutional arrangements of social assistance programmes for vulnerable groups, cash transfers will be essential for vulnerable single women/widows, ethnic minorities, and children from households that have suffered catastrophic economic losses.

Recovery Strategy

The recovery strategy seeks to promote the adoption and expansion of social protection where it is absent and/or where coverage and levels of

Female farmers are more dependent on agriculture sector and may take longer to recover than their male counterparts, who are more reliant on non-agricultural sector activities

TABLE 20.1: ESTIMATED WELFARE LOSS

	Value of loss (NPR million)	Value of loss (US$ million)	Proportion loss	Number of affected households
Vulnerable households				
All districts	56,300	$563	0.066	302888
31 affected districts	32,700	$327	0.085	301473
14 most affected districts	23,500	$235	0.105	276255
All households				
All districts	101,000	$1,010	0.067	530445
31 affected districts	63,000	$630	0.083	528149
14 most affected districts	47,500	$475	0.100	485777

TABLE 20.3: SUMMARY OF RECOVERY NEEDS

	Financial Year (NPR million)			Total
	2015-16	2016-17	2017-18	
Recovery Activities	**3,388**	**1,505**	**1,505**	**6,398**
Emergency top-up to all Existing Social Protection Beneficiaries	1,377.94	-	-	1,378
Emergency top-up to Dalit children below 5 years	180.00	-	-	180
Child-Friendly Local Governance (CFLG)	141.12	-	-	141
Strengthening of the Management Information Systems (MIS) of MoFALD and SSF	30.00	-	-	30
School Feeding	1,650.00	-	-	1,650
Capacity Building Training for VDC, DDC, DEO and SSF	9.03	-	-	9
Finalisation of SP Framework	-	5.00	5.00	10
Electronic Payment system	-	250.00	250.00	500
Targeted Social Assistance to the Poor and vulnerable households	-	1,250	1,250	2,500
Total	**3,388**	**1,505**	**1,505**	**6,398**

Gaps in the current social protection system will be covered through development of an integrated system for all social protection programmes to address contingencies and risks

benefits are low -in terms of social assistance, social insurance and work-related measures. Initiatives in the short, medium and long term that support steps in this direction are as follows:

Short term: As shown in table below, the provision of additional cash injections through existing cash transfer programmes to all existing cash transfer beneficiaries (elderly, widows, PLWDs, disadvantaged communities and children from Dalit families) will help vulnerable groups in affected districts and improve social protection service delivery. Introducing the mid-day school meal programme, better identification of beneficiaries, child-friendly local governance, and measures to strengthen the social protection MIS to enhance the efficiency of all cash transfer programmes, along with improving the capacity of the service providers, is recommended.

Medium term: The table shows, along with the estimated cost, measures including finalizing the draft National Framework for Social Protection (properly costed); further strengthening administrative systems for efficient rollout of social protection service delivery, with a particular emphasis on quickly scalable disaster responsiveness and temporary social protection schemes; enactment of the Unified Social Security Act to address social protection needs of the population. Furthermore, it is also recommended that relying on the upcoming Poor Household Identification Survey data from the Poor Household Support Board of the 14 most affected districts, poor and vulnerable households should be provided with cash and other labour market-based social protection.

Long term: It has been recommended that addressing the coverage gaps in the current social protection system and developing an integrated system for all social protection programmes, addressing different kinds of contingencies and risk management — following the concept of minimum Social Protection benefits following the ILO Social Protection Floors Recommendation, 2012 (No. 202) — should be the long-term recovery strategy. Social Protection coverage should be extended across the country relying on the approved and properly-costed National Framework for Social Protection and the upcoming Poor Household Identification Survey data from the Poor Households Support Co-ordination Board.

21. Gender Equality and Social Inclusion

Women, children, senior citizens, PLWDs, and minorities are among the most vulnerable to be affected by a disaster. Poverty, inequalities, exclusion and discrimination not only shape the vulnerabilities of people to disasters but also have a direct bearing on how survivors respond to the disaster and the extent of their resilience to such events in the future. The survivors of people living with poverty face extra challenges in responding to the disaster. These social groups have limited opportunities, ownership and access to economic resources to support their recovery. Limited influence in public and community decision-making processes also means that they have limited ability to influence how the recovery and reconstruction resources are distributed and shared. All recovery efforts must therefore provide targeted support at the micro level to ensure that poor and vulnerable households do not remain below the poverty line and are not pushed further into abject poverty.

General impact: Women, who comprise more than half the population, constitute the single largest disadvantaged group to be adversely affected across key sectors. The combined impact of a disaster across social, productive, and infrastructure sectors puts a huge strain on the ability of poor households to provide food and generate income from their livelihoods. This, combined with the loss of family protection and desperation for alternate livelihoods, could promote negative coping strategies among poor households thereby increasing the risk of sexual and gender-based violence, human trafficking, child labour, and early marriage for girls and boys. Competition for resources could further increase discrimination of women, the elderly, PLWDs, Dalits and indigenous communities. The needs of these vulnerable social groups require further study. One such group is that of newly widowed males who suddenly may have to take on the sole responsibility of parenting,

Poverty, inequalities, exclusion and discrimination not only shape vulnerabilities of people to disasters but also have a direct bearing on how survivors respond to disasters

TABLE 21.1: SUMMARY OF RECOVERY NEEDS

	Financial Year (NPR million)						Total
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	
Recovery Activities	**235**	**153**	**133**	**54**	**16**	**8**	**600**
Documentation & Registration of needs	35	17	6				58
Integrated Protection Support	49	30	30	12	-	-	121
SGBV	37	23	23	9	-	-	93
Child Protection	18	11	11	5	-	-	46
Support to PLWDs	35	22	22	9	-	-	87
Senior Citizens	12	8	8	3	-	-	30
Governance and Accountability	49	41	33	16	16	8	164
Reconstruction	46	194	97	49	-	-	486
Construction of WDO Buildings	146	194	97	49	-	-	486
Total	**381**	**347**	**230**	**103**	**16**	**8**	**1,086**

child care and household work. Additional targeted support may also be required for people living with HIV/AIDS, and also the lesbian, gay, bisexual and transgender community.

Social sector: According to information from the housing sector, 498,852 houses have been damaged. The destruction of homes and household assets has therefore constrained women's ability to engage in home based economies and income generation. About 26 percent of the damaged houses belong to female-headed households, 41 percent to Dalits and indigenous communities, and 23 percent belong to senior citizens. The elderly and PLWDs may not have the means or the manpower to support home reconstruction. Furthermore, women own only 19.17 percent of housing and land, which puts them at the risk of being excluded from housing reconstruction programmes that are based on the ODR approach. Indigenous communities, Dalits and other caste-based and ethnic minorities also form a large social grouping with limited ownership of land and housing and may therefore face difficulties in accessing and benefiting from housing reconstruction programmes.

Housing: Reconstruction programmes will need to be inclusive by ensuring that the mechanisms for facilitating joint ownership and female ownership are in place, adhered to and monitored. In addition, recovery should be based on the National Shelter Policy, which requires the State to provide land and housing to people from economically weak sections, as well as those residing in unsafe settlements. According to the analysis from the education sector, 699,100 girls and 699,937 boys are out of school. In severely affected areas such as Dhading, Dolakha, Gorkha, Kathmandu, Kavre, Nuwakot and Sindhupalchowk, there is a risk of children dropping out of school to support household and income generating activities. There could also be more instances of child marriage, particularly in Sindhupalchowk and Kavre, which have a long history of trafficking. Damage sustained by hospitals and health centres has limited women's access to sexual and reproductive health services, and an urgent rehabilitation of damaged birth centres is a priority in order to reduce the risk of obstetric complications for pregnant women. Moreover, as families divert money from paying for healthcare and food to restoring their homes and livelihoods, this may be done at the cost of the health of children, pregnant women and lactating mothers.

Infrastructure: Disruptions in transport, water and electricity supply have notably increased the time women and girls are spending in collecting water and firewood. The time allocated to these tasks has increased by as much as three hours in some areas such as Dhading, Lamjung and Gorkha. Extensive destruction of community infrastructure and women's cooperatives has affected their access to social capital, microfinance

and skills development. Further, disruptions in road networks have hampered women's access to essential services and markets. A speedy restoration of these facilities is essential so that girls and women can find time to return to school and pick up the threads of their livelihoods.

Productive sectors: The livelihoods of the most vulnerable social groups have been affected. To cope with damage to grains, seeds and livestock, agricultural households are likely to resort to negative coping mechanisms such as the liquidation of key assets such as livestock, which will further impede the consumption and production capacities of households in the medium and long term. In particular this will affect women who are more dependent on agriculture and face limited options of alternate livelihoods. This will be an issue in districts like Gorkha where the female population outnumbers males by as much as 7.5 percent due to male migration. Women also own and control smaller livestock, particularly goats, pigs and chickens that are most likely to be sold first, which will thereby further erode their livelihoods. Caste-based and ethnic minorities depend primarily on the informal sector for income generation. Vast destruction of private housing indicates that a large number of informal home-based workplaces have been destroyed, thereby affecting their ability to derive livelihoods. The anticipated decrease in tourism will disproportionately affect Dalits, who are overrepresented in porter work. According to data from the tourism sector, 200,000 people employed in tourism are likely to be laid off. Women who are found more in less skilled jobs such as housekeeping and waitressing are likely to be the first to be laid off. Further disruptions in access to microfinance, important for restoring livelihoods, will make it difficult for women to access finance. Provision of broad-based alternative livelihoods, finance and markets will hold the key to reducing dependence on agriculture and the building of resilience against future disasters.

Key Recommendations

While women and certain social groups have been disproportionately affected, simply viewing them as victims only exacerbates their vulnerability. They have knowledge, social and practical skills that are critical for recovery. Institutional representation of discriminated social groups through DDRCs in the recovery programme is essential to ensure that they benefit equally from it and, more importantly, are not marginalized further through lack of access to the programme. The recommendations are as follows:

1. Sustained support and monitoring of protection issues, accompanied by provision of alternative livelihoods, will be crucial. Cash transfers to most vulnerable households will be essential in order to reduce the pressure on them to resort to negative coping mechanisms.
2. Recovery strategies must strive to safeguard, restore, and promote economic engagement of disadvantaged groups. Alternative livelihoods must be promoted to build resilience in the long term.
3. Measures to support and promote attainment of ownership and tenure rights are crucial to ensure that post-disaster recovery programmes do not reinforce the inequalities faced by women and vulnerable social groups. Similarly, mechanisms to support certification and registration of women and children to facilitate ownership of land and homes and citizenship should be in place.
4. The government's institutionalized gender responsive budgeting mechanism, which aims to translate commitments to gender equality into reality for women, will be applied to all recovery and reconstruction programmes. Monitoring mechanisms will be established to ensure that key issues are addressed, and to track progress and facilitate accountability.

Sustained support and monitoring of protection issues, accompanied by provision of alternative livelihoods, will be crucial to recovery of the vulnerable people

POVERTY AND HUMAN DEVELOPMENT

22. Poverty and Human Development

Introduction

Although human development (HD) is to a large extent intangible, there are several indicators that can capture relevant dimensions of it, such as income, assets, health, education, inequity, social cohesion, gender inequality, child welfare, human rights, security, and psychological well-being. All of these have been affected by the earthquake, the duration of the negative impact depending on the adoption of a careful approach towards resilient rebuilding, meaningful partnership between the stakeholders, and amount of incremental development assistance. Poverty is one of the most important considerations, because it affects all other aspects of HD. There is a significant proportion of the Nepali population that subsists just above the US$1.25 line but below $2. The vulnerability of this group, especially female-headed families and those with a high-dependency rate is a serious concern. The second immediate effect has been felt in education, especially in the schooling subsector due to the destruction of infrastructure and mental trauma experienced by young students.

This assessment enumerates some of the important indicators, such as poverty rates, relating to HD that prevailed even before the event, both at the national and regional level – and, where possible, for the 19 districts categorized as 'crisis-hit' and 'hit with heavy losses' in first section. Second section captures the immediate effects on HD through primary field surveys in some of the severely affected districts. Last section is devoted to the channels through which poverty rates and HD may be affected in the medium to long term.

Pre-earthquake Poverty and HD Profile

BASELINE INDICATORS OF THE 19 AFFECTED DISTRICTS

Focusing on the 19 most-affected districts, some key baseline indicators including the human development index (HDI) suggest that the affected districts had:

a. HDI comparable to the national average (.490) or significantly higher for 3 districts in Kathmandu Valley, Kavrepalanchowk and Makawanpur;
b. Per capita GDP well above the national average.

This presents a rather complex challenge: The recovery plan will need to focus on the affected districts but at the same time demonstrate an understanding that the low HDI districts of Nepal require equal attention, financial and otherwise.

The proportion of out migrants in the total population and, consequently, the share of remittances is significant in predominantly female-headed household income. Therefore, given the uncertainty surrounding the readiness or willingness of migrants who returned home after the earthquake, the longer term effect on household income may be significant. Labour productivity is also on the high side in these districts, directly contributing to the overall growth rate of the economy. Thus, if livelihoods are not restored quickly, the national growth rate will suffer and, consequently, so will HD.

POVERTY AND INEQUALITY

The national poverty rate declined steadily from 41.8 percent in 1996 to 2011 to 25.2 percent. While rural poverty declined throughout, urban poverty increased in the latter half of the stated period. The fact that the number of urban poor doubled between 1996 and 2011 speaks for itself. As the number of rural poor has fallen, the trend towards "urbanization" of poverty has gathered strength, according to the head-count criterion in Nepal.

There is high variation in poverty rates amongst the different analytical domains of the country. The urban hill region (basically Kathmandu Valley) is the least poor region, with a poverty

There is a significant proportion of the Nepali population that subsists just above the US$1.25 line but below $2. The vulnerability of this group, especially female-headed families and those with a high-dependency rate is a serious concern

Inequality has been a cause of concern in Nepal – among other things, due to its implications for social cohesion, which is an important aspect of HD.

incidence of just 9 percent. The depth and severity of poverty is also the lowest for this region. Within urban areas, poverty ranges from 9 percent in the urban hills to 22 percent in urban Tarai. Within rural hills, poverty ranges from 16 percent in the Eastern region to 37 percent in the mid and Far Western region. Within rural Tarai, poverty ranges from 21 percent in Eastern region to 31 percent in the mid and Far Western region. Within each of the development regions except the Eastern, hills have higher poverty rates than the Tarai.

According to World Bank estimates, "poverty in the districts that have been hardest hit range from among the lowest in the country in urban Kathmandu to among the highest in the mountainous VDCs of Gorkha, closer to the epicentre. Overall, the poverty rate is around 9.7 percent in the urban parts of the affected areas and 26.5 percent in the rural parts. Poverty is deeper – that is, those below the poverty line are further away from the poverty line – in the rural parts of the affected regions than the average poverty depths in the other parts of the country. Using a slightly moderate definition of poverty (twice the poverty line) to take into account the larger concentration of households that are vulnerable to falling back into poverty, 51.7 percent of the population in the urban areas and 66.8 percent in rural areas within the earthquake-affected region are either already poor or at risk of falling into poverty."

Between 1990 and 2004, the 'below US$ 1.25' poverty rate declined at an annualized rate of 5.11 percent, while the "below US$ 2" poverty rate fell at the rate of 0.9 percent. But, if we take the more recent sub-period of 2004-2011, the numbers are very different: Poverty below the US$1.25 line declined at 2.8 percent, while poverty below the US$ 2 declined at 4.2 percent. This trend is driven mainly by remittances.

Inequality has been a cause of concern in Nepal – among other things, due to its implications for social cohesion, which is an important aspect of HD. The trends in consumption inequality in Nepal over the three rounds of household surveys conducted in 1996, 2005 and 2011 show that the Gini coefficient based on per capita consumption returned to its 1996 value after a temporary rise in 2003. Urban inequality rose moderately but fell more sharply, although it is higher than rural inequality. The shares of the top and bottom 20 percent also remain more or less unchanged between 1996 and 2011. One can conclude that the trend towards rising inequality witnessed during 1996-2003 was somewhat reversed subsequently, during 2003-2011. Having gone through a decade-long conflict, these are remarkable achievements in poverty and consumption-based inequality reduction. The massive destruction of livelihoods in the affected districts, disruption of basic services, limited access to facilities including relief, are likely to increase inequality, given that the poorer sections of the population have been more severely affected.

MULTI-DIMENSIONAL POVERTY INDEX

The Multi-Dimensional Poverty Index (MPI) identifies deprivations across income, education and health, showing the number of people who are multi-dimensionally poor and the number

TABLE 22.1: POVERTY AND VULNERABILITY PROFILE OF THE EARTHQUAKE AFFECTED REGIONS

Profiles	Affected Regions		Relatively Unaffected Regions
	Urban (including Kathmandu valley)	Rural	
Poverty rate (%)	9.7	26.5	26.5
Poverty gap, FGT(1)x100	2.5	6.7	5.4
Squared poverty gap, FGT(2)x100			
Moderate poor (% below 2xpoverty line	51.7	66.8	76.1
Food poor (%)	11.3	24.8	24.9

Source: WB Staff calculations based on NLSS III (2010/11), 2015

[15] The MPI in 2010, based on data collected in 2006 was 0.35, significantly higher than the latest figure.

of deprivations that poor households typically have to endure. The latest MPI (.217) showed that 44.2 percent of Nepalis live in acute multi-dimensional poverty. But Nepal's MPI is now below that of India, Pakistan or Bangladesh.[15] Thus, over five years, Nepal reduced the percentage of MPI poor people by 20.5 percent and reduced the intensity by 5 percent. At the national level, Nepal's progress with MPI is driven by three sub-components: electricity, assets and nutrition. It is widely believed that remittances received from abroad are the primary factor as far as asset accumulation and nutrition status are concerned. Assets have been destroyed by the earthquake and nutrition status is also at risk at the moment. The MPI in the affected districts could seriously deteriorate.

However, within Nepal, the fastest reduction in MPI has been in the western Tarai, where the total number of poor went down from 67 percent to 33 percent in five years. The far-western Tarai also saw a dramatic drop from 81 percent poverty to 50 percent. These are not among the areas which were most severely affected by the earthquake. Therefore, while MPI at the national level may not alter much, regional variances will widen.

MILLENNIUM DEVELOPMENT GOALS

Nepal is known as a "success story" in MDGs. The following table summarizes the achievements in Goals 1-7, according to the latest report published by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP).

TABLE 22.2: SELECTED MDG INDICATORS FOR NEPAL

Goals	Indicators	Achievement (year)
Goal 1: Eradicate extreme poverty and hunger	$ 1.25 per day poverty (%)	23.7 (2010)
	Country line poverty (%)	25.2 (2010)
	Underweight children (% under 5 age)	29.1 (2011)
Goal 2: Achieve universal primary education	Primary enrollment ratio (%)	98.5 (2013)
	Reaching last grade (%)	55.3 (2012)
	Primary completion rate (%)	99.8 (2013)
Goal 3: Promote gender equality and empower women	Gender parity index in primary education	1.00 (2012)
	Gender parity index in secondary education	1.06 (2014)
	Gender parity index in tertiary education	0.64 (2011)
Goal 4: Reduce child mortality	Under-5 mortality rate (per 1,000 live births)	41.6 (2012)
	Infant mortality rate (per 1,000 live births)	33.6 (2012)
Goal 5: Improve maternal health	Maternal mortality ratio (per 100,000 live births)	190 (2013)
	Skilled birth attendance (%)	36 (2011)
	Antenatal care (>= 1 visit) (%)	58.3 (2011)
Goal 6: Combat HIV and AIDS, malaria and other diseases	HIV prevalence(% ages 15-49)	0.2 (2013)
	TB incidence rate(per 100,000)	163 (2012)
	TB prevalence rate(per 100,000)	241 (2012)
Goal 7: Ensure environmental sustainability	Forest cover(% land area)	25.4 (2010)
	Protected area(% territorial area)	16.38 (2012)
	CO2 emissions per GDP(kg CO2 per $1 GDP (PPP))	0.116 (2010)
	Safe drinking water(% population)	88 (2012)
	Basic sanitation(% population)	37 (2012)

(Source: Asia-Pacific Regional MDG Report 2014/2015)

95 percent of the people surveyed received relief, 68.8 percent perceived them as fair, 61 percent went back to their normal occupation, 82 percent wanted to return to their original village of which 38.3 percent wanted to settle in a new location in their old village

There is outstanding progress in most of the indicators at the national level, although it should be borne in mind that there are spatial and socio-economic group-based disparities. Nepal achieved its poverty reduction target well before the deadline. There are, however, concerns with gender parity, especially women's enrolment in tertiary education. The disruption of schooling, and the loss of motivation of students to study, may affect the 'reaching final grade' percentage, which is already on the lower side. Due to the destruction of health facilities and disruption of health services, maternal mortality rate – an area where Nepal made outstanding strides, could be affected negatively.

Findings on Immediate HD Effect from Primary Surveys

The immediate effect of an earthquake on human development is that it makes families homeless, jobless or without a livelihood, vulnerable to food insecurity and diseases, and disrupt the normal education schedule. All of these add up to immense psychological stress, which no scale can measure, but leads to job abandonment and productivity, and income losses.

A primary survey of 408 displaced households was conducted in six severely affected districts, a month after the April 25 earthquake: Sindhupalchowk, Sindhuli, Gorkha, Kathmandu, Bhaktapur and Lalitpur.[16] Half the respondents were women. The main message that comes through is one of extreme uncertainty about what lies ahead, captured by the diverse nature of responses to all the questions asked. The uncertainty is about life (possibility of the disaster repeating itself), and livelihood. This 'state of mind' is in itself a serious negative effect on one's perception of well-being.

Overall, 95 percent of the people surveyed received relief, 68.8 percent perceived them as fair, 61 percent went back to their normal occupation, 82 percent wanted to return to their original village (of those who did, only 38.3 percent wanted to settle in a new location in the old village), 19.8 percent received remittances before the quake (of which only 26.6 percent did so after the event), 13.2 percent of migrants returned from their jobs abroad, and the average loss of annual income predicted was 32.8 percent.

Ninety nine per cent of households in Gorkha received relief and 95 percent perceived them as 'fair'. Nearly 90 percent were back to their normal occupation (which is mainly subsistence farming). This is in sharp contrast to the response received in Kathmandu district, where only 20 percent described relief distribution as fair and 43.8 percent were able to return to their normal occupation. Lalitpur and Bhaktapur responded similarly to Kathmandu. In Sindhupalchowk, only 25 percent of the people were able to return to their normal occupation. Only around 20 percent of the people "did not want" to go back to their village of origin.

Households that are still unable to return to their original occupation are compelled to adopt different kinds of coping mechanisms after the earthquake. The households of each district are adopting a particular type of coping mechanism which differs by district. The following chart summarizes coping mechanisms. The 'other' category includes drawing mainly on personal savings, reflected in significant cash demand from banks.

Nearly 44 percent of the surveyed HHs are coping with relief support, while 31 percent have acquired new debt. HHs in Gorkha, as noted before, have resumed their normal livelihoods, but the income generated from them is clearly insufficient to meet their needs: as a result, they are incurring new debt. The loss due to the earthquakes (house, livestock and other productive assets) differs by district. These numbers should be interpreted jointly with the per capita incomes of the districts. For example, Kathmandu has one of the highest per capita incomes,

[16] The questions focused on the (a) damage/loss of house, livestock and other assets (b) HH Income (without remittance) (c) migration and remittance (do they receive remittance, if yes, what is the monthly average remittance received, if they received remittance after the earthquake, did the family member who was abroad for employment return after the earthquake, if s/he has returned, how long will s/he stay back: one month, 1-3 month, 3-6 month, > 6 month) (e) relief (food, shelter, others; how long will it sustain them, is the distribution fair or up to their expectations) (f) coping mechanism (resumed normal work or not, if not how are they surviving – relief, debt, community support if any, how much longer they anticipate going back to their original livelihood) (g) relocation/resettlement (if they wish to go back to their original village/home, if not, what could be the reasons, if yes, would they want to be relocated if such opportunity is provided).

TABLE 21.3: COPING MECHANISMS OF HOUSEHOLDS BY DISTRICT

Coping Mechanisms of HHs by District					
	Living with Relief Support	**Living with Community Support**	**Living with debt**	**Other**	**Total**
Kathmandu	4.00	2.00	7.00	4.00	17.00
	23.53	11.76	41.18	23.53	100.00
Lalitpur	3.00	8.00	5.00	0.00	16.00
	18.75	50.00	31.25	0.00	100.00
Bhaktapur	16.00	17.00	0.00	1.00	34.00
	47.06	50.00	0.00	2.94	100.00
Sindhupalchowk	63.00	4.00	29.00	10.00	106.00
	59.43	3.77	27.36	9.43	100.00
Sindhuli	3.00	1.00	15.00	3.00	22.00
	13.64	4.55	68.18	13.64	100.00
Gorkha	0.00	0.00	7.00	1.00	8.00
	0.00	0.00	87.50	12.50	100.00
Total	**89.00**	**32.00**	**63.00**	**19.00**	**203.00**
	43.84	**15.76**	**31.03**	**9.36**	**100.00**

and the reported average loss due to collapsed/damaged house is NPR 2,574,413, which is several times higher than that in Gorkha (NPR 895,600).

GENDER

Sindhupalchowk, with nearly 95 percent toilet coverage before the earthquake, was about to be declared an ODF (Open Defecation Free) district. But, about 80 percent of the toilets have now collapsed. Women's and girls' health and safety will negatively suffer. Likewise, the existing 475 drinking water schemes have collapsed. This will have a direct negative impact on women's and girls' work in the form of increased drudgery as they will have to walk much farther to fetch water. Similarly, in Kavrepalanchowk, 22 VDCs were already designated ODF. The DDC was preparing to declare the entire district as ODF by December 2015. But now most of the drinking water schemes have been damaged. An important dimension of poverty is time poverty, which can be broadly understood in the context of 'the burden of competing claims on individuals' time that reduce their ability to make unconstrained choices on how they allocate their time, leading, in many instances, to increased work intensity and to tradeoffs among various tasks.' Time poverty can exacerbate income poverty in poor households in several ways, and many of these particularly affect women.

Poverty and food insecurity will increase in the aftermath of the earthquake. Dalits, the landless, and female-headed households (FHHs) will face a severe crisis as their coping capacity and scale of resilience are usually very low. It is important to note that in 14 hard-hit districts, the share of FHHs ranges between 21.3 percent (Nuwakot and Kavre) to 37.2 percent (Gorkha). As the number of single-headed households and FHHs are likely to rise in the aftermath of the earthquake, there should be a special support system to promote their survival and social resilience.

The effect on children has been significant. Four child-focused agencies, Plan International, Save the Children, United Nations Children's Fund, and World Vision International Nepal, are currently undertaking a children's consultation in the 14 most affected districts. Their preliminary findings from Focus Group Discussions (FGDs)

reveal several effects on children, ranging from concerns like shelter, education, food, hygiene, and access to drinking water, and other issues (unfair distribution, psychosocial support).

In 16 out of 24 FGDs, children groups identified shelter as the first priority issue in the current context and children in five FGDs said it was the second most important issue for them. Major problems relating to shelter listed by children are as follows:

a. Houses have collapsed and they do not know when new ones will be built;
b. Houses have developed cracks and they are unable to live inside them;
c. Their parents have no/not enough money to afford new houses;
d. Parents are stressed due to lack of shelter and they are not able to pay attention to children's needs; and
e. Sleeping under the tents is not comfortable.

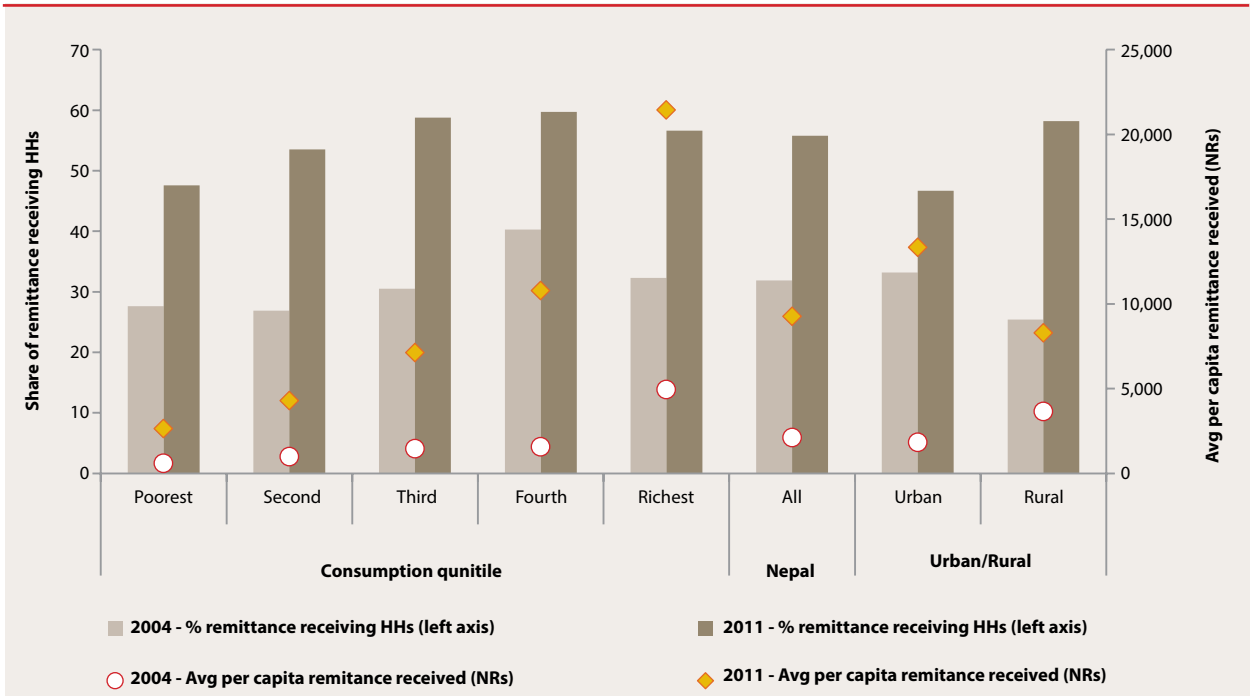
Children in seven out of 24 FGDs stated that education is the first priority need for them, whereas children in 12 FGDs cited education as the second most important issue. They have lost the motivation and confidence to study as their learning habits have been disrupted. They fear that they might have forgotten what they have learned, which may make it difficult to pass their exams. The extent of damages and losses has been the highest in school education, with the subsector accounting for 88.8 percent of the total damages and losses faced by the entire education sector. The earthquakes and series of continuing aftershocks led to the complete closure of schools and colleges for 37 days (26 April–30 May) in the affected districts, forcing more than five million children and youth to stay out of educational institutions for a significant stretch at a time when the academic year had just started. The standard number of days on which school remains open annually is 220 days, with 190 days for teaching and learning. Therefore, actual

TABLE 22.7: POVERTY IMPACT UNDER THREE SCENARIOS

	Baseline No Earthquake Scenario 2015	Low Impact		Medium Impact		High Impact	
		Housing and durable assets loss:50%		Housing and durable assets loss:70%		Housing and durable assets loss:100%	
		Annual income loss:35%		Annual income loss:45%		Annual income loss:50%	
		Growth rate in 2015/16:4.5%		Growth rate in 2015/16:4.5%		Growth rate in 2015/16:4%	
		Foreign remittance increase:15%		Foreign remittance increase:5%		Foreign remittance increase:0%	
	% Poor	% Poor	Δ# poor (in '000)	% Poor	Δ# poor (in '000)	% Poor	Δ# poor (in '000)
National	21.2	23.2	561	24	786	24.9	1038
Mountains	35.9	41.1	102	43.8	152	45.1	180
Urban Kathmandu	9.4	12.1	43	13	56	14.6	82
Urban Hills	7.3	7.8	6	7.8	6	7.8	6
Urban Tarai	17.8	18.3	11	18.3	11	18.4	14
Rural Eastern Hills	13	13.7	13	14.1	19	14.2	22
Rural Central Hills	25.8	36.6	280	41.2	395	45.1	500
Rural Western Hills	21.8	24.3	66	25.8	106	27.1	141
Rural Mid and Far Western Hills	32.8	33.9	27	33.9	27	34.1	32
Rural Eastern Tarai	17.9	18.1	7	18.1	7	18.4	17
Rural Central Tarai	19.3	19.3	0	19.3	0	19.8	22
Rural Western Tarai	18.6	18.6	0	18.6	0	19.2	10
Rural Mid and Far Western Tarai	26	26	6	26.3	6	26.6	11

Source: World Bank, 2015

FIGURE 22.1 : SHARE OF REMITTANCE RECEIVING HOUSEHOLDS, AND THE SHARE OF REMITTANCES IN TOTAL INCOME



physical damage to schools, compounded by the psychological trauma of students, may have a significant impact on all education related HD outcomes.

Among the most common concerns expressed by the children was that there is not enough food for the whole family and they have to depend on neighbours and relief handouts and, because of this, they do not get to eat on time. Hygiene and access to drinking water is another area that was prioritized by children. Out of 24 groups consulted, two groups prioritized it as the second most important problem for them. Issues listed by the children include the lack of toilets, littering of garbage, insufficient water supply, and contaminated water due to damage at the source. Due to the shortage of safe drinking water, children are forced to drink river water due to which they are falling prey to diarrhea.

Channels of Longer Term Impact on Poverty and Human Development

Impact on poverty and human development relates to the consequences of the effect in the short, medium and long term. The following channels are most likely to exert a strong influence on how poverty and HD unfolds in the wake of disasters.

MIGRATION AND REMITTANCES

One of the most important drivers of poverty reduction has been remittances. The following chart provides the share of remittance receiving households, and the share of remittances in total income. [17]

The share of remittance in total income went up significantly between 2004 and 2011 across all income groups but especially in the upper ones. The share of households receiving remittances rose too, but not that sharply. Thus, households which receive remittances have become increasingly more dependent on them as their main source of income. If this is not sustained, the income levels of such households take a hit, affecting the poverty rate directly. This will indirectly impact the growth rate of the economy by reducing investment in human capital, lowering nutrition/health status and causing a general slowdown in consumer spending.

[17] "Inclusive Economic Growth in Nepal" by Chandan Sapkota, Journal of Poverty Alleviation and International Development, 5(2)

The earthquakes also have implications for the Economic Vulnerability Index (EVI) which is likely to receive a temporary setback.

LOSS OF PRODUCTIVE ASSETS

The main channel which exacerbates poverty is damage and loss to productive assets. On the one hand, damage or destruction of houses implies the loss of rental income for many households and, on the other, signifies higher rental costs for those households previously living in rented dwellings. Destruction of productive assets such as land, seeds, machineries and working tools implies a loss of wage income as does the drop in economic activities, namely services and tourism as seen in the aftermath of the earthquakes. According to the World Bank, the most likely scenario will be sandwiched between the extremes presented in the table and the earthquake could end up pushing an additional 2.5-3.5% Nepalis below the poverty line. Between 50-70% of the total number pushed into poverty by the earthquakes will be from rural Central hills and mountains.

HUMAN ASSETS AND ECONOMIC VULNERABILITY INDICES

There is a likely impact on the "human asset" and "economic vulnerability" indexes (HAI, EVI, respectively), two of the three criteria required for graduation from being a Least Developed Country and also closely connected to HD. The 17th session (March 23-27, 2015) of the Committee for Development Policy in UN-DESA, announced that for the first time Nepal has met the criteria for graduation, possibly by 2022. Nepal made it to the list mainly due to its remarkable progress in HAI and EVI. The composition of HAI used for the 2015 review is an equally weighted index of percentage of the population undernourished, mortality rate of children under five years of age, gross secondary school enrolment ratio, and adult literacy. For the next triennial, maternal mortality rate will be added as an additional criterion.

Thus, while all the pre-existing components will reflect the effect of the earthquakes, an additional channel has been created through which the impact of the earthquakes will have long-term implications for HAI as well as the outcome of the next triennial review scheduled for 2018. It could be useful to identify affected women at different stages of their pregnancies and ensure that they receive adequate care to give safe birth.

The earthquakes also have implications for the Economic Vulnerability Index (EVI). Nepal had achieved the benchmark level according to the March 2015 review. The EVI comprises two sub-indices, namely exposure and shock. The shock sub-index, in turn, includes three components, namely export instability, victims of natural disasters, and instability of agriculture. All three are likely to receive at least a temporary setback.

MACROECONOMIC IMPACT ASSESSMENT

23. Macroeconomic Impact Assessment

The Larger Context

As a result of the earthquake that struck Nepal on 25 April 2015, much of the immense human loss and suffering, as well as the destruction of property, is visible to the plain eye, but the economy, too, is shaken. Total damage[18] to existing stock of assets has been estimated at over NPR 500 billion, with economic losses that flow from this destruction, estimated at nearly NPR 200 billion[19] – taken together both figures represent an economic force equivalent to about one third of Nepal's GDP and well over 100 percent of the Gross Fixed Capital Formation[20] . The immediate concern is to restore the productive means of livelihood for millions of women and men in agriculture, services and industry; ensure that the revenue base for the functioning of the State does not weaken; that there are macro-prudential preparations for the likely second order consequences of the direct impacts on the economy; and that the Nepali people's resilience in the face of growing vulnerabilities is enhanced.

Total damage to existing stock of assets has been estimated at over NPR 500 billion, with economic losses that flow from this destruction at NPR 200 billion – representing one third of Nepal's GDP

After decades of political instability, Nepal had begun gearing up for a higher trajectory of economic growth. Over the past year, it made a transformative leap in the energy sector by signing an historic power trade agreement with India and contracts to develop mammoth hydroelectric plants that put the country on a course to increase electricity generation ten-fold in a decade. The country was pursuing the next generation of economic reforms, enacting or revising several dozens of policies, acts, and regulations. Nepal was also on a firm path to achieving many of the Millennium Development Goals by the end of this year, including the target of halving absolute poverty. For the first time in 2015, in the UN's triennial review, Nepal met the required criteria for graduation from its status as a Least Developed Country (LDC), possibly by 2022. This now needs a re-assessment as does Nepal's order of priorities in the post-2015 agenda of Sustainable Development Goals (SDGs). The earthquake upsets the nation's high aspirations for swifter economic progress in the short run.

Growth Prospects

Annual economic growth in 2014-2015 is expected to be the lowest in eight years, at 3 percent.[21] The late monsoon last year, which caused a drop in the production of rice and maize, had indicated that growth this fiscal year would be 4.6 percent. The earthquakes have suppressed this projection by well over 1.5 percentage points (Figure 23.1). Furthermore, standard national accounts do not yet value the size of the household "care economy" largely upheld by women in Nepal by tradition. Amidst growing migration of men of working age, the share of women's paid work, especially in agriculture and the informal sector, and unpaid work in caring labour for the children, elderly and the sick is likely to grow in the aftermath of the quake.

Compared to 2013-2014, when growth exceeded 5 percent and was the highest after the Great Financial Crisis, the lost momentum through foregone production in just less than three months (between late April and mid-July 2015), valued at NPR 31 billion, is a major setback (see Table 23.1).[22] The losses will continue to accumulate during 2015-2016 until major sectors recover fully. If reconstruction efforts begin swiftly, however, new capital formation will help

[18] Draws on official inputs from the Central Bureau of Statistics, Ministry of Finance and the Nepal Rastra Bank, and sector summaries prepared by the World Bank, Asian Development Bank and the United Nations Development Program

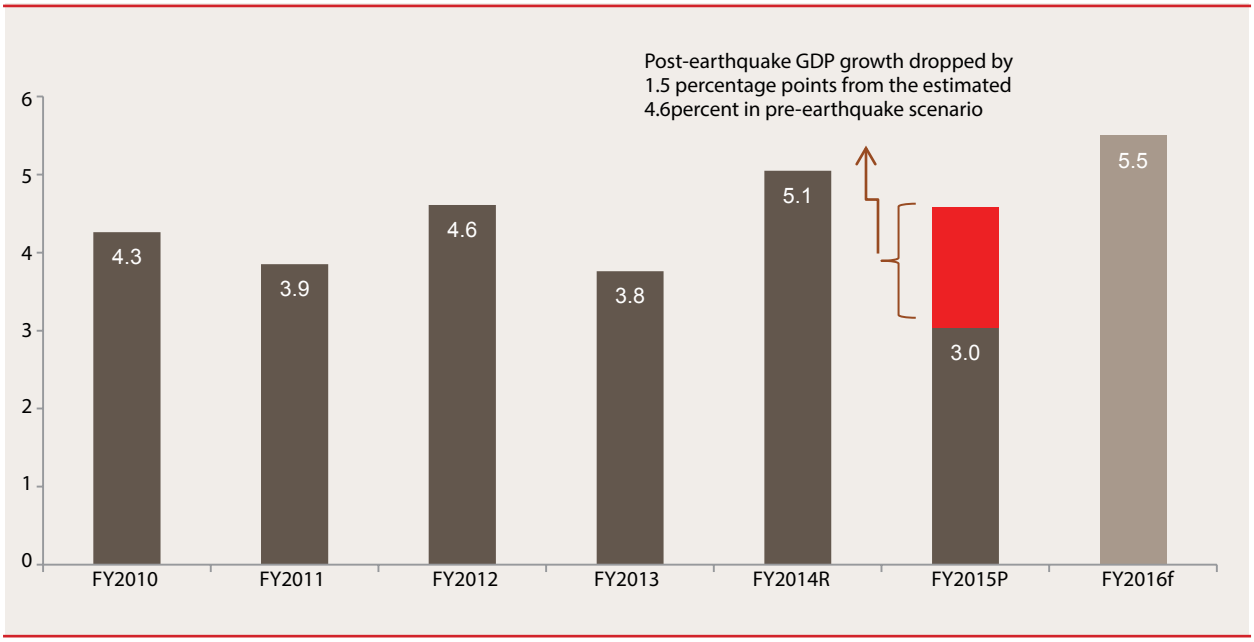
[19] Losses have been calculated for varying time periods across sectors spanning several months to years. For details, please see individual PDNA sector reports

[20] Note the distinction between economic concepts that measure "stock" and "flow." While GDP and GFCF are flow variables, like the estimate of economic losses, damage to assets is a measure of stock. It is accepted that aggregation of stocks and flows is problematic except for the limited goal of illustrating the total effect caused by a disaster. Macro-economic analyses focus much more on the value of changes in production flows whereas the value of destroyed assets is used separately to inform financial requirements for reconstruction. See PDNA Guidelines Volume B: Macroeconomic Impact of Disasters: *https://gfdrr.org/sites/gfdrr/files/WB_UNDP_PDNA_MACRO_SP_FINAL.pdf*

[21] Measured in basic price

[22] The economic impact on GDP, estimated at NPR 31 billion (in basic price), is the difference between the Gross Value Added estimated just prior to the earthquake on April 22 and the revised projection of June 6. An estimate of the production loss is much higher at NPR 51.5 billion.

FIGURE 23.1: GDP GROWTH (BASIC PRICES)



Source: CBS;

Note 1: R (Revised); P (Projected); f (forecast)

restore growth conditional on the supply of raw materials and labour being steady.

Indeed, preliminary projections of the "general equilibrium" effects of reconstruction, using the National Planning Commission's CGE model for Nepal,[23] shows that reconstruction will not merely be about building infrastructure; it will also alter the structure of the economy. Real Gross National Income (GNI) will increase because of international transfers; real GDP increases because of the "multiplier" effect of the additional income being spent in the country. There will be reallocation of resources, especially into construction, inducing a transfer of the factors of production away from other sectors by raising their wage and rent. Consequently, the cost of production in other sectors, especially tradables, will rise, possibly hurting export competitiveness. However, modelling results indicate that the private sector will acquire additional capital stock during reconstruction which can help sustain modest growth beyond this phase.

Sector Impacts

Real estate sector: The economic activity that has been the hardest hit is that of real estate, renting and business services, with annual growth projection revised downwards from 4.8 percent to 0.8 percent. With the massive destruction of owner-occupied dwellings[24] and public assets worth over NPR 325 billion, combined with the government ban on the registration of new property until the end of the fiscal year, post-earthquake growth in this sector is almost nil.

Annual economic growth in 2014-2015 is expected to be the lowest in eight years, at 3 percent

Partly because of its exposure to residential finance (NPR 116 billion) and real estate (NPR 54 billion), the banking and financial institutions (BFIs) are likely to see modest deterioration in the quality of loan portfolios, impacting the solvency of institutions, micro and large, and the overall flow of credit. With deposits growing but with lending being inadequate, there is likely to be a squeeze on the spread of interest rates. The resulting difference in incomes earned from, and payments made on, interest will hurt value addition in financial

[23] The Computable General Equilibrium (CGE) model under development at the National Planning Commission is titled GEMNeW (General Equilibrium Model for Nepal and the World).

[24] The System of National Accounts (SNA) 1993 defines services of owner-occupied dwellings as "own household unincorporated enterprises that produce housing services for their own consumption." These are included within the production boundary of the SNA.

The economic activity has been the hardest hit specially real estate, renting and business services, with annual growth projection revised downwards from 4.8 percent to 0.8 percent

intermediation. The insurance sector faces claims exceeding NPR 16 billion; a large share of this is re-insured abroad, but local liability remains substantial. Over time, the BFIs are estimated to suffer a loss of between NPR 27 billion and 39 billion as a result of poor loan recovery, and the need for restructuring and recapitalization.

In agriculture, the harvest of rice and maize had already been disappointing. What the earthquakes did additionally was to destroy the stockpile of stored grains and devastate the livestock sector, which accounts for over 23 percent of value added in agriculture. The loss of over 17,000 cattle animals and about 40,000 smaller, domesticated animals has resulted in the revision of the projected growth in agriculture from 2.17 percent to 1.8 percent this year. In the mountainous districts hit by the earthquakes, the production of potatoes, wheat and barley has also dropped. Damages in this sector have affected at least one million households, with women, who contribute to about 60 percent of crop production and 75 percent of livestock management, being harder hit. Furthermore, the risk of livestock mortality and disease has risen due to the loss of feed and shelter. Destruction of seeds and farming tools are reported to be moderate to high. Labour and other inputs may fall short for the planting of cereals and potato over the summer crop cycle. This may be disrupted further by landslides triggered by the coming monsoon. This does not augur well for agricultural revival next year in the quake-hit districts.

In services, tourism has been adversely affected with every nine in ten planned foreign arrivals cancelled in the aftermath of the quakes which occurred during the first of the two major seasons of the year. Industries that serve tourists, especially, hotels, restaurants and air transport, are struggling. With women holding more than 54 percent of unskilled jobs in the industry, they are likely to be the first to lose their jobs. In 2014-2015, hotel and restaurant earnings are expected to grow at about only 4 percent, compared to an earlier estimate of 6.6 percent. Destroyed tourism-related supply of services and decreased tourist spending are likely to lead to a loss of NPR 62 billion over the next two years. Conditional on low or no seismic activity over the coming months, tourism will rebound somewhat by the autumn, and strongly by next spring's climbing season, which is expected to draw back high-end tourists. This will, however, require a quick reconstruction of tourism facilities and high profile promotional campaigns in the international media.

In the social sectors, education is expected to record slower growth because of disruptions spanning several weeks, while the health services sector has recorded a modest uptick in its growth even though it accounts for only 1.7 percent of GDP. The largest contributor to value addition in services comes from the wholesale and retail (trading) industries. There has been an estimated decrease of about NPR 7 billion in the tradable "margin" of goods after the earthquake within 2014-15. Women are emerging as traders in Nepal, and might have been disproportionately affected in some sectors. Of the 19 export products prioritized in the national trade integration strategy of 2010, women are the primary producers of more than half of them, from woollen products and pashmina to medicinal herbs, tea and jewellery.

A majority of the large manufacturing industries located in the plains were not directly affected. But they have felt the externalities of falling national demand and fleeing workers. It used to be the trend for manufactured goods to be produced disproportionately in the fourth quarter. With the exception of CGI sheets and steel rods required for rebuilding, other firms are in a state of under-utilization.

In the construction industry, the large public programmes in districts unaffected by the earthquake have continued. Private construction in the immediate aftermath of the quakes came to a halt. In the next fiscal year (2015-16), however, labour demand for the demolition, clearing of debris, and reconstruction of destroyed and damaged dwellings and other physical infrastructure will grow. This will increase demand and earnings for skilled and unskilled labour in ancillary industries such as manufacturing and transport. Reconstruction also represents a short-term opportunity to restore livelihoods of women and to promote their economic empowerment.

In the electricity sector, as a result of increased water flow, there has been no notable drop in

power production after the earthquakes even though about 115 MW of hydro power facilities are estimated to have sustained damage. All the transmission facilities, including 42 substations and 57 transmission lines, are in operation. However, about 800 km of distribution lines at different voltage levels and 365 transformers at different capacity (from 15 to 300 kVA) are out of service. For electricity generation plants under construction, about 1,000 MW of hydropower projects, owned both by independent power producers and the Nepal Electricity Authority, have been partially damaged. This is a setback to the country's ambitious target of increasing generation by three-fold in the next two years and ending load shedding during the rainy months.

Fiscal and monetary sectors: Public revenues have taken a direct hit in the aftermath of the quake. It is now certain that the target for revenue collection in the current fiscal year, of NPR 423 billion, will not be met. With only NPR 390 billion expected to be raised by mid-July 2015, there will be a shortfall of about 8 percent (Table 23.2). This sets up a much lower base for 2015-2016, where the target now is to raise only between NPR 460 and 480 billion against a projection of NPR 512 billion prior to the earthquake. Of the five major sources, customs and those deemed "non-tax" revenue have seen the largest drop in collection. This is because of reduced imports, including luxurious items such as motorized vehicles, slowdown in tourism and banking, and customs exemptions on relief materials, among other factors. However, partly because of disruptions to normal functioning of government services, and weak capacity to execute infrastructure projects, of the expenditure target of NPR 618 billion in 2014-15, only about 80 percent is expected to be spent by the year's end.

With Balance of Payment (BoP) surplus exceeding NPR 70 billion, broad money is not expected to grow by more than 17.5 percent and inflation is expected to be contained within single digits during 2014-2015. However, the differences in sector specific inflation rates will be amplified going forward as demand for reconstruction inputs increase. In 2015-2016, as a result of an expansionary budget, and, likely supply-side bottlenecks, an inflationary pressure is expected to build up. There will also be an upward pressure on wages of both skilled and unskilled workers. A policy response on the minimum wage aimed at attracting back Nepali migrants could be announced in a way that staggers wage payments and reduces the pressure on inflation. An early announcement by the Government on the expected demand and supply of key commodities could help manage price expectations and avoid market distortions that lead to shortages. Food inflation in particular could go into double digits, exacerbating food insecurity in remote districts. "Derived" inflation, passed through imports from India, is likely to be contained in the single digits. For the first nine months of this fiscal year, domestic credit grew by over 7 percent, with the private sector component growing by more than 14 percent. The year ahead, deposits are expected to grow by 18.4 percent and lending by 19 percent.

External sector: As a result of the earthquake, export-oriented industries have been damaged. Further, domestic consumption of items that are normally exported have increased, reducing estimated exports by about 6 percent, as compared with the previous year. Imports are likely to expand by 8.1 percent as a result of increased demand for machinery parts, food, medicines, and construction materials. The fall in the world price of petroleum products checked the growth in import bills this year. The usual growth of imports of vehicles, television, jewellery and some raw materials is expected to decline as a result of falling demand at home.

There is an expected surge in international assistance of at least an additional NPR 50 billion within the fiscal year. Furthermore, policies aimed at deterring transfers of remittance through informal sources, and a projected increase in private transfers to families in the quake-hit districts, is expected to raise the growth of remittance inflows by 8.5 percent to nearly NPR 590 billion by the end of the fiscal year. The BoP is expected to record a surplus of over NPR 70 billion. However, the trade imbalance will worsen.

In 2015-2016, exports are unlikely to pick up rapidly because of the uncertain investment climate. While the production of CGI sheets and

It is now certain that the target for revenue collection in the current fiscal year of NPR 423 billion will not be met. With only NPR 390 billion expected to be raised by mid-July 2015, there will be a shortfall of about 8 percent

TABLE 23.1: ANNUAL GROWTH RATE OF GDP BY ECONOMIC ACTIVITIES (AT CONSTANT PRICES)

	Industrial Classification	2001-02 Base year	2011-12	2012-13	2013-14	2014-15 Projected on April 22, 2015	2014-15 Projected on June 6, 2015	Q4 (April to July) of 2014-15 Loss in Gross Value Added in (NPR millions)
A	Agriculture and forestry	3.01	4.58	1.07	2.84	2.17	1.79	2333
B	Fishing	8.71	7.53	2.71	4.90	6.32	6.31	1
C	Mining and quarrying	8.79	5.03	1.98	5.38	4.28	0.86	405
D	Manufacturing	-5.32	3.63	3.72	6.28	4.55	2.35	2647
E	Electricity gas and water	11.37	8.30	0.28	3.51	1.17	1.16	2
F	Construction	6.41	0.22	2.45	7.13	5.89	3.56	3139
G	Wholesale and retail trade	-11.57	3.50	7.25	9.01	5.59	3.43	5786
H	Hotels and restaurants	-18.23	7.38	5.50	6.77	6.60	3.98	1024
I	Transport, storage and communications	8.37	8.10	7.65	8.29	7.88	5.23	5996
J	Financial intermediation	3.82	3.47	-0.91	3.70	2.01	1.37	461
K	Real estate, renting and business activities	-4.89	2.97	5.19	3.64	4.86	0.77	7056
L	Public administration and defense	36.85	3.67	5.53	5.04	5.76	5.76	0
M	Education	21.05	5.58	5.92	4.81	6.47	4.97	1879
N	Health and social work	7.38	6.43	4.48	4.50	9.82	10.04	-68
O	Other community, social and personal service activities	-8.62	6.36	4.79	4.77	6.07	5.33	564
	Agriculture, Forestry and Fishing	3.08	4.63	1.10	2.87	2.25	1.87	
	Non-Agriculture	-1.06	4.53	5.01	6.31	5.66	3.58	
	Total GVA including FISIM	0.46	4.57	3.64	5.13	4.52	3.01	
	Financial Intermediation Services Indirectly Measured (FISIM)	10.66	3.50	0.72	7.10	3.05	2.23	
	Gross Domestic Product (GDP) at basic prices	0.16	4.61	3.76	5.05	4.58	3.04	30711
	Taxes less subsidies on products	-0.47	6.68	8.16	8.88	9.34	6.66	5814
	Gross Domestic Product (GDP)	0.12	4.78	4.13	5.38	5.00	3.36	36526

Source: CBS (revised June 8, 2015)

Note 1: All figures in percentage except indicated otherwise

TABLE 23.2: MACROECONOMIC INDICATORS

	2070-71 FY 2014 (actual)	2071-72 FY 2015 (pre-quake)	2071-72 FY 2015 (post-quake revised est.)	2072-73 FY 2016 (projected)
Output and prices				
GDP (constant, basic price, NPR millions)	669,980	700,667	690,349	728,318
GDP growth rate (%) (basic prices)	5.05	4.58	3.04	5.50
GDP (current, basic prices, NPR millions)	1,736,022	1,924,705	1,893,994	
GDP (current market prices, NPR millions)	1,941,624	2,161,175	2,124,650	2,422,101
CPI inflation (%)	9.1	8.0	7.5	8.5
Fiscal indicators				
Total revenue (NPR millions)	356,840	422,900	390,000	460,810
Tax revenue (NPR millions)	311,800	374,710	349,000	412,310
Non tax revenue (NPR millions)	45,040	48,190	41,000	48,500
Expenditures (NPR millions)	434,420	618,000	494,000	840,000
Money and credit				
Broad money (NPR millions)	1,565,970	1,815,755	1,816,520	2,143,490
Growth rate (%)	19.1	16.0	16.0	18.0
Private sector credit (NPR millions)	1,150,825	1,349,100	1,335,120	1,588,790
Growth rate (%)	18.3	18.0	16.0	19.0
External sector				
Exports (NPR, millions)	100,960		94,900	95,850
Growth rate (%)	17.4		(6.0)	1.0
Imports (NPR, millions)	696,370		752,710	889,960
Growth rate (%)	27.2		8.1	18.2
Grants and loans (NPR, millions)	69,650		62,860	108,730
Growth rate (%)	45.5		(9.7)	73.0
Remittances (NPR, millions)	543,300		589,470	627,790
Growth rate (%)	25.0		8.5	6.5
Balance of Payments (NPR, millions)	127,130		71,380	35,260

Source: CBS, NRB, MoF

GI pipes will increase, much of that will be diverted for domestic consumption. Conditional upon a strong revival of woollen carpets, handicrafts and pashmina, there can be a nominal (positive) increase in exports. Imports are expected to grow by about 18 percent. The majority of poorer youth from earthquake hit districts have tended to rely for job opportunities in the Kathmandu Valley. If economic activities in the capital remain subdued, there will be a push towards outward migration. Although overseas migrants are returning to help their families, it is unlikely that this will occur en masse: remittances, therefore, are likely to continue to grow by at least 6.5 percent to about NPR 628 billion. International assistance of at least NPR 100 billion aimed at reconstruction efforts is, therefore, expected to result in a BOP surplus of about NPR 35 billion next year.

Way forward

The narrative above suggests an economy that is struggling with the challenge of triggering sustained growth, yet it was supported by a reasonably comfortable fiscal space and BoP, the former a result of low expenditures and the latter a windfall from inward remittances. With the need for rehabilitation and reconstruction looming large, the challenge ahead is to garner resources from within and abroad in a manner that does not

The recently secured consensus among the largest political parties to promulgate a new constitution and to hold elections for local government, adds optimism to efforts aimed at restoring the trajectory of higher economic growth.

strain macro-prudential norms and disciplines on internal and external borrowing. Going forward, there are five issues deserving policy attention.

First, economic sectors that have borne the brunt of income losses need a package of support aimed at early recovery. From tourism and agriculture to the financial sector, industry and commerce, post-disaster needs assessments suggest that losses are expected to persist well into next year. The Government stands ready to respond with policy instruments that have not been frequently tried earlier, such as bailout funds to prevent contagion in the financial sector as well as business recovery centres to jumpstart small enterprises, including those headed by women in the agriculture and informal sectors. As was evident after the quake, the proportion of uninsured private losses is large. There is, therefore, an opportunity to expand the insurance sector to widen safety nets.

Second[25], with a search for new revenue instruments and firmer tax effort, fiscal space can be widened . However, it is the quality, pace and pattern of expenditure that has been a bigger concern over the past decade, with over 10 percent of annual budget being unspent on average. There is a growing tendency to augment unproductive recurrent expenditures in lieu of capital investments with larger payoffs, especially in physical infrastructure. To ramp up spending aimed at post-earthquake reconstruction, Nepal now needs a binding institutional commitment to instill confidence in a system built around efficiency, transparency and accountability. An Extra-ordinary Mechanism (EOM) that is informed by international good practices but is grounded in past Nepali successes will be necessary.[26]

Third, there are macroeconomic vulnerabilities that will need to be closely monitored. With the surge in the import of construction materials, and reconstruction attracting away resources from the tradable (export) sector, the trade deficit will widen further. If the flow of remittances is tepid as a result of unforeseen shocks, the BoP could spiral out of control. Similarly, the control of inflation will require vigilance on the part of regulatory institutions. Calls to exempt reconstruction-related imports from customs and value-added taxes at the border could also dampen revenue collection. This will be examined with a view to addressing supply constraints in a non-distortionary manner.

Fourth, the management of public expectations with regard to the scale and intensity of "new" construction has to be deft. The discourse in the country already conflates recovery needs with ambitious projects of national significance not directly related to the earthquake. While a national campaign of new building and renewal can use post-quake recovery as a point of departure, it would be useful not to mix the two at early stages of recovery to encourage prioritization and an economic use of scarce resources. Nepal will also need a separate strategy to manage labour shortage through wage and non-wage incentives.

Fifth, Nepal is the custodian of ecological reserves that are a valuable asset to the global community. Self-imposed boundaries to exploitation of natural resources and development of sensitive land parcels hurts Nepal in its developmental journey. This is going to be a visible aspect of the post-earthquake recovery process where demands will be made on forest resources and new lands. Nepal has to fulfill its commitment to natural resource conservation, but without any recognition or monetization of ecological services it provides to the world. This deserves a wider discussion going forward.

Sixth, the recently secured consensus among the largest political parties to promulgate a new constitution and to hold elections for local government as early as possible, adds optimism to efforts aimed at restoring the trajectory of higher economic growth. A push towards economic reforms has to continue so that the investment climate is friendlier. Nepal also needs to tap unconventional assets at its disposal such as the growing financial and technical clout of the diaspora, the spirit of volunteerism of its youth, and new sources of philanthropy.

[25] Options include i) widening the tax base without increasing rates, but imposing a temporary reconstruction levy, ii) encouraging voluntary compliance, iii) reducing tax exemptions, iv) enforcing electronic billing, v) reforming customs valuation, vi) prioritizing high net worth individuals, and vii) building capacity to bring emerging areas such as e-commerce and capital gains into the tax net

[26] Such as the rebuilding after the 1988 earthquake, the reconstruction of Myanglung Bazaar in Tehrathum after the fire of 2002, and the integration of Maoist combatants after the 2006 peace process. Under the oversight of elected representatives in government and parliament, as well as development partners and civil society, an EOM staffed by professionals who can exercise legal authority embedded in several acts, from procurement to land acquisition, would be required to execute reconstruction.

RECOVERY STRATEGY

24. Recovery Strategy

Overview

The major earthquakes of 25 April and 12 May 2015 in Nepal have affected most economic sectors and segments of society. The need for recovery[27] is immediate and urgent and must be linked to the ongoing relief efforts. As the government prepares a large-scale recovery programme based on the results of the PDNA, there is a wide recognition that recovery has to be a multi-pronged effort. While the government will plan, organize and facilitate the recovery programme, this needs to be supported by other stakeholders of Nepalese society and economy — the private sector, NGOs, philanthropic organizations, and international partners, including agencies and INGOs.

The scale of the recovery programme should not be underestimated. It will involve implementing a large number of activities in a relatively short period of time, and will require substantial preparation in institutional, financial and logistical terms. This calls for relevant technologies, regulations, and innovations to meet the demands arising from the extremely dynamic context of the recovery programme. There are several aspects of recovery that can be implemented only when a national consensus is built around them. Strong political will, sustained resource mobilization and continuous dialogue with the affected communities are among the most important pre-requisites of a successful recovery programme.

The sector assessment reports included in the PDNA provide the basis for developing a detailed recovery programme that will include implementation arrangements, technical support and flow of funds. An outline of a broader recovery strategy is presented here, which includes guiding principles, a policy framework, institutional mechanisms, and key considerations.

The Unique Nepali Way

While the earthquake recovery effort in Nepal will draw upon all the good practices followed in other recovery programmes in South Asia and elsewhere, it has to be developed and implemented in a uniquely Nepali way. The people of Nepal have demonstrated considerable resilience in coping with many adversities, and Nepal also has a lot of previous experience in recovery and reconstruction following natural disasters and conflicts in the country. The government will draw upon its own national experiences and resources to support recovery and develop institutions, pools of resources and practices to implement recovery. This effort will be based on a recognition of difficult terrain, strong social capital, the need to augment capacity for effective local governance, and to harness the considerable talent and skills available through its diaspora.

Guiding Principles

The recovery strategy will be guided by a number of principles aimed at improving the quality and impact of recovery, emphasizing equity and inclusion, and promoting risk reduction. These guiding principles are enunciated below:

- The recovery programme should be a collective effort of joint resources and expertise of the Government of Nepal, the private sector, cooperatives, civil society and development partners, united in the aim to build back better.
- The recovery programme will implement a uniform policy and not discriminate against anyone on the basis of caste, religion, gender or political affiliations.
- The recovery programme should be implemented effectively in an open, accountable and transparent manner. Major decisions taken with regard to recovery should be widely disseminated through public media. All the information related to recovery must be available in the public domain.
- The recovery programme should create assets and skills for people affected by the disaster. Creating assets and skills will reduce vulner-

The people of Nepal have demonstrated considerable resilience in coping with many adversities, and Nepal also has a lot of previous experience in recovery and reconstruction following natural disasters and conflicts in the country

[27] Recovery refers to processes and activities which restore infrastrucutre and civic services, develop resilience through rebuilding shelter and livelihoods, and reduce risk through DRR and social protection. It's a wider term which also inlcudes reconstruction.

Recovery should follow a people-based approach which encourages consultations with communities, utilization of social networks, and reliance on local skills and knowledge

ability and promote long-term resilience among the people.

- Recovery interventions, at all phases, should emphasize gender equity and social inclusion with a specific orientation towards the most vulnerable. The PDNA has integrated gender equity and social inclusion across all sectors of the assessment.
- Recovery should follow a people-based approach which encourages consultations with communities, utilization of social networks, and reliance on local skills and knowledge. It should be culturally sensitive and environment-friendly. It should promote change and innovation in building practices, but at the same time empower people. It should involve the over two million strong Nepali diaspora who will play an important role in recovery and reconstruction.
- Recovery should include the considerations of disaster risk reduction. In the context of housing, this would mean introducing building regulations, revising building codes and enforcing their application.
- The recovery programme should be implemented in a resilience framework whereby it is linked to the relief effort on the one hand and development policies on the other.
- The recovery programme will primarily utilize local resources and expertise. However, it will also draw upon the resources, expertise and fraternal support of neighbouring countries in South Asia.

Policy Support

The guiding principles will be given a concrete outline through a policy formulated and approved by the Government of Nepal. The policy will specify the scope of the programme, lay down the scale of assistance, and prescribe enabling mechanisms for implementation.

The policy will emphasize strong government ownership of the recovery programme. The policy will recognize the need for targeted assistance in those areas where people have special needs such as the need for long-term physical rehabilitation due to the earthquake. In many cases, children have been rendered orphans, and in all these cases, the government would decide upon specific interventions in order to play the role of custodians effectively. In the area of economic recovery, those who are completely dependent upon small businesses, handicrafts, and provision of services for their livelihoods, will receive appropriate assistance.

The policy would provide the basis for affected people to access assistance, if and when needed, demonstrating a specific orientation to the most vulnerable. It would lay down the process through which people would be declared eligible for receiving assistance, and also define the modalities of assistance. It will suggest an inclusive approach to implementation and specify enabling mechanisms through which policy pronouncements can be implemented. Criteria of poverty and vulnerability will guide this policy.

Key Stakeholders

As the imperative of recovery extends to all the sectors covered in the PDNA, it should build upon inter-sectoral linkages and harness the resources and skills of national and international institutions. The recovery programme should be planned and implemented through a strong coalition of government entities, development partners, the private sector, cooperatives, youth volunteers, and civil society. It has to be a genuinely national effort on an extraordinary scale.

The Government of Nepal will play the lead role in developing and implementing the recovery programme. It will set up a special institutional mechanism to support recovery planning and processes. It will develop recovery policies, mobilize and disburse resources and monitor the outcomes of the recovery programme. It will also facilitate the participation of all the other agencies as per the earthquake recovery policy.

The recovery programme will need the support of a large number of other stakeholders. It will include all the sector-level ministries and departments, government agencies and local governments. Local governments will play a critical role in implementing recovery interventions at the household and community levels. Such a responsibility would entail that local governments augment their capacity to take on additional responsibilities.

The national government will create the necessary framework for the participation of interna-

tional agencies, encouraging their contribution in accordance with their respective sector-specific mandates, responsibilities and principles. The participation of international agencies in the PDNA is a strong indicator of their support for the recovery programme.

A large number of international and national NGOs have supported humanitarian assistance in the wake of the Nepal earthquakes, and many of them will continue their support. The government will provide an enabling framework for their participation.

The private sector in Nepal has suffered significant damages and losses due to the earthquake. It supported the PDNA by providing data on many sectors, and will follow it up with efforts to join the recovery efforts. Similarly, cooperatives can also play a very important role in supporting recovery and reconstruction in Nepal.

One of the most important stakeholders is community-based organizations (CBOs) and communities themselves. People have already started recovering through their own efforts and with the valuable support of their families. As they draw upon family and social networks, they would be the most active and spontaneous participants in recovery planning and implementation.

There is also a need to seek the participation of professional organizations as well as prominent universities and research institutions. These institutions provide a pool of technical resources, which is extremely important for ensuring the quality of recovery assistance.

The Government of Nepal needs to bring these stakeholders together and work with them as development partners towards a common and shared goal of recovery and resilience.

Institutional Framework

The Government of Nepal will set up a special institutional mechanism to implement the recovery programme. The institutional mechanism will be established at the national level with a line of reporting to the Cabinet and other high-level political bodies. The government will equip the high-level body with adequate powers to take all the necessary policy decisions regarding recovery. The institutional arrangements will include a Programme Implementation Committee authorized to approve work plans, procurement, land acquisition and pooling proposals, and social safeguards, and to take decisions for fast tracking programme implementation. To implement various interventions, the institutional mechanism will include a system for financial management, development partner coordination, participation of civil society and private sector, and monitoring and reporting.

The national-level institutional mechanism will hire professional and technical staff to carry out its responsibilities. It will also be supported by experts and consultants assigned with specific tasks. Its responsibilities will include coordination with all line ministries, strong linkages with the district administration, and partnerships with NGOs and civil society organizations. It will be the responsible agency for overall implementation, resource utilization and monitoring of results. Once the recovery programme is substantively completed, the special institutional mechanism would be wound up.

Resource Mobilization

The recovery needs take into account the cost of reconstruction with better specifications, equipment, improved governance and risk reduction. While calculating the recovery needs, it does not consider the replacement value, particularly in respect to the housing sector. It specifies a core house with a minimum area as the recovery need, and estimates the total needs on the basis of the cost of construction per square feet.

In view of exceptionally huge recovery needs, the Government of Nepal will undertake a sustained effort to mobilize financial resources. As is the case in most recovery programmes, the resources would be pooled through several windows of funding: the government's own resource mobilization including budgetary reallocations, loans from IFIs, grants from multilateral and bilateral agencies, contributions from the private sector and citizens (which would include the large remittance income from the diaspora), and reallocations from existing project portfolios.

People have already started recovering through their own efforts and with the valuable support of their families and they would be the most active and spontaneous participants in recovery planning and implementation.

[28] A timeframe of 3-7 years would seem likely, with construction for example of cultural heritage sites requiring the longer timeframe.

The objective of housing recovery is to provide resources to households for building a safer core house that meets the minimum housing standards. It will largely be an owner-driven recovery programme

These resources will complement the efforts for self-recovery which are already underway. The resources would be pooled in a way that would keep the ratio of debt within manageable levels, and utilize grants assistance to the extent possible.

The implementation of the recovery programme will take place over a period of several years[28] , with the areas of recovery determining the timeframe. The flow of funds would be organized accordingly. A larger flow of funds may be needed in the first year in view of the many priorities of early recovery; although, due to the requirements of planning and procurements, larger expenditures may incur in the second and third years.

In a number of countries, governments have set up Multi-Donor Trust Funds (MDTF) to pool and allocate resources for different recovery needs. The government may consider setting up such a MDTF in Nepal too. The architecture of such a MDTF would be finalized in consultation with all the important stakeholders, and would require coordination with other mechanisms to support the recovery process.

Geographical Coverage

The recovery programme would be implemented in all the affected districts of Nepal. However, the government has categorized the districts into three broad groups based on the magnitude of impact. The first category consists of 14 most affected districts that have been declared as crisis-affected. The second category includes 17 districts with heavy losses. The third category includes all the other districts that are slightly affected. The 14 districts declared as crisis-affected would receive the highest priority in the recovery programme, followed by other affected districts. In addition to these districts, there would be certain components of the recovery programme which would be implemented at the national and regional levels. Priorities need to be established on the basis of the resilience of the districts in terms of differences in poverty and vulnerability, in addition to the degree of effects that they have suffered.

Timeframe

A realistic timeframe for the implementation of the earthquake recovery programme is at least five to seven years. The previous experiences of earthquake recovery programmes elsewhere in the world suggest a time frame of five years and more. As the element of reconstruction in the wake of the two earthquakes is high, its recovery could take even longer. All the recovery interventions need to be prioritized and planned across the sectors in a way that they are implemented over a period of five to seven years.

Areas of Recovery

The PDNA covers 23 areas which have been grouped under four categories: productive, social, infrastructure, and cross-cutting themes. Recovery will emphasize the following areas:

Housing: More than half a million families have lost their houses and, as a consequence, almost half the damages, losses and needs as projected by the PDNA are accounted for by housing. This makes it one of the most important areas of recovery, which will include a wide range of rebuilding alternatives, including reconstruction, repairs, and retrofitting.

The objective of housing recovery is to provide resources to households for building a safer core house that meets the minimum housing standards. It will largely be an owner-driven programme, with modalities for direct transfer of assistance to eligible households, technical support for building back better and independent arrangement for inspection and certification at various stages of construction to ensure compliance with seismic-resistant standards. The government will provide several safer designs of housing based on building codes (build back better) and the affected families will exercise their preference for any one of them. These designs will be based on the existing construction practices in rural Nepal and will use locally available construction materials. Technical support for such construction will be provided by the government.

Housing recovery will follow a habitat-based approach. It will be implemented in a way that im-

proves settlements and provides a better quality of life for all the residents. The clustering of houses will be encouraged wherever feasible. A geophysical study of the affected areas would be carried out to assess the level of risks to settlements.

Access to Socio-economic Services: Communities need to have access to all socio-economic services. This means provision of education and health services, support for employment and livelihoods, and assistance for resumption of agriculture and small businesses. As part of these efforts, schools and health centres will be reconstructed on the principle of 'build back better', and the overall level of services improved through greater attention to effective delivery and governance. Similarly, communities will need access to water and sanitation, government offices and community buildings. The objective of these interventions will be to improve civic amenities and help people lead a better quality of life.

Infrastructure: The recovery programme will also spend considerable resources on reconstructing damaged infrastructure such as roads, electricity and communications. Access to a more robust infrastructure will be critical for reducing risks in remote areas of Nepal. This will reduce the remoteness of settlements, improve connectivity and provide people with better information and more alternatives for reducing their risks. A more resilient infrastructure will improve peoples' livelihood practices.

Capacity-building Support

The recovery programme needs to be implemented in a professionally driven environment, and with sufficient capacity to deliver the large number of activities involved in the programme. The capacity-building support would be provided in the following ways:

Training and Public Awareness: Trainings for safer construction practices based on the National Building Code will be organized on a mass scale for engineers, masons and professionals engaged in the construction sector in all affected districts. The affected people, especially women, will be in priority list for the training. Similarly, awareness programmes will also be organized to expose people to earthquake-resistant building designs. There will be a sustained drive to raise community awareness on aspects of disaster preparedness in dealing with floods and landslides, among others.

Information Management and Dissemination: Data, feedback and information play an important role in formulating and implementing recovery policies and programmes. They come through different sources—affected communities, technical experts, professionals, and government officials. The recovery programme needs to process the flow of data and information, and share it with all the stakeholders. It will, therefore, set up a platform-- supported through mass media, volunteers, or Internet—which can share information widely with government agencies and officials at different levels, NGOs and civil society organizations, private sector companies, the development community, and affected people. An information management system set up within the programme would bridge the gap between the activities and outcomes of the recovery process, make people more aware of their entitlements and choices, and ensure greater transparency in the implementation.

Schools and health centres will be reconstructed on the principle of 'build back better', and the overall level of services improved through greater attention to effective delivery and governance

Independent Monitoring of Recovery Programme: The recovery programme will set up mechanisms for independent monitoring, which would provide feedback to the programme management through data collection, direct physical visits, and interaction with the affected people. The monitoring mechanism will initiate corrective measures and improve the quality of intervention. It will ensure that the programme management has access to relevant information for improving dissemination.

External Technical Assistance: The recovery programme would need considerable technical and management support. Such a support can be provided by outsourcing technical skills and expertise. A number of consultancies will, therefore, be organized to support the recovery programme. These consultancies relate to planning, management support, engineering, procurement, and information technology. The objective of these consultancies is to secure expertise that cannot be obtained within the government

The government considers the private sector as a key partner in its recovery and reconstruction efforts whose vigorous participation in the recovery and reconstruction programme would bring about a new dynamism to the market.

and provide wide-ranging professional services for the best possible results.

Accessing Nepal's Overseas Resources: Nepal has a large diaspora. The Nepalis working abroad would like to contribute to recovery and reconstruction. Their contributions need to be channelled effectively. In addition, the diaspora has a huge pool of skills and talent. The government will make a special effort to utilize their financial and technical resources for recovery and reconstruction.

Private Sector Recovery

Recovery in the private sector would lead to an overall economic recovery. For this, a number of steps to generate liquidity are required. An active partnership with the government would help the process of recovery through the following steps:

- The private sector should get its insurance claims and have access to concessional restart-up capital. A quick access to these resources would help the private sector get back on its feet.
- Private sector enterprises may need their loans to be rescheduled. They may also need soft-term credit for working capital and for reconstruction. Sound collaboration of the government with the banking sector is needed to ensure necessary liquidity for swift recovery.
- As a number of private enterprises are damaged, they would also need a fast-track mechanism for administrative approvals to facilitate private sector operations and reconstruction.
- A public-private partnership can support a large campaign to revive tourism in Nepal. A strong message of Nepal being safe for tourists should be disseminated. A sustained campaign can bring back the tourists to Nepal.

The government considers the private sector as a key partner in its recovery and reconstruction efforts. It would work towards restoring and strengthening supply chains for construction materials. A vigorous participation of the private sector in the recovery and reconstruction programme would bring about a new dynamism to the market. The government will undertake concrete measures that will help affected cooperatives to restart and regain their productive capacities and resume economic activity.

Areas of Special Focus

In the course of the recovery programme, the government will assign special importance to certain areas in view of their long-term importance for the country's wellbeing. These areas are as follows:

Expanding the Skill Pool for Recovery: As Nepal readies itself to undertake reconstruction on a large-scale, involving housing, infrastructure and heritage structures, it will need a large pool of engineers, masons, artisans, plumbers and electricians. The government will partner with academic institutions and professional organizations to develop and support a large number of training and skills development programmes. It will create a pool of skilled professionals in the area of construction, which will help the entire recovery programme. The government will take measures to expand the skill pool in other areas as well, which includes disaster risk reduction, tourism, and the service sector, thus increasing employment opportunities for the affected people. Building skills for generating employment, especially for affected people, will be an important pillar of recovery. The government will take measures to attract Nepali workers from abroad to meet domestic demand for skills.

Cultural Heritage: The recovery programme will focus on Nepal's cultural heritage through restoration and reconstruction of all damaged and collapsed historic buildings, including refurbishment of cultural institutions and museums. It will also focus on the recovery of traditional settlements, livelihoods and arts, based on Nepal's rich cultural heritage. It will engage the necessary international and local experts needed in the fields of architecture, conservation, curating and museum design, as well as other necessary areas of expertise that are related to preserving cultural heritage. A special focus on the entire spectrum of heritage, including institutional and professional development, will be an important feature of the recovery programme. The salvage materials will be reused to the extent possible to maintain the archaeological value of monuments.

Seismic Policy: In view of Nepal's vulnerability to earthquakes, the government will develop a seismic policy applicable to the entire country. Under this process, the government will set up a network for seismic monitoring throughout the country, and promote seismological research. The policy will include the revision of building codes, development of building by-laws for all municipal areas, application of Mandatory Rule of Thumb (MRT) in rural areas, and development of risk-sensitive land use plans for all the important towns and cities of the country. The recovery programme must make Nepal more earthquake-resistant.

Disaster Risk Reduction: Along with seismic policies, the government will implement a number of disaster risk reduction measures which will reduce the impact of secondary disasters. Nepal is exposed to the risks of floods, landslides and other mountain hazards. It will undertake risk assessment which provides a basis for mitigation measures at the community level. As part of the recovery programme, the government will support early warning and preparedness measures. It will also support strengthening and retrofitting of schools and hospitals that are critical to risk reduction in Nepal. Along with these measures, the government will also undertake a number of measures to strengthen disaster risk governance.

A People-based Approach

The recovery programme would follow a people-based approach. It would engage in active consultation with communities, peoples' representatives and civil society organizations to plan and implement recovery. The initiatives supporting participation and inclusion in the recovery programme are as follows:

Community Participation: The recovery programme will involve communities at the level of planning, implementation, and monitoring. At the local level this will ensure that people express their preferences and opinions in relation to various aspects of recovery. These arrangements could be village recovery committees or committees of local representatives drawn from the VDCs or municipal councils. All sections of the affected community need to be represented in these community participation forums.

Gender and Social Inclusion: The recovery programme presents an opportunity to reduce the vulnerability of women and increase gender equality. To ensure this, women would be given joint home ownership in a legal sense through the shelter programme. Their role as income earners and entrepreneurs would be recognized in livelihood recovery interventions, with an emphasis on training, cash support, and financial inclusion. Women would also be included in consultative forums at all levels, and gender sensitiveness would be an important feature of all programming initiatives. Such inclusive practices would be applied to people with disabilities and elderly people.

Grievance Redress Mechanisms: The recovery programme would make a provision for setting up grievance redress forums at the local level, which will allow people to lodge their complaints formally and get a satisfying response and redress. A swift process of addressing grievances would add to the credibility and acceptability of the programme. Such a mechanism would be headed by a responsible officer who would follow due process in receiving grievances, hearing people out and issuing orders in all such cases.

Youth Volunteers: The recovery programme needs to involve the youth of Nepal in a visible way. The most effective way to do this is by engaging youth volunteers. Nepal has a large pool of educated young people with diverse skills and talents. Their services would be utilized for working with communities, improving their access to technology and expert services, and supporting information management. Youth volunteers would also be very helpful in areas such as setting up business recovery centres, technology demonstration units, and information hubs.

Overseas Migrant Workers: Nepali migrant workers contribute over 25 percent of Nepal's GDP every year and it is expected that remittance flows will increase in order to support recovery and reconstruction. The recovery programme needs to reach out to the overseas workers in a visible way.

The recovery strategy for the 2015 Nepal earthquakes will evolve in response to the emerging issues and challenges in the affected areas and

The recovery programme presents an opportunity to reduce the vulnerability of women and increase gender equality. Women's role as income earners and entrepreneurs would be recognized in livelihood recovery interventions

The objective is to develop a dynamic, flexible and responsive programme that will meet all the important priorities of recovery with an unwavering focus on building stronger communities.

sectors. The objective is to develop a dynamic, flexible and responsive programme that will meet all the important priorities of recovery with an unwavering focus on building stronger communities. This is the most important commitment for Nepal for which the government will mobilize political will, financial resources, technical expertise and effective leadership in the next five years of implementation.

Developing Recovery Strategy: Key Steps

POLICY AND INSTITUTIONAL FRAMEWORK

- Develop guiding principles and policy framework
- Develop an institutional framework at the national level
- Set up coordination mechanisms to bring together all stakeholders
- Set up grievance redress mechanisms
- Provide enabling support to NGOs to be responsive

RESOURCE MOBILIZATION

- Mobilize resources; coordinate international assistance and private sector/civil society contributions
- Set up Multi-donor Trust / Earthquake Recovery Fund and coordination mechanism with other funding mechanisms.

PRIORITIZATION OF RECOVERY NEEDS

- Prioritize recovery needs in terms of geographical areas and sectors aiming at building back better.
- Develop a good balance of housing, socio-economic recovery and infrastructure
- Adopt habitat-based approach. Build safe houses, but also invest in rural infrastructure
- Create assets and skills through the recovery programme
- Find effective ways of reaching remote areas
- Restore and conserve Nepal's cultural heritage and indigenous architecture
- Develop an employment strategy based on skills for construction

APPROACH TO RECOVERY

- Recognize the unique strengths of Nepal
- Reduce risks and encourage resilience
- Integrate gender and social inclusion issues in all the sectors

PROGRAMME MANAGEMENT

- Strengthen programme management; augment local governance capacity
- Strengthen coordination mechanisms with line ministries and agencies
- Set up standards and practices for accountability and transparency
- Develop an information, education and communication plan
- Obtain the best technical assistance
- Set up an independent monitoring mechanism

COMMUNITY OUTREACH AND PARTICIPATION

- Involve professionals from NGOs and private sector in recovery; ensure their continuity
- Use youth volunteers in all sectors of the recovery programme
- Involve overseas migrant workers in recovery and reconstruction

DISASTER RISK REDUCTION

- Introduce a national seismic policy for Nepal
- Strengthen disaster risk governance in Nepal

ANNEX 1:

PDNA Sector Teams and Contributors

HOUSING AND HUMAN SETTLEMENT		
Hon'ble Member NPC	Dr. Govind Nepal	Ms. Nilima Thapa Shrestha (KVDA), Mr. Ramesh Guragain (NSET), Mr. Rajendra Desai, Mr. Tashi Tenzing, Mr Deb Narayan Mahato (WB); Ms. Laxmi Sharma (ADB); Mr. Vivek Rawal, Mr. Jitendra Bothara, Mr. Peter Barwick (UNDP); Mr. P.S Joshi, Mr. Om Dharananda Rajopadhyaya, Mr. Tim McNair, Mr. Raja Ram Chhatkuli (UN HABITAT); Mr. Hiroshi Kaneko, Mr. Akio Odake, Mr. Masashi Inoue (JICA); Mr. Bjorn Johannessen, Mr. David Stiedl (ILO); Mr. Suman Kumar Karna (IOM); Mr. Sunil Dev Pant, Mr. Gayan Manorathna (UNOPS); Mr. Shanker Khagi (USAID); Mr. Rupen Goswami (GoI); Mr. Siddhi Ratna Shakya (DUDBC)
Focal Point (NPC)	Mr. Gopi Nath Mainali	
Focal Point (Ministry)	Mr. Padam Mainali (MoUD); Mr. Purna Chandra Bhattarai (MoFALD); Mr. Suman Salike (MoUD); Mr. Susan Vaidya (NPC); Mr. Prakash Dahal (MoFALD)	
DP lead agency	Ms. Keiko Kaneda, Mr. David Lallemant, Mr. Peeyush Sekhsaria (WB)	
HEALTH AND POPULATION		
Hon'ble Member NPC	Dr. Yagya Bahadur Karki	Mr. Amit Aryal, Mr. Atul Dahal (WHO); Ms. Preeti Kudesia (WB); Mr. Tirtha Man Tamang (UNFPA); Mr. Tirtha Kumar Sinha (GIZ); Mr. Amit Bhandari (DFID); Dr. Ashish KC (UNICEF); Members of District Assessment Team
Focal Point (NPC)	Mr. Bishnu Prasad Nepal	
Focal Point (Ministry)	Mr. Mahendra Prasad Shrestha, Mr. Sagar Dhakal (MoHP)	
DP lead agency	Mr. Ghanshyam Gautam (WHO)	
NUTRITION		
Hon'ble Member NPC	Dr. Yagya Bahadur Karki	Ms. Preeti Kudesia (WB); Ms. Allison Prather (WFP) ,Ms. Sara Baumann, Ms.Ilaria Schibba, Mr. Debendra Adhikari (USAID);Mr. Ashok Bhurtyal (WHO); Ms. Shweta Rawal (FAO); Mr. Mim Hamal (EU); Mr. Min Raj Gyawali, Ms. Savita Malla, Mr.Kshitij Yadav, Ms. Sophiya Uprety (NNFSS)
Focal Point (NPC)	Mr. Bishnu Prasad Nepal, Mr. Radhakrishna Pradhan, Mr. Sanjay Kumar Khanal	
Focal Point (Ministry)	Mr. Giri Raj Subedi, Ms. Basundhara Sharma (MoHP); Mr. Ishwar Raj Paudel, Mr. Tula Raj Sunuwar (MoFALD); Ms. Jyotsna Shrestha, Mr. Kanchan Raj Pandey (MoAD); Mr. Anil Mishra, Mr. Chet Nath Sharma (MoE); Mr. Hari Prasad Parajuli (MoUD); Ms. Bishwa Maya Neupane, Ms. Sabitri Paudel (MoWCSW)	
DP lead agency	Mr. Naveen Paudyal, Dr. Ingo Neu (REACH UNICEF); Mr. Min Raj Gyawali, Ms. Allison Prather (WFP);	
EDUCATION		
Hon'ble Member NPC	Dr. Yagya Bahadur Karki	Mr. Sanjay Kumar Khanal (NPC), Mr. Jum Prasad Rai (MoE); Dr. Dilli Ram Rimal (DoE), Mr. Rajendra Kuram Paudel, Mr. Jhapper Singh Vishwokarma, Mr. Youbraj Paudyal, Mr. Narayan Krishna Shrestha (DoE); Mr. Surya Acharya (NSET) Mr. Saurav Dev Bhatta, Mr. Ram Krishna Rijal (WB); Mr. Tap Raj Pant, Ms. Serena Rossignoli,Mr.Aagat Awasthi (UNESCO); Ms. Sarah Bernhardt (EU); Ms.Jannie Kwok (USAID); Mr. Yasumasa Nagaoka, Mr. Ang Sherpa (JICA); Ms. Mamta Gurung, Ms. Nikhila Gill (WFP)
Focal Point (NPC)	Mr. Bishnu Prasad Nepal	
Focal Point (Ministry)	Dr. Lava Deo Awasthi, Dr. Mukunda Mani Khanal,	
DP lead agency	Mr. Parviz Abduvahobov, Mr. Jimi Oostrum (UNICEF); Ms. Smita Gyawali, Mr. Pramod Bhatta, Ms. Shanti Jagannathan, (ADB)	

CULTURAL HERITAGE		
Hon'ble Member NPC	Dr. Chandra Mani Adhikari	Mr Romel Singh Jamwal (ASI, GOI); Mr. Naomichi Murooka (JICA)
Focal Point (NPC)	Mr. Pushpalal Shakya	
Focal Point (Ministry)	Mr. Mohan Krishna Sapkota (MoTCA)	
DP lead agency	Mr. Christian Manhart, Mr. Thomas Schrom (UNESCO)	
AGRICULTURE AND LIVESTOCK		
Hon'ble Member NPC	Dr. Bhartendu Mishra	Mr. Purna Chettri (WB); Mr. Navin Hada (USAID); Ms. Bharati Pokharel, Ms. Bina Thapa (ILO); Ms. Yamuna Ghale (SDC), Mr. Krishna Prasad Pant, Mr.Siddhi Ganesh Shrestha, Mr. Kishan Chand Thakuri (FAO), Mr. Govinda P. Adhikary, Mr. Bharat P. Bidari, Mr. Shalikram Adhikary, Mr. Keshab Khanal (DoA), Mr. Vijay Chandra Jha (DAH), Mr. Lok Raj Bhusal, Mr. Amrit Prasad Pandey, Mr. Hari Singh Bhat, Mr. Manish Man Shrestha (DoLS) ; Mr. Govinda Gewali (ADB); Ms. Danielle Knueppel (USAID); Mr.Daud Khan, Mr. Kurt Burja (WFP); Mr. Bashu Aryal (IFAD); Mr. Mim Hamal (EU); Ms. Heema Devi Khadka (UNDP); Mr. Dil Bahadur Gurung, Mr. Baikuntha Parajuli (FAO)
Focal Point (NPC)	Mr. Pushpalal Shakya	
Focal Point (Ministry)	Mr. Yogendra Karki, Mr. Shree Ram Ghimire (MoAD)	
DP lead agency	Mr. Rajendra Aryal (FAO)	
IRRIGATION		
Hon'ble Member NPC	Dr. Chandra Mani Adhikari	Mr. Purna Chettri (WB); Mr.Pushpa Khanal (FAO); Mr. Deepak Singh (ADB)
Focal Point (NPC)	Mr. Pushpalal Shakya	
Focal Point (Ministry)	Mr. Kaushal Kumar Jha (MoIrr)	
DP lead agency	Mr. Arnaud Cauchois (ADB)	
COMMERCE AND INDUSTRY		
Hon'ble Member NPC	Dr. Swarnim Waglé	Mr. Mahesh Bhattarai (NPC); Mr. Nabin Karna (ILO); Mr. Arun Pokharel (MoI); Ms. Bimala Pokharel (MoI); Mr. Chhabindra S. Parajuli (MoCS); Mr. Badri Bastakoti (Consultant to MoCS); Mr. Abyaya Neopane (Volunteer)
Focal Point (NPC)	Mr. Lal Shanker Ghimire	
Focal Point (Ministry)	Mr. Toya Narayan Gyawali (MoCS); Mr. Jeet Bahadur Thapa (MoI)	
DP lead agency	Mr. Ashish Rauniar (WB/IFC); Ms. Eva Majurin (ILO); Mr. Baburam Ranabhat (UNIDO)	
TOURISM		
Hon'ble Member NPC	Dr. Chandra Mani Adhikari	Mr. Thomas Schrom (UNESCO); Mr. Thomas Kring, Mr. Saloman Rajbanshi, Mr. Prakash Sharma (ILO); Mr. Suhyon Oh (UNDP); Mr. Wouter Shalken, Mr. Sumit Baral (DFID)
Focal Point (NPC)	Mr. Lal Shanker Ghimire	
Focal Point (Ministry)	Mr. Mohan Krishna Sapkota (MoTCA)	
DP lead agency	Mr. Taneem Ahad (WB/IFC)	
FINANCIAL SECTOR		
Hon'ble Member NPC	Dr. Chandra Mani Adhikari & Dr. Swarnim Waglé	Mr. Suresh Pradhan (MoCPA); Mr. Miquel Dijkman, Ms. Gabi G. Afram, Mr. Niraj Verma, Mr. Sudyumna Dahal, Mr. Santosh Pandey, Mr. Saurav Rana,Mr. Asim Nepal (WB/IFC);Mr. Andrew Lovegrove (DFID); Mr. Giuseppe Savino (IOM); Mr. Rajeeb Shakya, Ms.Anita Mahat, Mr. R.Coleman (USAID); Ms.Niyama Rai (ILO); Mr. Mayumi Ozaki (ADB); Mr. Jaspreet Singh,Mr. Ujjwal Pokhrel (UNCDF)
Focal Point (NPC)	Mr. Lal Shanker Ghimire	
Focal Point (Ministry)	Mr. Min Bahadur Shrestha, Dr. Ram Sharan Kharel (NRB); Mr. Surya Acharya (MoF)	
DP lead agency	Sabin Raj Shrestha (WB)	

ELECTRICITY		
Hon'ble Member NPC	Dr. Govind Nepal	Mr. Ram Prasad Dhital, Mandal (AEPC), Mr. Raju Maharjan (MoEn), Mr. Pravin Aryal (DoED), Mr. Lila Nath Bhattarai, Mr. Surendra Rajbhandari (NEA); Mr. Tika Limbu,Mr. Pushkar Manandhar (ADB); Mr. Yutaro Mizuhashi, Mr. Gopal Gurung (JICA);Mr. Olivier Drieu (EIB);Mr. Bibek Chapagain (Norwegian Embassy); Mr Jeebanandra Mazumdar (PGCIL, India); Mr. Khadga Bisht (IPPAN), Mr. Shanker Khagi (USAID), Mr. Niraj Subedi (KfW), Mr. Bart Jan Van (GIZ), Mr. Jeebananda Mazumder (PGCIL), Mr. Jayandra Shrestha, Ms. Namrata Tusuju Shrestha (WB)
Focal Point (NPC)	Mr. Gopi Nath Mainali	
Focal Point (Ministry)	Mr. Samir Ratna Shakya (MoEn);	
DP lead agency	Mr. Jie Tang, Mr. Rabin Shreshtha (WB)	
COMMUNICATION		
Hon'ble Member NPC	Dr. Prem Prasad Dangal	Mr. Digambar Jha, Mr. Ananda Khanal (NTA); Ms.Namrata Tusuju Shrestha (WB)
Focal Point (NPC)	Mr. Gopi Nath Mainali	
Focal Point (Ministry)	Mr. Kabiraj Khanal (MoIC)	
DP lead agency	Mr. Jie Tang; Ms. Tenzin Dolma Norbhu (WB)	
COMMUNITY INFRASTRUCTURE		
Hon'ble Member NPC	Dr. Prem Prasad Dangal	Mr. Rabin Shrestha, Ms. Mio Takada (WB); Ms. Meenu Hada, Ms.Sumana Shrestha (WFP); Mr. Anup Poudel (IOM); Mr. Santosh Nepal (PAF); Ms. Pooja Sharma,Mr. Rajendra Pradhananga (GIZ); Mr. Shanker Khagi (USAID); Mr. Rupesh Malla,Mr. Subash Adhikari (MMDC); Mr. Vivek Rawal (UNDP)
Focal Point (NPC)	Mr. Pushpalal Shakya	
Focal Point (Ministry)	Mr. Gokarna Mani Duwadee, Suman Ghimire,Mr. Prakash Dahal, Mr. Bed Raj Phuyel (MoFALD); Mr. Jeevan Shrestha, Mr. Jeevan Guragain (DoLIDAR)	
DP lead agency	Mr. Daud Khan (WFP)	
TRANSPORT		
Hon'ble Member NPC	Dr. Govind Nepal	Mr. Tsuneyuki Sakai, Mr. Bhupendra Bhatt, Mr. Birendra Deoja, Mr. Shuva Sharma, Mr. Kamal Pande (ADB); Mr. Farhad Ahmed, Mr. Chandra Bahadur Shrestha, (WB); Mr. Sourab Rana, Mr. Madan Maleku, Mr. Hiroyasu Shigai, Dr. Shigeki Unjoh (JICA); Mr. David Steidl, Mr. Shailendra Jha, Mr. Raju Shrestha, Mr. Arun Yadav (ILO); Mr. Akhilesh. K. Dikshit (BRO, India); Mr. Sunil Pant (UNOPS); Josef Zimmermann, Mr. Aman Jonchhe, Ms. Jun Hada (SDC); Mr. Suman Vaidya, Mr. Manoj Shreshtha (DFID)
Focal Point (NPC)	Mr. Gopi Nath Mainali	
Focal Point (Ministry)	Mr. Keshav Sharma (DoR); Mr. Purna Chandra Bhattarai (MoFALD); Mr. Devendra Karki (MoPIT); Mr. Keshab Sharma (DoR); Mr. Baburam Paudel, Mr. Nal Thapa (CAAN); Mr. Jeevan Shrestha, Mr. Maheshwar Ghimire (DoLIDAR)	
DP lead agency	Mr. Govinda Gewali (ADB)	
WATER AND SANITATION		
Hon'ble Member NPC	Dr. Govind Nepal	Mr. Guna Raj Shrestha (WB);Ms. Laxmi Sharma (ADB); Mr. Ryuji Ogata, Ms.Bidhya Pokhrel (JICA); Mr. Bhushan Tuladhar (UN HABITAT); Ms. Simonetta Siligatto (UNOPS); Ms. Linda Kentro (USAID); Mr. Jukka Ilomaki,Mr. Pekka Seppala (Finnish Embassy); Mr. Sanjaya Adhikary (UNICEF/ADB)
Focal Point (NPC)	Mr. Gopi Nath Mainali	
Focal Point (Ministry)	Mr. Ramchandra Devkota (MoUD)	
DP lead agency	Dr. Shyam KC (WB); Mr. Andrew Trevett, Mr.Brendan Doyle (UNICEF)	

GOVERNANCE		
Hon'ble member NPC	Dr. Prem Prasad Dangal	Mr. Siddhanta Vikram, Ms. Rachana Shrestha (ADB); Mr. Thomas Hockley (EU); Mr. Yam Nath Sharma, Mr. Anil Chandrika, Ms. Bandana Risal, Mr. Tek Tamata (UNDP); Mr. Bruce Pollock (SPIP); Mr. Filep Decorte (UN HABITAT); Mr. Keith Leslie (WB/PRAN); Dr. Maki Tsumagari (JICA);Mr. Rune Qvale, Ms. Pia Haenni (SDC); Ms. Cecile Fradot, Mr. Luma Singh Bishowkarma (UNHCR); Mr. Bigyan Pradhan (WB); Mr. Khoraraj Koirala (OPMCM); Mr. Bishnu Adhikari, Mr. Ed Bell (DFID);Mr. Ramesh Adhikari (USAID); Dr. Bhola Prasad Dahal (Norwegian Embassy)
Focal Point(NPC)	Mr. Purushottam Ghimire	
Focal Point (Min/Govt)	Mr. Shankar Prasad Koirala, Mr. Khomaraj Koirala (OPMCM); Mr. Reshmi Raj Pandey (MoFALD)	
DP lead agency	Ms. Amy Gill, Mr. D. Christopher Decker (UNDP)	
DISASTER RISK REDUCTION		
Hon'ble Member NPC	Dr. Govind Nepal	Ms. Vidhisha Samarasekara,Ms. Arghya Sinha Roy (ADB); Ms.Nicola Murray, Ms. Hailey Sharp, Ms. Pratima Ranjit (DFID); Mr. Piush Kayastha, Mr. Peter Burgess (ECHO); Mr. Olivier Drieu (EIB); Mr. Jitendra Bohara (IOM); Mr. Satoru Mimura, Mr. Ryoji Takahashi, Mr. Kimio Takeya, Mr. Yamato Kawamata (JICA); Ms. Vijaya Singh, Mr. Deepak KC, Mr. Kedar Babu Dhungana, Mr. Krishna Kaphle, Mr. Naoki Nihei, Mr. Naresh Giri (UNDP); Mr. Chinatsu Endo (UNDP & F5/NRRC); Mr. Antony Spalton, Ms. Kathlyn Kissy Sumaylo (UNICEF); Mr. Jonathan Buckingham,Ms. Sumana Shrestha,Mr. Ratindra Khatri, Mr. Geoff Pinnock, Mr. Zeff Kapour (WFP); Mr. Swarna Kazi (WB); Mr. Francoise Jacob (UNOPS)
Focal Point (NPC)	Mr. Purushottam Ghimire	
Focal Point (Ministry)	Mr. Rameshwor Dangal, Mr. Pradip Koirala(MoHA); Mr. Arvind Kumar Gupta (DoWIDP); Dr. Rishi Ram Sharma, Dr. Gautam Rajkarnikar,Mr. Binod Parajuli (DoH&M)	
DP lead agency	Mr. Sanny Jegillos, Mr. Ramraj Narasimhan, Ms. Chinatsu Endo (UNDP); Mr. Ram Prasad Bhandari (JICA)	
ENVIRONMENT AND FORESTRY		
Hon'ble Member NPC	Dr. Bhartendu Mishra & Dr. Bimala Rai Paudyal	Ms. Vijaya Singh, Mr. Avani Dixit (UNDP); Ms. Judy Oglethorpe (WWF Nepal); Mr. Rajendra K.C. (FAO); Ms. Manohara Khadka (SDC); Mr. Chudamani Joshi (Finnish Embassy); Ms. Netra Sharma Sapkota (USAID); Mr. Purna Chandra Lal Rajbhandari (UNEP); Mr. Kalyan Gauli (MSFP); Mr. Drona Raj Ghimire, Ms. Annu Rajbhandari (WB); Ms. Bharati Pathak (FECOFUN); Ms. Regina Maskey (TU/CDES); Mr. Vidur Ghimire (IUCN); Mr. Manish Raj Pandey (NTNC); Mr. Nawaraj Dhakal (APEC); Mr. Santosh Nepal (WWF Nepal); Mr. Ashok Parajuli; Mr. Birkha Shahi (FECOFUN)
Focal Point (NPC)	Mr. Gopi Nath Mainali	
Focal Point (Ministry)	Mr. Mahendra Thapa; Mr. Ram Hari Pantha, Mr. Jayram Adhikari (MoSTE); Mr. Krishna Prasad Acharya, Mr. Resham Dangi (MoFSC); Mr. Manoj Aryal (DoEnv); Mr. Arjun Kumar Thapa (DSCWM); Mr. Tulasi Ram Sharma, Mr. Tika Ram Adhikari (DNPWC)	
DP lead agency	Mr. Doley Tshering (UNDP)	
EMPLOYMENT AND LIVELIHOODS		
Hon'ble Member NPC	Dr. Bhartendu Mishra	Mr. Dhushyanth Raju, Mr. Pradeep Singh, Mr. Mio Takada (WB); Mr.Arun Rana (ADB); Ms. Shukuko Koyama, Ms.Anna Engblom, Ms. Nita Neupane, Ms.Bina Kunwar Thapa (ILO); Ms.Allison Prather, Ms. Meenu Hada (WFP); Ms. Pravina Gurung (IOM); Ms.Lazima Onta Bhat, Mr.Ramji Neupane, Ms.Nabina Shrestha, Ms. Charu Bisht (UNDP); Ms.Pravina Gurung, Ms.Pooja Shrestha, Ms.Meena Poudel (IOM), Ms.Barbara Weyermann (SDC), Ms.Bina Pradhan (UNWOMEN), Ms. Amina Maharjan (ICIMOD); Kanchan Tamang (PAF)
Focal Point (NPC)	Mr. Pushpalal Shakya	
Focal Point (Ministry)	Mr. Buddhi Bahadur Khadka (MoLE); Mr. Yubraj Sudedi (MOFALD)	
DP lead agency	Ms. Jasmine Rajbhandary (WB); Mr. Sher Verick, Mr. Julian Schweitzer (ILO)	

SOCIAL PROTECTION		
Hon'ble Member NPC	Dr. Bimala Rai Paudyal	Ms. Jasmine Rajbhandary, Mr. Dhiraj Sharma, Mr. Keith O Leslie, Mr. Yasuhiko Matsuda, Ms. Sheryll Namingit (WB); Mr. Arun Rana (ADB); Mr. Daud Khan, Ms. Mamata Gurung, Mr. Gregory Munene (WFP); Mr. Thakur DhakaL, Ms. An Rai (UNICEF); Mr. Tek Tamata (UNDP); Mr. Ms. Maria Barron (USAID); Ms. Bina Pokharel (UNAIDS); Ms. Luma Singh Bishowkarma (UNHCR); Mr. Ben Powis (DFID)
Focal Point (NPC)	Mr. Teertharaj Dhakal	
Focal Point (Ministry)	Mr. Reshmi Raj Pandey, Mr. Ramesh K.C. (MoFALD); Mr. Shankar Pathak, Mr. Bharat Sharma (MoWCSW)	
DP lead agency	Mr. Jose Assalino, Mr. Markus Ruck, Dr. Lok Nath Bhusal, Ms. Bipina Sharma, Mr. Narayan Bhattarai (ILO)	
GENDER EQUALITY AND SOCIAL INCLUSION		
Hon'ble Member NPC	Dr. Bimala Rai Paudyal	Ms. Manju Tuladhar, Ms. Reshma Thapa (USAID); Mr. Youbaraj Luintel (UNDP); Ms. Meena Poudel (IOM); Ms. Bandita Sijapati (WB); Ms. Bina Pradan (UN WOMEN); Mr. Katja Vauhkonen (UNDP); Mr. Manohara Khadka (Swiss development Aagency)
Focal Point (NPC)	Mr. Bishnu Prasad Nepal	
Focal Point (Ministry)	Ms. Radhika Aryal, Ms. Humakala Pandey, Dr. Kiran Rupakheti (MoWCSW)	
DP lead agency	Ms. Cecilia Aipira, (UNWOMEN)	
POVERTY AND HUMAN DEVELOPMENT		
Hon'ble Member NPC	Dr. Swarnim Waglé	Mr. Sailesh Tiwari (WB); Mr. Bijay Thapa (UNFPA); Ms. Blanche Picarello (IOM); Mr. Kurt Burja, Ms. Pushpa Shrestha, Mr. Siemon Hollema (WFP); Mr. Kishore KC (USAID)
Focal Point (NPC)	Dr. Teertha Raj Dhakal	
Focal Point (Ministry)	Mr. Shyam Bhandari	
DP lead agency	Mr. Basudeb Guha-Khasnobis, Mr. Dharma Swarnakar, Mr. Youba Raj Luintel (UNDP)	
MACROECONOMIC IMPACT ASSESSMENT		
Hon'ble Member NPC	Dr. Swarnim Waglé	Mr. Aurelien Kruse (WB); Mr. Baikuntha Aryal (MOF); Mr. Dilli Aryal (MOF); Mr. Suman Aryal (CBS); Mr. Yamlal Bhoosal (NPC); Mr. Pradeep Poudel (NRB); Mr. Basudeb Guha-Khasnobis (UNDP); Mr. Kishore KC (USAID); Mr. Anjan Pandey (DFID)
Focal Point (NPC)	Mr. Lal Shanker Ghimire	
Focal Point (Ministry)	Mr. Surya Prasad Acharya (MoF); Dr. Min Bahadur Shrestha, Dr. Ram Sharan Kharel (NRB)	
DP lead agency	Mr. Roshan Bajracharya (WB); Mr. Sudyumna Dahal (WB); Mr. Chandan Sapkota (ADB)	

A number of reviewers provided comments and feedback on sector reports at a very short notice and helped enhance the quality of sector reports. Several colleagues provided technical and administrative support to the PDNA exercise. We gratefully acknowledge the assistance of the following experts for their support to PDNA: Mr. Anil Motwani, Ms. Vivian Castro-Wooldridge, Mr. Tika Limbu, Mr. Chandan Sapkota (ADB), Mr. Ravindra Vasavada (CEPT University, India), Ms. Maggie Stephenson, Ms. Yasemin Aysan, Mr. Nick Maddock, Mr. Manohar K. Bhattarai (Independent Consultants), Mr. Peter Maher, Mr. Peter Burgess, Ms. Ekaterina Yakovleva, Mr. Marco Capurro, Mr. Robert Hynderick, Mr. Tom Hockley, Ms. Wendy Fisher, Ms. Maria Castaldi (EU), Mr. Vincent Little (FAO), Mr. Jitendra Bothara, (Miamoto Int.), Mr. Kamal Kishore (NDMA, India), Dr. Venkatachalam Thiruppugazh (Senior Advisor, NPC), Mr. Anshu Sharma (Advisor, NPC), Mr. Ananda Raj Khanal (Nepal Telecommunications Authority), Mr. Giovanni Bocardi (UNESCO), Ms. Sophie Kemkhadze, Ms. Angelika Planitz, Mr. Koh Miyaoi, Mr. Henrik Larsen, Mr. Taimur Khilji, Mr. Owen Shumba, Mr. Dharma Swarnakar (UNDP), Mr. Muralee Thummarukudy (UNEP), Ms. Lisa Bender (UNICEF), Ms. Artessa Saldivar-Sali, Mr. Raja Rehan Arshad, Mr. Sudyumna Dahal, Ms. Margaret Arnold, Mr. Marc Forni, Mr. Ignacio Urrutia, Ms. Sulochana Nepali (World Bank).

ANNEX 2:

Abbreviations and Acronyms

ACA	Annapurna Conservation Area
ACORAB	Association of Community Radio Broadcasters
ADS	Agriculture Development Strategy
AEPC	Alternative Energy Promotion Center
AIMS	Agency-Managed Irrigation Schemes
APF	Armed Police Force
ARI	Acute Respiratory Infection
ART	Antiretroviral Therapy
BBB	Build Back Better
BCPs	Business Continuity Plans
BFI	Banks and Financial institutions
BMS	Breast Milk Substitute
BoP	Balance of Payment
BRC	Business Recovery Centres
BTS	base transceiver stations
CAAN	Civil Aviation Authority of Nepal
CAC	Citizen Awareness Centre
CBDRM	Community Based Disaster Risk Management
CBOs	Community Based Organizations
CBS	Central Bureau of Statistics
CCA	Climate change adaptation
CCG	Core Coordination Group
CDD/KYC	Customer Due Diligence/ Know Your Customer
CDO	Chief District Officer
CEF	Change in Economic Flows
CF/CFUG	Community Forestry/ Community Forestry User Group
CFLG	Child-Friendly Local Governance
CFS	Child-Friendly Schools
CGI	Corrugated Galvanized Iron
CIP	Community Irrigation Project
CLA	Central Level Agencies
CLC	Community Learning Center
CLTS	Community Led Total Sanitation
CMAM	Community Management of Acute Malnutrition
CMIASP	Community Managed Irrigated Agriculture Sector Project
CNDRC	Central Natural Disaster Relief Committee
CNI	Chamber of Nepalese Industries
COs	Community Organizations
CSD	Central Securities Depository
CSO	Civil Society Organization
CTVET	Council for Technical and Vocational Education and Training
CWC	Cable & Wireless Communications
DADO	District Agriculture Development Office
DaLA	Damage and Loss Assessment
DCGF	Deposit and Credit Guarantee Fund
DRCN	District Road Core Network

DDC	District Development Committee
DDMC	District Disaster Management Committee
DDRC	District Disaster Response Committee
DEO	District Education Office
DEOC	District Emergency Operation Centre
DFRS	Department of Forest Research and Survey
DHM	Department of Hydrology and Meteorology
DLSA	District Level Support Agency
DLSO	District Livestock Service Office
DMG	Department of Mines and Geology
DNPWC	Department of National Parks and Wildlife Conservation
DoA	Department of Agriculture
DoA	Department of Archaeology
DADO	District Agriculture Development Office
DFSCC	District Forestry Sector Coordination Committee
DFO	District Forest Office
DLSO	District Livestock Service Office
DoE	Department of Environment
DOE	Department on Education
DOED	Department of Electricity Development
DoEnv	Department of Environment
DoF	Department of Forest
DoFE	Department of Foreign Employment
DoHS	Department of Health Services
DoI	Department of Industries
DoI	Department of Irrigation
DoLIDAR	Department of Local Infrastructure Development and Agriculture Roads
DoLS	Department of Livestock Services
DoR	Department of Roads
DOTS	directly observed treatment, short-course
DoWIDP	Department of Water Induced Disaster Prevention
DP-Net	Disaster Preparedness Network
DPR	Department of Plant Resources
DRCN	District Road Core Network
DRRMCC	Post Disaster Recovery and Reconstruction Management Coordination Committee
DRRT	Disaster Response and Rescue Teams
DSCWM	Department of Soil Conservation and Watershed Management
DTMP	District Transport Master Plan
DTO	District Technical Office
DUDBC	Department of Urban Development and Building Construction
DUV	Direct Use Value
DWASHCC	District WASH Coordinating Committee
DWSS	Department of Water Supply and Sewerage
EBA	Ecosystem-Based Adaptation
ECD	Early Childhood Development
ECHO	European Commission Humanitarian Aid and Civil Protection
EFA	Education For All
EFLG	Environment Friendly Local Governance
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EIIP	Employment Intensive Investment Programmes
EMIS	Education Management Information System

EMIS	Environment Management Information Systems
ETC	Education Training Center
EU	European Union
EVENT	Enhanced Vocational Education and Training
EVI	Economic Vulnerability Index
EWS	Early Warning Systems
FAO	Food and Agriculture Organization of the United Nations
FCHVs	Female Community Health Volunteers
FDI	Foreign Direct Investment
FECOFUN	Federation of Community Forestry Users Nepal
FFS	Farmer Field Schools
FHHHs	female-headed households
FINCO	Financial and Multi-Purpose Co-operatives
FINGO	Financial Intermediary NGO
FIRST	Finance Institutional Reforms and Strengthening Initiative
FMIS	Farmer-Managed Irrigation Schemes
EMP	Environmental Management Plans
FMT	Foreign Medical Team
FNBI	Federation of Nepalese Brick Industries
FNCCI	Federation of Nepalese Chambers of Commerce and Industry
FNCSI	Federation of Nepal Cottage and Small Industries
FSP	Flexible Schooling Programme
GAP	Good Agriculture Practices
GARD	Getting Airports Ready For Disasters
GDP	Gross Domestic Product
GESI	Gender Equality and Social Inclusion
GGA	Good Governance Act
GHG	greenhouse gas
GIS/RS	Geographical Information System/Remote Sensing
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GLOF	Glacial Lake Outburst Floods
GoN	Government of Nepal
GOs	Government Organizations
GRB	Gender Responsive Budgeting
GVP	Good Veterinary Practices
Ha	Hectare
HAI	Human Asset Index
HAN	Hotel Association of Nepal
HCW	health-care waste
HD	Human Development
HDI	Human Development Index
HEOC	Health Emergency Operation Centre
HFMC	Health Facility Management Committee
HLNFSSC	High Level National Nutrition and Food Security Steering Committee
HMIS	Health Management Information System
HOPE	Hospital Preparedness for Emergencies
HSE	Health, safety, and environment
ICH	Intangible Cultural Heritage
ICIMOD	International Centre for Integrated Mountain Development
ICS	Improved Cooking Stove
ICT	Information and Communications Technology
IDDs	Irrigation Development Divisions

IDP	Internally Displaced Persons
IEC	Information, Education, and Communication
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
ILO	International Labour Organization
INSARAG	International Search and Rescue Advisory Group
IOM	International Organization for Migration
IPFC	Integrated Planning and Formulation Committee
IPM	Integrated Pest Management
IPP	Independent Power Producers
IPPN	Independent Power Producers' Association
IRA	Initial Rapid Assessment
ISF	Irrigation Service Fee
ISPS	Institutional solar PV system
IUCN	The World Conservation Union
IUV	Indirect Use Value
IWRM	integrated water resource management
IWRMP	Irrigation and Water Resource Management Project
IYCF	Infant and Young Child Feeding
JICA	Japan International Cooperation Agency
JMIS	Jointly-Managed Irrigation Schemes
JMP	Joint Monitoring Programme
KfW	Kreditanstalt für Wiederaufbau
KOICA	Korea International Cooperation Agency
KUKL	Kathmandu Upatyaka Khanepani Limited
KUTMP	Kathmandu Urban Transport Master Plan
KV	Kathmandu Valley
KVDA	Kathmandu Valley Development Authority
KVWSMB	Kathmandu Valley Water Supply Management Board
LAPA	Local Adaptation Plan of Action
LBRMMOG	Local Body Resource Mobilisation and Management Operation Guidelines
LDO	Local Development Officer
LF	Leasehold Forestry
LFS	Labour Force Survey
LFUG	Leasehold Forest User Groups
LFUG	Local Forestry User Groups
LGBTI	Lesbian, Gay, Bisexual, Transgender/Transsexual and Intersex
LGCDP	Local Governance and Community Development Programme
LHF	leasehold forests
LIB	Limited International Bidding
LLL	Lifelong Learning
LRN	Local Roads Network
LMIS	Logistic Management Information System
LSGA	Local Self-Governance Act
LT	Local Transport
LT	long term
MAPs	Medicinal and Aromatic Plants
MCM	Mass Casualty Management
MDG	Millennium Development Goals
MFDBs	Microfinance Development Banks
MFI	Micro-finance Institution
MHP	Micro hydropower projects

MICS	Multiple Indicator Cluster Survey
MIP	Medium Irrigation Project
MIS	Management Information System
MIS	Municipal Information System
MISP	Minimum Initial Service Package
MIYCN	Maternal Infant and Young Child Nutrition
MMI	Modified Mercalli Intensity
MNC	municipalities
MNP	Multiple Micronutrient Powder
MoAD	Ministry of Agricultural Development
MoCAC	Ministry of Civil Aviation and Culture
MoCS	Ministry of Commerce and Supplies
MoCTA	Ministry of Culture, Tourism & Civil Aviation
MoD	Ministry of Defense
MoE	Ministry of Education
MoEn	Ministry of Energy
MoEST	Ministry of Science, Technology and Environment
MoF	Ministry of Finance
MoFALD	Ministry of Federal Affairs and Local Development
MoFSC	Ministry of Forest and Soil Conservation
MoHA	Ministry of Home Affairs
MoHP	Ministry of Health and Population
MoI	Ministry of Industry
MoIC	Ministry of Information and Communications
MoLE	Ministry of Labour and Employment
MoIrr	Ministry of Irrigation
MoPIT	Ministry of Physical Infrastructure and Transport
MoSTE	Ministry of Science, Technology and Environment
MoUD	Ministry of Urban Development
MoWCSA	Ministry of Women, Children and Social Welfare
MPI	Multi-Dimensional Poverty Index
MPIT	Ministry of Physical Infrastructure and Transport
MRE	Mountain Risk Engineering
MRT	Mandatory Rules of Thumb
MSFP	Multi Stakeholder Forestry Programme
MSMEs	Medium, Small and Micro Enterprises
MSNP	Multi-Sector Nutrition Plan
MT	medium term
NA	Nepalese Army
NAPA	National Adaptation Programmes of Action
NARC	Nepal Agriculture Research Council
NATO	Nepal Association of Tour Operators
NATTA	Nepal Association of Tour and Travel Agents
NBA	Nepal Bar Association
NBSAP	National Biodiversity Strategy and Action Plan
NCB	National Competitive Bidding
NDHS	Nepal Demographic and Health Survey
NDRF	National Disaster Response Framework
NEA	Nepal Electricity Authority
NEC	Nepal Engineers' Council
Ne-GIF	Nepal e-Government Interoperability Framework
NekSap	Nepal Food Security Monitoring System

NEOC	National Emergency Operation Centre
NEPSE	Nepal Stock Exchange
NFE	Non-Formal Education
NFRI	non-food relief items
NGOs	Non-Governmental Organizations
NHRC	National Human Rights Commission
NIDMC	National Identification Management Center
NLSS	National Living Standards Survey
NMA	Nepal Mountaineering Association
NMDP	Nepal Market Development Programme
NMIP	National Management Information Project
NPC	National Planning Commission
NPHC	National Population and Housing Census
NPL	Non- Performing Loans
NPR	Nepalese Rupees
NRB	Nepal Rastra Bank
NRCS	Nepal Red Cross Society
NRRC	Nepal Risk Reduction Consortium
NSC	National Seismological Centre
NRCS	Nepal Red Cross Society
NSDRM	National Strategy for Disaster Risk Management
NSET	National Society for Earthquake Technology-Nepal
NSIC	Nepal Standard Industrial Classification
NTA	Nepal Telecommunications Authority
NTB	Nepal Tourism Board
NTC	Nepal Telecommunications Authority
NTFP/NWFPs	Non-Timber Forest Products/Non-Wood Forest Products
NTNC	Nepal Trust for Nature and Conservation
NTSP	National Tourism Strategy Plan
NWSC	Nepal Water Supply Corporation
O&M	Operation and Maintenance
ODF	Open Defecation Free
ODR	Owner-Driven Reconstruction
OPMCM	Office of Prime Minister and Council of Ministers
OPGW	optical-fiber ground wire
OSP	Open Schooling Programme
OTPs	Outpatient Treatment Programmes
PA	Protected Areas
PAF	Poverty Alleviation Fund, Nepal
PES	Payment of Environmental Services
PGA	Peak ground acceleration
PGCIL	Power Grid Corporation of India Ltd
PHCC	Primary Health Care Centers
PLHIV	People Living with HIV
PLWDs	People Living With Disabilities
PMUs	Project Management Units
PoE	Panel of Experts
PPA	Production Per Annum
PPA	Public Procurement Act
PPC	Pre-Primary Classes
PPM	Part Per Million
PRSP	Poverty Reduction Strategy Paper

PTA	Parent-Teacher Association
PUF	Poly Urethane Foam
PVPS	Photo Voltaic Pump Set
PWD	Person With Disability
RC	Reinforced Concrete
RC	Resource Centre
RCC	Reinforced Cement Concrete
RCIW	Rural Community Infrastructure Works
RED	Regional Education Directorate
RET	Renewable Energy Target
RFPDC	Radio Frequency Policy Determination Committee
RoLHR	Rule of Law and Human Rights Project
RPP	Readiness Preparation Proposals
RSLUP	Risk Sensitive Land Use Planning
RTDF	Rural Telecommunications Development Fund
RTGS	Real Time Gross Settlement
RTI	Right to Information
RWSSFDB	Rural Water Supply and Sanitation Fund Development Board
SACCOs	Savings and Cooperatives
SAE	Small Area Estimation
SAM	Severe Acute Malnutrition
SAR	Search and Rescue
SDC	Swiss Agency for Development and Cooperation
SDG	Sustainable Development Goals
SDMP	Strategic Development Master Plan
SDP	Sector Development Plan
SDP	Skills Development Project
SEA	Strategic Environment Assessment
SEBON	Securities Board of Nepal
SEIU	Sector Efficiency Improvement Unit
SGBV	Sexual and Gender Based Violence
SHS	Solar Home System
SM	Social Mobilizers
SMART	Standardized Monitoring and Assessment of Relief and Transitions
SMC	School Management Committees
SME	Small and Medium Enterprises
SMEs	Small and Medium-Sized Enterprises
SNP	Sagarmatha National Park
SOP	School Outreach Programme
SPIP	Reviving springs and providing access to solar powered irrigation pumps
SRN	Strategic Roads Network
SSDP	School Sector Development Plan
SSHS	Small Solar Home System
SSRP	School Sector Reform Programme
ST	short term
SWOT	Strength-Weakness-Opportunity-Threat
SWS	Single Window Service
TA	Technnical Assistance
TAAN	Trekking Agencies' Association of Nepal
TBSU	Trail Bridge Support Unit
TIA	Tribhuvan International Airport
TLC	Temporary Learning Center

TLM	Teaching/Learning Materials
TSLC	Technical School Leaving Certificate
TURGAN	Tour Guide Association of Nepal
TUCDES	Tribhuvan University Central Department of Environmental Science
TUTH	Tribhuvan University Teaching Hospital
TVET	Technical and Vocational Education and Training
TYIP	Three Years Interim Plan
UC	Users Committees
UGC	University Grants Commission
UN	United Nations
UNCDF	United Nations Capital Development Fund
UN-DESA	United Nations Department of Economic and Social Affairs
UN-ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Fund for Population Activities
UN-Habitat	United Nations Human Settlements Programme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
UNOPS	United Nations Office for Project Services
USAID	United States Agency for International Development
VAT	Value Added Tax
VCA	Vulnerability and Capacity Assessment
VDC	Village Development Committee
VOC	Vehicle Operations Cost
VRCN	Village Road Core Network
VSBK	Vertical Shaft Brick Kiln
WASH	Water, Sanitation and Hygiene
WB	World Bank
WCF	Ward Citizen Forums
WCF	Women in ward citizen forums
WDO	Women Development Organizations
WDR	World Development Report
WFP	World Food Programme
WHO	World Health Organization
WLL	Wireless Local Loop
WRPPF	Water Resource Project Preparation Facility
WSP	Water and Sanitation Program
WSST	Water Supply and Sanitation Technician
WSUC	Water and Sanitation Users Committees
WTTC	World Travel & Tourism Council
WUAs	Water Users' Associations

PDNA CORE PARTNERS

ADB

EUROPEAN UNION

JICA

UNITED NATIONS

WORLD BANK GROUP

GOVERNMENT OF NEPAL

NATIONAL PLANNING COMMISSION

KATHMANDU