

INITIATING DIALOGUE ON

# Post-Disaster Reconstruction



 sawtee

Editors  
Dikshya Singh  
Neelu Thapa

INITIATING DIALOGUE ON  
**Post–Disaster  
Reconstruction**

Edited by  
Dikshya Singh  
Neelu Thapa

 sawtee

## Initiating Dialogue on Post–Disaster Reconstruction

Editors : Dikshya Singh and Neelu Thapa

Editorial Intern : Peter Trondalen

Publisher : South Asia Watch on Trade,  
Economics and Environment  
P.O. Box: 19366, Tukucha Marg  
Baluwatar, Kathmandu, Nepal

Contact : +977-1-4424360/4444438

Email : sawtee@sawtee.org

Website : www.sawtee.org

Supported by : The Asia Foundation, Kathmandu, Nepal

Copyright © : 2018, SAWTEE

This publication may be reproduced in whole or in part and in any form for education or non-profit use, without special permission from the copyright holder, provided acknowledgement of the source is made. The publisher would appreciate receiving a copy of any publication which uses this publication as a source.

No use of this publication may be made for resale or other commercial purposes without prior written permission of the publisher.

First Edition : 2018

Layout/Cover Design : Bipendra Ghimire

Cover Image : Dikshya Singh

ISBN : 978-9937-9307-0-3

Printing : City Press, Lalitpur

---

*Views expressed in this volume are those of the authors, and do not necessarily reflect the views of SAWTEE and its member institutions, and the organizations the authors are affiliated with.*

# Preface

**G**orkha Earthquake of 2015 and the ensuing reconstruction exposed the extent of lack of disaster preparedness in Nepal. Mismanagement of relief operations in the immediate aftermath and the slow progress of reconstruction heightened the suffering of the survivors. The earthquake had already brought deaths and devastation to thousands of households with their resounding impact across various sectors. The sluggish reconstruction only led to prolonging their predicament.

Nepal's geology and geography make it a multi-hazard country prone to natural disasters of various types. Hopefully, the 2015 earthquake has served as a wake-up call for the policy makers, planners and implementing agencies regarding disaster preparedness and response, including adoption of swifter reconstruction modalities. The setting-up of National Reconstruction Authority (NRA) and empowering of local bodies are steps in the right direction. The next step is to equip them well to deal with the myriad kinds of disasters in the future.

Reconstruction was never going to be an easy feat in the least developed parts of a least developed country. The complex socio-political structure and weak financial standings of both—the affected households and the nation—complicated the task. Couple them further with the complex network of red tapes and inaction of responsible agencies, like the Ministry of Finance, NRA, Ministry of Federal Affairs and the like, and you have a potent mix. Remember, that the disaster came at the fag-end of a prolonged political crisis in the country.

In the immediate aftermath of the earthquake, there was a flurry of actions. For example, the building codes were amended within a few months of the earthquake to make structures safer. However, as time passed, such energy seemed to be replaced by apathy. The haphazard construction of houses flouting basic precautions—both in rural and urban areas—is a case in point.

SAWTEE started a series of discussions on these and related issues during the reconstruction phase. The debates were built around studies by experts of the respective areas. This book is a collection of those well-researched essays by economists, planners, practitioners of disaster management, urban planning, migration, conflict management, and gender relations. These essays highlight the efforts that worked and those that did not. The interactions ensured that the content would also take into account ground realities as experienced by relevant stakeholders.

I would like to thank The Asia Foundation for supporting SAWTEE in executing this project. I am grateful for the important contribution made by the expert authors with their thought-provoking essays. Dr. Dhrubesh Regmi, Programme Director, SAWTEE, should be thanked for not only making this project possible but also for his efforts towards the successful completion of this book. Similarly, I would like to thank the editors of the book— Ms. Dikshya Singh, Research Officer, SAWTEE and Ms. Neelu Thapa, Programme Coordinator, SAWTEE—for their tireless work from the beginning. I also want to extend my gratitude to Mr. Hari Uprety for his contribution as copy editor. I would like to extend my gratitude to all others who directly or indirectly participated in the preparation of this book.

I hope the book will be useful to policy-makers, development partners, academicians and other actors involved in the relevant fields. Most importantly, this should prove invaluable for those in pursuit of making Nepal safe and resilient. ■

**Posh Raj Pandey, Ph.D.**  
Chairman, SAWTEE  
April 2018

# Introduction

**D**ue to the presence of an active seismic core below its land surface, Nepal is said to experience a big earthquake about once every hundred years. Apart from several intermittent jolts, the country had not experienced a disaster as devastating as the one in April 2015, in recent history. This 7.6 magnitude<sup>i</sup> temblor on 25 April, and its subsequent aftershocks of varying magnitudes, shook central Nepal. The earthquake ended up killing almost 9,000 people and causing physical damages of billions of dollars. The earthquake injured more than 22,000 people while almost 500,000 private houses were destroyed. Moreover, there was partial destruction of more than 256,600 private houses and 3,600 government buildings. The destruction had a domino effect across all the major sectors. Some sectors picked themselves up quickly, others, notably the housing sector, is still reeling under its impact.

Conventional wisdom among policymakers and the public is that a "Big One" is always waiting to occur in Nepal as the country straddles the Himalayan fault lines. There were numerous studies and exercises held at official levels to prepare for the oncoming disaster hanging over everyone's head, like the Damocles' sword. However, when the disaster occurred, everyone appeared to be caught by surprise.

---

<sup>i</sup> As per National Seismological Centre, Gorkha Earthquake was of 7.6 magnitude while according to United States Geological Survey (USGS) the magnitude of the earthquake was 7.8.

There were initial hiccups in immediate recovery but it began gathering pace only as time went by. Immediate relief measures were announced by the government and assistance by the international community began pouring in extensively. The Nepali people, for their part, displayed their resilient spirit. Nepal's reconstruction seemed to be on the right track. The government began collecting funds from foreign governments and development partners. It was able to put together NPR 410 billion in pledge within three months of the incident.

However, Nepal is struggling with getting things done in time. For starters, even after three years, not all of the identified beneficiaries eligible for housing grants, have received their first instalment. To put it in perspective, only one-tenth have completed the rebuilding of their damaged domiciles.

According to Post-Disaster Needs Assessment Report, the value of the total damages and losses caused by the earthquakes is at NPR 706 billion, or US\$7 billion. In a country with 25 per cent of its population estimated to be living under the poverty line, the disaster further pushed 700,000 people into a hand-to-mouth existence. Moreover, it took the economy almost two fiscal years to fully shake off the effects of the earthquake. Although, the nation may have recovered, the impact of the earthquake on the demography and the economy in the most-affected areas are still fresh.

Within a couple of months after the disaster, the authorities came up with new strategies to help the survivors rebuild their lives and livelihoods and formed National Reconstruction Authority (NRA). The NRA's task is to consolidate the ongoing works, assess the overall needs and plan and implement actions accordingly. The NRA has the mandate of managing and coordinating the overall reconstruction activities, which includes the rebuilding of private housing, government buildings, social and physical infrastructure and making resettlement arrangements. One of its major tasks involves distributing a NPR 300,000 grant to those who had their houses destroyed by the earthquake. The grant was given to build new earthquake resilient houses.

The problem with creating such a powerful body was apparent from the very beginning. It took more than a year for the NRA to become fully functional due to the political bickering among the major political parties. In addition, as if an inauspicious beginning was not enough, there were frequent changes in the leadership of the authority to hinder its progress.

The institutional hiccups were complemented by a governmental red tape. Multiple cumbersome procedures required to prove that the victims were eligible for the housing grant, confusing housing designs and standards, lack of sufficient human resources and involvement of too many executing agencies, were all considered to be responsible for the slow progress of rebuilding.

However, despite these issues, the speed of reconstruction has picked up since the winter of 2017. The government's decision to bring all the Central Level Project Implementation Units and District Level Project Implementation Units under the aegis of NRA is expected to further expedite the reconstruction process.<sup>ii</sup>

Aid distribution is a major part of the reconstruction, but, it is not limited to distributing money to reconstruct houses and heritage monuments. Ensuring that the funds are channelled to the needy and that they are well-utilized is also an imperative, just like guaranteeing a resilient reconstruction. The focus should now be on the broader areas implicitly hit by the disaster, as they will have a resounding long-term effect on the economy. Moreover, there is a need to carefully consider the impact of the reconstruction on the living conditions and livelihoods of the generations to come. This is an important aspect considering Nepal's vulnerability to multiple types of hazards.

The quake hit at a time when Nepal was already dealing with solving the ongoing political turmoil through drafting a new constitution. In the past three years since the disaster, Nepal has undergone the political transformation—past the prolonged transitional phase by charting a new political course for itself and holding successful federal, provincial and local elections. These radi-

---

<sup>ii</sup> The decision was taken on 10 April 2018.

cal changes have the potential to decentralize political powers and are expected to empower local communities and governments in terms of disaster risk reduction and disaster management. However, the new changes are also likely to complicate the reconstruction and rebuilding process further. The jury is still out there with regard to the ongoing reconstruction.

SAWTEE initiated a dialogue on these issues by holding a series of discussion forums (see Annex) on reconstruction and its impacts on the economy. Research has been undertaken to get a clearer picture of what was going on. Furthermore, an attempt has been made at streamlining the issues that have emerged over the course of the past few years.

Disaster preparedness and disaster risk management are among development ends as well as means outlined by the UN Sustainable Development Goals 2015-30, the Sendai Framework and our own national economic development plans. However, questions arise as to how least developed countries like Nepal, given their poor track record in managing disasters and weak institutional capabilities, will be achieving the outlined goals. The volume aims to generate normative recommendations to meet the disaster management-related development targets.

Nine thematic areas were identified for discussing during the monthly forums. The experts on the related topics carried out research on areas of interest. In addition, the monthly discussions between experts and stakeholders helped finalize the papers.

This book is a compilation of those nine papers. They were prepared between June 2017 and March 2018. Obviously, the developments after March 2018 have not been covered.

The book begins by providing an overview of the impact of the disaster and the ensuing reconstruction activities. Written by Dr. Jagadish Chandra Pokharel, Former Vice Chairman of National Planning Commission, the first chapter titled "Nepal's Post Disaster Reconstruction Experience: Current Status and Lessons Learnt" also provides important recommendations after unearthing the experiences that were acquired from this endeavour.

The "Reconstruction: Implication for Economic Management" is the second chapter. Written by Dr. Yuba Raj Khatiwada, Former Vice-Chairman, National Planning Commission and economist Mr. Ashutosh Mani Dixit, it explores the wider economic and financial impacts of the 2015 earthquake. The chapter focuses on all the three sectors—agriculture, industry and services sectors. It also provides a cursory reflection of the implications on fiscal and trade balances.

Mr. Kishor Maharjan, Associate Professor, Tribhuvan University has charted the flow of funds in his "Expenditure Analysis and Tracking of Earthquake Reconstruction Programmes".

The fourth chapter authored by prominent labour expert and Former Member of National Planning Commission, Dr. Ganesh Gurung, is titled "2015 Earthquake as Driver of Labour Migration". This is an evaluation of labour emigration and remittance flows in earthquake affected areas.

The fifth chapter, "Post-Earthquake Urban Reconstruction", explores into reconstruction of urban areas and heritage sites. Written by Mr. Kishore Thapa, Former Secretary, Ministry of Urban Development, it contributes to the discourse of urban planning and disaster preparedness, an important issue for a rapidly urbanizing Nepal.

"Resilience: A Conceptual Note", by Mr. Ajaya Dixit, Executive Director, Institute for Social and Environmental Transition (ISET)-Nepal, highlights the state of community resilience against disasters in Nepal. He has charted a way forward too with the aim of mitigating future challenges.

Ms. Neelu Thapa, Programme Coordinator, SAWTEE and Ms. Dikshya Singh, Research Officer, SAWTEE have assessed the impact of the earthquake, and the ensuing reconstruction, on women and girls in their "Gender Concerns of Recovery and Reconstruction".

"Post Disaster Conflict Resolution" by Ms. Dikshya Singh, Research Officer, SAWTEE and Mr. Mohan Das Manadhar, Executive Director, Niti Foundation explores the nature of social conflicts

and harmony emerging from a disaster and the reconstruction that follows.

Next, "From Tatopani to Rasuwa: An Analysis of Nepal-China Trade after 2015 Earthquake", Dr. Paras Kharel, Research Director, SAWTEE, analyses how the earthquake induced closure of the Tatopani border point, the opening of Keyrung, and how it impacted the Nepal-China trade. He dwells on the different aspects of a unique border trade and the shifting of trading points in this seminal research. ■

# Abbreviations

CBS	Central Bureau of Statistics
CDRF	Central Disaster Relief Committee
CEO	Chief Executive Officer
CLPIU	Central Level Project Implementation Unit
DCC	District Coordination Committees
DLPIU	District Level Project Implementation Units
DoFE	Department of Foreign Employment
DTCO	District Treasury Controller Office
DUDBC	Department of Urban Development and Building Construction
ECD	Early Childhood Development
FCGO	Financial Comptroller General Office
FY	Fiscal Year
GDP	Gross Domestic Product
GoN	Government of Nepal
INGO	International non-governmental organizations
KMC	Kathmandu Metropolitan City
KVDA	Kathmandu Valley Development Authority
MDTF	Multi Donor Trust Fund
MoCTCA	Ministry of Culture, Tourism and Civil Aviation
MoE	Ministry of Education
MoFA	Ministry of Foreign Affairs
MoFALD	Ministry of Federal Affairs and Local Development
MoHP	Ministry of Health and Population
MoUD	Ministry of Urban Development
MoLE	Ministry of Labour and Employment

NGO	Non-government organizations
NOEC	National Emergency Operation Center
NRA	National Reconstruction Authority
NRB	Nepal Rastra Bank
NRF	National Reconstruction Fund
PDNA	Post Disaster Needs Assessment
PDRF	Post Disaster Recovery Framework
PM	Prime Minister
PMDRF	Prime Minister's Disaster Relief Fund
SAR	Search and Rescue
TEPC	Trade and Export Promotion Centre
TIA	Tribhuvan International Airport
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
VAWG	Violence Against Women and Girls
VDC	Village Development Committee

# Authors

- Mr. Ajaya Dixit** is Executive Director, Institute for Social and Environmental Transition-Nepal.
- Mr. Ashutosh Mani Dixit** is an economist.
- Ms. Dikshya Singh** is Research Officer, South Asia Watch on Trade, Economics and Environment.
- Dr. Ganesh Gurung** is Chairperson, Nepal Institute of Development Studies and former Member, National Planning Commission.
- Dr. Jagadish Chandra Pokharel** is Former Vice Chairman, National Planning Commission.
- Mr. Kishor Maharjan** is Associate Professor, Tribhuvan University, Kathmandu.
- Mr. Kishore Thapa** is Former Secretary, Government of Nepal.
- Mr. Mohan Das Manandhar** is Executive Director, Niti Foundation.
- Ms. Neelu Thapa** is Programme Coordinator, South Asia Watch on Trade, Economics and Environment.
- Dr. Paras Kharel** is Research Director, South Asia Watch on Trade, Economics and Environment.
- Dr. Yuba Raj Khatiwada** is Former Vice Chairman at National Planning Commission, and Former Governor, Nepal Rastra Bank.



# Content

Preface

Introduction

Abbreviations

Authors

## Chapter 1

Nepal's Post-Disaster Reconstruction Experience

Current Status and Lessons Learnt

1

*Jagadish Chandra Pokharel*

## Chapter 2

Reconstruction

Implication for Economic Management

23

*Yuba Raj Khatiwada and Ashutosh Mani Dixit*

## Chapter 3

Role of Individual Grants in Reconstruction Expenditure

45

*Kishor Maharjan*

## Chapter 4

2015 Earthquake as Driver of Labour Migration

59

*Ganesh Gurung*

<b>Chapter 5</b>	
Post-Earthquake Urban Reconstruction	73
<i>Kishore Thapa</i>	
<b>Chapter 6</b>	
Resilience: A Conceptual Note	97
<i>Ajaya Dixit</i>	
<b>Chapter 7</b>	
Gender Concerns of Recovery and Reconstruction	121
<i>Neelu Thapa and Dikshya Singh</i>	
<b>Chapter 8</b>	
Post-Earthquake Conflict Resolution	151
<i>Dikshya Singh and Mohan Das Manandhar</i>	
<b>Chapter 9</b>	
From Tatopani to Rasuwa	
An Analysis of Nepal-China Trade after 2015 Earthquake	167
<i>Paras Kharel</i>	

---

CHAPTER **1**

---

Nepal's Post-Disaster  
Reconstruction Experience  
**Current Status and  
Lessons Learnt**

---

Jagdish Chandra Pokharel

---

The government began its relief effort immediately after the disaster in April 2015 by enforcing Essential Services Operation Act 1957 and launched a search and rescue operation for survivors under the debris. The Central Disaster Relief Committee got into action as per the National Disaster Response Framework. Government officials and members of security forces were mobilized for the relief. The Central Command Post led by the home secretary, coordinated the operations and temporary settlements were erected in the open spaces of Kathmandu.

Help was sought from foreign countries and development partners for the rescue and relief operations. While the news of the disaster spread across the globe, support began pouring in. The aid came in the form of relief materials and personnel to support the operations and medical emergencies.

The government prioritized relief works to streamline and coordinate them. The priority was the safety of the people. This included providing tents and tarpaulins for shelter and providing food and ensuring safe sanitation for the affected people. Moreover, rescuing the possible survivors buried under the debris, and providing medical attention, was paramount during the first phase of the rescue and relief process.

The army and police were mobilized for the Search and Rescue (SAR) operation. Nepal Army, the SAR teams (represented by India, China and USA) and the private sector all contributed in the rescue operation. Altogether, 66,069 personnel of the Nepal army, 41,776 of Nepal Police, 24,775 of Armed Police Force and 22,500 civil servants were mobilized for the purpose. Helicopters of Nepal Army and foreign and private operators made 4,299 flights leading to the rescue of 7,606 people.<sup>1</sup> Over time, altogether 134 international SAR teams from 34 countries responded to Nepal's request for help. Four thousand government and private health workers were mobilized to aid rescue and relief efforts.<sup>2</sup> Opening up of roads, establishing communications networks, clearing debris, looking for missing people and ensuring supplies, were carried out with unprecedented support from both within and outside the country.

## **State Leadership: prioritizing and mobilizing support**

The government declared a state of emergency in order to ensure the supply of essential materials to the affected areas and requested international assistance. There were initial hiccups in managing the large consignments of relief material being sent from all over the world. The government, with help from international non-governmental organizations (INGOs) and domestic non-government organizations (NGOs), and volunteers, constructed emergency centres to supply the relief materials and attend to the injured. Remarkably, the stalled commercial airline flights were back in operation by the end of 26 April.

An important, but challenging, task was checking the buildings and other structures for their safety with the aftershocks still rattling the country. Since the buildings had sustained different degrees of damage, they required expert engineering opinion to assess whether the structure was habitable or, if not, the amount of repairs required. Categorizing the buildings according to the damages incurred by them was a massive work requiring a large number of trained engineers. This work was done with the help of Nepal Engineers Association, which provided orientation to its members and mobilized them in the thousands to do the first round of assessment. The buildings were labelled Red, Yellow or Green to indicate their habitability. The green signified that the buildings were safe, yellow implied habitable after minor repairs and red meant unsafe. In addition, engineers and skilled workers had to be trained to demolish the unsafe buildings and clear the debris.

The relief operation saw support, in form of cash and kind, from foreign countries and humanitarian agencies. The United Nations agencies—United Nations Office for the Coordination of Humanitarian Affairs, United Nations Development Program, United Nations Children's Fund and World Food Program, among others, were at the forefront in arranging and mobilizing humanitarian support. A number of INGOs, NGOs and other voluntary

---

Box 1.1

---

### Immediate relief measures announced

- NPR 40,000 per dead person for cremation
- NPR 100,000 for households with dead family members
- NPR 25,000 per house for maintenance of damaged houses; and NPR 15,000 per household for corrugated-roofing sheets (these amounts were to be deducted from housing relief amount distributed later)
- Free of cost treatment facility for injured persons

*Source: Editors' compilation based on MoFA press releases*

---

organizations were mobilized for relief and rescue operations. They mobilized relief resources and human support.

Given the scale of the disaster, people in general came together to provide the necessary support to survivors by mobilizing relief activities. The private sector—corporate enterprises—also got engaged in relief and rehabilitation works. It coordinated relief efforts ranging from providing essential goods to survivors to arranging temporary shelters.<sup>3</sup> The private sector was also one of the largest contributors to the Prime Minister's Disaster Relief Fund (PM-DRF). Its response extended beyond fund-raising and contributing to relief efforts. In addition, it was involved in the rehabilitation of disaster affected communities.<sup>4</sup>

Youth wings of political parties and different social clubs also made their presence felt. They were engaged in managing relief supplies—constructing temporary buildings and distributing food, water, tarpaulin and sanitation kits, among others. The Nepali diaspora too played an important role in collecting and dispatching of essential materials from all over the world to the affected people. These groups raised funds, mobilized volunteers and offered technical support during search, rescue and relief works.

Funds were being raised by individuals, communities, NGOs and other non-government contributors at the national and local

levels. The government needed to coordinate relief and recovery works to suit the activities at the affected sites. To streamline the funds, the government issued a directive to channel all the funds to the PMDRF. Overall, the earthquake related donations had reached NPR 6.88 billion within six months of the disaster, and to use up the funds in rehabilitation and reconstruction, the government set up a National Reconstruction Fund (NRF).

Coordinating and allocating sectors and areas for the support required management skills. This was especially relevant in the face of criticism directed at the government for not being able to manage the relief efforts properly. Red tape hindering smooth distribution of relief, which in the first couple of months, attracted a lot of criticism. By mid-June 2015, the government announced that the relief operation was almost over and that it would begin focusing on reconstruction and recovery work.

## **Was relief operations success?**

The massive scale of the relief works was unprecedented for Nepal. Located on one of the most seismologically active zones, a great magnitude earthquake had been expected in the region for some time. The experience of the 1934 earthquake had not been completely forgotten when the 2015 one struck. Different disaster risk reduction plans, workshops and drills had been going on to prepare the population. However, when it actually happened, the government machinery and society found itself at a loss. This confusion lasted for a couple of days until the state pulled itself together and the response became firmer and more systematic. The government claimed success in relief and rescue works and asserted that, given the magnitude of destruction and the technical challenges, it had done a decent job. Once rescued, "no one died for lack of treatment", it said.

According to Nepal Disaster Report 2015, prepared by Disaster Preparedness Network-Nepal and Ministry of Home Affairs, initial search and rescue operation, though commendable, failed to reach the affected in due time and there was a serious lapse in

damage and needs assessment. It also pointed out that more than 4,500 team members from 34 countries were only able to save 16 lives, despite the cost incurred in supporting the foreign teams.<sup>5</sup> The same report pointed out the lack of open spaces for temporary shelters, emergency warehouses and proper inventory for relief materials, which affected the relief.

## **Post-disaster reconstruction planning**

Post-disaster reconstruction planning began with preparing the Post Disaster Needs Assessment (PDNA) document and support from international community.

### **Post Disaster Needs Assessment**

The report was prepared by the National Planning Commission supported by its development partners, such as Asian Development Bank, European Union, Japan International Cooperation Agency and The World Bank. Line ministries, international humanitarian organizations and various stakeholders helped with the estimation of the amounts and values of the damages to key sectors and assessment of the required humanitarian assistance. The main purpose of the assessment was to quantify the impact of the disaster and to outline a recovery framework for the country. The assessment covered the 31 affected districts, 14 of which are considered severely affected. It included 23 thematic areas classified into four major sectors—social, productive, infrastructure and cross-cutting sectors. For each sector, damages, losses, recovery needs, strategies and implementation arrangements were identified. The total value of disaster damages and losses caused by the earthquake and its aftershocks was estimated to be NPR 706 billion (US\$7 billion), or equivalent to one-third of Nepal's Gross Domestic Product (GDP) in the fiscal year (FY) 2013/14.<sup>6</sup>

The social sector, which includes housing, was identified as the most affected. Housing and settlements sustained about 50 per

cent of the destruction and production decline caused by the disaster, followed by tourism at 11 per cent, according to the PDNA.<sup>7</sup> The earthquake led to GDP growth rate being downgraded to three per cent from the estimated 4.6 per cent in FY 2014/15. The lost momentum through forgone production in the three months between the earthquake and the end of that FY was valued at NPR 52 billion. The initial assessment of funds required for reconstruction was NPR 669 billion according to PDNA estimates.

### **International funds**

Given the fiscal constraints of the government and the large amounts needed for reconstruction, Nepal required financing from foreign partners. To communicate this need to the international community, the PDNA was presented to them at a one-day conference called "International Conference on Nepal's Reconstruction", held two months after the disaster. During the conference, the donor community pledged to provide NPR 410 billion to aid reconstruction.

In his inaugural address to the gathering, the prime minister (PM) announced the creation of the National Reconstruction Authority (NRA), to lead rehabilitation and reconstruction. The Authority, headed by the PM, would seek guidance from disaster management experts and engineers.

International support, whether government or private, was made available to Nepal since the time of the disaster. They aided in relief works and were even present during demolition and debris management. Neighbours like India, China, Pakistan, Bhutan and Bangladesh came with immediate relief, requiring personnel and equipment. Almost all the countries in the world came to aid Nepal, financially and otherwise at this time of need.

### **Reconstruction planning framework**

Reconstruction activities planning included preparing comprehensive Post Disaster Recovery Framework (PDRF) and setting up NRA.

## **Post Disaster Recovery Framework**

In May 2016, the government released a five year Recovery Framework to provide vision and the strategic objectives to fulfil it. It is a policy and institutional frameworks for recovery and reconstruction and outlines the implementation arrangements, projected financial requirements and immediate next steps. This document envisions the "establishment of well-planned and resilient settlements".

This document revised the amount required for reconstruction to NPR 8.38 billion over a five-year period —from 2016 to 2020.<sup>8</sup> The PDRF classification of sectors before making the estimation is different than PDNA's. The new classification is more elaborate, that is: culture, education, rural housing, urban housing, nutrition, health, government buildings, agriculture, tourism, energy, transport, water supply and sanitation, disaster risk reduction, employment and livelihood, gender and social inclusion, and governance.

### **Strategic objectives**

The document laid out five strategic objectives for recovery—restore and improve disaster resilient physical construction, build resilient and cohesive community, improve access to services, restore economic activities and livelihood and build state's capacity to meet such disasters in the future.

The focus of the reconstruction plan is to rebuild private houses and cultural heritage; improve land use; engage the community, the private sector and the diaspora in reconstruction; reduce disaster risks by building back better; provide financial assistance to the affected people under government supervision. The document envisioned "owner-driven construction", relocation where needed, restoration of cultural heritage and architecture and enforcement of the safe building code. Cash transfers from government to beneficiaries are the core of reconstruction and recovery plan. Special focus has been given to social and environmental safeguards.

## **Institutional arrangement**

NRA was established on 25 December 2015 as the legally mandated agency to lead and manage earthquake recovery and reconstruction. Its functions include assessing the damages caused by the earthquake and its aftershocks, fixing the priorities of reconstruction, preparing policies, plans and programs and facilitating implementation. It can carry out reconstruction, or ensure that it is done through different agencies, obtain land for reconstruction and prepare plans for developing integrated settlements to ensure that reconstruction is carried out in the prescribed manner, in accordance with established safety standards. The NRA is also responsible for coordinating the work of, and collaborating with, NGOs, the private sector and communities. It is also empowered to collect financial resources for reconstruction and to make arrangements for their effective use.

At the national level, there is an Advisory Committee (AC) chaired by the PM and the opposition leader in the parliament as the vice chairperson. Its members include representatives from the military and civil society. There is a Steering Committee (SC), which is also chaired by the PM, with key government ministers, experts and Chief Executive Officer (CEO) of the NRA as members. The committee approves policies and plan prepared by the Executive Committee (EC) and provides direction for effective reconstruction. The EC is chaired by the CEO of NRA and politically appointed expert members. It functions under the SC.

Four ministries are tasked with the implementation of reconstruction projects—Ministry of Urban Development, Ministry of Federal Affairs and Local Development, Ministry of Education and Ministry of Tourism, Culture and Civil Aviation. These ministries have a technical unit called Central Level Project Implementation Unit (CLPIU) to look after the reconstruction tasks.

At the regional level, there is a Sub-Regional Office, which coordinates national and district level reconstruction works. It supports preparation of local reconstruction plans and facilitates their implementation. There are District Level Project Imple-

mentation Units (DLPIU) and District Coordination Committees (DCC) chaired by Members of Parliament with Local Development Officers, Chief District Officers and Municipality Chief Executives as members. At the village level, there is a Resource Centre, one for every three to six Village Development Committees (VDCs)—now restructured as rural municipalities—headed by the VDC Secretary and supported by an engineer and a social mobilizer.

Each VDC and Municipality is supported by a reconstruction Project Implementation Unit (PIU) staffed with one engineer, one sub-engineer and one social mobilizer to assist in design and construction tasks. The Executive Officer of the Municipal Council signs reconstruction agreements with community organizations and supports collaboration between communities and municipalities. NRA appoints Grievance Redress Officers to assist the Resource Centres. In most districts, the District Disaster Relief Committee is the institution that has been maintaining coordination between the government and development partners.

To finance the reconstruction activities, the government has set up a National Reconstruction Fund. The fund contains all the resources—government and non-government, domestic and international—meant for reconstruction. It is a non-freezing account where unspent amount gets carried over to the next year's budget. There is a provision for Multi Donor Trust Fund for rural housing construction established with the support of development partners.

## **Implementation of plan**

Private houses destroyed in the earthquake take the lion's share of NRA's reconstruction initiative. Housing grant distribution is coordinated by the NRA (See Figure 1.1). Its first task was to assess the damage of private houses, which included surveys, screening and identification of beneficiaries and addressing the grievances of those left out from the beneficiary list. The plan is to carry out the

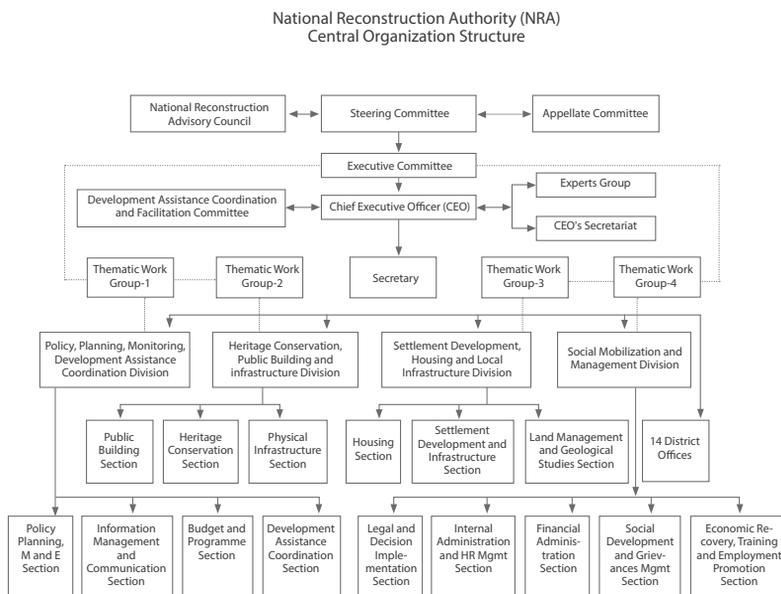
reconstruction in a phased manner—dealing with the severely affected in the 14 districts in the first phase before venturing into the less affected 17 districts.

## Grants process

The operational modality for grants distribution: NRA signs a Memorandum of Understanding with the beneficiary who, in turn, receives a commitment to be granted NPR 300,000 in three tranches. In addition, Nepal Rastra Bank (NRB)—the

Figure 1.1

## NRA's institutional structure



Source: Author's compilation

central bank of Nepal—has made provisions for earthquake survivors to get soft loans, at two per cent interest, up to NPR 1.5 million for rural, and up to NPR 2.5 million for urban house reconstruction. NRA initially provided 17 model house designs for the purpose. Later, it added more designs to accommodate the diversity of contexts. NRA provides engineering consultancy services and supervision for the construction of the houses. The funds—distributed in three tranches are released based on the recommendations of DLPIU after being approved by technical officers.

In addition to housing reconstruction grants, NGOs and government line agencies are also implementing livelihood recovery programs. Reconstruction of damaged schools, hospitals, monuments and other public buildings is carried out by the respective government agencies.

### **Three years on...**

NRA's initial survey had shown that among the 996,582 houses assessed 767,705 were identified as eligible for the reconstruction grant. By the end of March 2018, 404,672 houses were under construction, of which 691,485 had received their first tranche. Out of the 350,933 applications for the second tranche, 340,498 were approved of which only 298,024 received the second tranche. Only 104,504 applied for the third tranche 97,978 of which received approval. Out of them 73,913 received the third tranche. Altogether, 237,085 grievances were registered, 205,584 of which have already been addressed.

Likewise, during the period, 220 government buildings have been completed and 174 are under construction. Similarly, reconstruction of 3,613 educational buildings has seen completion and 1,719 are being constructed. In addition, 100 cultural heritage sites have been completed, while 329 are undergoing construction. Health Centers under construction number 180 with 586 already completed. There are 795 drinking water projects that are undergoing reconstruction, 581 have been completed.

Meanwhile, 993 vulnerable settlements are being studied to see if they need relocation. The total number of settlements to be relocated is likely to reach 143.<sup>9</sup>

### **Measure of success**

Nepal achieved mixed success at addressing the challenge of relief and reconstruction. After initial disarray, and ineffective management of rescue and relief works, the government regrouped and completed the work quite successfully. It mobilized international resources for search and rescue operations and providing shelter and care to the affected people. Some cases of mismanagement and delays, in relief material collection, transporting and distribution, especially in remote and outlying areas, were reported. Then again, overall, this phase was a success. The immediate relief initiatives may be considered to have been successful in limiting the number of deaths in the post-disaster relief period.

The government was successful in communicating to the world community for immediate relief and mobilizing them for post-disaster reconstruction. The PDNA was prepared on time. An international conference was successfully concluded with a large number of high level representatives. The gathering was held at a time when the aftershocks were continuing to endanger the safety of buildings—even star hotels, where the conference was to be held. It was successful in providing a first-hand experience of the situation to the representatives, not to mention the government's commitment and confidence to carry out reconstruction.

However, the government wasted valuable time and energy in political horse-trading while appointing the CEO of the reconstruction authority. The ordinance to create a legal institution failed in the initial phase. Furthermore, the CEO appointment was nullified. When NRA was finally set up, the remaining months of the first year were spent on institutionalizing it, not to mention plights like seeking cooperation from the bureaucracy. Despite these, the PDRF document was prepared and over three dozen policy, guide-

lines, legal documents and manuals were prepared to systematize the reconstruction work.

NRA has been criticized for not delivering its services, especially the construction of private houses and providing the affected people safe shelter. It was spending too much time preparing itself for implementation. The musical chair for the CEO continues. Since its establishment in 2015, NRA has already seen three CEOs. Each leadership has struggled to overcome some of the hurdles to get the reconstruction work moving, especially distributing grants to the eligible people and training them on techniques of rebuilding their houses. Progress has accelerated in last six months, but the targets of constructing all private houses in three years and all reconstruction works within five years (except monuments and cultural heritage) seem far off. Despite the slow start, applications for subsequent tranches for housing reconstruction grants picked up pace in the last year. Since, the major task of the NRA is to move people to safer houses and settlements, the achievements still leave much to be desired.

### **Reasons for slow progress**

There are multiple reasons for the lacklustre progress of reconstruction. They range from the institutional to the technical. The general trend of political parties elbowing each other to grab powerful government posts created delays in the appointment of NRA head. Valuable time was spent on legislating the NRA's establishment, appointment of its CEOs and other experts and seeking support from the concerned ministries. The NRA needed to mobilize the requisite human resources from other ministries to fill its posts. However, there was not much willingness on the part of officials to be deputed to this new entity.

As an organization for reconstruction, the NRA is top heavy, with numerous committees of redundant expert positions. This has centralized the authority even while its work requires a decentralized approach—especially in the face of its stated policy and the PDRF's directive. Some of PDRF's critical provisions have not

been implemented, thus visibly reducing NRA's effectiveness. The Reconstruction Fund it touts and the Resource Center at the local level are absent.

NRA has had difficulty in coordinating and getting things done through other government agencies. Since, the CLPIU and DLPIU are scattered among four different ministries, their responsibility and accountability remain dispersed as well. As a result, NRA cannot mobilize them as it wants, not to mention the difficulties it faces seeking cooperation from other government agencies.<sup>10</sup>

There may also have been an unrealistic assumption about Nepal's capacity and skill to get things done at times of crisis. Technical knowhow and managerial skills were lacking, especially among engineers, for the specialized work. Much time was spent in training and mobilizing the manpower to the field.

Likewise, the works had already started, but that did not stop NRA from spending valuable time in addressing disputes over enumeration of the housing grants beneficiaries. Disputes regarding the initial listing of the eligible households forced it to conduct a second survey. This was a process of including those eligible but left out excluding those wrongfully included. It was not an easy task. NRA had to make its decisions on a case by case basis, on the recommendation of the local administration. In spite of all the troubles, the process was too centralized, ineffective and time consuming.

NRA's grants distribution difficulties consist of different dimensions. Primarily, there was an initial confusion on the actual amount of grant announced by the government—whether the initial relief amount of NPR 15,000 was included in the total grant or not, and how the money was to be transferred to the beneficiaries. The compulsion of having a bank account to receive the payments delayed the process.

The initial grant announcement of NPR 200,000 was later increased to NPR 300,000. This created hopes that there could be more such increments. Further, the amount of the grant was the same for all victims, irrespective of their financial condition.

There were conditions attached to the release of the grant in three tranches. These had different effects on different groups of people. Those who were weak and who needed the support most could not fulfil the conditions, while those who were better off and who needed the money less were indifferent to fulfilling the conditions and, yet, were still seeking the grant. Clearly, NRA's equal treatment failed to address the issue of social inequality and justice.

The initial enthusiasm and energy for reconstruction as a "national movement", is losing steam with time, both at the local level as well as at the national level. Policymakers appear to be giving the issues less priorities, and there is less of talk at the national level, including in the parliamentary committees, about the reconstruction today. Other pressing issues like constitution amendment, local elections, the general election and new disasters like floods and landslides have taken the limelight in the eyes of the media and the public at large.

Nevertheless, the NGOs seem to be doing better and completing works in their own way. Good examples include the Dhurmus Suntali Foundation, Non-Resident Nepalese Association and others who have completed works faster than state agencies. State agencies are slow because they have limited resources and are more general in their approach than operate with a narrow focus on specific area or project.

The concept of individual house construction, especially in rural areas, is something that needs to be better understood by the experts. People were not taking the second instalment to build their houses because it is loaded with technical and administrative conditions. The NRA approved designs, the technology and the material used are new to most people, making it difficult to rebuild.

The stringent conditions of meeting building codes and design specifications to be eligible for the aid are difficult for many people to meet. It appears that they would rather avoid taking government support than meet the conditions. This was evident

in Namobuddha Municipality,<sup>11</sup> where an INGO is constructing "*bore ghar*" (earthbag houses) for the victims. The affected people had received the first tranche of NPR 50,000, but they were eager to return this money instead of seeking the second tranche. They rather wanted their houses to be built by the INGO. The reason they give for their lack of interest is "too much bureaucratic hassle".

Although, conditions for building safer houses built on sound engineering technology is necessary, it is difficult for the survivors in remote villages to adhere to all these codes. It is necessary to recognize that houses, especially for rural people, are a social product, not a physical structure. Several factors determine the desire to build a house which is not just a physical output. Even as a physical product, a family is ready to build a house only when it knows the kind of house it wants to construct. Often, people take loans to construct better houses than they are living in. These days, many people in villages are taking the reconstruction as an opportunity to transit into concrete houses from their rural stone and mud structures. As the grant money is not sufficient for such construction they are willing to wait out till they have enough money for construction of what they believe to be a strong and urban structure—a *pakka ghar*.

Land ownership is a major issue that has affected the quick disbursement of grants for private houses. Many people do not have land titles and live on public land. Since such houses were destroyed by the earthquake, the victims' entitlement to reconstruction grants becomes a contentious topic. NRA has tried to cope with the problem by revising its policy, but it will take time and effort to benefit from the policy change.

## **Lessons learnt**

While there are many lessons we can draw from Nepal's experience with post-2015 earthquake relief and reconstruction, here are some areas requiring further analysis and research.

## **Intensity and urgency to act declines with time**

Perceived urgency and eagerness for post-disaster activities erode with time. They become normal business; once normalized it becomes difficult to raise the issue or maintain the earlier momentum. Additionally, the value of time is different for different stakeholders—the affected people, the government, NGOs and the donors. Any great public activity, or "*mahayagya*", like reconstruction, requires maintenance of the momentum through continued engagement by government agencies, civil society, media and political parties.

## **Post-disaster reconstruction is politically sensitive**

Control over the process becomes a politically sensitive issue. Controlling a nine-plus billion dollars project balloons the problem and rings political chords. The whole reconstruction issue, the creation of the NRA and the appointment of its CEO, became highly political in Nepal. Political parties blew them out of proportion at the cost of overshadowing the reconstruction.

## **Avoid temptation of creating top heavy institution**

Aggregation of any individual problem often gives a different picture than its original state. Disaggregation provides the real picture. This is usually unavoidable while designing a national level project. The size of the project appears to dictate the size of the institution, or provides the temptation to come up with a top-heavy ineffective institution. After all, in reconstruction, the unit of focus is a house with a couple of rooms, often in a rural context. This means the need is for a deeply decentralized approach. Moreover, there is also a question of how powerful should the Authority be?

## **Decentralization works better for local issues**

The balance between central control/coordination versus local level targeting is always a challenge. Individual targets become

blurred as we move higher. As we raise the level of our vantage point—from family to community, to village, to district, to region, to nation and to world levels—we see the problem at the lowest level less and less clearly. The aggregated number of private houses gives a different picture of the reconstruction problem than that warranted by the actual reconstruction task.

### **Elucidate unclear policy concepts**

An unclear policy leads to misunderstanding and misplaced demands and expectations on the part of the people. The issue of "compensation" versus "relief" or "right" versus "privilege" should be understood clearly while making interventions. Politically, it is always easier to make it a "right" of the citizen to be "compensated" for their hardship than it is to fulfil it.

### **Timely and clear communication is key to maintaining trust**

This is an age of instant messaging and rapid communication. How the issues are messaged and communicated is critical for generating positive or negative perception and correct or false expectation. One can easily overshadow the truth through untruthful messaging. However, people pay attention. It is still a challenge to provide timely and correct information although everyone has access to the international communication network.

### **Balance long term goal with immediate need**

The long-term goal of creating a vibrant society and a safe nation building (Build Back Better, safe housing etc.) is required, but the immediate need of an individual is to have a shelter. Statements like "I am still living in shed after two years..." on the part of the victims or "... they should follow the safety parameters or we cannot support them..." on the part of officials are pointers to a lack of balance.

## **Learn and adapt with experience to improve implementation**

- Implement decentralized reconstruction—"devolve" the task, the resource and the responsibility to the newly formed local government bodies.
- Bring the implementation units (CLPIU, DLPIU etc.) under NRA.
- Relax the designs and implementation guidelines/engineering codes and other requirements to suit the local need.
- Provide a larger number and variety of house designs.
- Increase the amount of collateral-free group loans.
- Ease the supply of construction material.
- Incentivize "safe house construction" by providing further grants.
- Donors need information and data to calculate the amount of help they can provide. Address the need responsibly.

## **Not final question**

In spite of numerous discourses earlier on the inevitability of a Big One along the Himalayan belt and the need for crisis management when it actually occurred, the Government of Nepal seemed little prepared to manage the immediate effect when it hit the country in 2015. There were communication gaps and serious lag in mobilizing rescue missions. This initial weakness was gradually overcome and the government performed quite successfully in leading the rescue and relief effort. It was even successful in mobilizing national and international support for the works by performing an immediate damage and need assessment and conducting an International Conference seeking support from the international community.

NRA, the authority designated to handle the reconstruction effort, however, appears mired in various difficulties in carrying out its task. It has not been able to disburse grants to households that needed rebuilding. Its performance remains especially slack in

releasing the instalments to meet the needs of the quake victims. Too many conditions and procedural requirements, small size of the grant amount, lack of awareness among affected people, centralized approach to implementation, technical design of houses and technology that rural people find alien are some of the reasons for this lacklustre performance.

The NRA has learnt from its three-year experience. It revised some of its requirements, expanded incentives (NPR 100,000 retrofitting grant), increased the grant amount and simplified and multiplied the number of house designs to suit the needs of more communities. It is also decentralizing the implementation approach and plans to delegate reconstruction authority to the newly elected local government bodies. The rules to establish Reconstruction Fund are being changed and the implementation units are being brought under its aegis to accelerate the process. It has also come up with a deadline for beneficiaries to take the grant. With these and other implementation arrangements, the NRA is expecting to complete housing reconstruction within the next two years.

Of course, some basic questions are being raised by the public as to how differently the Government would be likely to respond to the next disaster? How can Nepal avoid damage? Is it better prepared now? Does it have a workable mechanism in place? Are people more alert than before to avoid damage? Do we have a permanent institution to address the issue of disaster?

Besides technical issues, there are also non-technical (political, economic, social) issues which are equally important to be brought into debate. How do we frame the reconstruction question? Should we be thinking differently when it comes to dealing with disasters? Who frames the issue and who sets the agenda when it comes to disaster management? Whose interests should prevail while setting up the agenda? How is the voice of the "voiceless" heard? What are the assumptions regarding— capacity, nature of the state and roles of different actors? These and other similar questions should be debated for better policy and ability to address the issue of disaster management. ■

## Notes

- <sup>1</sup> DPNet-Nepal. 2015. *Nepal Disaster Report 2015*. Kathmandu: Government of Nepal, Ministry of Home Affairs (MoHA) and Disaster Preparedness Network-Nepal (DPNet-Nepal).
- <sup>2</sup> NPC. 2015. *Nepal Earthquake 2015: Post Disaster Needs Assessment*. Kathmandu: Government of Nepal, National Planning Commission.
- <sup>3</sup> Malakar, S.B. 2015. "Nepali private sector: After the disaster". *The Himalayan Times* July 3. <https://thehimalayantimes.com/opinion/nepali-private-sector-after-the-disaster/>
- <sup>4</sup> Prime Minister's Disaster Relief Fund Updates. <http://pmrelief.opmcm.gov.np/contributors.aspx>
- <sup>5</sup> *ibid.* Note 1.
- <sup>6</sup> *ibid.* Note 2.
- <sup>7</sup> *ibid.* Note 2.
- <sup>8</sup> NPC. 2016. *Nepal Earthquake 2015: Post Disaster Reconstruction Framework*. Kathmandu: Government of Nepal, National Planning Commission.
- <sup>9</sup> NRA. 2018. *Rebuilding Nepal*. Kathmandu: Government of Nepal, National Reconstruction Authority.
- <sup>10</sup> In 10 April, National Reconstruction Authority brought all the CLPIU and DLPIU under its aegis from the respective line ministries.
- <sup>11</sup> Author conducted a field visit to Namobuddha Municipality, Kavre and held meeting with the Mayor and Executive Chief and NRA engineers.

---

CHAPTER 2

---

Reconstruction  
Implication for  
Economic  
Management

---

Yuba Raj Khatiwada  
Ashutosh Mani Dixit

---

The devastating earthquakes and aftershocks of 2015 resulted in a loss of property worth about NPR 701 billion, or one-third of national output. Following the earthquake, the economy could not expand. The Post Disaster Needs Assessment (PDNA) report has quoted the World Bank's simulations that earthquake is expected to end up pushing an additional 2.5 to 3.5 per cent of Nepali people into poverty. The earthquake seems to have disproportionately affected the poorer and rural areas. The real Gross Domestic Product (GDP) growth decelerated to less than one per cent in Fiscal Year (FY) 2015/16, against the growth of three per cent in the previous fiscal year. Its immediate effect was a slowdown in both public and private sector investments. It also lowered job creation owing to the large loss of rural work base.

The Post Disaster Recovery Framework (PDRF) prepared by the National Reconstruction Authority (NRA) estimates the cost of reconstruction to be NPR 837.74 billion. Additionally, the government's decision to provide NPR 300,000 to destroyed households will add at least another NPR 100 billion in the estimated figures taking the sum of the estimate to over NPR 950 billion.

## **Brunt on economy**

The calamity destroyed the physical infrastructure, the brunt of which was taken by the manufacturing sector and the fledging service industries. The agriculture sector remained relatively insulated.

**Agriculture sector:** The impact of the earthquake on farmland was not substantial. At the time of the earthquakes, April to May, rice planting had not begun and the winter crops such as wheat had already been harvested. Hence, loss of crops was also limited. Still, the PDNA estimated impact in terms of loss of output and production on agriculture was NPR 10 billion. This is because of the effect on other resources of production like labour, machinery, stock of grains and seeds, and livestock, coupled with damages to agricultural infrastructure—such as irrigation systems and roads—that led to the loss of output and productive capacity. This loss of

livestock, crops and seeds was not only a loss of consumable items but also the loss of source of income for farmers.

An impact appraisal was done to assess the effects of the earthquake on agriculture by the Government of Nepal, Food and Agriculture Organization of the United Nations (FAO), and Food Security Cluster, in August 2015. The survey conducted in six affected districts (Dhading, Dolakha, Gorkha, Nuwakot, Rasuwa, Sindhupalchok) revealed that a high percentage of households had stored rice, millet and maize in store at the time the disaster struck. The impact on stored crops and seeds was greater affecting the availability of seeds in the same summer planting season and the winter season of the following years.

The damage was also apparent on the subsequent years because of shortage of labour to undertake operations and harvesting, according to the Agricultural Livelihoods Impact Appraisal. The agriculture was further affected by the lack of labourers and increased wage rates due to reconstruction activities.

About 58 per cent of the earthquake affected people are reported to have had farming as an important source of income before the calamity, as per the Aid and Recovery Survey done by The Asia Foundation.<sup>1</sup> In severely affected districts, farming was a major source of income for more than 96 per cent of the respondents. Among these, 57 per cent said that their main sources of income were affected by the earthquake.

The Asia Foundation's Impact and Recovery Monitoring, Phase III survey done in September 2016 highlighted that farming was the most affected occupation with three fourth of the land-owning farmers reporting negative impact on income. It also revealed that those farming other people's land, and who were dependent on remittance, were less likely to report farm loss after the earthquake. Most of the people (70 per cent) said that they returned to farming, 14 per cent returned to business, eight per cent to daily wages and four per cent kept relying on remittances in the survey year–2016/2017. This might be attributable to people's multiple sources of income. For instance, an individual farmer might also work as a labourer for daily wage at some point in the agri-

culture cycle. This enabled them to shift to other forms of work to sustain their livelihood.

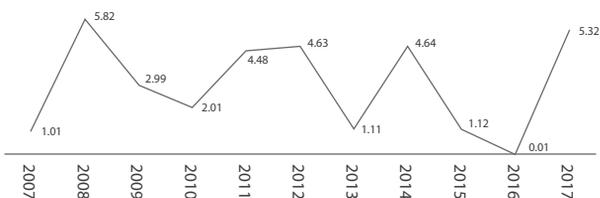
As things moved towards normalcy at micro and macro levels, in 2016/17, economic activity picked up across the board. The agriculture sector, which contributes about 29 per cent of real GDP, grew by 5.32 per cent in FY 2016/17 (Figure 2.1). The production of principal cereal crops accelerated, boosting the agricultural output, on the back of a favourable monsoon, commercialization of agriculture, expansion of irrigation and timely availability of fertilizers, not to mention contribution of normalization of supplies.

**Manufacturing Industry:** The districts housing Nepal’s core manufacturing corridors, located at Tarai flats, were relatively unaffected by the earthquake. However, the industries in 11 districts were damaged. There was a general lack of labourers and demand for industrial goods was low. Ministry of Finance data show that this led the manufacturing sector to fall by 6.45 per cent in FY 2015/16, as against a growth of 1.42 per cent in the previous year. A field survey done by Chatterjee (2017) revealed that Kathmandu Valley suffered the greatest damage in the industrial sector—the impact was the largest on Balaju Industrial Area.

There was a fall in demand for industrial goods, because of the earthquake of 2015. Power shortage and disturbances in supply of

Figure 2.1

### Growth rate of agriculture sector



Source: MoF 2007-2017

fuel and raw materials further affected the output of the industrial sector. For instance, the estimated production downtime in cement industries was reported to be between two days to two weeks. The productive capacities of the cement factories were estimated to have been reduced to 30 to 35 per cent. The overall decrease in manufacturing industry was eight per cent, in FY 2015/16. Moreover, the private sector suffered severe losses, equal to almost 76 per cent of total losses, in the productive sector.

Nepal's limited insurance products, low insurance penetration, lack of survey expertise and delays in settlement of claims, forced the companies to spend their own money in repair and reconstruction work. Even for those who did receive their claims, the amount did not even cover 20 per cent of their losses. The reason behind the low compensation was that the policies calculate the compensation amount after deducting the depreciation of the item. Since, in most cases, industries were established decades ago, the depreciation would be substantial. Only 10-20 per cent of the original value of the material was thus received by the loss bearers. The effect was more pronounced in micro, small and medium enterprises. They neither had sufficient capital cushion to reinvest nor were they compensated adequately for their losses.

The same study also revealed that 50 per cent of the surveyed industries became functional within two weeks of the quake. However, the recovery period, for the business to get into normalcy, was stated to be between six months to one year. Moreover, 61 per cent of the respondents felt the need to change their business, while almost 39 per cent felt that there was no need to bring any change in their current business.

Overall, in 2017, the industrial sector, which contributes about 14 per cent of the nominal GDP, bounced back with an 11 per cent growth—the highest recorded since 2002—mainly owing to the base effect. The upward trajectory was supported by a double-digit growth of all the industrial sub-sectors. This reflected the regularization of electricity supply, availability of raw materials and an improvement in post-earthquake reconstruction activities. The lower base of the previous year also contributed to growth. Further,

the overall industrial sector recovery was also fuelled by a record-high addition of hydropower capacity in the electricity subsector as well as in mining and quarrying activities prompted by the gained momentum in post-quake reconstruction.

**Services sector:** In a country where services account for over half of the nation's GDP, and employs 20 per cent of the total labour force, the disruption of enterprise affected the productive sector badly. The services sector grew by only 2.06 per cent in FY 2015/16, compared to the 4.63 per cent of the year before (Figure 2.2). Moreover, because of the backward and forward linkages of areas like travel, rafting, airline business, money exchange and small tourism business, their contribution to the economy is appreciable. Minimal tourist arrival, owing to the lagging effect of the earthquake, and prolonged border disruptions adversely affected hotels and restaurants, and trading activities.

The PDNA estimated revenue losses of US\$450 million over the next three years in the tourism sector. For instance, in Kathmandu Valley alone, the estimated damage to tourism infrastructure was about at US\$162 million. The calamity had struck at a time when the tourism sector was growing by 12 per cent. At that time, investors were planning to invest in construction of hotels in Kathmandu, Pokhara and other major tourist destinations.

Figure 2.2

### Growth rate of services sector



Source: MoF 2007-2017

The quake resulted in 80 per cent of hotel bookings to be cancelled in three months. Occupancy rates stood at five per cent in the subsequent months. Nepal attracted about 32 per cent less tourists in FY 2015/16 than in the previous years. National parks reported damages to facilities and loss of revenue potentially jeopardizing conservation efforts and local livelihoods. Thousands of jobs were at risk as operators in Nepal struggled to reassure their clients that hotels and tourist infrastructure were functioning and safe. The earthquake and the slowdown in tourism revenue affected the hotel projects.

In response, the government formed a public-private Tourism Recovery Committee to work out a Tourism Recovery Plan. The plan was to generate new investments, while retaining current investments, in the tourism sector and to support jobs (minimize job losses) in the sector. The aim was to "save" the business from the adverse effects to ensure minimal job losses, not to mention recover rural livelihoods and enable them to face the upcoming winter.

Gradually, the normalization efforts of the private sector, community and government helped bring a surge in visitor arrivals. In 2017, tourist arrivals topped 940,000, a record high, indicating the sector had recovered from the rubbles of the earthquake and trade disturbances at the southern border. Hotel occupancy rates in the tourism centres, that lie in and around Kathmandu Valley, reached 90 per cent.

Both the record tourist arrival and trade normalization have favoured wholesale and retail trade, restaurant, travel and communication sub-sectors. Overall, the services sector witnessed a rebound in growth, marching above 5.5 per cent, in FY 2016/17.

**Education sector:** Although fleeting, the education sector was among the most affected sectors from the earthquake and its aftershocks. It was estimated that 2,472 higher secondary schools, 31,907 primary schools and 413 early childhood development (ECD) centres were affected by the disaster. Moreover, existing student vulnerabilities were exacerbated by displacement, Post Traumatic Stress Disorder, difficulties in accessing to school and

impediment in their economic conditions. The percentage change in enrolment numbers dropped significantly the next year<sup>2</sup>, mostly apparent in primary schools and ECD centres. Places like Rasuwa, Sindhuli, Dolakha, Ramechhap and Okhaldhunga experienced the fall at double digits.

However, there has been some positive development too. In three years, 3,613 educational institutions have been rebuilt and 1,719 institutions are under construction, out of the estimated 7,553 educational institutions destroyed by the earthquake. Moreover, estimates from UNICEF predict that there has been an increase in access of basic and secondary education in Nepal, especially for girls.

**Labour market:** The labour market was adversely affected by the loss of lives and trauma. It is estimated that 5.6 million workers were affected by the earthquake. Livelihoods were impacted and incomes decreased, compelling earthquake-affected families to be dependent on relief and rehabilitation. This entire event interrupted the smooth functioning of the labour market. Many working-class households fell deeper into absolute poverty.

Moreover, the economic activities that got squeezed out by the earthquake were labour intensive sectors, like agriculture, tourism, transport and trade and commerce. The implications for the labour market and decent work are of both short-term and long-term. This was the short-term implication. In addition, a slower economic growth caused a lower demand for labour.

The long run implication depends on how quickly the government can restore the business environment and carry out reconstruction. The expansion of labour market opportunities is directly linked with the growth of the overall economic activities and their labour intensity. Moreover, investment growth, in both the public and private sectors, is one of the major determinants of jobs creation.

The labour market effects of the recent earthquake were surveyed in four of the severely earthquake-affected districts, namely Dhading, Nuwakot, Kavrepalanchok and Sindhupalchok, in August 2015.<sup>3</sup> The survey revealed that labour market opportunities

had not increased except in residential house construction and debris management. No new opportunities were observed in larger reconstruction activities, agriculture or tourism.

Given the rising wages in labour markets abroad and lack of lucrative domestic opportunities, labour emigration has become a trend. Labour is scarce in agriculture, construction and reconstruction. Construction wages have increased in a more pronounced manner in and after 2015. There is no labour market equilibrium even within a region. For instance, although the earthquake-hit districts are not very far from each other and are interconnected by reasonable transportation and communication, there are wage differences across districts. This shows a differentiated condition of labour availability for the same kind of work.

The country still lacks skilled labour, such as plumbers, carpenters, electricians and technicians, required for construction activities. A shortage of skilled workforce has affected the construction of earthquake resistant houses in the 14 severely affected districts. The estimated number of skilled labour is 60,000 with the Ministry of Urban Development training only 15,000 so far. Moreover, many of those trained are found to be engaged in other occupations.

**Trade sector:** Data from FY 2014/2015 shows that there was an immediate three-digit surge, by percentage point, in imports of materials like steel rods and sheets (235 per cent), pipe and fittings (567 per cent) and clinker. These items are mostly used in construction. Their imports had gone up by just two digits in previous years, before the earthquake. The same year witnessed a decrease in exports by 5.5 per cent, to NPR 70.98 billion.<sup>4</sup> Similarly, FY 2015/16 witnessed an export fall of 23.4 per cent, while imports fell by 9.9 per cent. Disruptions in trade in FY 2015/17 owed more to blockade at the southern border, thus, it is difficult to attribute conclusively the impact of earthquake on trade. The total trade deficit amounted to NPR 470 billion, a contraction of 8.2 per cent, as against the 12.9 per cent expansion of the same period of the previous fiscal year.

A four-and-a-half month long disruption of supplies due to disturbances at the southern border also led to a decrease in both

export and import of goods and services. It too resulted in the narrowing down of the trade deficits. In other words, the prolonged effects of the devastating earthquake and the crippling trade disturbances in 2015 had a major impact on merchandise exports and overall trade in 2016. The reconstruction drive of 2016 coupled with shrinking industrial base, escalated imports. This worsened the trade deficit in FY 2016/17. Imports have been swelling while exports have yet to come back to normalcy after hitting its lowest level in 2015/16.

## **Macroeconomic implications**

**Inflation:** Inflation in Nepal is normally influenced by structural, monetary and price situations in India. In FY 2014/15, inflation was already slowing down to 6.9 per cent before the earthquake occurred. This was a 2.5 percentage point lower than that in the corresponding period of the previous year. The slowdown in price rise was driven by several factors, including improvements in both food and non-food prices. The trend did not continue in the following FY, 2015/16, mainly because of the trade disturbances at the southern border. It was also affected by a weaker supply situation due to a substandard performance by agriculture production (Figure 2.3).

Due to the massive supply of essential materials to earthquake-affected people, through immediate relief programmes, no price pressure was seen in the affected region. However, there were some immediate spikes in local prices, but they were short lived.

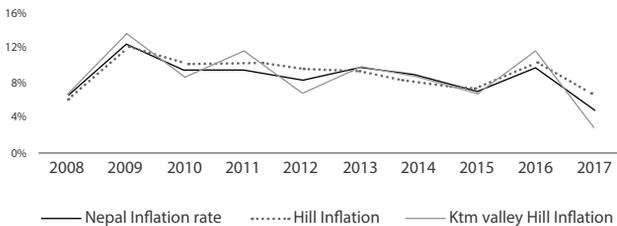
Overall, there was little inflationary pressure built following the earthquake, but disruptions at the major supply centres and trade disturbances at the southern border had some impact in 2016. In last three months of FY 2014/15, national prices rose by 2.46 per cent, compared to 2.1 per cent in the same period of FY 2013/14. In the hills, where the earthquake effect was high, inflation was 2.5 per cent in the last quarter of FY 2014/15, against the 1.84 per cent of the previous year. Soaring prices in cereals grains, vegetables, fruits and the shortage of fuel, thus higher transporta-

tion costs, led inflation to edge up to 9.9 per cent in FY 2015/16. It was 7.2 per cent in the previous year. The inflationary pressure subsided and since then it has remained at less than five per cent during FY 2016/17. Moreover, in FY 2017/18, given the inflation slowdown across the border and a strong agriculture growth in the previous year, the rate of inflation is expected to remain at the lower single digit. This should completely overcome the price pressures arising from the earthquake and trade disturbances at the border.

**Fiscal response:** The earthquake had significant implications for public finance. It increased government expenditure and reduced domestic revenue. It increased domestic/external borrowing and substantially altering existing investment and monetary expansion. The government had to divert resources away from planned investments to meet the emergency needs- relief and rehabilitation. The required funds for the rescue and recovery were initially taken from Prime Minister's Disaster Relief Fund (PM-DRF). The government allocated NPR 91 billion in the FY 2015/16 budget, following the earthquake, for recovery and reconstruction. About NPR 17 billion was allocated through sectoral ministries and other public agencies before the NRA began operations. The other NPR 74 billion was allocated for National Reconstruction

Figure 2.3

### Inflation rate



Source: NRB 2017

Fund (NRF). Out of the total allocation, 67 per cent (NPR 50 billion) was for housing, four per cent (NPR three billion) for public buildings, two per cent (NPR two billion) for archaeological structures, nine per cent (NPR seven billion) for physical infrastructure and the remaining 18 per cent for production and social sector, as per Post Disaster Recovery Framework. In FY 2015/16, only 35 per cent of the planned reconstruction budget was spent.

Similarly, in FY 2016/17, about NPR 141 billion was allocated for post-earthquake reconstruction and rehabilitation. This included administrative expenses for the NRA and grants (unconditional and recurrent) to government agencies, public institutions and affected households. Funding for construction of schools and hospitals was also included in this. Foreign loan and grants formed about 88 per cent of the total reconstruction outlay for FY2016/17 (Table 2.1).

Housing reconstruction has picked up some speed lately after two years of slow progress. Of the 781,733 beneficiaries eligible for housing grants, including those in less affected districts, over 91 per cent have been enrolled in the recipient list. Many houses are under construction as beneficiaries received their first grants. However, disbursement of the second and third tranches took a while to make meaningful progress. According to NRA data, by the end of March 2018, it is reported that around 366,245 beneficiaries have received second tranche and 113,307 applicants have received the final amount. So far, 119,182 houses were completed.

Given the technical requirements of reconstruction and the lack of knowhow to abide by the earthquake resistant measures, not to mention a lack of sufficient funds,<sup>5</sup> the majority of those affected by the earthquake were slow to start rebuilding of their houses.

**Monetary Policy Response:** In an effort to provide relief to the quake survivors, Nepal Rastra Bank (NRB) immediately announced an interest free refinance facility to banks and financial institutions to enable them to provide loans to the victims of the earthquake at a subsidized interest rate of two per cent. The NRB circular also directed the financial institutions to provide concessional loan up to NPR 2.5 million for each household inside

Kathmandu Valley and up to NPR 1.5 million for those in other quake affected districts. Three years since the disaster, only 774 survivors have availed this loan to borrow total of NPR 1.33 billion.<sup>6</sup> Contrast this with the official data that shows over 505,000 private houses completely damaged and around 279,000 partially damaged. The apparent reason behind the low exhaustion of loans is that they were exclusively directed towards individuals with decent income, adequate collateral and those who could present evidence from their respective local bodies that they did not own any other inhabitable house. There were other technical ambiguities as well which made financial institutions reluctant to lend under this scheme. Furthermore, financial institutions are not allowed to charge such borrowers any extra amount, except the interest and

Table 2.1

### Breakdown of the reconstruction budget (NPR billion)

National reconstruction authority	FY 2015/16	FY 2016/17	External Assistance (%)
Recurrent Expenditure	0.1	0.16	
Capital Expenditure	0.1	0.01	
Total National Reconstruction Authority	0.2	0.17	
<b>National Reconstruction Authority Trust</b>			
Recurrent Expenditure		49	82
Capital Expenditure		35	90
Total National Reconstruction Authority Trust		83	85
Total National Reconstruction Fund	31	57	93
<b>Grand Total</b>	<b>32</b>	<b>141</b>	<b>88</b>

Source: MoF 2016

third-party payments like insurance, collateral, loan notice, and loan security. These were not very good motivating factors for the financial institutions to push the lending.

Net foreign assets and domestic credit did not show any notable change during the period. This to some extent indicates that there was no substantial spillover to the monetary system through bank financing and foreign aid. Clearly, disbursements in both the cases were dismal. The earthquake had no significant monetary implication.

**Global Response:** Initial international response to Gorkha Earthquake was overwhelming. There were pledges and commitments from different governments and multilateral and bilateral organizations. It is reported that the total pledge for reconstruction amounted to US\$4.1 billion. The immediate relief and rehabilitation pledge from the USA (US\$ 130 million) was among the highest, followed by the UK (US\$ 110 million) and Australia (US\$ 4.6 million). These pledges were made at an international conference on Nepal's reconstruction held on 25 June 2015. Among multilateral organizations, the Asian Development Bank pledged US\$600 million, the World Bank US\$600 million and International Monetary Fund US\$50 million. The UN promised an initial US\$15 million in emergency relief.

However, the official reconstruction process remains lagging. The government has not utilized any significant amount from the pledged US\$4.1 billion. There were additional pledges from these governments later, in addition to the previously committed figures. However, their disbursements have been marginal. According to the open data, Earthquake Response Transparency Portal, almost 23 multilateral and government organizations have pledged more than US\$3.01 billion cash support to the GON but have disbursed US\$1.26 billion for 261 activities.

**Diaspora and remittance:** Immediately after the earthquake, the large Nepali diaspora began mobilizing support around the globe. Many returned home, and many others sprang up with quick response. The money transferred to the Prime Minister's relief account by Nepali diaspora, including Nepali students in uni-

versities around the world, through embassies and consulates, was approximately US\$16 million. Open data sources report that there were enthusiastic commitments from Non-Resident Nepali Associations in the US, South Africa and Sweden. Such amount came close to US\$4.4 million as per Earthquake Open Nepal.

Remittance from Nepali people living and working abroad reached as high as 29 per cent of GDP in the FY that ended mid-July 2015. The upturn in remittance, with respect to GDP, gained the momentum in 2016 and reached its record high at 29.6 per cent. During the last three months of FY 2014/15 (mid-May to mid-July), remittances amounting to NPR 63 billion flowed into the country every month on an average, as compared to an average inflow of NPR 47 billion in earlier months of the same year. In the FY 2016/17, Nepal received NPR 58 billion per month on an average. This flood of remittance has been attributed to migrant workers transferring money to rebuild their damaged houses and pay their household loans after the quake.

The remittance acted as a safety net for the earthquake-affected households as it was one of the most important income sources when no immediate government aid was forthcoming. Migrants were frequently sending money in large tranches, some of them borrowed from friends and others dipped deep into their savings. In addition, money transfer agencies waived their service fees charged on money sent from abroad to Nepal for the first few months of the disaster which helped increase the remittance. Independent Impacts and Recovery Monitoring conducted by The Asia Foundation had noted that farmers had insufficient harvests, which was sufficient to meet their needs only for a couple of months. The rest of their daily needs were met by using the income from remittance and other supplementary sources. In FY 2016/17, due to the looming crisis in the West Asia, particularly the labour importing countries, the remittance to GDP ratio is estimated to have fallen back to 26.8 per cent.

**Fiscal space:** Nepal had experienced a budget surplus in FY 2012/13, 1.8 per cent of GDP, and in FY 2013/14, 2.1 per cent of GDP. There was a small budget deficit in FY 2014/15 (one per cent

of GDP). Again, in FY 2015/16, there was a fiscal surplus of 1.4 per cent of GDP due to the spending disruption from the earthquake, not to mention the addition of the reconstruction fund account and the nature of disproportionate capital spending by the government. The following year, the disaster had slightly hit on the government revenue as well. The revenue growth rate slowed down reflecting the lower level of economic activities. In FY 2016/17, the revised estimate showed that the budget deficit would be 6.4 per cent of GDP. This was because of a substantial increase in recurrent and capital spending that year.

In Nepal, there exists ample fiscal latitude to go for deficit financing. The country must resort to deficit financing simply because the capital constraints would otherwise hinder the economic growth process and aggravate the low-investment-low growth-low saving-low investment cycle. Scepticism with deficit financing is typically because of macroeconomic robustness. It is argued that scaling up public expenditure, reflected by high fiscal deficits, can jeopardize macro-economic stability. It is said that deficits lead to inflation and potential balance-of-payments problems thereby undermining growth over the long term.

Nepal's low indebtedness and concessional nature of the external borrowing indicate that the country can resort to external borrowing as well. Besides, as the government has been able to repay domestic loans in recent years, space has been created for domestic borrowing- except when the financial market remains in a tight liquidity situation. The gradual deepening of the financial market, captive investments by banks and financial institutions in government securities, adequate foreign exchange reserves and a relatively low interest rate regime (except for recent years) all indicate that there is fiscal space for the government to scale up spending in development projects (Figure 2.4). Moreover, the level of public debt has remained mellow and is gradually reaching 24.1 per cent in FY 2016/17 from 52 per cent in FY 2004/05. Also, Nepal's external debt is mostly in concessional terms and faces low distress, which calls for a fiscal policy anchored on a modest deficit<sup>7</sup> and driven by an optimal budget spending, if only

to finance the much needed reconstruction. This should not jeopardize fiscal sustainability.

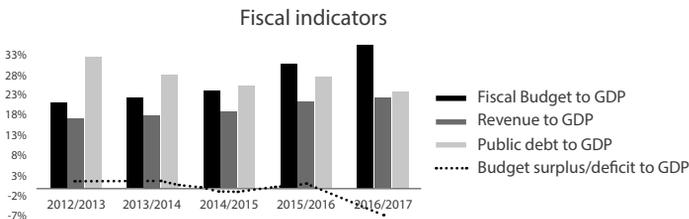
## Challenges to economic management

The real challenges for post-earthquake reconstruction, therefore, are related more to structural than monetary and fiscal matters. As there is fiscal space for the deficit financing, and as inflation is moderate, the fiscal and monetary space would allow the government to expand investments in reconstruction related activities. This is not to say that structural constraints would not hinder such initiatives. Prompt and practical decisions by NRA in releasing funds, availability of technical and manual workers and willingness of household and public-sector entities to expedite construction make up such hindrances. There are some labour market related issues as well:

- a) There is an acute mismatch between job opportunities available and interests or priorities of job seekers. The mismatch may have led to the scarcity of labour in agriculture, construction and reconstruction activities even while many Nepali youth is vying for low-paid foreign employment—which, compared with daily wages prevailing in Nepal, is much lower, particularly in destination countries in the Western Asia.

Figure 2.4

### Fiscal space for reconstruction spending



Source: MoF 2012-2017

- b) There is no labour market equilibrium even within a region inside the country. The earthquake-hit districts are not very far from each other and they are interconnected by reasonably better transportation and communication networks. Still, there are wage differences across districts prompted by the differentiated labour availability for the same kind of work.

On the monetary front, the conditions set for borrowing and the reluctance of banks to lend to the affected households remains an unresolved issue. Even the disbursement of the government's housing grant through the banking system has been a late starter. The reason was that the government was unwilling to pay the banking service charges. The slow disbursement of the public reconstruction budget is blamed on the low capacity in the Ministry of Urban Development to undertake public construction and the passive response of the line ministries.

It took a while for the disbursement of second and third tranches of housing reconstruction grants to pick up the pace. It is important to speed up the approval and disbursement momentum. As things progress, the government will have to prepare itself to meet the challenge of getting skilled and technical human resources required for carpentry and masonry works at the local level, besides ensuring a thorough supply of construction materials.

A major issue confronting the reconstruction work also pertains to a slow donor response to abide by their pledged amounts, particularly by some bilateral development partners. The government has not been serious enough to mobilize the pledged fund.

## **Recovery from rubble**

It is evident that the earthquake is a major setback to Nepal's already weak economy. The country's tourism, investment and domestic production all suffered. The earthquake and its impact have been attributed as one of the reasons for Nepal abandoning its plan to graduate from its least developed country status by 2022.

Although it is still recovering from the rubble, Nepal needs to attain a faster economic growth by ramping up investment in sound infrastructure development, tapping into its large hydro-power reserves and investing in national highways and railways. At the same time, there is a stark need to enhance the connectivity between haves and have-nots and bring about a broad based and inclusive economic growth. Basic social services need to be improved for the people. All this is complicated by additional urgencies like reconstruction of the ancient temples and archaeological treasures damaged by the earthquake.

In doing so, the government must act prudently and minimize the suboptimal level of capital spending. Nepal, with one of the lowest per capita incomes in Asia, has had continuous fiscal surpluses indicating a major challenge to its ability in capital spending. This is not ideal for a low-income country with huge investment needs, particularly for reconstruction and infrastructure development. Several tasks are listed below:

- Public spending on reconstruction on physical and social infrastructures must increase so that accelerated employment-centric and inclusive economic growth are ensured. Nonetheless, in scaling up the expenditures, due care should be taken to prevent erosion of the fiscal cushion and not exceed the economy's aggregate absorptive capacity. Close policy coordination and information sharing with the regulatory body is needed for that. Fiscal expansion should not lead to overheating so that there is room for necessary private sector credit growth.
- Most of the foreign funds pledged for post-earthquake reconstruction are in the form of loans. However, more than two-thirds of the spending will go to reconstruct individual housing. Although the social rate of return on housing investment is high, there will not be any immediate economic rate of return which would enable the state to repay the loans. Thus, efforts should be made to get the pledges renewed seeking a higher proportion of grants in the aid commitment. This would ensure that the country does not suffer from debt stress in the future.

- The government should hold another external donor meeting to guarantee pledges for necessary resources. This would also be a moment to apprise them of the progress and challenges in meeting the financing gaps.
- In addition to institutional barriers and procedural tyranny, shortage of construction materials and labour—skilled and semi-skilled—is another hurdle impacting the expenditure and execution rate of the allocated budget. The youth unemployment and labour market mismatch should be reduced by means of (1) imparting the required skill for reconstruction in the private sector, (2) setting up an attractive minimum wage for work and (3) announcement of employment schemes in public sector work. Trade unions can also be part of the skill re-matching training activities as they know the labour market from up close.
- Remittance has been an invaluable resource for post-earthquake reconstruction. Remittances are generally spent on local goods and services, especially in the recovery and rebuilding process. This means that their impact is multiplied, providing a further incentive to restore them.
- Robust policies are required to incorporate remittance as a formal means to hasten reconstruction and recovery. During natural disasters, other forms of income and means of livelihood are disrupted and recover slowly. Hence, efforts to restore remittance flows to their normal are obviously critical to the recovery of remittance receiving households.
- The government and the central bank must ease the terms and conditions for housing grant disbursement. Bank financing at a two per cent interest rate, and the central bank refinancing at zero per cent interest rate, did not work as planned since banks were uncomfortable lending at such a low rate. A revision in bank lending, at four to five per cent, would not distort the credit market for such financing.
- There is a need to involve private consulting and housing construction companies for public sector housing as well. The weak capacity of the ministries responsible for housing would

be alleviated this way. Moreover, there is a need to coordinate with local governments to expedite reconstruction. ■

*The views and opinions expressed here are those of the individual authors and does not reflect those of the organizations/institutions they are involved with. The paper was submitted in January 2018*

## Notes

- <sup>1</sup> The Impacts and Recovery Monitoring (IRM) surveys generate data from a sample of 4,854 households across 11 earthquake- affected districts. The first round of the survey was conducted in June 2015, the second in February-March 2016, the third in September 2016, with the fourth round implemented in April 2017.
- <sup>2</sup> *Nepal Earthquake 2015: A Socio-Demographic Impact Study* revealed that reason for not attending the school were fear of aftershocks (46.1 per cent) and damage to school building (45.5 per cent). Other reasons included economic problems in the family (5.6 per cent) and falling sick or being injured due to the earthquake (2.8 per cent) .
- <sup>3</sup> Khatiwada, Y. R. 2015. *Trade Union Perspectives on the Post Disaster Needs Assessment and International Aid Programs on Reconstruction in Nepal*. Kathmandu.
- <sup>4</sup> NRB. 2015 and 2016. *Macroeconomic and financial situation of Nepal*. Kathmandu: Nepal Rastra Bank.
- <sup>5</sup> Independent Impacts and Recovery Monitoring Phase 4 "Forty-five percent of people, who said they have been declared eligible for the grant, said it would cover less than 25% of their rebuilding costs while another 35 per cent said it would cover 25-50 per cent. Only six percent said it would cover 75 per cent or more of their costs."
- <sup>6</sup> Notice issued by Nepal Rastra Bank on 12 April 2018.
- <sup>7</sup> Fiscal deficit to GDP less than five per cent.

## Reference

- Chatterjee, R., K. Okazaki, and R. Shaw. 2017. "Understanding recovery process of small- and medium-scale enterprises after 2015 Nepal earthquake and impact on resilience building." In *Science and Technology in Disaster Risk Reduction in Asia* Edited by R. Shaw, K. Shiwaku, T. Izumi. Academic Press.
- Central Department of Population Studies. 2015. *Nepal Earthquake 2015: A socio demographic Impact Study*. Kathmandu: UNFPA and IOM. <http://www.cdps.edu.np/HighlightsNEQ.pdf>

## Initiating Dialogue on Post-Disaster Reconstruction

- Earthquake Open Nepal. 2017. *Earthquake Open Nepal*. <http://www.earthquake.opennepal.net/organization>.
- IIDS. 2017. *Nepal Economic Outlook*. Kathmandu: Institute for Integrated Development Studies.
- MoAD. 2015. *Statistical Information on Nepalese Agriculture*. Kathmandu: Government of Nepal, Ministry of Agriculture Development.
- MoAD. 2016. *Statistical Information on Nepalese Agriculture*. Kathmandu: Government of Nepal, Ministry of Agriculture Development.
- MoE. 2016. *Flash Report*. Kathmandu: Government of Nepal, Ministry of Education.
- Ministry of Culture, Tourism and Civil Aviation. 2017. <http://www.tourism.gov.np/ne/>
- NRA. 2016. *Post Disaster Recovery Framework 2016 – 2020*. Kathmandu: Government of Nepal, National Reconstruction Authority.
- Nepal Rastra Bank. 2017. Current Macroeconomic Situation. [https://www.nrb.org.np/ofg/macroeconomic.php?tp=current\\_macroeconomic&vw=1000](https://www.nrb.org.np/ofg/macroeconomic.php?tp=current_macroeconomic&vw=1000)
- Prasain, S. 2016. "Tourism industry bounces back." *The Kathmandu Post* April 24. <http://kathmandupost.ekantipur.com/printedition/news/2016-04-24/tourism-industry-bounces-back.html>
- The Asia Foundation, 2016. *Independent Impacts and Recovery Monitoring Nepal*. <https://asiafoundation.org/tag/independent-impacts-and-recovery-monitoring-nepal/>
- The Asia Foundation. 2017. *Independent Impacts and Recovery Monitoring Nepal*. <https://asiafoundation.org/tag/independent-impacts-and-recovery-monitoring-nepal/>
- MoF. 2007-2017. *Economic Survey*. Kathmandu: Government of Nepal, Ministry of Finance.
- MoF. 2012-2017. *Budget Speech*. Kathmandu: Government of Nepal, Ministry of Finance.
- NPC. 2015. *Post Disaster Needs Assessment*. Kathmandu: Government of Nepal, National Planning Commission.
- National Reconstruction Authority. 2017. <http://nra.gov.np>
- UNICEF. 2017. *Unicef Annual Report Nepal*. [https://www.unicef.org/about/annual-report/files/Nepal\\_2017\\_COAR.pdf](https://www.unicef.org/about/annual-report/files/Nepal_2017_COAR.pdf)
- World Bank. 2017. *Nepal Development Update*. <http://www.worldbank.org/en/country/nepal/publication/nepaldevelopmentupdate>

---

CHAPTER 3

---

Role of Individual  
Grants in Reconstruction  
Expenditure

---

Kishor Maharjan

---

The destruction and damages caused by the 2015 Gorkha Earthquake called for mobilization of large amount of money for reconstruction. As the funds poured in, from domestic and international sources, to the earthquake-stricken districts to help the reconstruction, public doubts about proper utilization of those funds also surfaced. Ensuring that the collected funds actually reached the needy, without any leakage has always been of utmost importance to all the stakeholders.

Considering the initial hiccups in relief and recovery, questions have often been raised about efficiency and effectiveness of transfers of funds meant for reconstruction from government to beneficiaries. Therefore, it is pertinent to assess the reconstruction spending to ensure that the funds are reaching the needy on time. A simple expenditure tracking, even on a case study basis, would surely be helpful to assess the effectiveness of the funds and to indicate anomalies. This study, therefore, attempts to analyse expenditure in the government's reconstruction programme and track reconstruction grants to individuals. In doing so, the process of fund flow to beneficiaries has been investigated and related issues highlighted before finding ways for improvements in the system.

In order to fulfil this objective, a thorough review was made of the various legal procedures put in place by government. Budget statements of two fiscal years, post-earthquake were examined. The focus was on the National Reconstruction Authority (NRA) allocation and the individual headings pertaining to reconstruction. Economic Survey 2016/17, the Red Book 2017/18, Earthquake Affected Private House Reconstruction Grant Distribution Procedure 2016 and various newspaper reports were also reviewed.

A field visit was conducted to survey the reconstruction of households in Methinkot, Namobuddha Municipality in Kavrepalanchowk district. A purposive sampling was carried out to select 20 households of those affected by the earthquake and who were eligible for the government's individual grants.

Another aspect of the field work was interviews with relevant officials. The key informant interviewees included persons from Ministry of Finance (MoF), NRA, Financial Comptroller General

Office (FCGO), Division Planning Office of Namobuddha Municipality, and other concerned officials. To give further depth, the interviews included non-government actors and quake victims at Methinkot. The limitations of the study are obvious, given its narrow focus on a small affected area, that too of just one district.

## **Rules of distribution**

The government has set some rules and norms to follow for the distribution of reconstruction funds. The main implementing agency, NRA, has formulated several directives and procedural modalities with regard to implementation of earthquake related programs. Among them, Grant Disbursement Procedures for Private Houses destroyed by the Earthquake 2016 is pertinent for the present study. According to this procedure, determination of the grant beneficiaries were based on the Central Bureau of Statistics (CBS) survey. The recipient must possess the citizenship certificate, the land ownership certificate and damage-assessment certificate provided by the CBS. The condition is that the individuals should not have any other residences. But, if the beneficiaries have two or more houses destroyed, the grant will be provided for the reconstruction of only one house. The construction of the house has to follow the NRA approved design and has to be supervised by District Level Project Implementation Unit (DLPIU) and local bodies' technical staff.

The grant would be released to DLPIU through Central Level Policy Implementation Unit (CLPIU) of Ministry of Federal Affairs and Local Development (MOFALD), which was later renamed as Ministry of Federal Affairs and General Administration (MoFAGA). The first tranche for individuals would be NPR 50,000, the second NPR 150,000 and the third tranche would be NPR 75,000. The last NPR 25,000 is to be released only if the beneficiaries construct toilets and install alternative energy sources. A total of NPR 300,000 would thus reach the individuals for building their houses. In order to minimize possible leakages and to promote financial inclusion, the grants are transferred to the bank accounts of the

beneficiaries. Where retrofitting was required to repair old houses, NPR 100,000 is provided. There were also provisions for interest free and concessional loans.

In addition to other conditions, to be eligible to government's housing grants the recipient should not have taken any grants from other national/international organizations for house rebuilding. Beneficiaries staying in areas where the government has started acquiring lands were to be given grants for temporary house construction. In addition, the government has made provisions to ensure the supply of construction materials and management staff, not to mention carrying out skill development and capacity building programmes.

## **How the fund is handled**

The fund is handled by MoF which then transfers it to NRA as per the annual Budget announcement. When the NRA receives its authorization, the fund is passed on to Ministry of Urban Development (MoUD) for construction. Similarly, it is passed on to MoFALD (now MoFAGA) if it is an individual house grant, to Ministry of Education with regard to educational institutions, Ministry of Culture, Tourism and Civil Aviation for reconstruction of damaged cultural heritage, Ministry of Health for health institutions and other concerned ministries for related reconstruction. Three ministries have set up district units in affected districts and two ministries have set up units at the central level. NRA has its own District Secretariat for concerned ministries. FCGO facilitates the fund flow through the District Treasury Controller Office. Fund transfers to the beneficiaries are done only through banks.

Immediately after the earthquake, the government initiated fund mobilization and solicited assistance from various international agencies and governments, getting pledges of support worth US\$ 4.1 billion from them. About 83 per cent of the pledged amount was committed in writing by the donors while the actual disbursed amount was minimal.

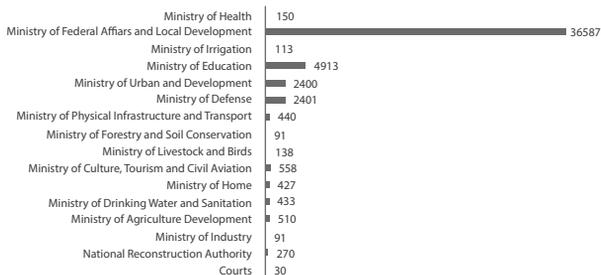
## Earthquake related public expenditure

In 2015/16, the immediate fiscal year after the quake struck, only about 28 per cent of the allocated fund was spent. It was reasoned that there was confusion on the spending modalities. Moreover, there were some political issues (frequent government changes, for one) regarding the appointment of chief of NRA. Also, it was at this time that Nepal underwent through five-month blockade at its major trade routes with India. Despite the disturbances, resource pooling was encouraging. The expenditure side was, however, not so promising. In FY 2016/17, the spending increased a little bit, but still failed to exceed even fifty per cent of the allocation. In FY 2017/18, allocation showed a significant increase, that is more than 74 per cent compared to the previous year. Hence, the expenditure is expected to shoot up in the year.

Around NPR 50 billion was spent on earthquake related programs through various ministries and government bodies in FY 2016/17. That year MoFALD took up the lion's share of the fund (NPR 36.6 billion) that included individual and institutional grants

Figure 3.1

### Ministry-wise expenditure on earthquake related programs in FY 2016/17 (in NPR million)



Source: Author's compilation from NRA source

Table 3.1

**Allocation and spending (NPR in million)**

Year	Heading	Starting Budget	Actual Budget	Expenditure	Utilization %
2015/16	National Reconstruction Fund	74,000	81,221	22,476	27.67
2016/17	National Reconstruction Authority Fund	83,834	112,579	49,415	43.89
2017/18	National Reconstruction Authority Fund	145,935			
	Growth (%)	74.08			

*Source: MoF 2017*

as housing reconstruction was undertaken through this ministry. The lowest amount was spent by Ministry of Industry and Ministry of Forest and Soil Conservation (NPR 91 million each) besides Courts.

On the central budget's NRA fund headings, expenses were categorised as individual housing grants for the victims, building construction for damaged government-owned buildings and public construction which consisted of reconstruction of structures such as irrigation canals, roads and a miscellaneous category. There was a significant increment in expenditure of institutional/individual grants during FY 2016/17 (nearly 67 per cent of the allocation) in comparison to 2015/16. Expenditure in the last month of fiscal year was very high. Allocation in FY 2017/18 has increased by nearly 40 per cent (see Table 3.1).

In the Building Construction category, spending remained just about 21 per cent of the allocation in FY 2016/17 compared to 27 per cent in the previous year (see Table 3.3). There is a remarkable increment in allocation (about 92 per cent) in FY 2017/18. Still, there is a need to speed up the expenditure under this heading.

Under the Public Construction category, expenditure pattern follows the building construction category. Just 20 per cent of the

Table 3.2

**Institutional/individual grants (NPR in million)**

Year	Starting Budget	Actual Budget	Expenditure	Utilization %
2015/16	33,000	35,221	14,387	40.85
2016/17	45,367	52,917	35,331	66.77
2017/18	63,337			
Growth (%)	39.61			

Source: MoF 2017

allocation was utilized during FY 2016/17 (see Table 3.4). Even so, the figure was a remarkable increase from that of the previous year. Consequently, the allocation has been jacked up by 168 per cent in FY 2017/18. This indicates a high priority to public construction, which includes reconstruction of the structures such as roads, drinking water sources, health posts, among others.

NRA categorization also has a spending section titled "others" including other miscellaneous recurrent and capital expenditure, such as service consulting, program expenses and recurrent

Table 3.3

**Building construction (NPR in million)**

Year	Starting Budget	Actual Budget	Expenditure	Utilization %
2015/16	17,000	23,713	6,480	27.33
2016/17	24,849	40,203	8,241	20.50
2017/18	47,633			
Growth (%)	91.69			

Source: MoF 2017

Table 3.4

**Public construction (NPR in million)**

Year	Starting Budget	Actual Budget	Expenditure	Utilization %
2015/16	22,000	21,341	890	4.17
2016/17	7,747	12,258	2,461	20.08
2017/18	20,761			
Growth (%)	167.98			

*Source: MoF 2017*

grants, land/building purchase, public construction, research and consultancies etc. In FY 2015/16, this form of expenditure was satisfactory, though the volume was small. In FY 2016/17, there was a reduction in its utilization. In FY 2017/18, there has been tremendous growth in allocation (about 142 per cent). It is learnt that the amount is used for contingencies as well.

## Tracking housing grants

Considering the lax expenditure record, many victims eligible for household grants were not able to receive the released tranches on time. The CBS surveyed households numbered 996,582 out of which 767,705 were found to be eligible for housing grants. Overall, 709,180 households have entered into agreement to receive the grant out of which 696,193 received the first tranche in the two years and half years since the disaster. The applicants for the second tranche numbered 366,245 and 113,307 have entered into an agreement to receive the third tranche. Only 47 per cent of the households that received the first tranche were found to be eligible for the second tranche. This indicates that not all the first-tranche receivers may have spent it on reconstruction.

More than 92 per cent of the nation's earthquake victims have entered into the NRA's grant agreement. Amongst them, 98 of the

households have received the first tranche of the reconstruction grant. For the second tranche, just 52 per cent of the needy households submitted their application.

The numbers show that grant distribution was not done in a timely manner. The beneficiaries complained that it was too little too late. Many deadlines set to distribute grants were not met and there were too many procedural hassles from the beneficiary's perspective. Therefore, the purpose of the distribution of grants, which was to facilitate the earthquake victims build a shelter on time so that they did not have to suffer from the heat, rain or cold, was defeated.

### **Kavre case**

Tranches received by victims in Kavrepalanchowk district may portray the overall scenario. At the district level, Kavre saw 90 per cent of the households entering into the agreement. Even around late 2017, households applying for second and third tranche were negligible.

Here, 67,731 houses were identified as eligible victims, out of which 60,721 came forward for the agreement and around 60,000 took the first tranche. Only around 5,000 houses received the second tranche while just 124 houses were approved for the third tranche by December 2017. The slow uptake of number of beneficiaries obtaining second and third tranches shows that owner-led reconstruction is riddled with problems.

### **Namobuddha Municipality**

At the municipal level, Namobuddha saw agreement signed by 89.7 per cent of the households. 89 per cent received the first tranche, 1.2 per cent got their second tranche [in one ward, the percentage was zero] and there were no third tranche receivers.

In Namobudhha Municipality, while the identified households were 4,519, the number of houses entering into agreement were only 4,058. Recipients of the first tranche numbered 3,620.

The number of second tranche receiving households came down to just 44, while no one has received the third tranche so far. As of late 2017, there is neither a record of the number of completed houses nor of those still under construction.

There are eight wards in the municipality, six of them identified as affected. The worst affected ward was Khanalthok with 1,090 affected households. Here, 970 entered the agreement with 782 of them receiving the first tranche. No one had received the second tranche till late 2017. The least affected area was Purano Gaun where 427 entered into the agreement with 327 of them receiving first tranche. Four households have received the second tranche. The trend was either in line with, or falls short of following the district's overall scenario.

## Public perception

The study also tried to examine how the government grant was being used by beneficiaries and if was used for the given purpose. It

Figure 3.2

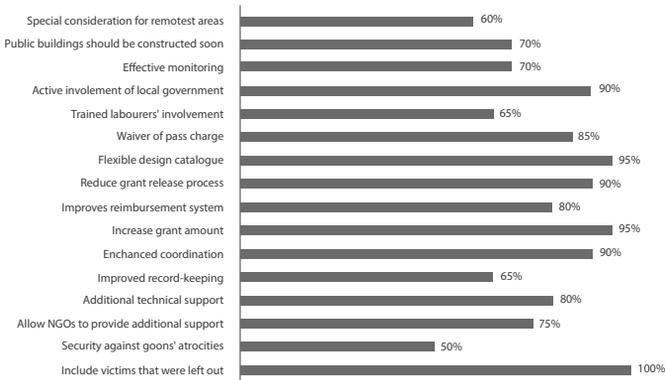
### Key Issues



Source: Field Survey 2017

Figure 3.3

### Suggested measures for effective implementation



Source: Field Survey 2017

also tried to find out the perception of beneficiaries as to what they felt about the grant and the government's efforts towards reconstruction.

An idea of the obstacles relevant to grants for individual damaged house reconstruction can be provided by key informant interviews. Here, we asked 20 respondents (earthquake victims) to focus on issues like timing, the flow process and the quantum of grant. The major issues that emerged were—unavailability of trained labour, lengthy grant process, cost escalation, redundant loan provisions, rigid design catalogue, lack of coordination among line agencies, lack of technical manpower, insufficient room in design to cater to local needs, inability to bear extra cost and leftovers. Some other issues like atrocities from goons, poor database at the local level and cash flow problems during construction were also found to be prevalent at the grassroots (see Figure 3.2).

The respondents offered suggestions for improving the state of implementation and speeding up expenditures (see Figure 3.3). They wanted a more flexible design catalogue, inclusion of real victims that were not included in the beneficiary lists, shorter

grant release process, increased grant amount, more activity from recently elected local bodies by giving them more roles (like grant disbursement and database maintenance), regularized fund release, waiver of local tolls imposed on transportation of construction material to reduce extra financial burden on victims, regular monitoring, interested NGOs to be allowed to provide additional support, public building construction sped up and recruitment of technical manpower for technical back up and suggestive supervision. Other areas they wanted addressed were due consideration to remoteness of areas, preparation of a database and also security provisions.

## **To speed up snail**

Finally, the expenditure analysis shows that allocated funds have not been fully utilized. The status of reconstruction expenditure has not been satisfactory. Even though there is some improvement in institutional/individual housing grant expenditure in FY 2016/17, there is a lot of room for tangible impacts.

Tracking of the finances in reconstruction has revealed that the pace of spending is quite slow. That may be because of delays in the appointment of NRA chiefs, due to the fluid political situation resulting in their frequent changes. Moving from the first tranche to the second seems to be taking place at a "snail's pace". This has put most victims in a state of despair. They want to receive the remaining amount as soon as possible. Despite this study being a case study in nature, several relevant issues have been identified, which need to be addressed immediately. Here are some measures to speed up the expenditure and achieve the laid down targets.

- Once the NRA authorizes the concerned ministries to carry out the spending, the process is facilitated by FCGO and District Treasury Comptroller Office. The process is long and involves many agencies (for example, concerned ministries).<sup>1</sup> Three full years have passed since the quake. Still the third tranche has not been released satisfactorily. There must be

strict directives to shorten the timeframe for cash transfers.

- Victims have demanded regular supervision and monitoring of the entire process. This part is very weak. It should be strengthened by adding technical human resource for credible supervision.
- There is substantial construction cost variation between remote and other areas because of transportation and other externalities. Victims from remote areas have pointed out this discrepancy and sought special consideration. One major reason for victims to not meet compliance requirements regarding documents while seeking the second tranche is cost. Classification of victims should be based on their geographical location.
- Those carrying out reconstruction must additionally get their building plans endorsed by the local government, just like other regular construction plans. This raises the cost tentatively by about 10 per cent of the grant amount (about NPR 30,000). This is discouraging the reconstruction momentum. NRA must coordinate with local governments for a waiver of this kind of "pass charge" or plan endorsement fee.
- Present grant provisions bar victims from receiving additional support from interested NGOs, INGOs and corporate houses. Victims say that they want more assistance for works like painting and bathrooms.
- The slow pace of public reconstruction work is depriving the victims from getting their regular government services. There is a need to pay more attention to this aspect.
- Locals are comparing the efficiency in the distribution of government grants with that of NGOs and INGOs. Victims have gone as far as to say that they are willing to return the grant to the government in exchange for the better services doled out by non-government actors. This may raise questions on government's credibility.
- Masonry training for reconstruction works has its own problems. Trained labourers are not interested to work in the government's reconstruction initiative, because delays in recon-

struction works are forcing them to sit idle for long periods waiting for reconstruction to start. Trainings should be given just before starting the construction.

- Since, at present, local bodies have already been elected and because locals are in constant touch with these bodies, it would be more pragmatic to provide them some roles to facilitate reconstruction works. Tranche administration, supervision, preparation of database and coordination work would be appropriate for them.
- Earthquake reconstruction is a very sensitive issue. There are instances of failures in some countries. Hence, the government needs to regularly assess the progress and achievements of reconstruction. Public Expenditure Tracking Surveys and similar other tools can be used in all spheres of earthquake reconstruction to improve performance. ■

## Note

- 1 In 10 April, National Reconstruction Authority brought all the CLPIU and DLPIU under its aegis from the respective line ministries.

## Reference

- MoF. 2017. *Budget Speech 2017/18*. Kathmandu: Government of Nepal, Ministry of Finance.
- MoF. 2016. *Budget Speech 2016/17*. Kathmandu: Government of Nepal, Ministry of Finance.
- MoF. 2015. *Budget Speech 2015/16*. Kathmandu: Government of Nepal, Ministry of Finance.
- Earthquake Affected Private House Reconstruction Grant Distribution Procedure 2073.
- MoF. 2016. *Economic Survey 2016/17*. Kathmandu: Government of Nepal, Ministry of Finance.
- Maharjan. K. 2016. *Public Expenditure Tracking Survey (PETs) on Scholarships for Girls and Dalit students at Community Primary Schools*.

---

CHAPTER 4

---

# 2015 Earthquake as Driver of Labour Migration

---

Ganesh Gurung

---

Nepal has a long history of migration of its labour to seek jobs in foreign countries. The trend has become a socio-economic reality and a vital livelihood option for many people in Nepal. Emigration for jobs abroad is considered to be an important path to an improved socio-economic status of individual migrants and their families and it has contributed in creating prosperity for the society at large.

The outflow of migrants started to increase after Nepal adopted the policy of economic liberalization in the early 1990s, which also coincided with the restoration of multiparty democracy. Similarly, the Maoist insurgency, that lasted from 1996-2006, caused turmoil in the political environment of villages and urban areas. This too propelled the unemployed youth to leave the country to preserve their lives and livelihoods.

## **Disaster and migration**

Besides socio-economic causes, natural disasters also drive both internal and external migration. The devastating earthquake of 25 April 2015 too played a crucial role in such migration. Quite a few families in the affected areas shifted their permanent place of residence, that is, to another Village Development Committee (VDC), another place in the same VDC or even district. On the other hand, many Nepali migrants working abroad also returned to take care of their families immediately after the earthquake. In the immediate aftermath of the earthquake, as the affected households faced the need of resettlement, the number of labour migrants from Nepal to foreign employment destinations decreased sharply. Many prospective workers decided to stay and take care of their families. But it could have been short-term phenomenon only. There is no quantitative data on the number of those returnees to the affected districts. This study collected anecdotal evidence through interviews with locals and some returnees. It suggests that a large number of emigrants stayed back to help rebuild their houses and restore a sense of normalcy and psychological safety for their family members. But they may have left after settling their families.

The slowdown should have thus led to an increase in the domestic workforce employed in reconstruction. However, this decrease in emigration did not seem to translate itself into an increased domestic labour supply. One of the prominent reasons cited for slow progress in reconstruction is shortage of able workers.

As almost all of the severely impacted districts have more than five per cent of their population living outside their home districts (see Figure 4.1), remittances are one of the major sources of income for the affected households. Studies show that in the immediate aftermath of disasters, remittances act as a safety net for the affected households (see Mohapatra 2009). In Nepal too, remittance inflow

Table 4.1

### Labour migration trend in the most affected districts

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Gorkha	4,415	6,672	7,604	7,130	5,440	6,431
Rasuwa	646	1,217	1,123	932	613	429
Dhading	5,479	7,953	8,706	8,143	6,028	4,829
Nuwakot	3,821	7,291	8,149	7,427	5,112	4,369
Kathmandu	3,346	6,870	7,175	6,095	4,873	4,150
Lalitpur	1,791	2,942	3,328	2,833	2,100	1,824
Bhaktapur	1,254	1,671	1,895	1,652	1,289	1,051
Kavrepalanchowk	4,372	8,588	9,387	8,511	6,115	5,417
Sindhupalchowk	3,782	8,759	9,901	7,806	5,865	5,332
Ramechhap	3,242	5,119	6,154	5,636	4,023	3,268
Dolakha	2,361	4,494	5,186	4,881	3,183	2,750
Okhaldhunga	1,991	3,562	4,329	4,421	3,140	2,524
Makawanpur	4,832	9,288	10,759	9,859	7,705	6,472
Sindhuli	5,091	7,070	8,148	8,095	5,994	5,150

Source: MoLE 2018

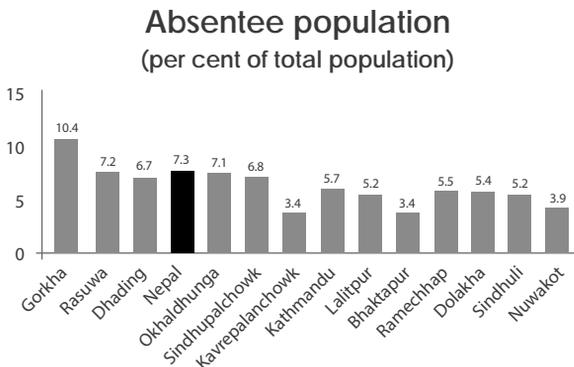
surged in the weeks following the earthquake providing an essential means of support to the concerned families. And remittance has emerged as prominent source to aid in rebuilding of personal houses.

The earthquake not only affected migration but also brought some changes in employment patterns. According to a 2015 study by Central Department of Population Studies of Tribhuvan University, the earthquake displaced 2.9 per cent of households in the affected districts. Regarding occupation changes in the earthquake-affected districts, the report states, 3.4 per cent of the population in rural and 1.6 per cent of urban areas did so. The earthquake also affected the traditional occupations of about 19.5 per cent of the population in rural and 10.5 per cent in urban areas. Such a change of traditional occupation plays a crucial role in their aspiration to be migrant workers. This is because it is believed that migrating for better livelihood opportunities is the best option if they want to escape the vicious cycle of poverty.

## Labour migration in Nepal

The government of Nepal formally allows Nepali nationals to go and work in 110 countries. However, the majority of migrants are

Figure 4.1



Source: CBS 2014

Table 4.2

## Remittance contribution to Nepal's GDP

Year	Percentage of remittance to GDP (per cent)	Total remittance receipt (NPR billions)
2005/06	14.9	128.4
2006/07	13.8	132.3
2007/08	17.5	191.54
2008/09	21.2	281.9
2009/10	19.4	264.35
2010/11	20.61	349.6
2011/12	23.5	471.14
2012/13	25.6	511.56
2013/14	27.7	589.5
2014/15	29.0	617.3
2015/16	29.6	665.1
2016/17	26.8	695.45

Source: DoFE and NRB, various issues

concentrated in the Gulf Cooperation Council countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates) and Malaysia. The lack of employment opportunities in Nepal is considered to be the major push factor for the increased volume of labour migration. The total number of labour emigrants has increased significantly, from 198,120 in 1954 to almost two million in 2011. According to the 2011 Population Census, 7.1 per cent of the population migrated overseas. This figure reflects the bleak economic condition of Nepal and a lack of appropriate human resource management policy.

The latest Population Census also says that one in every four households reported that at least one member was absent or living away from their place of birth. The absentee population percentage

varies among the earthquake-affected districts for various reasons. Among the 14 most earthquake-affected districts, the highest percentage of absentees was recorded in Gorkha (10.4 per cent) and the lowest in Kavrepalanchowk and Bhaktapur (both 3.4 per cent). The absentee population size in the fourteen earthquake-affected districts was 300,435, or about six per cent of their total population. The proportion of male migrant was four times higher (80 per cent) than female migrants (20 per cent). The proportion of emigrants from rural areas comprises 81.2 per cent against the urban figure of 18.8 per cent, as per National Living Standard Survey (NLSS) 2010/11.

Most Nepali emigrants are unskilled or semi-skilled, involved generally in the construction and manufacturing sectors. They receive relatively low salaries and live in poor conditions. Nepali migrant workers' monthly payscale fall in between US\$190 to US\$900, depending on their skill levels while the official monthly minimum wage rate of the country is not even US\$100. Not only that, many migrant workers have lost their lives due to poorly managed rooms and high desert heat. Yet, compared to domestic wage rate, and the prospect of accumulating sizable savings which can later be invested works are driver for seeking jobs abroad.

The reconstruction works seem to have had some impact in the prevailing wage rate. The higher demand for skilled and semi-skilled labourers for reconstruction work has also led to increased wages. According to a small survey done in the affected areas by the author, wages of skilled construction labourer increased from NPR 800 to NPR 1,200, along with a similar rise in the wages of unskilled workers. Empirical evidence shows that wages once raised hardly decline, so the increased wages during reconstruction may have repercussions in the overall labour economy too.

## **Remittance in reconstruction**

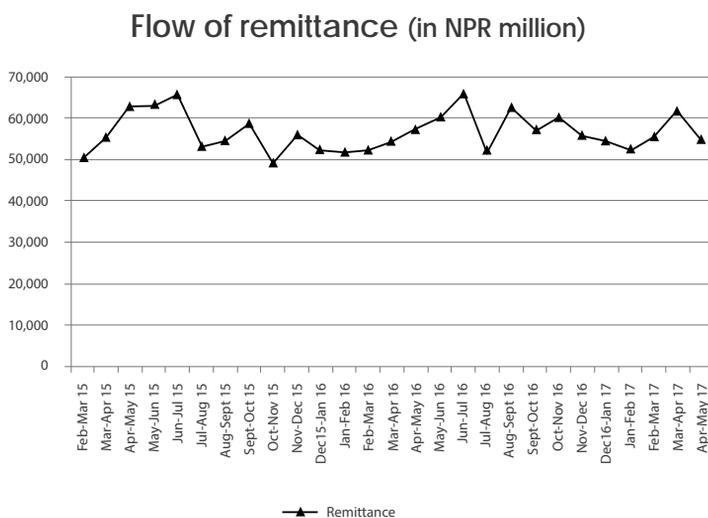
Given the scale of emigration, Nepal receives sizable amount of remittance. In 2015, Nepal had ranked 23rd among remittance-receiving countries in the world. In terms of remittance as the per-

centage of Gross Domestic Product (GDP), Nepal even ranked second in 2016. With remittance accounting for almost one-third of Nepal's GDP, its important role in the national economy is obvious. The dependency of national economy on foreign employment and volume of remitting money is presented in the Table 4.2.

The volume of remittances to Nepal increased from NPR 434.6 billion in FY 2011/12 to NPR 665.3 billion in FY 2015/16. In the subsequent fiscal year was NPR 695 billion, up 4.6 per cent. Remittance receipt now is equivalent to nearly one-third of Nepal's GDP. Five years back, it was one-fourth, thus indicating an upward trajectory. However, this trajectory is expected to decrease not only due to the earthquake, but also because of decreased demand for Nepali labour at the destination countries.

The post-quake increase can be observed to some extent in the months following the earthquake, that is Jetha (mid-May to

Figure 4.2



Source: Monthly Macroeconomic Report from NRB, various issues

mid-June) and Ashad (mid-June to mid-July). Then, in the consecutive months, remittance started to decline, according to official figures (see Figure 4.2) the swell in remittance could be attributed to migrant workers sending money to support their earthquake-affected families. In the immediate aftermath of the disaster, informal money transfer service providers, such as *hundi*, were incapacitated for a short period, while many formal transfer operators waived their service fees. This could have encouraged the workers to send money through formal banking channels. Moreover, many individuals from all over the world were transferring money to Nepal for earthquake relief activities. These reasons could have also inflated the remittance inflows.

The earthquake had damaged hundreds of thousands of public and private buildings and took the lives of people and animals in fourteen-affected districts, requiring substantial resources to rebuild. The government of Nepal declared a NPR 300,000 grant for those whose houses were damaged or destroyed entirely in the 14 districts. However, the grant is insufficient to construct a house and almost impossible for non-migrant worker households without alternative sources of income or credit facilities. The role of remittances in the affected fourteen districts becomes obvious here. During a small survey conducted by the author, returnee migrant workers in Kavrepalanchowk and Bhaktapur said that their first priority in spending their remittance money was to rebuild damaged and cracked houses.

About 56 per cent of Nepali households receive remittances—internal and external. The average income transfer in the form of remittance is NPR 80,436 per recipient household. The amount was highest in Kathmandu (NPR 89,647) and lowest in the crisis-hit districts (NPR 38,964). During the earthquake, Nepal had asked the migrant destination countries to pay Nepali workers' salaries in advance, and also provide them paid leave. This played a positive role in reconstruction of the earthquake-affected areas. However, these were not lasting measures, thus, was effective only in the immediate aftermath.

## Internal Migration

Besides international emigration, there is sizable population moving within the country for better opportunities. The percentage of households that receive remittances from another district inside the country too has changed over time. It was 45 per cent in 1995/96, 23 per cent in 2003/04 and 20 per cent in 2010/11.

The earthquake made some of the settlements in the hills uninhabitable, prompting internal migration. While the earthquake-affected areas saw an increase in the number of returnee migrant workers who came back to rebuild their destroyed households, the disaster pushed many youth to migrate within the country to revive their lost livelihood, contributing to the volume of internal migration. Similarly, it increased the internal migration of children and elderly due to displacement. So, migration streams and counter streams were noted in the affected areas.

---

### Box 4.1

## Migration to India

Given the open border, there is a sizable number of Nepali people working in India. The history of emigration from Nepal to India started in late eighteenth century. Most Nepali workers there are seasonal migrants. Some work in the Indian Army as well. Most of them are concentrated in the northeast India as labourers, marginal farmers, dairymen and cattle grazers. Nepal's Central Bureau of Statistics (CBS) has revealed that the flow of migrants to India has been increasing. In 2001, a little less than 600,000 Nepali nationals were estimated to be living in India. According to 2011 Population Census, the figure stood at 722,000. However, the drivers and consequences of migration to that country have been changing over time.

Reconstruction has created a job market for those who used to go to India as seasonal migrants. At the same time, it was observed in the affected areas that the number of immigrants from India increased in reconstruction sites.

---

Between the two major pull and push factors driving migration, the Nepal quake was a push factor for people living in the 14 earthquake-affected districts. It displaced people due to explicit and perceived threats to their safety. The direct causes include damage and destruction to living quarters, the resultant landslides burying houses and the death of family members. Perceived and indirect causes of displacement occur when people are afraid and shift places to avoid the quake's impact observed in others' lives.

Reconstruction has even shifted the migration pattern. Due to local labour shortage, contractors are sourcing workers from Far and Mid-Western Hills, who would otherwise be seasonal migrants to India. Similarly, earlier, women labourers hardly ventured into skilled works, such as masonry or carpentry, but the labour crunch has prompted them to take up these jobs as well. These fetch higher earnings for them. Hence, reconstruction appears to have changed the labour composition in rural areas.

## **Labour paradox**

Nepal is in the Stage Three of demographic transition, characterized by higher birth rate and lower death rate. With more than 40 per cent of the population considered as youth by the 2011 Census, Nepal has an opportunity to utilize this demographic dividend. Such an opportunity comes only once in a millennium for any country and, that too, for a very short time. According to the 2011 Census report, Nepal has a large economically-active population (57 per cent of the population). This population can drive economic development. Such a large working population can contribute to rapid growth, if there are appropriate plans and policies in the economic development arena to ensure their active participation.

Unfortunately, in the absence of such policies, the youth are leaving Nepal to ensure their livelihood. Whether it is the government, the major political parties or the civil society, no one has a strategy to retain and utilize them in Nepal's productive sectors. This economically-active population is soon going to turn into an elderly one, unable to contribute to the economic development.

The International Labour Organization estimates that, annually, about 500,000 new employment opportunities are required to absorb the working-age population. Such a number of job openings in Nepal is not present.

Moreover, given the scale of destruction and the ensuing reconstruction activities, Nepal actually needed a large number of skilled and unskilled manpower to fuel the rebuilding. The Post Disaster Needs Assessment (PDNA) report had identified that the main challenge for the government was meeting the demand for skilled construction workers. The same report estimated that the housing sector would need 17,500 masons. The increased demand was supposed to create new employment opportunities and it would also push wages up. Furthermore, the Post Disaster Recovery Framework (PDRF), prepared in 2016, also pointed out that housing reconstruction was likely to generate 322 million work-days of employment over the following five years.

About 500,000 private houses, 3000 government buildings and many development infrastructures collapsed during the disaster. Hundreds of thousands of public and private buildings need repair and maintenance. That vacancy can be filled by the rapidly growing number of Nepal's economically-active people. To turn that into reality, these people must be geared towards utilizing the employment opportunities—through skill training, creating awareness about job openings and so on. In the absence of required skills, the work will be mainly limited to low-paying unskilled tasks, such as in demolition of cracked buildings.

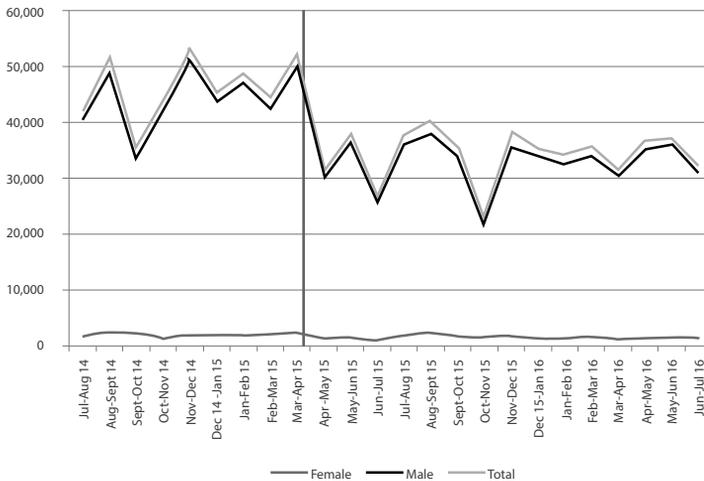
The earthquake of 2015 caused some potential migrants to cancel their plans, especially in the 14 earthquake-affected districts. Data show that the volume and flow of external migration has decreased after the devastating earthquake, whereas the number of Indian immigrants has increased to fill the construction job vacancies in the earthquake-affected districts, including in Kathmandu Valley. The number of both men and women receiving labour permits for foreign employment decreased drastically from 52,210 in mid-April, 2015 to 31,375 in mid-May 2015 and, again, to 26,600 in mid-July 2015 (Figure 4.3). The main reason cited for

the decline is that these potential migrants decided to stay home to support reconstruction and their families.

The number of Nepali people seeking jobs abroad has plummeted since the earthquake. In 2014-15, on an average, 1,400 individuals used to leave the country every day. By 2016-17, the number had dropped to 1,100. Further, a back of the envelope calculation, based on the demographic trend of Nepal and given the unemployment rate, also shows that there are 1.1 million youths not engaged in income generating activities or enrolled in educational institutions. Thus, it is paradoxical that reconstruction works have been delayed due to lack of labour. To fill the skills gap, about 51,000 masons have been provided with long-term and short-term trainings, according to NRA data. Many international organizations working

Figure 4.3

**Number of labour permit obtained for foreign employment (Before, during and after the earthquake)**



Source: Monthly reports published by DoFE, various issues

in Nepal are also active in imparting skills to aid the reconstruction. Despite these efforts, labour availability is still a major issue.

Reconstruction is not supposed to be limited to construction of the destroyed structures, but is also expected to create an army of skilled labour force. The new skills, learned by the workers, could prompt sustained job creation. This helps gainful employment long after the reconstruction is over.

### **Few simple tricks**

The mismatch between the demand for and supply of labour is to blame for the shortage of labour in affected areas, in spite of rampant youth unemployment. The reconstruction activities were considered to be an opportunity to create gainful employment and skill development for the youth in the country. A slowdown of labour migration and the increased demand for labourers for reconstruction were expected to not only address this issue through greater use of domestic labour, but also expedite reconstruction. Things do not seem to have moved in that direction.

The government job portals, in the form of Employment Service Centres, do not appear to be effective in removing the reconstruction labour paradox. Thus, a more efficient mechanism should be in place to help coordinate job seekers and employers. Introducing a mechanism for guaranteed paid work for the members of the affected population, in reconstruction activities could have not only addressed the problem of labour shortage but could also have provided gainful employment for those affected. Such a provision could be implemented with the help of a binding contract between the NRA and the local person selected for the construction training and eventual participation in the rebuilding process guaranteeing a job for a certain number of months. This would ensure income for those trained and a supply of labour for the reconstruction process. The binding contract should be in place which could include a provision of penalty for the breach of the contract. Such a programme should try to include at least one member of each affected families of the area. This would not only provide a source

of income for the trained beneficiaries it would impart them with skills that would prepare them for similar employment opportunities at home or abroad. Cash for Work programmes implemented by humanitarian agencies and some non-governmental organizations have been successful in debry management in the immediate aftermath.

Additionally, the government could also exploit the skills of the returnee migrants who have worked and acquired skills in the construction jobs at destination countries, in building back better. ■

## References

- Central Department of Population Studies. 2015. *Nepal Earthquake 2015: A Socio Demographic Impact Study*. Kathmandu: UNFPA and IOM.
- CESLAM. 2015. *Migration and Resilience: Experience from Nepal's 2015 Earthquake*. Kathmandu: Centre for the Study of Labour and Mobility, Social Science Baha.
- CBS. 2014. *Population Monograph Vol. I*. Kathmandu: Central Bureau of Statistics.
- CBS. 2012. *Nepal Living Standard Survey 2010/11*. Kathmandu: Central Bureau of Statistics.
- ESCAP, SAARC & NPC. 2015. *Regional Earthquake Recovery Dialogue for Building Back Better*.
- ICIMOD. 2015. *Strategic Framework for Resilient Livelihoods in Earthquake Affected Areas of Nepal*. Kathmandu: International Centre for Integrated Mountain Development.
- MoLE. 2018. *Labour Migration for Employment: A Status Report for Nepal: 2015/16-2016/17*. Kathmandu: Government of Nepal, Ministry of Labour Employment.
- NPC. 2015. *Post Disaster Need Assessment 2015*. Kathmandu: National Planning Commission.
- NIDS. 2009. *Nepal Migrants Survey 2009*. Kathmandu: Nepal Institute of Development Studies.
- Mohapatra, S., G. Joseph, and D. Ratha. 2009. Remittances and Natural Disasters: Ex-post Response and Contribution to Ex-ante Preparedness. Policy Research Working Paper 4972. Washington DC: World Bank.
- World Bank. 2016. *Migration and Remittance Fact book, 2016*. Washington DC: World Bank

---

CHAPTER 5

---

Post-Earthquake  
Urban  
Reconstruction

---

Kishore Thapa

---

The devastating earthquake of April 25 2015 destroyed World Heritage sites in Kathmandu, Bhaktapur and Lalitpur, including the iconic Dharahara and historic Kasthamandap. It flattened traditional Newari settlements in Bungamati, Sankhu and Khokana and partially damaged others. Many neighborhoods of Kathmandu, Lalitpur and Bhaktapur were severely affected forcing people to take shelter in open spaces and streets. The Valley lost most in cultural heritage, traditional settlements and government buildings. Many villages were abandoned and the villagers were relocated to nearby spaces. People from some of the villages in Rasuwa, Nuwakot and Sindhupalchowk even shifted to Kathmandu and stayed in temporary camps for several months.

The earthquake and the hundreds of aftershocks created panic among the people living in densely populated areas of Kathmandu Valley. It was then that they felt the dire need for public spaces—for emergency shelter. They also realized how vulnerable they were to such acts of nature even if they were living in strong buildings. Fortunately, damages to hospitals, government buildings (except the historic Singha Durbar) and supermarkets were not significant. Similarly, basic services like electricity, water supply and telephone remained uninterrupted. The early recovery process started quicker than anticipated and life mostly resumed normally after a week.

Nepal Engineers' Association mobilized more than 3,000 engineers to conduct Rapid Visual Assessment of private houses, while Department of Urban Development and Building Construction (DUDBC) conducted a similar exercise for government and public buildings. Engineers, architects, geologists and environmentalists from many countries gathered in Nepal to observe and analyse the causes, effects and extent of the damage. A series of workshops, seminars and interactions were held by government agencies, universities and communities on the subject. The nature of damage and its probable causes were discussed, and temporary shelter and rehabilitation plans were formulated.

The government ordered concerned agencies to review the building code and propose safer building designs to suit different climatic conditions. Information on fully and partially damaged buildings was collected through Central Bureau of Statistics (CBS). Exhibitions of innovative designs of temporary shelters were organized to motivate people to construct temporary shelters that could last up to two years.

National Reconstruction Authority (NRA)—the government’s coordinating agency for reconstruction—developed and approved designs of safer houses and formulated policies for resettlement of villages from vulnerable locations.

The government also formulated building construction and settlement development guidelines for reconstruction of earthquake affected areas. This guideline was meant to be implemented by village and municipal councils. Trainings were organized for engineers/architects, masons and craftsmen to orient them to the guideline. Further, the process of verification of earthquake victims in Kathmandu Valley started one year after it was completed in 11 districts outside Kathmandu Valley.

As per the Post Disaster Need Assessment (PDNA) document, published by the National Planning Commission, the earthquake completely destroyed 446 health facilities including five hospitals. Similarly, 19,000 classrooms of 7,923 schools were completely destroyed and 11,000 damaged. Altogether 2,656 government buildings were destroyed and 3,622 damaged.

When reconstruction began, the delays in taking up the heritage sites became conspicuous. However, there were multiple reasons for that—such as uncertainties of funds committed by donors, overlapping roles and responsibilities of government agencies and grievances of local communities.

## **Resilient urban community**

One of the objectives of post-earthquake reconstruction is to build resilient communities. To achieve that, the following steps were considered important by Nepali authorities:

## **Institutional arrangement**

Different government entities have been handed with responsibilities to overlook reconstruction works. DUDBC is entrusted with the design and construction of hospital buildings, whereas the hospital management is responsible for the maintenance works. DUDBC designs comply with the National Building Codes and the Guidelines for Hospital Construction formulated by the Ministry of Health. Nepal Army is also constructing its own hospitals damaged during the earthquake. DUDBC is not involved in the design and construction of army and police hospitals.

Ministry of Education through its Central Level Project Implementation Unit (CLPIU) is responsible for the reconstruction of schools, district education offices and other educational buildings. Multilateral donors have provided financial and technical assistance. CLPIU has delegated authority to District Level Project Implementation Units (DLPIU), based in district education offices, to supervise the reconstruction works of community schools.

NRA's CLPIU based in Ministry of Urban Development is responsible for the reconstruction of private houses and government buildings including public heritage buildings, such as, President's Residence, Nepal Rastra Bank's offices, Singha Durbar etc. There are several issues related to reconstruction of private houses, but the reconstruction of government buildings is proceeding according to approved plans and programmes. The issue related to their construction of the Singha Durbar façade took almost two years to get resolved. Experts and authorities were divided over whether to reconstruct it after demolition or just retrofit it, finally they decided to retrofit the façade.

The CLPIU based at the Department of Archaeology, under Ministry of Culture, Tourism and Civil Aviation, is responsible for the reconstruction of heritage sites and settlements. It also coordinates the reconstruction of temples, shrines and religious sites undertaken by municipalities, donor agencies and local communities.

---

Box 5.1

---

## Enactment of basic bylaws to guide post-earthquake reconstruction

The government approved "Settlement Development, Urban Development and Building Construction Basic Bylaws, 2015 on 30 September 2015 to assist local bodies like village development committees and municipalities in the rehabilitation and reconstruction of affected settlements. It had directed Ministry of Urban Development (MOUD) and Ministry of Federal Affairs and Local Development (MoFALD) to draft the bylaws. They include the following provisions:

- Provision of Central Monitoring Committee chaired by Secretary of MOUD
- Requirement of human resources at the local government level
- Provision for building design and construction supervision
- Demolition of illegal structures within the Right of Way (ROW) of roads
- Provision of open spaces
- Regulating existing structures which have not received completion certificates
- Provision of land-use planning
- Prohibition of reduction of ROW and public land while updating cadastral maps
- Planning and building construction basic bylaws
- Necessary norms and standards for development of safer settlement.

The new bylaw has separate sections on urban planning and construction of buildings. In the urban planning section, there are provisions determining the minimum width of the access road and ownership of common spaces. For example, out of the total land use, a minimum of 15 per cent land has to be allocated for roads and five per cent for open spaces. Conversion of residential buildings into commercial ones has been restricted. Any commercial activities in a residential building render it commercial.

## Initiating Dialogue on Post-Disaster Reconstruction

Seventy per cent of plots up to 250 sq m can be covered by buildings. For plots above 250 sq m the coverage is limited to 60 per cent. For government and public buildings, the ground coverage has been limited to 50 per cent. Encroachment of existing access roads, irrigation canals and public lands has been restricted.

For safer settlements, a geological survey is required for preparing Engineering and Geological Maps of settlement areas. Where there are no such maps, the norms and standards prepared by Department of Mines and Geology shall be followed. Normally, areas with less than 30-degree slope are seen to be fit for settlement development. If the gradient is more than 30 degrees, experts shall be consulted for any settlement development to proceed.

There is a provision for conservation of local architecture, traditions, livelihood and basic services. Similarly, the bylaws have envisioned capacity building of the community for disaster risk reduction. It has also empowered the local governments to formulate planning and building bylaws to suit their local context.

In the building construction section, there is a provision of minimum set back of 1.5 m for building up to 10 m height whereas minimum set back of 3 m is fixed for buildings with height above 10 m and below 17 m. For buildings with more than 17m height the minimum set back is fixed as 5 m.

The height of the boundary wall should not exceed 1.2 m masonry and 0.6 m high wire mesh.

Since FY 2016/17, only trained masons are allowed to take up building construction works. The government will facilitate training for masons at appropriate locations.

Restrictions have been placed on the erection of hoarding boards on roadside buildings. Similarly, there are restrictions on incomplete buildings as well as buildings without plaster and paints.

### **Some new provisions in the bylaws are:**

1. Provision of a central monitoring committee.
2. Restriction on building design for municipal engineers.
3. Third-party verification of public buildings.

4. Restrictions on the use of public land.
  5. Regulation of illegal properties/structures.
  6. Restriction on updating cadastral maps.
  7. Restriction on the use of public buildings without a building completion certificate.
  8. Land-use control by municipality.
  9. 'Soil Investigation Guidelines' for all public and Class A buildings.
  10. Provision of ROW for distinct categories of roads.
  11. Employment of trained craftsmen in reconstruction works.
  12. Aesthetic beauty of roadside buildings.
  13. Emergency response plan for apartment buildings.
- 

### **Issues and challenges in implementation of bylaws**

There are two challenges for the effective implementation of regulations. The first is the perception of the public that regulations are imposed by the government arbitrarily, merely to create inconvenience for the people. The growing impunity in the society has encouraged violation of laws and regulations. People failed to understand the rationale behind the bylaws and its impact on public health and safety. They have not understood the importance of public spaces for normal life and for emergencies. The earthquake has shown that building safer houses is not adequate and open spaces are a must. Unless the community is safe, the residents are always vulnerable.

The second challenge is meeting the human resource crunch which has resulted in the low capacity of institutions. They suffer from inadequate/low budgetary and legal mandate. The municipalities are not in a position to cope with the growing urban challenges, particularly land fragmentation and haphazard constructions. The newly formed municipalities do not have the expertise to monitor urban development activities, nor can they prepare plans for future development on their own. Frequent changes in

staff and policies add to confusion among the staff as well as the people. However, after the local election, the elected representatives have shown commitment to post earthquake reconstruction.

There are several overlapping roles and responsibilities of local and central governments in Kathmandu Valley. The weak coordination among utility agencies—water, electricity, telephone and roads—is visible in ongoing urban infrastructure development projects. Different agencies have their own work schedules, obligations, guidelines and regulations determining their performance. As a result of this, there is frequent digging of roads for various purposes leaving the Valley dusty and muddy for extraordinarily long periods.

### **Culture of safety**

One of the objectives of reconstruction and rehabilitation of damaged buildings and infrastructure is to develop the culture of safety. The principle of 'build back better' must be injected in the construction techniques and mind-set of construction workers, entrepreneurs and the common people. People should be informed about the possible mistakes in construction, remedial measures and new techniques.

### **Food Security, sanitation and hygiene**

Food security is essential for creating a resilient urban community. For this, adequate stock of food has to be kept in government warehouses and private ones. Urban agriculture including terrace farming helps to fulfil part of the demand of food in urban areas besides reducing carbon emission.

Additionally, urban areas need reliable and adequate supply of safe drinking water and a working sanitation system with septic tanks and sewerage. Contingency water supply measures are necessary to tide over supply disruptions. In order to avoid epidemics, a separate contingency plan has to be prepared for drinking water and sanitation provisions.

## **Open spaces**

Open spaces is an indispensable part of urban planning. The importance of open spaces became more pronounced in the aftermath of the earthquake and during the multiple aftershocks.

### **Traditional open spaces**

Traditional Newari settlements of Kathmandu Valley were planned according to Vedic concepts. Residential buildings are laid out around courtyards which follow a hierarchy. Based on their size, they are named *nani*, *bahi*, *baha*. Similarly, in the Tarai plains, certain open spaces are allocated for cultural and religious activities. Such open spaces may include ponds and lakes too, for example, Bara Bigha Maidan and the system of ponds in Janakpurdham. In the Himalayas, the compact settlements of Mustang, Humla and Jumla are laid out around public open spaces linked by roads and alleys.

### **Open spaces in modern planning**

In modern urban planning, land plotting is done by government agencies, like town development committees or municipalities, and private real estate entrepreneurs. Private land developers, who merely plot the land and sell them to buyers, hardly allocate plots as open spaces. Residents are reluctant to keep open spaces near their homes because of concerns of misuse by criminals or as garbage dumps. Today, there is a growing trend of encroachment vacant public spaces by communities to use them as playgrounds, police stations, local clubs, ward offices or religious constructions.

### **Marginal open spaces provided by housing developers**

Of late, private housing development is being promoted by the government, especially in Kathmandu. In such development, housing plots are laid as per the road network. The mandatory four per cent open space requirement is generally fulfilled by allocating marginal and left-over land which cannot be sold as housing plots.

Such open spaces are usually not suitable to be properly used by women, children, the elderly and even for emergency shelter.

### **Perception of local clubs on the use of community open spaces**

Existing open spaces in cities and towns are usually captured by local clubs to be used as playgrounds, vegetable markets or even as commercial spaces. Such clubs or individuals permit access to such land only for a certain class of people. The local clubs or their office bearers are known to benefit from the practice, while the community is deprived of its free use.

### **Government perception of vacant public land**

Government agencies also encroach public land in the pretext of constructing office buildings, schools, temples, health posts etc. In the last two decades, a trend to capture public land has been growing, whether to construct trusts (*Pratisthan*), parks (*Sahid Uddhyan*) or even renting out to businessmen.

### **Temporary encroachment of public land**

Certain open spaces left by the community for ponds, temples and religious functions are being temporarily occupied by community organizations, clubs and individuals to store construction materials or organize fairs and vegetable markets, or use them as garbage processing areas and vehicle parking lots. Such spaces are always occupied and cannot be readily used for social and cultural gatherings.

There is also a trend of planting trees in all kinds of open spaces making them inaccessible to children, women and the elderly. The dense forest created in the neighbourhood attracts criminals and anti-social activities. Also, there is no distinction between public open space and public forest.

### **Heritage site protection**

Kathmandu's heritage sites which suffered damage and destruction during the earthquake can be divided into three categories: world

---

Box 5.2

---

## Community park at Nandikeshar Garden, Kathmandu

A chunk of land, about one hectare (19 ropani 3 ana precisely), was vacant for many years at the Nandikeshar Garden in Naxal, Kathmandu. It is believed to have been donated by late queen Subarna Prabha in 1856 to grow flowers for the temple there. The land belonged to Guthi Sansthan and remained abandoned. The place was used for parking vehicles and as a play area. Some wanted to construct a modern temple there. Guthi Sansthan had tried to lease the land to the private sector, but to no avail.

A local community-based organization called Community Service Centre, established 17 years ago and headed by Mr. Narendra Bahadur Shrestha, took the initiative to convert the space into a park. The centre approached the locals, banks, Nepal Police Headquarters, Kathmandu Valley Development Authority (KVDA) and Kathmandu Metropolitan City. It mobilized funds needed to clear the land and evacuate the encroachers. Later on, KVDA provided some funds for the construction of the park.

Today, the park has become a beautiful breathing space for everyone. It is being maintained by the local community. During the earthquake, it was used as an emergency shelter for many days. This is a brilliant example of how an encroached and poorly maintained space can be developed into a beautiful urban public space.

---

heritage, national heritage and local heritage. The world heritage sites include Bhaktapur, Patan and Kathmandu Durbar Squares, Pashupatinath, Changu Narayan, Swayambhunath and Baudhanath. Dharahara, Durbar High School, Trichandra College, Singha Durbar and the Rana palaces located in various parts of Kathmandu can be categorized as national heritage sites. Local heritage sites

include shrines, temples, monasteries and *gumbas* built by people and maintained by the community.

Since the international media focused more on the destruction of world renowned heritage sites, this gave a wrong impression to foreigners that all the world heritage sites of Kathmandu were destroyed. The media reports forced tourists to cancel their visits. The government quickly made a commendable decision to open the world heritage sites for tourists after undertaking some safety measures. The international community has shown concerns over delays in the reconstruction of heritage sites, but the government priority was on housing the earthquake victims.

### **Issues in heritage reconstruction**

Despite being one of the prioritized areas, heritage reconstruction is marred by delays. The causes range from insufficient budget allocation to conflict between community and the authorities.

#### **Conflicting role and responsibilities**

There is ambiguity in the roles and responsibility of different agencies in the reconstruction works. In reconstruction of world heritage sites, donor countries like India and China have extended grant and loan support. The donors want to do everything on their own while the local government wants to be involved in the process. Citing their cultural rights, the local community, which comprises local *Guthi*-user committees, is also demanding their active participation. There is conflict between Kathmandu Metropolitan City (KMC) and the local community in the reconstruction of Kasthamandap. Similar conflict exists between KMC and Department of Archaeology in the reconstruction of historic Ranipokhari.

#### **Funding**

PDNA puts the total funding requirement for reconstruction of heritage sites at NPR 19.22 billion. Development partners, including neighbouring countries like India, China, and Sri

Lanka, have pledged support for reconstruction since the Government of Nepal alone cannot cover the costs. However, fund management and procedural hassles have delayed the start of the reconstruction works. Department of Archaeology has also reported inadequate allocation to cover all the projects under its jurisdiction.

### **Technology and technical guidelines**

There is ongoing debate among experts, academicians, archaeologist and bureaucrats on whether the damaged structures should be retrofitted or completely reconstructed. The United Nations Educational, Scientific and Cultural Organization (UNESCO) guidelines have to be followed in the reconstruction works at World Heritage sites, whereas NRA's own guidelines have to be followed at all other sites, not to mention the Ancient Monument Act and Regulations.

### **Community participation**

Since many temples and shrines belong to local communities, they feel that it is their right and responsibility to reconstruct it as per the traditional architectural norms. They are ready to raise funds and undertake the works themselves, but the local municipality and the Department of Archaeology have reservation in transferring the responsibility to them. They want to get involved as supervisors in government-led projects too. However, not all the community groups are organized nor all of them have the capacity to undertake such responsibility.

### **Supply of construction materials**

Supply of construction materials like seasoned timber, special bricks and stones is a major issue in heritage reconstruction projects. Although there are some suppliers in Kathmandu Valley, the available stock is not adequate. There is a need for increasing the production of such materials to accelerate the speed of construction. For this, the government should facilitate industrialists and businessmen through fiscal incentives.

---

Box 5.3

### **Park at Bagmati-Manohara confluence in Sankhamul, Kathmandu**

The local people had encroached on a piece of public land for their private use—cultivation, dairy farming and even housing in Sankhamul. Since the land was on the bank of Bagmati, it needed to be secured by separating it from private land. This was done by building a road to separate the narrow strip of public land and widening the strip by building a retaining wall as an embankment on the river. A sizeable plot was thus created. This work was undertaken by High Powered Committee on Integrated Development of Bagmati Civilization (HPCIDBC). It laid interceptor sewers, constructed the retaining walls and the two lane road as part of Bagmati Area Improvement Programme. HPCIDBC, with support from Bagmati Cleaning Campaign, solicited proposals from the local community to build and maintain a park there. A local NGO named Art of Living offered to take up the responsibility. Art of Living mobilized a business group to provide technical and financial support for the purpose.

Today, the park is open for the public and has been a good place for children and the elderly. It has enhanced the aesthetic beauty of the place and changed the local environment completely.

---

### **Rehabilitation of traditional settlements**

The NRA has given high priority in the reconstruction and rehabilitation of traditional settlements like Sankhu, Khokana, Bungamati, Dolakha and Nuwakot. In addition to conserving local art and architecture, these historic settlements have a potential to attract tourists. The restored Newari settlement of Bandipur is a good example of conservation and development of old settlements, which could be replicated elsewhere during reconstruction. Since traditional construction methods are costly, house

owners are forced to go for modern reinforced cement and concrete construction methods. The local residents need to be educated on the importance of tradition and they need technical support as well as be provided with soft loans and subsidy for rebuilding.

### **Reviving core area of Kathmandu**

Kathmandu's core area was severely damaged at a time when the trend of demolishing traditional houses and constructing concrete buildings was speeding up. Existing open spaces, courtyards and alleys are gradually diminishing and the whole Newari civilization is under threat. The threat is visible not only in the tangible heritage but also intangible ones like festivals, *Jatras*, dance and music. The skyline of the core area of Kathmandu is changing due to violation of the height restriction on buildings. Intervention is needed at this stage to encourage reconstruction using traditional architecture, improvement of public spaces and courtyards and rehabilitation of water spouts and temples. This could boost local businesses and promote tourism and recreational activities. In a way, the earthquake has given this historic opportunity to revitalize the core area of Kathmandu. If the present generation fails to seize this opportunity, the culture, art and architecture will be gradually lost. The Newar community will be displaced and the place will lose its cultural and tourism value.

### **Complex land tenancy**

Land tenure system is very complex in Kathmandu Valley, particularly in traditional Newari settlements. There is dual ownership of land with both landlords and tenants enjoying the benefits. Some land belongs to *Guthi* (trusts). The trusts may be public or private. The occupants of *Guthi* land pay their land revenue to Guthi Sansthan whereas those residing on private land pay the tax to their municipality. In dense areas, multiple families stay in the same building sharing the land, the stair-

case and the lobby. Meanwhile, the authorities provide separate house ownership certificates to each household. In many cases, there is controversy over the ownership of public spaces such as courtyards, playgrounds and marginal land. In Kathmandu Valley, conflicting tenancy issues among central government, local government and local community have led to delays in development works.

## **Framework for urban planning for disaster preparedness**

Disaster preparedness and management has to be made an integral part of urban planning if casualties and destructions are to be minimized in the cases of disasters.

### **Efficient road network**

Road networks play a critical role when disaster strikes. The network should be usable for mass evacuation and relief operations. Any road network consists of a hierarchy of alleys, single lanes, double lanes, four lanes, six lanes etc. Dead-end streets and single lane streets, without alternative parallel roads, are dangerous during disasters. Intersections need proper planning to avoid congestion during disasters. Many streets in Kathmandu Valley and elsewhere have dead-ends, which get blocked if a building along the street collapses, thus turning into traps for those on the other side of the blockade. An efficient road network allows smooth flow of passenger vehicles, ensures quick delivery of essential commodities, reduces cost of utilities like water, sewerage and garbage systems and guarantees uninterrupted access by emergency vehicles. In planned cities, roads generally occupy 20-25 per cent of land-use.

### **Earthquake resistant housing and buildings**

It is the weak buildings that kill people, not the earthquake. Hence, reconstruction should result in earthquake resistant buildings.

The National Building Code categorizes buildings into four types—State of the Art Buildings, Professionally Engineered Buildings, Buildings Constructed with Mandatory Rule of Thumb and Low Strength Masonry buildings for rural areas. Whereas the design and construction of new buildings should comply with the code, partially damaged buildings can be merely repaired or retrofitted. Public buildings—whether privately-owned or owned by government—have to be constructed without compromising on the requirements of the building code. Community buildings such as schools, hospitals have to be retrofitted for them to withstand disasters. School buildings could even function as emergency shelters during disasters.

### **Emergency shelters and open spaces**

To cater to the enormous number of people leaving their homes for safer shelter during disasters, the existing schools and community buildings may not be adequate to accommodate all. During the last earthquake, there was a high demand for temporary shelters. Emergency shelters should be constructed in each neighbourhood. Under normal circumstances, such shelters can function as party venues, indoor sports halls or community halls. Each neighbourhood or *tole* requires at least one community hall.

Open spaces are an essential part of urban planning. Open spaces also have a certain hierarchy—cluster or block level, neighbourhood level, sector level and city level spaces. Open spaces not only provide shelter during disasters but also a breathing space for residents and work as venues for social, cultural and political events. In a planned city four to five per cent of the total land use is allocated for open spaces. Open spaces must be accessible to all and cannot be occupied by any organization or group of people.

### **Firefighting system**

Fire brigade is necessary not only during natural disasters but also during manmade disasters as fire risks are high at such moments.

---

Box 5.4

## Reconstruction of Pilachhen, Lalitpur

Pilachhen is a Jyapu neighbourhood at Ward 7 of Lalitpur Metropolitan City. It has rich culture and architecture and is full of heritage sites. During the earthquake, 82 houses were destroyed. The Jyapu community got itself organized and launched Pilachhen Reconstruction and Tourism Project. Maya Foundation headed by Mr. Ramesh Maharjan, a well-known diamond businessman, raised funds from local philanthropists for the reconstruction of the damaged buildings. CE Construction, a reputed construction company, provided technical support by preparing the designs and supervising the construction.

The buildings are designed in such a way as to use the ground floor for shops, first floor for home stay tourism and the second and third floors for private residence. Lalitpur Metropolitan City has approved the drawings and has waived the building permit fee. A financing scheme was developed with the consent of the house owners. The total cost of the project is NPR 460 million. Maya Foundation has provided two and a half million rupees, renowned eye specialist Dr. Sanduk Ruit has given NPR 40 million and the community has agreed to donate labour and kind equivalent to 25 percent of the cost. Similarly, 25 percent shall be borne by the households themselves and the remaining 25 percent covered through a soft loan (two per cent interest) from commercial banks. The local community will volunteer for the construction of their own houses. If the manpower is not sufficient, extra craftsmen and labourers will also be engaged.

The expected outputs of the project are: reconstruction of houses on the existing footprint with vernacular architecture and rehabilitation of existing courtyards, alleys and temples. Pilachhen Project can be a model for post-earthquake reconstruction of the heritage settlements.

---

In dense urban areas, fire can wipe out an entire community within hours. The deployment of fire engines at convenient locations should be given utmost priority. Fire hydrants must be installed at water mains at convenient locations.

## Hospitals

Hospitals play a critical role in treating the injured and managing dead bodies. They are under tremendous pressure, regarding space, manpower and logistics, during events leading to mass casualties. All hospitals, both private and government, should prepare their disaster management plan and train their staff accordingly. Regular fire and earthquake drills keep the management on their toes to cope with such eventualities.

## Policy recommendations

Building resilient community requires concerted efforts from all sides. Disasters, although painful, do provide an opportunity to implement necessary measures by building-back-better.

## Identification of open spaces

Existing open spaces in cities should be identified and recorded in the inventory. Such spaces may be:

- Privately owned: such as agriculture land, backyards, parking lots
- Owned by private organizations: such as driving courses, golf courses, play grounds
- Owned by government organizations: office premises, agriculture farms, stadiums, school and campus premises.
- Owned by security agencies: Tundikhel, parade grounds,
- Owned by clubs: football and basketball grounds
- Owned by community: *bahal*, *bahi*, squares (*chowk*)

In order to meet the minimum standards of open spaces, local government should acquire private land/buildings. KVDA

has prepared an atlas of open spaces in Kathmandu and Lalitpur. However, such spaces are occupied by government and private organizations. A lot of public land in Nepal has been encroached by individuals, groups or clubs for renting out or building private structures. Such illegally occupied spaces must be cleared before going for acquisition or purchase of new land. Acquisition of land is a cumbersome process in Nepal and local governments alone cannot do it by themselves. The district administration should support the local government in the land acquisition process including fixing of compensation amounts. They are also responsible for providing security during demolition of illegal structures and site clearance. The design of the open space should be made inclusive so that children, women and senior citizens can enjoy it.

### **Demonstration model of reconstruction of heritage settlements**

The historic settlements of Bungamati, Khokana, Sankhu, Dolakha and Nuwakot should be rebuilt to their original architecture and planning, but with improved construction technology. Those settlements need to be reconstructed to accommodate existing households as well as new room for tourists, shopkeepers and businessmen. The ground floor of the buildings should be allocated for shops and upper floors for residential purposes. Roads, alleys, courtyards and temples should be renovated and improved to create a better living environment. The reconstruction of such settlements should lead to tourism development and improve the livelihood of the residents. Public pressure to use modern concrete technology in the reconstruction of traditional buildings should be tackled by politicians and experts by convincing people on the value that aesthetic beauty provides. Old structures were continuously repaired, maintained and even reconstructed by past generations, allowing the transfer of skill and technology to newer generations. This is how any tradition is preserved. However, if the current generation decides to break with the tradition and adopt the concrete technology (which lasts only for 50-60 years), the transfer of the

unique traditional technology will come to a halt with unforeseen socio-economic consequences.

### **House pooling for core area of Kathmandu**

The concept of house pooling has been developed in many countries where traditional houses are dilapidated and unfit for living. The core areas of Kathmandu, Lalitpur and Bhaktapur are culturally very rich but threatened due to commercial activities. The vertical fragmentation of houses leads to narrow buildings with separate lobby and staircases but very narrow rooms. Most of the original house owners have already left such places after renting them out to outsiders. This has resulted in the encroachment of adjacent courtyards and destruction of cultural heritage—both tangible and intangible. The challenge, now, is to:

- build earthquake resistant, modern houses for residential and commercial activities but retaining traditional façade and elements
- integrate the narrow vertical houses into horizontal flats with more space than before
- improve courtyards and public spaces
- renovate temples, wells, stone spouts
- promote sustainable tourism and business activities such as restaurants, cafes, handicraft shops etc.

The existing building code and legal framework allow house pooling in designated areas. However, since this is a new concept for us (similar to land pooling 30 years ago), social acceptance is an issue. The community will accept it if they see tangible benefits.

### **Water supply, sanitation and hygiene (WASH)**

Safe drinking water and sanitation are essential for public health and it holds the key to avoiding epidemics during disaster. Contingency plans should be prepared to deal with emergencies, e.g. tube wells, rapid water treatment facilities, mobile toilets and excreta treatment technology.

## **Build back better**

The main principle of post disaster reconstruction is building better. It means rehabilitating and reconstructing the damaged structure so that it is stronger than before. In rural areas, where houses are constructed with stone, timber and mud, the salvaged materials can be used, but the construction technology should be improved to make it more disaster resilient. This may include provision of horizontal ties on the masonry wall, vertical reinforcement and better anchorage between wall and roof. Innovative building materials and techniques can also be used and this can be replicated in other parts of the country.

While choosing technology for reconstruction in the rural areas, one should not forget that industrial materials are not sustainable in the long run. Indigenous materials and technology gets handed over from one generation to another and keeps the community well aware of the issues involved. Moreover, it ensures preservation of local architecture and culture.

## **Resettlement of disaster affected communities**

Preliminary investigation has identified 475 settlements vulnerable to earthquakes. NRA has studied 116 of them out of which 56 need to be relocated. Relocation consists of land acquisition, provision of basic services, land subdivision, allocation of housing plots and construction of community buildings like health centres, schools and private houses. The relocated community must be disaster resilient and prosperous. Political meddling and social conflicts are posing a serious challenge for smooth implementation of the relocation projects.

## **Individual versus community**

The overarching objective of the reconstruction and rehabilitation policy is building safer, sustainable, resilient and inclusive community. For this, the whole planning process should revolve around

community development rather than earthquake resistant building construction. The earthquake of 2015 has taught everyone a strong lesson that the community is more important than individual property. While planning for a resilient community, there should be a balance between private space and public space. A new culture of thinking, planning and development at the community level should be put in place so that individuals start thinking about how to make the community safer rather than just making their individual houses safer.

### **Revitalizing Kathmandu, Lalitpur and Bhaktapur**

For the core areas of Kathmandu Valley, reconstruction is an opportunity to build safer houses while maintaining the traditional architecture, improving public courtyards, roads and alleys, and carrying out repair and maintenance of temples, shrines and public utilities. To exploit the opportunity, the community, municipality and NRA must come together to prepare workable manuals and guidelines. Before building the entire city core, piloting should be done first involving one of the smaller courtyards. The pilot project would contribute to developing guidelines, manuals and procedures.

### **Apt opportunity for review**

Post-earthquake reconstruction and rehabilitation is an opportunity to build safer communities rather than safer houses or buildings. In physical terms, a typical community in Nepal consists of private houses, public buildings, government buildings, roads, parking lots, open spaces and public spaces. The community needs schools, playgrounds, places of worship, safe water supply, streetlights and police stations. Reconstruction is an opportunity to create new resilient urban communities and to improve existing communities. It is an opportunity not only to recover from the earthquake but also to be prepared for the next disaster. Since the first response to disaster takes place at the community level, it should have a workable disaster management plan to be implemented by a responsible di-

saster response team. Better planning and preparation at the community level results in less damage, quick recovery and early rehabilitation. Existing urban development plans should be reviewed to ensure adequate public spaces at different levels- block, ward and city. Public spaces should be adequate, easily accessible and safe. ■

## References

- MOUD. 2015. *Basic Bylaws for Settlement Development, Urban Planning and Building Construction 2072*. Kathmandu: Government of Nepal, Ministry of Urban Development.
- MOUD. 2017. *National Urban Development Strategy*. Kathmandu: Government of Nepal, Ministry of Urban Development.
- NPC. 2015. *Post Disaster Need Assessment*. Kathmandu: National Planning Commission.
- NPC. 2016. *Post Disaster Recovery Framework*. Kathmandu: National Planning Commission.

---

CHAPTER 6

---

# Resilience

## A Conceptual Note

---

Ajaya Dixit

---

Saturday, 25 April 2015, was a bright spring day in Nepal's central mid-hills. At 11:56 a.m., the ground started to move with a murmur, and the shaking increased substantially and lasted for 56 seconds. An earthquake of a 7.6 magnitude had struck, with its epicenter was Barpak, Gorkha District. Buildings came down and the air was filled with thick dust. The tremors continued throughout that day and night. There was a major aftershock of 6.9 magnitude the next day, on 26 April. Two weeks after the main shock of 25 April, on 12 May, a third shock of 6.2 magnitude occurred causing further losses of lives and damages to property. The aftershocks, which gradually became intermittent, waned in magnitude, but continued for almost a year. The first three shocks caused significant damages in 14 districts while 18 other districts were affected to a lesser degree. About 9,000 people were dead.

## Disaster audit

An audit would show that not only is Nepal a multi-hazard country by nature but that it also faces certain human-related technological hazards. One taken (See Box 6.1) on the situation prior to Gorkha Earthquake shows differences along class, gender and caste lines determined the scale of impact on individuals, households and communities. Disaster preparedness, risk reduction and management efforts were insufficient, and post-disaster efforts were largely guided by the rescue of those affected and other immediate response measures rather than long-term reconstruction. In almost all cases, victims received cash compensation, but its distribution was poorly organized and, in the case of relief materials, some received them and others did not. Furthermore, responses coordinated by the state and supported by humanitarian organizations were *ad hoc*. Communities and neighbours were the first responders, and, in most cases, support stopped after the first-order distribution of relief (i.e. food, water and emergency shelter).

Because state support for recovery and reconstruction was limited, recovery efforts were mostly autonomous and victims remained as deprived or even sank further into deprivation. The lack

## Box 6.1

## My two paisa: An Audit

I was in my office in Baluwatar, Kathmandu when the first wave hit. As the intensity increased, I frantically rushed outside. A second later a wooden rack smashed into the place I had stood. The rickety concrete building in front of my office was swinging ominously. With both palms over my head, I huddled on the side of a small wall that would offer some safety in case the building collapsed. While in that position for about two minutes, I thought of nothing except my own safety. As the shaking subsided, I looked again at the building in front of me. It had stopped swinging and, fortunately, had not collapsed. I stood up, took out my mobile phone and called my wife, mother, and sons, other members of my family and my friends. At home, everyone was out in the open area and, like everybody else in the areas hit by the earthquake, we spent the next two nights outdoors.

On Tuesday, three days after the first shock, I went to the office around midday. As I sat in my chair I received a call from a media person from Hong Kong. He asked about the earthquake, the damage and the way forward. I had worked on climate-related disasters, read and done a few writings on earthquake disaster, but this quake was too big and catastrophic for me to be specific. I answered in broad terms, "This disaster must be seen as a clarion call for better preparedness." As I hung up, I thought of my visit to Muzaffarabad after the 2005 earthquake there and the devastation it had caused. The number of deaths from Gorkha Earthquake was indeed high but, fortunately, not as high as it had been in Muzaffarabad. The day and time of its occurrence probably saved many. In my stressed mental stage, however, I had forgotten to ask his name and the name of his paper. I do not know if he ever published anything.

Like everyone else, I did my bit to contribute to the immediate relief efforts: I provided cash and essential materials to the victims through local groups in the affected areas. Since I had little capacity to help much in the response, I decided to focus on what I was able to do: undertake a disaster audit of the year prior to Gorkha Earthquake. I had hoped that this endeavour would provide lessons to understand Nepal's disaster landscape and help the nation move forward. This audit, published in Nepal's largest daily, Kantipur, revealed that Nepal had faced seven major disasters in that one year (Table 6.1). Subsequently, with the help of my colleagues, I expanded the article into a book, *Nepal ma Bipad*, and published it in 2016.

Table 6.1

### Details of disasters from April 2014 to April 2015

<p>In Everest Region, on 18 April 2014, at 6:30 a.m., a chunk of ice dislodged that caused avalanche at about 5,800 meters</p>	<p>The avalanche buried and killed 16 high-altitude mountaineering guides.</p>
<p>On 2 August 2014, a landslide occurred in Jure, Mankha VDC of Sindhupalchowk District. It deposited 6 cu m of rock and muck in the Bhote Koshi River, blocking it and creating a 55 m high temporary dam with a 0.47 sq km reservoir. The depth of the water close to the dam was 47.8 m. The Nepal Army breached the dam 37 days later.</p>	<p>The landslide killed 145 people, injured 27, displaced 436, and destroyed property worth NPR 130 million. The temporary reservoir inundated a two km stretch of the Kathmandu-Kodari Highway, bringing movement from Kathmandu to Tatopani to a halt. The customs and other government offices were closed and revenue collection dropped. A number of hydropower stations along the Bhote Koshi River and its tributaries were inundated, transmission lines were damaged and 67 MW of electricity were no longer transmitted to the Integrated Nepal Power System. A rumor about a possible breach of the temporary dam and the flood's affecting lower reaches of the river and North Bihar began to spread. The Government of Bihar issued a warning and evacuated a section of the population in North Bihar.</p>
<p>On 14 August, 2014, the districts of Surkhet, Dang, Kailali and Bardiya in Western Nepal experienced a 9 hr downpour. The rain gauge in Chisapani, Kailali District recorded 493 mm of rain from 14 to 15 August.</p>	<p>The cloudburst caused massive flooding in Surkhet, Banke, Bardiya and Kailali, damaging property and taking lives. Disrupted livelihoods brought misery to women, children and disabled. About 222 people died, 84 were injured and almost 100,000 directly affected.</p>

<p>In October 2014, the influence of hurricane Hud Hud in the Bay of Bengal extended to Nepal's central mountain region, including the districts of Manang and Mustang. The region received a large amount of snowfall on 14 October blocking Thorang-La pass, which lies between Manang and Mustang districts.</p>	<p>Many tourists and trekkers were trapped in snow, 35 died and some disappeared.</p>
<p>On 25 October, 2014, the VDCs of Shrinagar, Karki Baadaa, Seri, Srikot, Khamaale and Kotdanga of Nepal's Mugu District experienced a heavy hailstorm.</p>	<p>The storm damaged rice paddy worth NPR 130 million planted. The 2,608 households affected farmers did not receive immediate relief because the existing legislation had no provision for providing relief for damages caused by hailstones and the district office did not have the financial resources to help.</p>
<p>On 4 March, 2015, a Turkish Airlines Airbus 330 skidded off the runway at Tribhuvan International Airport and was stuck in the grass on the side.</p>	<p>Although nobody was hurt, the aircraft prevented the regular operation of the runway, closing Nepal's only international airport for four days, to the dismay of thousands of Nepali nationals and foreigners.</p>
<p>On the first week of April 2015, flu epidemic spread in the western hill district of Jajarkot.</p>	<p>Twenty-eight people were killed and many more were infected.</p>

*Based on Dixit et al. 2016a*

of local elected representatives added to the woes as already overstretched secretaries of village development committees (VDCs) were tasked to support rescue, relief and mitigation efforts. The capacity to deal with technical disasters was limited: though trained in disaster rescue and relief, Nepal's security agencies proved not to possess the necessary tools, equipment or skills for dealing with air crashes and breaches of temporary dams. In addition, the

government had invested little in preparedness. A retired Nepal Army General admitted, "We had had lots of training, but when the earthquake struck, we were caught unaware."<sup>1</sup> The combination of lack of preparedness, ignorance, poverty, fragile infrastructures, degrading livelihood sources, limited employment opportunities and ineffective implementation of policies exacerbated the plight of the victims, and the issue of the psychological impact of disaster on people was largely unrecognised.

While these limitations still remain, in the aftermath of Gorkha Earthquake, terms like "build back better" and "resilience" have become commonly used. The term "build back better," a catchword of the Sendai Framework, to which the government of Nepal is a signatory, has, from an engineering perspective, a straight forward connotation: it can refer to pre- and post-disaster contexts. The reconstruction of a damaged building must be better than the original. The meaning of "resilience" in relation to recovery and reconstruction is unclear. In the introduction to their book *Resilience*, Zolli and Healy<sup>2</sup> write, "The resilience frame suggests a different complementary efforts to mitigation; to design our institution, embolden our communities, encourage innovation and experimentation and support our people in ways that will help them be prepared and cope with surprises and disruption even as we work to fend them off."

The key message of their work is clear: "be better prepared to deal with disruptions." But what does better preparation mean in practical terms? Any approach aiming to be better prepared to deal with disruptions requires simultaneous attention to a number of details. The first is the nature of the event that disrupts the normal functioning of a society. That event could be a high-magnitude, low-probability event such as Gorkha Earthquake or a 100-year flood, or it could be a high-probability, low-intensity event with high cumulative impact like droughts and persistent air pollution. In addition, the way either category of events affects people is dependent on the basic attributes of an individual, household and community, such as income, alternative sources of livelihood, education, skills, and access to information, as

well as on how different contending voices find salience in the public space.

The impacts of hazards even depend on the integrity of the affected natural ecosystem and its services as well as on the quality of human-built infrastructures and the services they provide. A degraded ecosystem and a poorly-built and -managed infrastructure already providing poor services are likely to be harmed more than a healthy ecosystem and robust infrastructure when a hazard disrupts them, causing deaths and worsening the quality of services. In almost all cases, policies, norms, practices and behaviour mediate the quality of the natural ecosystem, infrastructure and access to services from them.

We shall use the above-described approach to examine the disruptions caused by the 2015 earthquake and then to propose how this line of enquiry nudges us towards resilience by reducing disruption and loss.

## **Resilience and vulnerability**

Resilience and adaptive capacity are inversely related to vulnerability, the condition of harm and defencelessness. In a practical sense, adaptive capacity is conceived as the ability of people to shift strategies and/or modify natural and human systems as conditions change in order to achieve their goals.<sup>3</sup> Coping, in contrast, implies barely keeping up. Adaptive capacity depends primarily on people having assured access to basic services like drinking water, food, and energy as well as a continuous flow of information across scales and boundaries. The notion of adaptation complements the idea of enhanced resilience.

When circumstances are right, individuals, families, communities, businesses, economies and ecosystems can readily deal with shocks that disrupt normal functioning. Simply put, resilience is the inner strength to deal with various pressures, and, in face of adversity, everyone possesses this strength to a certain degree. According to Resilience Alliance, "resilience is the ability to absorb disturbances, to be changed and then to re-organize and still have

the same identity while retaining the same basic structure and ways of functioning." While useful, this definition is incomplete unless it is linked to society and people because different hazards and shocks disrupt society in a context of underdevelopment, continuing poverty, joblessness, marginality and lack of choices, all conditions common in Nepal. These conditions, all of which increase vulnerability, also lower resilience.

From the perspective of minimizing vulnerability to hazards, using the concept of resilience presents challenges, particularly in terms of defining a resilient system, determining the criteria of resilience and assessing the distributional benefits of such a system. Resilience implies bouncing back in the aftermath of a shock. There is limited agreement on either the definition or application of resilience beyond the assumption that being resilient is good and that it is a useful concept for describing and explaining how socio-ecological systems behave after a disruption caused by a hazard. The idea of being resilient should not, however, obscure the fact that it is related to vulnerabilities and their embedded causes. Resilience-thinking both offers prospects for more integrated and effective policy-making towards sustainability<sup>4</sup> and helps unpack the complex dynamics of social-economic-environmental system.

Resilience entails progress and wellbeing even when faced with external shocks. Resilient individuals, households and communities have the ability to deal with shocks and crises, progress and ultimately attain wellbeing. Those with resilience overcome sources of harm while without it lose out. Since many underlying vulnerabilities are structural and systemic<sup>5</sup>, all efforts at reducing vulnerability or building resilience must consider both systems and institutions as central elements. The Institute of Social Anthropology at the University of Basel recognizes this interdependence and suggests, "The concept of resilience is related to reactive capabilities of people to cope with, recover from and adjust to various risks and adversities and their proactive capacity to create options and anticipate responses to health risks and adversities". Thus, the presence of quality systems and the capacity to benefit from them are important.

Understanding resilience in this way takes us away from the idea of simply returning to the state prior to disruption or return to earlier state. Indeed, it can be argued that resilience does not mean recovery of a system to its original state at all. Zolli and Healy (2012) suggest that "resilient systems may have no base line to return to. They may reconfigure themselves continuously and fluidly to adapt to ever changing circumstances while continuing to fulfil their purpose. "The concept of resilience<sup>6</sup> as it emerged from ecology recognizes the overall, emergent function of a system and the qualities, services, and role that it serves within a larger system that may adapt to stresses created by various shocks."<sup>7</sup>

For example, a patch of forest provides multiple services, such as clean air, flood moderation, wood for fuel, medicinal and aromatic plants, localized cooling due to transpiration and carbon sequestration. A wildfire or landslide would disrupt the forest and its functions would be lost. Subsequently, however, trees would regrow and begin to again provide similar services. The composition of the forest, however, would no longer be the same. It might include new species or even previous species might be differently configured. A shock or stress may transform the constituents of the system but the functional quality of that system and the services it provides can return.

The above ecological sense of the term "resilience" is not the commonly held sense of that term in the development sector, which has greater ontological diversity than ecology does and therefore requires an awareness of how resilience will be framed and used by different actors.<sup>8</sup> Framing the idea of resilience leads to a number of logical questions: what does a system comprise, what are the sources of vulnerability and how will an analysis of vulnerabilities help build resilience? To answer these questions, we must visit the Nepali hazardscape and, within it, seek to understand the use of knowledge about hazard exposure; the status of the natural ecosystem and the built environment, the roles of users and agencies, and the policy context. The answers will help shape the operationalization of resilience into a post-disaster context more effectively.

**Knowledge of hazard exposure:** The fact that Nepal sits on top of the line at which the Indian and Eurasian tectonic plates collide is widely known. Earthquakes are endemic in this region, where the subterranean plates move together at the rate of two cm per year. Long before 2015, many experts had warned that a major earthquake would hit central Nepal, but the government and Nepali civil society were slow to act. Robert Piper, who headed the UN Resident and Humanitarian Coordinator in Nepal from 2008 to 2013 wrote in *The Guardian* in 2013, "A perfect storm of earthquake and poor governance could cripple Nepal."<sup>9</sup> Despite the widespread inactivity, some groups did work on improving earthquake awareness and safety and scenarios of earthquake damage in Kathmandu Valley developed. Rural areas, however, received little attention. In addition, perhaps unsurprisingly in a nation as oblivious to mental health issues as Nepal, negligible attention was paid towards the emotional impact an earthquake might have. The resultant lack of support for people may have resulted in some survivors developing post-traumatic stress disorder and other psychiatric complications after the earthquake. A kind of social amnesia about what a major earthquake could do seemed to prevail.

**Condition of homestead:** According to the Post Disaster Needs Assessment (PDNA), conducted after Gorkha Earthquake, damage to private homes accounted for about 75 per cent of the total loss caused by the earthquake and most of that damage occurred in settlements outside the capital. Many post-earthquake audits showed that deficiencies in design, poor quality of construction and inadequate assessment of the local geology and site characteristics exacerbated the devastation. The design (size and details) of homestead components, the selection of materials and construction practices were all flawed to various degrees, and the existing regulatory mechanisms were both inadequate and ineffective in addressing those flaws. The earthquake also significantly damaged government buildings and service infrastructures.

Poor construction was a key reason for the destruction of many houses. Most of the damaged rural homes were made of unbroken stones cemented with mud mortar. Concrete with steel

reinforcement was used in many new houses but with grossly inadequate detailing. While the right to own a home and land was promoted as a political slogan, making safe homes was not recognized as a priority. Low-income and marginalized families were largely excluded from efforts to disseminate the knowledge, technology and income-generating support needed to practice safe construction. Even today, the government's focus on the affected districts has not extended to providing them with equipment, such as concrete cutters, needed to rescue trapped people from collapsed building in time.

**Organizations and users:** The lack of coordination within and across government agencies and non-governmental organizations was a major gap seen in the immediate aftermath of the earthquake. This gap continues to plague efforts during not only disaster situations but also during normal operations. Moreover, disaster management efforts have remained limited to responding to emergencies. As time passes, the pre-disaster status quo is increasingly reinstated, and disaster risk reduction efforts still have not been mainstreamed into development thinking, processes and actions. Sectoral agencies still do not consider disaster risk reduction to be their mandate. In many cases, the equipment needed for the immediate rescue of people, for example, those trapped in fallen houses, and for the controlled breach of landslide dams have yet to be stocked and standard operating procedures have yet to be developed. Efforts to provide immediate support to help people recover from emotional trauma are not taken seriously even though what people experience or how they react to hazards is influenced by their mental condition.

Since 2011, the National Emergency Operation Center, under the aegis of the Ministry of Home Affairs, has coordinated disaster management tasks but its use of basic information for rescue and relief is still limited. Credible information relating to rescue, relief and recovery services, including disaster-resilient building technology for low-income families, marginal groups, local communities and users in rural areas, is hard to come by.

**Context of Policies:** When the earthquake struck, the Natural Calamity Relief Act of 1982, a law limited to rescue and relief actions, governed Nepal's disaster responses. In 2017, the Parliament endorsed a new disaster risk reduction and management act but the direction in which it will be used in the aftermath of the 2017 election and the new political context of the country remains to be seen. Instruments such as the local disaster management planning guidelines are yet to be grounded locally for effective implementation in Nepal's new governance structure.

## **Interdependence**

Gorkha Earthquake proved that it is not an earthquake itself that kills, but poorly built houses. We have little control over the occurrence of natural hazards. Even in the pre-climate change era, the impacts of high-intensity rainfalls and prolonged periods of drought depended on exposure, the quality of ecological and human-built systems, the location of families in the socio-political hierarchy and institutional practices. Today, human actions continue to change the character of precipitation and thereby ecological systems. Indeed, we are in an era in which we are so close to climate thresholds that we may reach a new uncertain normal.

In the following section, we discuss systems, agents and institutions and how their creative marshalling may help us deal with changes in exposure patterns and build resilience.

**Systems:** The functioning of human society depends on services obtained from natural and human-built elements or systems. A system is a combination of "elements connected together to form a whole, thereby possessing properties of the whole rather than of its component parts".<sup>10</sup> Both natural and human-built systems consist of components, and parts that are interrelated and interdependent and that directly and indirectly influence one another continually to maintain the system's functioning. Thus, taking a systemic perspective helps us unpack a given society's behaviour and performance. Human-built systems include infrastructures

and their services and functions (e.g. water supply, wastewater treatment, roads, transmission lines, food storage, health services, education and finances). Natural ecosystems consist of agricultural land, parks, wetlands, forests and ponds. They serve as the first line of defence in dealing with many hazards including that from climate change. Together, the elements of physical infrastructure and ecological and social systems provide key services, such as the production and distribution of energy, food, water and other provisions, and can help build the characteristics of resilience.<sup>11</sup>

**Agents:** People get services from and manage systems. The performance of a system depends on a multitude of factors, including human behaviour and interests, both of which are difficult to control or predict. Broadly, there are three main types of agents—government, market and civic groups—each with different behavioural incentives under different circumstances. With respect to the management of system components, understanding the behaviour of agents is central to building resilience and adaptive capacity. Agents can deliberate, conduct independent analysis, interact voluntarily and make strategic choices in the face of new information, and developing their capacity to do so is an important part of resilience-building.<sup>12</sup> Socially or economically marginalized agents generally have the lowest levels of access to resources as well as to systems and the services that they produce. As a result, such agents are among the first affected when the flow and stock of goods and services provided by a system is disrupted. Such marginalized populations, along with similarly marginalized institutions, have the least political, economic and technical ability to address failure and to improve the management of a system. Thus, they are the most vulnerable to systemic shocks.

**Institutions:** Institutions within a society either create opportunities for people to manage systems and to access services from them or constrain them from doing so. Both informal and formal "rules in use" govern the expectations of agents. Institutions shape the behaviour of agents and modulate interactions among them in response to stress.<sup>13</sup> Thus, institutions can play a positive role in the development and management of systems but can also create

hindrances. Institutional factors can often limit the scope of action which agents take in response to stresses on systems. For example, with regard to livelihood, employment and food security, patriarchy, caste and other discriminatory social practices can impede actions taken to achieve wellbeing as can institutional constraints such as prices and policies. At the same time, institutions play a key role in resilience-building.

The above discussions imply that resilience, or vulnerability, is an outcome of interaction among four factors—exposure, agents, systems and institutions. The question is what aspects of each of the four help minimize vulnerability and which build resilience. Marginalized people, who depend upon fragile human-built systems with limited service delivery and are constrained by institutional context, are the most vulnerable when exposed to hazards. Building their resilience would entail addressing or removing sources of marginality, avoiding the fragility of systems, and understanding institutional reforms that collectively help minimize vulnerability to increased exposure. Clearly, better understanding of hazards is crucial.

Tyler and Moench (2012) have elaborated the characteristics of systems and agents while Friend and Klune (2013) focus on institutional attributes that foster resilience. Both provide an analytical basis to deal with uncertainty and with planning to build resilience and adaptive capacity. In the following sections, we present those characteristics of systems, agents and institutions that take us conceptually towards building resilience.

**Systems:** Societies invest in building many types of systems which provide basic services, help people undertake economic activities and create opportunities for people to deal with the problems they face. Some of these systems include water and food supply and the environments within which they function. Other systems supply energy, enable mobility through transport and help people communicate. The performance of the systems in achieving resilience depends on the following three characteristics.

***Flexibility and diversity in key components:*** Flexibility is the ability of a component to function under a broad range of condi-

tions. Flexible components minimize the chance that the system they are part of will experience total failure when it is subjected to stress. The idea of flexibility is also linked to the ability to shift approaches and strategies to avoid pathway lock-in. Diversity, the number of qualitatively different system components that provide the same function or service, is another contributor to resilience. Having multiple components as opposed to a central node provides safety against a site-specific threat and makes a system more resilient.<sup>14</sup> In an earthquake recovery scenario, diversity would include the ability to access various types of seismic-resistant designs and to modify them to suit different regions.

**Redundancy and modularity:** Redundancy is a measure of the number of different system components that work parallel to each other, providing an identical service and serving as spare capacity for each other. In a system designed with multiple nodes, the failure of one component does not cause the entire system to fail.<sup>15</sup> In the disaster recovery process, for example, multiple roads to the same location provide a degree of redundancy: if one is blocked, another can be used. Modularity, on the other hand, is the number of system components that are identical and can easily replace each other. For example, building elements such as doors, windows and wall materials can be made modular because, if the element fails, it can be replaced in a short time. Redundant characteristics help enhance resilience but have cost and managerial implications because they require additional investment and an appropriate commodity chain must support their provisions. Modularity also adds to cost and, perhaps, from the perspective of resource use perspective, is inefficient as keeping backups comes at a price.

**Safe failure:** The discipline of engineering suggests that a system that experiences a partial or gradual failure is more resilient than one that suffers a sudden collapse. To take an example from flood management, an approach based on building embankments or levees experiences sudden failure if even a single embankment is overtopped, but an approach that preserves open flood plains experience only gradual inundation as flood levels rise. Where irrigation is concerned, exclusively rain-fed systems are vulnerable

to sudden failure where droughts are common, but groundwater can provide a buffer if there is no rainfall for an extended period. A house retrofitted or built with structural elements to resist seismic shock is safer than, say, a poorly built house even if cement-sand-mortar is used in both.

**Agents:** While the characteristics mentioned above are necessary to build resilience, in and of themselves, they are insufficient for achieving it if the characteristics of those managing and operating the infrastructures are not considered. While a bridge built with a very high factor of safety is robust, when a flood or an earthquake destroys it, it cannot return on its own without the application of human knowledge, skill and design faculty. Resilience is higher if those involved in operation and management are resourceful and responsive and can learn from experience.

**Resourcefulness:** Having access to a variety of interlinked social and physical resources is a key attribute of those with the responsibility to operate and manage, if they are to be able to act effectively, or innovatively, during and after a hazard strikes and in its aftermath. In the case of recovery from an earthquake, agents who have access to social networks, financial resources and technical skills can acquire or borrow material, knowledge or money to re-build. They are more resilient than those who are isolated and cannot mobilise or do not have access to such support.

**Responsiveness:** How an individual responds to stress or new information depends on their worldview, the source of disruptions they and the incentives they have. Market agents, for example, tend to respond quickly to prices and economic opportunities but discount information about long-term risk. They may respond in ways that decrease overall system functioning (e.g. by hoarding during periods of food shortage). Civic society groups, in contrast, use information to highlight long-term risks. Government departments, on the other hand, tend to resort to tested procedures though such procedures may not suit emerging realities and may prevent them from responding effectively to local needs for building resilience. Government departments may also be impeded by bureaucratic inertia, a considerable

problem as the rigid worldview that often characterizes public policy can resist responding in new ways even as the status quo continually changes.

**Ability to learn:** The ability to learn refers to social, educational and institutional factors that enable agents to learn as conditions change and to switch strategies accordingly. In the case of disaster recovery, the ability to learn is evidenced by the adoption of new techniques and elements such as community groups and other local organizations that support members without allowing the constraints, which often characterize institutional rules, debilitate learning.

**Institutions:** Institutional resilience, as discussed below, requires recognizing the role of access rights and entitlements, decision-making processes, information flows and the application of new knowledge.<sup>16</sup>

**Access rights and entitlements:** Rights and entitlements to use key resources and access systems and their services are clear in a resilient system. Institutions that differentially constrain rights and entitlements limit access to the systems or services that they provide to some groups and thus reduce resilience. Structures of rights and entitlements should not prevent specific groups from accessing critical systems or capacities. Instead, they should enable collective action and foster access to basic resources.

**Decision-making processes:** Decision-making processes, particularly in relation to development and systems management, should follow the widely accepted principles of good governance, including transparency, accountability and responsiveness. These processes include the recognition that the most affected groups can provide legitimate inputs to decision-making processes and that they should if such processes are to be transparent, representative and accountable. Creating opportunities for diverse stakeholders to provide inputs to decisions is necessary and dispute-resolution processes must be accessible and fair. The processes must also be seen as fair.

**Information flows:** Households, communities, businesses and other decision-making agents should have access to accurate

and meaningful information that enables them to make judgments about risk and vulnerability. Such information helps people evaluate options for building resilience and making strategic adaptation choices.

*Application of new knowledge:* Organizations that support the production, exchange and application of new knowledge enhance resilience. Many organizations are designed to meet a single function. They are focused on preserving and maintaining existing structures, authority, procedures and practices. Organizations created to build flood-control structures, for example, are interested only in pursuing that strategy and do not consider alternatives. Such narrow-mindedness impedes the building of resilience. Multi-functional organizations, on the other hand, tend to be open to alternative strategies. Building resilience requires innovations in reducing risk and is dependent on generating new knowledge in the face of changing circumstances.

Systems, agents and institutions that lack one or more of the above characteristics are likely to be less resilient than those that possess them all and will not help build people's capacity to adapt. Deficient systems and institutions deprive socially and/or economically marginalized communities and often increase their vulnerability when faced with a hazard. For example, such communities often lack access to finances and other key resources essential for a strategy-shift after they face a hazard-induced stress. In addition, they are frequently locked in social or political relationships that limit their ability to respond to emerging constraints and to learn from experience. The idea of resilience, therefore, can itself be a potential entry point for achieving societal transformation<sup>17</sup> by promoting adjustment to different kinds of shocks, both climatic and non-climatic.

Operationalizing the above conceptions requires a new way of conducting business, one which minimizes the risks of natural and manmade hazards through preparedness while at the same time progressing towards defined goals. The required approach requires helping humans build their inner strength and enabling them to successfully deal with all kinds of natu-

Table 6.2

## Approaches to building resilience in Nepal

Systemic Elements	Problems	Solutions
Knowledge of hazard exposure	Social amnesia and limited appreciation of geology, geography, safety and preparedness	Strengthen capacity to monitor, analyse and disseminate information about multiple-hazard exposure and risks. Invest in interdisciplinary studies of and education on various aspects of disaster risk management and include community science in the process. Transition from hazard-specific rescue and relief to multi-hazard risk management with an understanding that unattended small hazard risks accumulate and worsen disaster impacts.
Quality of home-steads	Little incentive for constructing safe homes, lack of support for making choices, limited awareness	Develop and apply region-specific codes for homes and increase the building capacity of rural municipalities and municipalities to implement safe practices. Promote use of safe and climate-friendly materials. Accord special attention to low-income and marginalized families. Look at homes not in isolation but as part of a livelihood system, community connectedness, social solidarity and culture.
Role of agencies	Ineffective coordination and implementation	Strengthen the capacity of the National Emergency Operation Centre and Department of Hydrology and Meteorology so they can play a greater role in information collection and standardization than they currently do. Begin capacitating rural municipalities and municipalities in creating local level data base for indicators to be used in building local resilience.
Policy context	Top-down and bureaucratic with no opportunities for continuous and reflective learning	Create a mechanism of systemic review and continuous learning as the disaster legislation and other guidelines are implemented in close coordination with coordination with rural municipalities and municipalities.

Source: Dixit et. al. (2016)

ral and human-induced shocks. Transitioning to a resilient future requires overcoming deficiencies in policies and practices, building the capacity of agencies by promoting institutional learning, applying the knowledge gained, and reflecting upon and adjusting to new realities as conditions change. For Nepal, this approach includes focusing simultaneously on the elements identified in Table 6.2.

## **Concluding observations**

The 2015 Gorkha earthquake and its aftershocks have created ruptures across Nepal's development sectors, disciplines and administrative and political realms at all scales, from local to national. Subsequent other hazards also created ruptures through perhaps not as great. The multiplicity of hazards means that in many cases, the impacts cascade through each other. Gorkha Earthquake has, for example, increased the incidence of landslides, which have, in turn, increased the risk of floods. In the hills, tremors altered the dynamics of water springs already stressed by erratic rainfall and changes in land use.

All human-built and natural ecosystems are exposed to various types of shocks. A landslide could, for example, lead to the failure of a forest patch on a hill slope, while simultaneously damaging houses, a bridge, a section of a highway or livelihoods dependent on that forest. Under certain circumstances, such a forest patch would be able to regenerate itself, but the damaged house, bridge and section of the highway could not revert to their pre-landslide state on their own. In the case of human-built infrastructure, the quality of construction as well as operation and management are important in building resilience.

It must be accepted that no human-built system can be made totally safe or fail-proof. There will be a threshold of hazard beyond which any infrastructure is liable to fail. Theoretically, incorporating higher factors of safety in the design of an infrastructure or the choice of materials and construction methods will enable that infrastructure to withstand a higher magnitude of external stress. In-

creasing safety factors comes at a price, however, and often a high one, and even all the safety features we can think of still cannot guarantee that failure will be averted. Moreover, the reconstruction of damaged infrastructure is not simply about assembling materials to produce a functional built-form; it is also about ensuring that the system built will be maintained and also upgraded to provide the services it has been designed to provide.

The processes of recovery and rebuilding of elements damaged by past disasters have to be systematic, reflective and iterative. They must aim to address the multi-hazard context rather than just one specific disaster. To integrate resilience into disaster risk reduction, we must focus on building knowledge, avoiding design and managerial flaws, creating and implementing better policies and building the capacities of users and organizations.

Resilience-building is a process which operates within a dynamic social and political scene. The quality of the natural ecosystem and the human-built systems in which people live must be considered. The majority of people in Nepal rely on ecosystem services as sources of livelihood. People are also increasingly dependent on human-built systems (i.e. energy, potable water, transportation, telecommunication, waste management, and the like) to maintain their lives, access markets and employment, communicate with each other, overcome disaster impacts, and so on. In these efforts, the knowledge to analyse problems and find solutions is important. It is equally essential to acknowledge that people may go through a feeling of 'survival guilt' when they realize the loss of their near and dear ones. Since this feeling can become a disaster in and of itself, efforts towards addressing the guilt syndrome will help build resilience.

Past ruptures are opportunities to put in place mechanisms designed to prevent the reproduction of the vulnerabilities that caused the ruptures in the first place. If existing vulnerabilities are not addressed, they will exacerbate the impacts of future disasters, lower development gains and further embroil low-capacity populations in the cycle of marginalization. To avoid such a future, resilience, in its true sense, can be a useful lens. ■

## Notes

- <sup>1</sup> Personal communication with retired general Victor J. B. Rana.
- <sup>2</sup> Zolli and Healy (2012).
- <sup>3</sup> ISET (2008).
- <sup>4</sup> Leach (2008).
- <sup>5</sup> Friend and Klune (2013).
- <sup>6</sup> Holling (1973) and Walker et al. (2004).
- <sup>7</sup> *ibid.* Note 3.
- <sup>8</sup> Dixit et al. (2018).
- <sup>9</sup> Piper, R. 2013. "A perfect storm of earthquake and poor governance could cripple Nepal". *The Guardian* January 12. <https://www.theguardian.com/commentsisfree/2013/jan/12/perfect-storm-earthquake-cripple-nepal>
- <sup>10</sup> Checkland (1981).
- <sup>11</sup> Tyler and Moench (2012).
- <sup>12</sup> *ibid.*
- <sup>13</sup> *ibid.*
- <sup>14</sup> Godschalk (2003).
- <sup>15</sup> *ibid.*
- <sup>16</sup> *ibid.* Note 5.
- <sup>17</sup> Pelling and Manuel-Navarrete (2011).

## References

- Checkland, P. 1981. *Systems Thinking, Systems Practice*. J.Wiley & Sons.
- Dixit, A., Shrestha, A., Wenju, R., Yadav, S. K., Satyal, Y., Silwal, S. and R. Maharjan. 2016a. *Nepal ma Bipad* (in Nepali). Kathmandu: Institute for Social and Environmental Transition (ISET)-Nepal, ActionAid Nepal and Practical Action Nepal.
- Dixit, A., Venkateswaran, K. and A. Shukla. 2016b. *Gorkha Earthquake 2015: Unpacking Resilience for Reducing Disaster Risk*. Kathmandu: Institute for Social and Environmental Transition (ISET)-Nepal.
- Dixit A., Shukla A. MacClune K., Norton. R., and F. Khan. 2018. "Catalyzing Transformative Changes for Resilience: Integrated Land-Use Planning for Enhanced Social Capital." *ISET Working Paper July 2018*.
- Friend R and K. Klune. 2013. *The Resilience Framework*. Kathmandu: Institute for Social and Environmental Transition (ISET)-Nepal.
- Godshalk, D. R., Brody, S. and R. Burby. 2003. "Public participation in natural hazard mitigation policy formation: challenges for comprehensive planning." *Journal of Environmental Planning and Management* 46(5): 733-754.
- Gunderson, L. H. and C. S. Holling (eds.). 2002. *Panarchy: Understanding Trans-*

- formations in Human and Natural Systems*. Washington DC: Island Press.
- Holling, C. S. 1973. "Resilience and stability of ecological systems". *Annual Review of Ecology and Systematics*.
- ISET. 2008. *From research to capacity, policy and action: Enabling adaptation on climate change for poor population in Asia through research, capacity building and innovation*. Boulder and Kathmandu: Adaptation Study Team to IDRC and ISET-Nepal.
- Leach, M. 2008. "Re-framing Resilience: A Symposium Report." *STEPS Working Paper 13*. Brighton: STEPS Centre.
- NPC. 2015. *Post-Disaster Needs Assessment Vol A and B*. Kathmandu: National Planning Commission.
- Pelling, M. and D. Manuel-Navarrete. 2011. "From resilience to transformation: The adaptive cycle in two Mexican Urban Centers." *Ecology and Society* 1(11).
- Tyler, S. and M. Moench. 2012. "A framework for urban climate resilience." *Climate and Development* 4(4): 311-326.
- Walker, B., Holling, C. S., Carpenter, S. R. and Kinzig, A. (2004). Resilience, adaptability and transformability in social-ecological systems. *Ecology and Society*, 9(2), 5. Web site: URL: <http://www.ecologyandsociety.org/vol9/iss2/art5>
- Zolli, A. and Healy, A. M. 2012. *Resilience: Why things bounce back*. UK: Headline Publishing Group.



---

CHAPTER 7

---

# Gender Concerns of Recovery and Reconstruction

---

Neelu Thapa  
Dikshya Singh

---

**A**lthough disasters do not discriminate, their impacts could be perceived as discriminatory. This is because the degree of the negative impact of disasters depends, to an extent, upon economic and social status of those affected. During rapid-onset disasters, such as floods and earthquakes, casualties among richer households living in well-made houses are less than among the poorer ones in less sturdy structures. That is why, 95 per cent of disaster-related deaths occur among the 66 per cent of the world's population that live in the poorer countries.<sup>1</sup>

Disasters directly or indirectly disrupt the daily lives of people, giving rise to new conflicts, new burdens and new opportunities. The better the access to resources—finance, social network, influence, information, assets and so on—the more resilience people develop to natural calamities. Thus, any disaster may hit the young and old, rich and poor, men and women alike, but the impact is felt differently by different sections. The inequities faced in everyday life, based on their gender, race, ethnicity and class, pervade the disaster experience—not only during the immediate aftermath but also over a prolonged period right through the reconstruction phase. Women, children and senior citizens stand among the most vulnerable groups to be affected. The impact varies also because of the different roles that men and women perform. Their response may also differ because of their different nature and outlook towards life fostered by the society and culture.

## **Vulnerable, disadvantaged**

Because of gender role differences, women are found to face a bigger brunt of disasters than men. This happens not because women and girls are essentially weaker than men and boys. The existing gender norms tend to put women at a disadvantage in terms of the capability to withstand disasters and their impacts. Not only do more women lose lives during disasters, it is seen that they also have a challenging time overcoming the impacts. It is not that men are not vulnerable or that all women are equally affected, but cross-cultural research has shown that women are generally more vul-

Table 7.1

## Gender development indicators in Nepal

Gender Development Index (GDI)	0.925
Gender Inequality Index (GII)	0.480
Adolescent birth rate (births per 1,000 women ages 15-19)	60.5
Maternal mortality ratio (deaths per 100,000 live births)	258

Source: Human Development Report 2017

nerable to disasters than men.<sup>2</sup> The existing gender-based inequality manifests into more women losing their lives, being deprived of aid, being denied of life opportunities, lacking access to health and sanitation related services, facing psychological trauma and undergoing physical and sexual violence.<sup>3</sup> Further, existing cultural and social norms create conditions exposing women and girls to "substandard housing, social marginalization, impoverishment or economic insecurity, overwork from fulfilling care giving responsibilities and a lack of social power and political voice".<sup>4</sup> Disasters like earthquakes destroy houses forcing people to seek shelter in transitional camps, where women have to face numerous hardships in comparison to men—lack of sanitation and hygiene facilities, increased threat of sexual and physical violence and a host of psychosocial issues.

Considering the scale of the 2015 Gorkha Earthquake, and its reverberations across different sectors and sections, it is an imperative to analyse the implications of the disaster and reconstruction on women. Literature shows that women suffer more during disasters, but their suffering is less visible. This charts out the importance of giving specific attention to women and children during such times. Fortunately, state and humanitarian agencies involved in relief and recovery activities have tried to address such issues related to gender. Assessing the reconstruction efforts through the gender lens is more necessary in Nepal because of the large scale of emigration of male population for work. This has increased the

---

Box 7.1

---

## Women in Nepal

Despite some discriminatory laws, in general, women in Nepal are accorded equal rights. The Constitution promulgated in 2015 vows to eliminate any gender-based discrimination. Nevertheless, in practice, women in Nepal have limited access to societal, political, economic and administrative spheres. Age old discrimination in the society translates as inequality among men and women. The patriarchal hierarchy means that women lack bargaining power within families, and are relegated to a corner during decision making.

Political steps have been taken to address such discrimination by ensuring proportional representation and reservation for women in the local, provincial and federal governments. However, discrimination regarding access to quality education, nutrition, property and a disproportionate burden of domestic work leave women dependent on the male family members. In recent years, demographic change brought about by the increased migration of able-bodied family members—mostly men—has also changed gender relations. The increased number of female headed households could have increased the agency of women in decision making to an extent, but it has also increased the workload for the unprepared women.

Agriculture is the largest job provider to women in Nepal with more women employed in the sector than men. More than 67 per cent of women are employed in agriculture while only 6.7 per cent women work in non-agriculture wage earning jobs, according to Population Census. The seemingly low unemployment disguises the fact that women in Nepal work longer hours, earning little, as most of the employment is in the family owned farms that does not contribute in making them financially independent. Further, only 19.17 per cent of the households reported having land or house in the name of female members.

---

number of female headed households, which must have further gone up due to deaths of the male members of the family.

The reconstruction activities are not only important in the context of efforts towards building a safe, resilient and prosper-

Table 7.2

### Gender disaggregated information

	Female	Male
Estimated gross national income per capita (2011 PPP\$)	2,219	2,738
Human Development Index (HDI)	0.552	0.598
Labour force participation rate (% ages 15 and older)	79.7	86.8
Life expectancy at birth (years)	72.2	69.0
Mean years of schooling (years)	3.6	6.4
Population with at least some secondary education (% ages 25 and older)	24.1	41.2
Ownership of land or house (%)	19.17	

Source: HDR 2017 and Census 2011

ous Nepal but also because every disaster provides opportunities which could be used for the benefit of women. This paper will look into how the women coped with the earthquake, how the government's post-disaster activities have impacted them and their status during the ongoing reconstruction phase.

### Impact differential

Socially imposed roles and prohibitions on women are responsible for the differentiated impact they must bear. Women often undertake three roles—reproduction, production and community management.<sup>5</sup> Reproduction refers to their domestic role including child bearing, nurturing the family, undertaking household chores and foraging for fuel, among others. These activities are essential for survival and maintenance of human life, thus not necessarily limited to child bearing. Production refers to income-generating activities—be it in agriculture or other sectors. The community

management role is related to voluntary works that women undertake to manage community resources for collective consumption, such as forest and water resource management, and, many times, it is the extension of their reproductive role.<sup>6</sup>

Without doubt men also juggle with multiple roles in their lives, but their activities are mostly concentrated on production activities and considered economically significant. It is notable that the reproductive and community management roles are voluntary, unpaid and considered to be primary activities of women- thus, invisible.<sup>7</sup> Given these roles, women are forced to face various kinds of vulnerabilities that men do not.

In addition, women have less access to or control over resources, such as social networks, information, financial security, education and the like. These are necessary to bounce back from disasters. This means increased social vulnerability and deprivation of the capacity to cope with hazardous events.

## **Fatalities**

The 2015 Gorkha Earthquake was one of the biggest disasters in Nepal's history. The disaster killed more females than males —56 per cent of the casualties were women.<sup>9</sup> As already mentioned, the traditional household role of women and their dress-code restrict them from self-rescue during disasters.<sup>10</sup> Their reproductive role as nurturers and care-givers tends to keep women and girls indoors making them more vulnerable during earthquakes. The Post-Disaster Needs Assessment Report (PDNA) published by the government of Nepal has also pointed out their need to stay indoors as a cause of the higher number of female deaths. Women were delayed, while escaping, by the need to rescue their children, older family members and valuables. Many such instances were reported during the Gorkha quake where they were seen running back indoors to rescue others.

Moreover, women are not safe from premature death even after the disaster is over. Studies have found that in societies where the socio-economic status of women is low, natural disas-

ters kill more women at a younger age than men.<sup>11</sup> According to the seminal paper by Neumayer and Plumper that analyses data from 141 countries, natural disasters lower the life expectancy of women than men as "the socially constructed gender-specific vulnerability of females built into everyday socio-economic patterns that lead to relatively higher female disaster mortality rates compared to men".<sup>12</sup>

### **Loss of livelihood and means**

Financially recovering from the impact of a disaster is also difficult for women. Usually, women are employed in agriculture or the informal sector and hardly ever possess any significant financial or farming assets. PDNA assessed that women lost approximately NPR 15 billion to the earthquake, considering their higher engagement than men in the agriculture sector—farming and livestock. Similarly, a report published by Nepal Development Research Institute found a higher number of women headed post-disaster households living with minimal income due to their agriculture income and livestock losses.<sup>13</sup> In addition, the increased household work burden, due to damages to domestic and social infrastructure, also increased their time-poverty. This further contracted their potential for wage-earning employment.

The earthquake impact is not a one-year phenomenon. Nepal saw a greater loss of its agriculture productivity down the line, not just the year that the disaster struck, owing to damage to stock of seeds stored for plantation in subsequent seasons. Likewise, families struggling to manage their finances in the wake of a disaster tend to dispose smaller livestock such as goats, pigs and chickens, which are generally controlled by women. Further, working for or owning micro and small enterprises are the major source of non-farm income for women. According to the PDNA estimates, about 50 per cent of all household-based and micro enterprises in the affected districts sustained complete or partial damage to premises, machinery, tools and equipment. This would naturally affect their ability to re-engage in economic activities. In the absence of suf-

ficient access to finance, these micro enterprises are hardly able to recover from such exogenous shocks.

Further, disaster inflicted destruction of key infrastructure, such as water resources, electricity transmission lines, roads and others, limiting their ability to engage in income earning activities. Disruption in drinking water supply was found to have increased the work burden of women and girls in the family. Women tend to spend 16.3 hours every week more, on such non-economic activities, than men as 75 per cent of the domestic work load falls on women's shoulders.<sup>14</sup> According to PDNA, women were spending as much as three hours collecting water in some rural areas. This constrained them from seeking financially rewarding works.<sup>15</sup>

Disaster not only destroys existing income source of the women, it increases women's dependency on male family members. In cases where women do not have a mechanism in place to support them, they are forced into insecure employment. Desperate situation may even force them to engage in transactional sex work.

Gender stereotyping of responsibilities could also be disadvantageous for men. Since men are cast as providers of the family, deaths or the destruction of livelihood, caused by earthquake, did force many young men to abandon their education and seek jobs to support their family as 'man of the house'.

## **Sexual and physical violence**

According to a 2015 study by International Federation of Red Cross and Red Crescent Society (IFRC), domestic and sexual violence increases following disasters.<sup>16</sup> In places, where violence against women and girls (VAWG) is already high, it is difficult to ascertain whether a disaster increased the violence or brought the violence that happens in private into public scrutiny.<sup>17</sup> Nepal's VAWG record shows that disasters put the safety of women and girls in a more precarious situation. According to the National Demographic Health Survey 2011, as many as one in every five women experiences physical violence in Nepal and one in ten experiences sexual violence.<sup>18</sup> Similarly, another study published by the government

shows that 48 per cent of Nepali women report having experienced some form of gender-based violence in their lifetime.<sup>19</sup> Moreover, women from Dalit or minority groups; widowed, divorced or separated women; and women living in hilly regions, were significantly more likely to report experiencing violence during their lifetime. According to Nepal Police Women and Child Services Directorate, the number of reported cases of crime against women has annually increased on an average of 14 per cent in the last decade.<sup>21</sup> But, the number of formally reported cases is only a small fraction of the incidents that happen. For women who reported experiencing violence, almost three quarters of the perpetrators were intimate partners.<sup>22</sup>

Cases of sexual assaults and harassments were widely reported in the temporary camps that offer scant privacy. The breakdown of social order in the aftermath of disasters and the helplessness of female survivors tend to embolden men. The Inter Cluster Gender Task Force (ICGTF) had estimated that approximately 40,000 women living in the post-quake temporary camps to be at immediate risk of sexual and gender-based violence.<sup>23</sup>

Although, there is a dearth of data on VAWG incidences in the aftermath of the earthquake, anecdotal reports support that violence did increase. Trauma caused by the disaster is not the source of the violence but could lead to an escalation of violent incidences.<sup>24</sup> Gender violence is mostly about control—the abuser uses violence or threat of violence to exert power over victims. Destitution and shortages caused by disasters may make men unable to fulfil their gendered roles in patriarchal societies, where men are supposed to be providers and protectors. Abusive men resort to violence on their partners to feel that they are still powerful, or to try and gain back control in personal relationships. Some men tend to use disasters, and the resultant stress, as justification to inflict violence.<sup>25</sup> Another theory regarding increased instances of domestic violence is that living collectively in temporary shelters exposes what used to be private interactions (violence) to the public view.<sup>26</sup>

Women living in temporary shelters in various affected districts have recounted increased instances of threats of violence. Increased

alcohol consumption among men was reported as the reason for the escalated threat.<sup>27</sup> Women Rehabilitation Centre (WOREC Nepal), a non-government organization that keeps database of incidences of VAWG, has said that as many as 400 cases of violence against women were reported in the temporary shelters.<sup>28</sup> However, a majority of these cases were not registered with the police as, usually, these were happening to the reporter's 'friend of a friend' or 'heard in the neighbourhood'. According to National Human Rights Commission (NHRC) data, half of the districts affected by the earthquake registered a spike in numbers of domestic violence cases.<sup>29</sup>

Families with young women living in temporary camps live in fear of sexual abuse, especially when there are reports of rapes in the shelters.<sup>30</sup> Anecdotal cases of husbands forcing themselves on wives while living in the tents have also emerged. Police did make arrests in cases of rapes and attempted rapes, usually involving minors as victims, inside Kathmandu Valley shelters in the first few months of the disaster.<sup>31</sup> Prolonged reconstruction delays have forced many households to continue to live in tents, meaning that women have to bear the violence and threat of violence for longer periods.

## **Vulnerability to trafficking**

In impoverished areas, the disaster also increased the danger of trafficking of women and girls for sex work. Following the 2015 earthquake, the number of trafficking cases increased in Nepal. Besides, men were also found to have coerced women and girls into sex, in exchange for basic commodities or money, preying on the affected women's desperation.

According to NHRC, human trafficking increased significantly in the year following the earthquake. According to its report Trafficking In Persons (TIP) 2015/016, in Fiscal Year 2015/16, more than 23,000 cases of trafficking or attempts to traffic were reported.<sup>32</sup> It is worth noting that formally reported cases are lower than those that go unnoticed. However, trafficking is not limited to trafficking for sex work, women are being voluntarily trafficked to

Gulf countries to work as housemaids, where they are exposed to different types of abuse.

### **Sexual, reproductive health concerns**

Availability of reproductive healthcare in Nepal has never been sufficient. The earthquake destroyed whatever healthcare infrastructure was present in the affected areas further constraining access. Among women displaced by the earthquake, about 525,000 were of reproductive age, 126,000 of them were pregnant among who 21,000 required obstetric care in the three months.<sup>34</sup> Unfortunately, in the affected areas, of the 360 existing basic emergency obstetric and neonatal care sites or birthing centres, 112 were severely damaged and 144 partially.<sup>35</sup> Six district hospitals and 331 rural health facilities, including staff quarters, were also severely damaged in these districts. The damages not only disrupted the services but also suspended other services like anti-retroviral therapy, family planning and management of sexually transmitted infections. Moreover, disruptions in reproductive healthcare can result in increases in unsafe abortions, maternal mortality and unwanted pregnancies. Nearly one in five married women of reproductive age, surveyed by United Nations Population Fund (UNFPA) and Central Department of Population, Tribhuvan University, reported that couples were planning to postpone their next birth by at least one year due to the earthquake.<sup>36</sup>

Taboos and harmful cultural practices related to menstruation have turned them into social ills as they have been used by many in Nepal to discriminate against women. Given the communal living in temporary shelters, many women and girls found maintaining menstrual hygiene a challenge. In such scenarios, dignity kits distributed by humanitarian agencies were useful. The kits contained material used to maintain personal hygiene and safety, such as clothes, sanitary pads, innerwear, towel, soap, toothbrush and toothpaste, nail clippers and flashlights.<sup>37</sup> Lack of privacy in the camps and community latrines and bathroom also made women uncomfortable.

The impact on sexual and reproductive health due to damages to healthcare centres was temporary as the government was able to rebuild the service centres to a substantial extent within six months of the earthquake. However, the larger impact on sexual and reproductive healthcare was felt by adolescent girls. Many girls were married off early by their family members to lighten the financial burden while coping with the disaster.<sup>38</sup> Although, study is required to ascertain the impact of such marriages on sexual and reproductive health of these adolescent girls, it is well-established that early marriage and pregnancy have repercussions in their health.

### Access to relief

Women have generally found it difficult to access the relief materials provided by different organizations and the government grants to earthquake victims. This could be because they lack:

- a) **Mobility:** Women were unable to collect the distributed relief materials like food and clothing as they could be busy with household work, taking care of children or elderly people. Pregnant women and elderly women had even less mobility.
- b) **Awareness:** Because of limited mobility, they may not be aware of the distribution of relief materials, government compensation etc.
- c) **Capacity:** Later, they could not claim the benefits that government provided due to lack of essential paperwork like land ownership certificate, citizenship certificate etc. They were unable to open the bank accounts, which was mandatory for cash transfers, as they did not have citizenship certificates.

### Psychosocial impact

Deaths and damages are visible and quantifiable, but the trauma caused by the disaster and its aftermath have a lasting psychological impact. Trauma and stress caused by disasters are noted to cause depression, sleeplessness and symptoms of Post-Traumatic

Table 7.3

## Crimes against women

Fiscal Year	Rape	Attempt to rape	Human Trafficking	Domestic Violence	Others*
2000/01	141	18	110	432	178
2001/02	186	33	120	711	190
2002/03	122	35	92	449	131
2003/04	129	21	40	410	65
2004/05	157	18	55	569	86
2005/06	154	19	56	922	55
2006/07	188	25	72	730	78
2007/08	195	38	97	939	80
2008/09	317	70	112	1100	104
2009/10	309	73	123	881	139
2010/11	391	75	139	968	184
2011/12	376	101	161	983	165
2012/13	555	156	118	2250	309
2013/14	677	245	144	1800	425
2014/15	912	414	185	6835	493
2015/16	981	562	181	8268	601
2016/17	1089	452	212	9398	533
2017/18	1131	536	227	11629	536

Source: Nepal Police Women and Child Service Directorate

\*Others include cases related to abortion, polygamy, child marriage, and witchcraft

Stress Disorder. Moreover, the loss of social support that women usually have during ‘normal’ times may also prevent women from recovering. A study found that among the survivors, in the medium term, one in three adults experienced symptoms of depression and distressing levels of anger. One in five engaged in hazardous drinking and one in ten had suicidal thoughts.<sup>39</sup>

In the absence of basic healthcare services, mental health has never been a priority in Nepal. Mental health issues may be attributed to misconceptions and superstitious solutions sought, especially among the illiterate. Many cross-cultural studies show that women most commonly suffer more depression and anxiety than men do following a disaster.<sup>40</sup> The mental health problem among women is so prevalent that a 2010 study had called suicide as the leading cause of death among women of reproductive age in Nepal.<sup>41</sup> A patriarchal society may treat women as second class citizens without any agency and independent identity forcing them to remain dependent on their significant other or parents for guardianship. And, victims of sexual, physical and emotional abuse from intimate partners are often forced to bear in silence such forms of violence considering it to be part of the relationship. Emigration among male members of the family has further put undue stress upon unprepared women.

Not only were the women affected by anxiety caused by their own fear of death, but they were also found to be affected by losing their loved ones, especially children, in the earthquake.<sup>42</sup> Similarly, loss of home and livelihood was found to have put greater burden upon women. The strain caused by an economically uncertain future also manifests into psychosocial problems like depression and anxiety.

## **Recovery through gender lens**

In patriarchal cultures, women are considered dependent members to be taken care of by men in the family—be it the father, the husband or the son. Women are less prepared and less knowledgeable about the ways of dealing with disasters. Despite these constraints, women have been found to be resourceful and courageous in the face of disasters and, often, ‘heroic’.

When rescue and relief give way to recovery and rebuilding, surviving women are left more vulnerable and neglected. For women, disasters mean loss of productive assets, such as cattle, poultry and even kitchen utensils leading to increased depen-

dency on male family members. Thus, it is far more difficult for women to bounce back to the pre-disaster 'normal'.<sup>43</sup> In addition, single women find it harder to access government aid, which is laced with innumerable eligibility criteria and bureaucratic procedures. A gender-blind outlook of the policy setters, partially because relief and aid distribution are targeted to the entire population, fails to factor in the gender differences. It has been noted that most disaster relief efforts are managed and controlled exclusively by men leading to neglect of women's needs and, many times, their competencies in these matters. It is, therefore, essential to look into planning, policy setting and implementation of reconstruction activities from the gender perspective. Otherwise, reconstruction and relief works will only augment inequality and ingrain gendered stereotyping.

Fortunately, gender concerns were included in the recovery planning from the very start in Nepal by the government as well as humanitarian agencies. National Strategy for Disaster Risk Management 2009, which governs disaster risk management, attempts to mainstream gender issues in the disaster risk management framework. Natural Calamity Act, 1982 is the legislative provision for addressing disaster relief. It does not cover issues related to disaster management. Disaster Risk Reduction and Management Act, 2017 is much more comprehensive and recognizes both risk reduction and management as integral. Similarly, National Disaster Risk Reduction Policy and Strategic Action Plan, 2017-2030, which is forthcoming, will replace the existing strategy. It is also believed to be incorporating gender concerns in national actions. Despite these attempts, addressing gender and social inclusion concerns would require a strong legislative framework and an effective enforcement mechanism in place. During the 2015 disaster, the absence of women's representation was conspicuously absent in the relief coordination and decision-making committees at the community level.<sup>44</sup>

The PDNA and Post Disaster Recovery Framework (PDRF) documents have tried to mainstream gender concerns while assessing the impact of the disaster and the steps to be taken for re-

construction. UN Women contributed in gender mainstreaming in PDNA, which includes a separate chapter on Gender Equality and Social Inclusion. Each sector analysis does not ignore gender concerns. The document has made an effort to provide a gender disaggregated impact assessment to highlight women's requirement of special attention, especially after a disaster. PDNA had assessed that gender mainstreaming would require a billion rupees in the total estimated amount of NPR 670 billion.

The PDRF document, that envisages the course of reconstruction, states that 'a coordinated and coherent approach will be implemented for effective mainstreaming of Gender Equity and Social Inclusion throughout recovery and reconstruction activities'. To attain gender-responsive, and socially-responsive reconstruction, PDRF aims to achieve meaningful participation of women, bring out targeted, protective and service-oriented programming for women and raise awareness and capacity of women and other vulnerable and marginalized groups.<sup>45</sup> Further, PDRF also mentions that it will actively monitor the number of women engaged in designing, planning and implementation of the reconstruction and recovery programme. The recommendation of the PDRF document regarding gender mainstreaming and social inclusion is estimated to spend NPR 4.6 billion over the 2016-2020 period. The amount was expected to be spent on establishing a gender equality and social inclusion unit at the National Reconstruction Authority (NRA).

Similarly, many humanitarian agencies came together to form an Inter-Cluster Gender Task Force to address women specific concerns that could be overlooked during relief and recovery. The task force contributed in preparing gender-responsive PDNA and PRDF documents to guide reconstruction. It frequently published its Gender Bulletin providing updates of the progresses as well as difficulties faced by women.<sup>46</sup> All the women-focused NGOs—at local and national levels—also contributed. They created safe spaces for women in the temporary camps, provided psychosocial and legal counselling, and helped deal with hygiene and sanitation issues. Non-government organizations formed a core group to draft and submit 'Common Charter of Demands by Women's Groups in Ne-

pal for Gender Equality and the Empowerment of Women in the Post-Disaster Humanitarian Response'. The charter deals with gender sensitive recovery policies that address women specific practical and strategic needs.<sup>47</sup>

Women need all round support to recover from the effects of the earthquake. A few basic services they require are: a place where they can sleep without fear, unobstructed flow of information regarding where and how to access necessary amenities and materials—be it free of cost or otherwise—and means of livelihood. Hopefully, the newly elected local government bodies will help the affected households in accessing these services.

Construction of shelters can be expensive. Arranging money and efforts required for construction is not easy for everybody. According to The Asia Foundation survey, widows were more likely than others to continue living in shelters and widowed women were less likely than others to have started rebuilding their damaged or destroyed homes.<sup>48</sup> In order to help women meet the eligibility criteria for the housing reconstruction grant, a mechanism to provide legal and technical counselling at the local level is necessary. Women may not have social and political ties that could provide them with the necessary information. The media, especially radio programmes, have emerged effective here.

The earthquake has increased time-poverty among women that are already suffering from an unequal burden of housework and from their role as care giver to children and elderly members of the family. The loss of property in the earthquake also makes it necessary for them to be financially capable. Humanitarian organizations such as United Nations Development Programme, World Food Programme, International Organization for Migration and other international and national non-government organizations offered cash-for-work programmes in the immediate aftermath of the disaster. This helped them survive during the most challenging times.<sup>49</sup> Similarly, women were provided with various skills through trainings for income generating activities, such as vegetable farming, seamstress training, hair styling and make-up tutoring, among other activities.

---

Box 7.2

---

## Plight of female headed households

In the Nepali society, being a single woman even during 'normal' times is not easy. The situation further worsens during disasters that tear down the social fabric and amplify vulnerabilities. Single women—a respectful manner of addressing widowed, divorced, separated or unmarried women above 35 years of age—face relatively more discrimination. In a patriarchal society, where every institutional relationship, including relationship between government and citizens, is handled via 'men in the family', single women have limited access in these matters. In addition, lack of access to property and insufficient means of sustenance leave single women economically fragile. In such a situation, damages inflicted by disasters make bouncing back increasingly hard for women.

Further, male emigration for jobs has increased the number of female-headed households (FHHs). Many affected districts are major areas sending international labour migrants. With the males and the youth of these communities gone abroad for work, most households are female-headed of which many only consist of elderly relatives and children. Even when men emigrate, it is women who have to look after family members and households in addition to performing the additional duties considered the traditional domain of men, such as managing finances, coordinating education and healthcare for family members, among other tasks. There may also be cases where men do not send money to sustain their families. Here, the burden of responsibilities for women gets doubled.

In the aftermath of Gorkha Earthquake, FHHs were reported to have faced difficulties while accessing relief. It is not that women are inherently helpless or incapable of taking care of themselves and their loved ones. Since access to and control over resources and information is tilted in favour of those with more power (men) and individuals with greater mobility (men and youth), these households faced and will continue to face significant difficulties accessing relief in the absence of sensitive and equitable relief distribution mechanisms.

Single women and FHHs faced problems right from the beginning. When damages to living spaces forced them to live in

temporary shelters, single women experienced greater hardships. Single women and girls feared the most from sexual abuse in the camps and incidences of sexual assault on widowed women or female members of FHHs were not uncommon. Similarly, FHHs had also reported difficulty in accessing government relief and they also faced difficulty in clearing the rubble, according to a report prepared by Oxfam. Widowed women were found to be four percentage points more likely than others to continue living in shelters, according to The Asia Foundation's Impacts and Recovering Monitoring Study-Phase 4. The worst affected were elderly women who were left alone without any means to support themselves.

Lack of necessary documents to obtain relief is also a problem for female headed households. Citizenship is necessary to obtain land titles. It is mostly men of the household who obtain these documents. Since these tasks are mediated by husbands and other men in the family, the lack of information about the processes involved make obtaining the copies a daunting task for single women. In cases where husbands have migrated for work, and if the marriage is not registered or the marriage certificate lost, the wife has to rely on community verification for the document. This system is open to abuse. In case of polygamy, the estranged wife may not be able to receive reconstruction aid as land titles are in the name of the husband. According to a survey undertaken by Oxfam, 24.4 per cent women covered had reported lost property papers and about 49 per cent had lost their citizenship certificates.

---

Given the colossal need for skilled labour for reconstruction, women have increasingly taken up jobs of masonry and carpentry, which were considered an exclusive domain of men.<sup>50</sup> NRA and some international non-government organizations have been providing trainings to labourers for skills needed for reconstruction. Training more women in the sector would not only aid in expediting the rebuilding process, but also provide them with the means of earning a sustainable income well after the reconstruction activities are over.

However, providing women with trainings is not sufficient to make them financially independent. An environment that supports micro entrepreneurship through easier credit financing and facilitating their access to the market could be equally necessary. Similarly, women may not be able to engage in employment for income due to their childcare duties. It is advisable to divert some focus on providing community-led childcare services allowing mothers to earn, which may also prevent young girls from dropping out of school to care for their younger siblings.

Gender based violence is a manifestation of deeper issues related to power relations between the victim and perpetrator. Empowering women by making them self-reliant is a step towards preventing men from taking undue advantage from women's helpless situation. Psychosocial counselling to women and men will be important to help them deal with the difficulties.

In desperate times, women are more vulnerable to falling prey to sexual abuses and trafficking. Women need to be made aware of the possible risks while providing them with support when they need help. In this regard, many women-focused non-government organizations have done exemplary services. Nepal Police have also deployed officials trained to handle gender-sensitive issues. The increased number of cases of violence reported after the earthquake signals that many women felt empowered enough to report. Otherwise, women would rather not complain for fear of being shamed.

Sexual and reproductive health care services were hit by the disaster, but the government did make efforts towards restoring the damaged healthcare centres. Humanitarian agencies also supported by distributing minimum initial service packages to women in need. Similarly, dignity kits helped women and girls cope with their immediate hygiene needs.

Losing family members or means of livelihood while being forced to relocate does have a lasting impact on mental health. NGOs such as Women for Human Rights, Saathi and other INGOs are involved in providing psychosocial counselling to support women to overcome their difficulties. Providing such support to men is also beneficial as they too struggle to cope with

the consequences. Men's reputation as the 'stronger sex' puts additional psychological burden on them, as they need to work to maintain that image. Counselling helps ease anxiety and improve gender relations.

Delays in reconstruction of damaged infrastructures, such as healthcare, education and public facilities, are an added pressure on women. Disrupted school attendance affects vulnerable children the most. Girls sacrifice time allotted for study to take up the added chores. Further, damages to drinking water infrastructure—one of the main reasons for increased drudgery for women—force them to spend even longer hours than before in fetching water. Water supply for drinking and sanitation, even for irrigating farms, has drastically decreased after the earthquake. Many of natural springs were reported to have dried up.<sup>51</sup> The pace of reconstruction of the infrastructure is as slow as the pace of private housing reconstruction. The delays have meant increased drudgery for women.

## **Towards gender-sensitive recovery**

Since men and women are not impacted by disasters in the same manner, a conscious attempt is necessary to make reconstruction efforts gender-responsive. Nepal has tried to address the gender concerns from the very beginning. It is very important to integrate gender considerations while preparing a strategy to combat disaster or for relief, rescue and rehabilitation. The gender perspective must come out during implementation as well. It is worth exploring whether the attempts at mainstreaming gender in relief, recovery and reconstruction efforts ultimately helped towards building a resilient and gender-equal community. The reconstruction modality adopted for Gorkha Earthquake will be a guide for future disaster responses.

Gender responsive programmes must be devised based on their needs. In this regard, the government effort to maintain gender disaggregated data is laudable. Now, data has shown that women's death toll was higher than men's and women have also lost

their income generating opportunities. However, the government does not seem to have based its decisions on this data.

NRA was formed with the objective of carrying out post-earthquake rebuilding activities. Its executive committee has no representation of women. The government should have made significant effort to make such an important body gender-inclusive. Out of the total of 95 members in the Central Reconstruction Advisory Council, only two are women. There is no sufficient representation of women in the executive committee, directive committee, National Reconstruction Consultation Council and other bodies of the NRA. Some may argue that it is not necessary to have women to address gender concerns, but without representation there is always a risk of the issues being pushed to the shadows. Again, including women members alone does not make policies gender inclusive, especially if they are not allowed to influence policies and decisions. The problem was rectified to a certain extent with the formation of NRA's Gender and Social Inclusion (GESI) Unit, it came very late—almost one and half years after the earthquake—and the action plan is still not ready.

Too many humanitarian agencies were working on similar programmes such as cash-for-work and trainings to impart skills. This gave rise to duplication. There were too many programmes in some areas while others did not see any. Here, coordination is needed among humanitarian agencies.

To mobilize women in community risk reduction and mitigation processes, women's groups such as *Ama Samuhas* and other microcredit self-help groups need to be actively involved in communicating the risks of hazards. This could enable communities to handle disasters, while making women adapt to activities that could minimize their vulnerabilities. Women must be partners in all mitigation and risk reduction initiatives as well as in recovery planning. Instead of imposing these policies with a top-down approach, it is highly advisable that these gender-responsive activities be integrated through households and communities. Disaster mitigation guides must be gender-aware in text, tone, substance and communication.

---

Box 7.3

---

### Case study of Rasuwa

Rasuwa, situated in Himalayan Region of Bagmati Zone, is about 50 km north of Kathmandu. Rasuwa District has a total population of 43,300 out of which 50.4 per cent are female. There are 9,778 households, according to National Population Census 2011. Dhunche is the district headquarters. The Human Development Index for Rasuwa District is 0.461, while the national average is 0.490. Similarly, the adult literacy rate is only 41.32, while the national average is 59.57. The life expectancy of 70.91 years is a little higher than the average national life expectancy of 68.8 years.

The Rasuwa-Kerung border point has come into greater focus since August 2015. Post-earthquake Rasuwa has now become a land of opportunities, because it is being touted as the main border point between Nepal and China. The earthquake destroyed the existing Tatopani customs point in Sindhupalchok, which was, until then, the only land trading point between the two countries. The Rasuwagadi Point has been witnessing increased movement of goods and tourists. More than 250 containers pass through it every day. The main import items are readymade garments, apples, ladies' sandals, rubber materials, plastic footwear, handbags, leather shoes, motor batteries and plastic products. The key exports were metal handicraft, henna, toothpaste, cosmetic products, noodles, pasta, chocolate, woolen carpet, chewing gum and hair products. The earthquake has had a positive impact on the population of Rasuwa as opportunities for livelihood have increased. Labour migration for employment abroad is also limited (5.1 per cent men and 2.06 per cent women). Trading activities, tourism and activities related to hydropower projects in the district keep many people busy. Small tea shops or restaurants or even homestay arrangements for tourists or businesspersons are the usual openings for them. Moreover, increased land prices in Rasuwa have also contributed in bringing prosperity to the people by making their assets more liquid.

## Initiating Dialogue on Post-Disaster Reconstruction

The earthquake displaced more people in this district than in other districts. It destroyed around 8,500 houses and displaced more than 2,000 people. Most of the victims have already moved back but some households are still living in the temporary settlements. Women have been confined to their houses due to insecurity and their responsibility towards children depriving them of income-earning activities, thus increasing their dependency on men.

The renewed hustle and bustle at the border has also increased the vulnerability of women as there are increased chances of sexual exploitation. Travelling across the border is risky mostly because they are unaware of Chinese laws against sexual harassment and due to language barriers. Therefore, while growth in women's employment opportunities could promote their economic independence there could also be a social cost attached.

---

Nepal has already endorsed Sendai Framework for Disaster Risk Reduction (2015-2030). The framework emphasizes on women's participation as critical to effectively managing disaster risk. It advocates designing, resourcing and implementing gender-sensitive disaster risk reduction policies, plans and programmes and adopting adequate capacity building measures to empower women for preparedness and for alternate livelihood means in post-disaster situations. The new disaster management act has tried to incorporate these considerations. It can be expected that the legislative framework will help adopt these principles in practice as well.

Reconstruction should be taken as an opportunity to streamline gender concerns at the community level. For example, housing reconstruction can help incorporate female-friendly designs. Likewise, safe spaces for women should be established. This is not only important in the context of our effort towards building a safe, resilient and prosperous Nepal, but this could also be an opportunity to introduce various other interventions for women's economic, social and political empowerment.

Reconstruction can also be a chance to carry out gender sensitivity programmes to prevent the rising VAWG cases and respond to activities like trafficking, rape and other abuses. Girls and women need to be made aware of the possible risks they face and the legal and administrative course that they must take when abused. The media are a natural conduit for the purpose, but, then, at the same time, women's access to information also needs to be ensured. Information centres and help centres must also be established for this purpose. Psychosocial counselling is considered important in the aftermath of a disaster for women to face their problems better.

Livelihood opportunities need to be enhanced with various programmes and activities and these should specifically target women. Skill development programmes for women give them increased opportunities to capture livelihood options. Since many male and young members of their family have gone abroad for work, most households are headed by females. Targeting these women would mean securing livelihood opportunities for most of the households in disaster affected areas. There are less trained women masons because trainings provided for reconstruction is focused on enhancing technical know-how of the existing masons on constructing earthquake resistant houses. To include more women in the workforce, women should be provided basic trainings on skills such as masonry, carpentry, and so on. Similarly, steps should be taken to aid home-based workers, the majority of who are women. They have lost their livelihood along with their houses in the earthquake. Programmes and policies, such as easy access to credit, to help them get back to their feet could be of great help.

Investment is required to meet all these needs. In the PDRF document, the GESI section has been allocated an estimated budget of NPR 4.6 billion for a five-year work plan that has nine planned priority programmes. This is a mere 0.55 per cent of the total estimated budget for reconstruction.<sup>52</sup>

The government could ensure women's access to cash transfers and other government benefits by helping them procure the necessary documentation. Documents are necessary for other

times as well, not just during reconstruction. However, the present is an opportunity to advocate the need to have necessary documentation so that people can easily access the facilities provided by the government or follow any legal course for the purpose. Ensuring people's legal identity can facilitate their specific rights and corresponding duties (SDG cross cutting goal 16.9).

Above all, promoting gender equality is a priority for most of the countries in the world and Nepal is no exception. The commitment to achieve Sustainable Development Goal Three, i.e. promoting gender equality and empowering women, is a challenge. Thus, these activities would not only address the concerns arising from the disaster but would also contribute towards achieving the larger goal of women's empowerment. ■

## Notes

- <sup>1</sup> Enarson, E. 2000. *Gender and Natural Disasters*. Geneva: International Labour Organization.
- <sup>2</sup> Blakie, P., Terry, C. and I. Davis. 1994. *At Risk: Natural Hazards and People's Vulnerability and Disasters*. London: Routledge.
- <sup>3</sup> ICRC. 2006. "Please don't raise gender now -we're in an emergency!". *World Disaster Report 2006*. International Federation of Red Cross and Red Crescent Societies.
- <sup>4</sup> *ibid.* Note 1.
- <sup>5</sup> GLOPP/ILO. 2008. "Gender Roles." ILO International Training Centre, Module on Gender, Poverty and Employment." Geneva: International Labour Organization.
- <sup>6</sup> *ibid.*
- <sup>7</sup> Sociology Discussion. "Impact of Stereotyped Role in Women's Development". <http://www.sociologydiscussion.com/society/impact-of-stereotyped-role-in-womens-development-social-development/682>
- <sup>8</sup> Bradshaw, S. and M. Fordham. 2013. *Women, Girls and Disasters. A review for DFID*. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/236656/women-girls-disasters.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/236656/women-girls-disasters.pdf)
- <sup>9</sup> Government of Nepal. *Nepal Disaster Risk Reduction Portal*. Accessed April 03, 2018. <http://drrportal.gov.np/incidentreport>.
- <sup>10</sup> Ikeda, K. 1995. "Gender differences in human loss and vulnerability in natural disasters: A case study from Bangladesh". *Indian Journal of Gender Studies* 2 (2): 171-93.

## Gender Concerns of Recovery and Reconstruction

- <sup>11</sup> Neumayer, E. and Plumper, T. 2007. "The gendered nature of natural disasters: the impact of catastrophic events on the gender gap in life expectancy, 1981-2002". *Annals of the Association of American Geographers* 97(3): 551-566.
- <sup>12</sup> *ibid.*
- <sup>13</sup> NDRI. 2016. *A study on the impact of Nepal's earthquake on women's livelihood, housing, land and property rights and citizenship rights*. Kathmandu: Nepal Development Research Institute.
- <sup>14</sup> *ibid.* Note 5.
- <sup>15</sup> NPC. 2015. *Post Disaster Needs Assessment 2015*. Kathmandu: National Planning Commission.
- <sup>16</sup> IFRC. 2015. *Unseen, unheard : Gender-based violence in disasters*. Geneva: International Federation of Red Cross and Red Crescent Societies.
- <sup>17</sup> *ibid.* Note 9.
- <sup>18</sup> MOHP. 2012. *Nepal Demographic and Health Survey 2011*. Kathmandu: US Agency for International Development, New Era and Government of Nepal, Ministry of Health and Population.
- <sup>19</sup> OPMC. 2012. *A Study on Gender-Based Violence Conducted in Selected Rural Districts of Nepal Report to the Government of Nepal Office of the Prime Minister and Council of Ministers*. Kathmandu: Government of Nepal, Office of the Prime Minister and Council of Ministers.
- <sup>20</sup> *ibid.*
- <sup>21</sup> Data provided by Women and Children Service Directorate-Nepal Police.
- <sup>22</sup> IFRC. 2017. *Nepal Country Case Study*. Geneva: International Federation of Red Cross and Red Crescent Societies.
- <sup>23</sup> Inter Cluster Gender Task Force (ICGTF). 2015. *Gender Equality Update No 1*. [https://www.humanitarianresponse.info/en/system/files/documents/files/gender\\_equality\\_bulletin\\_no\\_1\\_-\\_21\\_may\\_2015\\_final\\_0.pdf](https://www.humanitarianresponse.info/en/system/files/documents/files/gender_equality_bulletin_no_1_-_21_may_2015_final_0.pdf).
- <sup>24</sup> Parkinson, Debra. 2017. "Investigating the increase in domestic violence post disaster: an Australian case study." *Journal of Interpersonal Violence* 1-30.
- <sup>25</sup> Fothergill, A. 1999. "An exploratory study of woman battering in the Grand Forks flood disaster: Implications for community responses and policies." *International Journal of Mass Emergencies and Disasters* 17: 79-98.
- <sup>26</sup> Phillips, B. D., & B. H. Morrow (Eds.). 2008. *Women and disasters: From theory to practice*. Philadelphia: International Research Committee on Disasters.
- <sup>27</sup> Inter Cluster Gender Task Force (ICGTF). 2015. *Gender Equality Update number 1*. [https://reliefweb.int/sites/reliefweb.int/files/resources/gender\\_equality\\_bulletin\\_no\\_1\\_-\\_21\\_may\\_2015.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/gender_equality_bulletin_no_1_-_21_may_2015.pdf)
- <sup>28</sup> Post Report. 2015. "Four hundred women victimized during quake: WOREC." *The Kathmandu Post* November 27. <http://kathmandupost.ekantipur.com/news/2015-11-27/four-hundred-women-victimized-during-quake-worec.html>

## Initiating Dialogue on Post-Disaster Reconstruction

- <sup>29</sup> NHRC. 2015. *Trafficking In Persons: National Report 2015/16*. Kathmandu: Nepal Human Rights Commission.
- <sup>30</sup> Standing, K., Parker, S., and S. Bista. 2016. *Grassroots responses to violence against women and girls in post-earthquake nepal: lessons from the field*. Gender & Development Volume 24 (2): 187-204.
- <sup>31</sup> Dulal, P. 2015. "Rape, abuse reported in encampments." *The Kathmandu Post* May 27. <http://kathmandupost.ekantipur.com/printedition/news/2015-05-27/rape-abuse-reported-in-encampments.html>
- <sup>32</sup> Republica. 2017. "NHRC report shows rise in human trafficking post-quake". *Republica* July 05. <http://www.myrepublica.com/news/23137/>
- <sup>33</sup> *ibid.* Note 27.
- <sup>34</sup> Chaudhary, P. et al. 2017. "Humanitarian response to reproductive and sexual health needs in a disaster: the Nepal Earthquake 2015 case study." *Reproductive Health Matters* 25(51):25-39.
- <sup>35</sup> *ibid.*
- <sup>36</sup> Central Department of Population Studies. 2015. *Nepal Earthquake 2015: A socio demographic Impact Study*. Kathmandu: UNFPA and IOM. <http://www.cdps.edu.np/HighlightsNEQ.pdf>
- <sup>37</sup> UNFPA. 2016. *Dignity First*. Kathmandu: United Nations Population Fund.
- <sup>38</sup> Tong, K. 2015. *Child Marriage in Nepal after the Earthquake*. Plan International. <https://plan-international.org/blog/2015/06/child-marriage-nepal-after-earthquake>
- <sup>39</sup> Kane, J. C. et. al. 2017. "Mental health and psychosocial problems in the aftermath of the Nepal earthquakes: findings from a representative cluster sample survey." *Epidemiology and Psychiatric Sciences* 27(3): 301-310.
- <sup>40</sup> Mocellin, Jane S.P. 1999. "Women in Disasters: An Overview and Lessons Learned for Central America." Paper prepared for the Inter-American Development Bank Technical Meeting on the Effects of Hurricane Mitch on Women and their Participation in the Reconstruction of Central America.
- <sup>41</sup> Himalayan News Service. 2010. "Suicide a leading cause of death among women, reveals study." *The Himalayan Times* January 24. <https://thehimalayantimes.com/nepal/suicide-a-leading-cause-of-death-among-women-reveals-study/>
- <sup>42</sup> UN Women. 2016. *Psychosocial counselling helps earthquake survivors in Nepal overcome loss*. March 29. <https://reliefweb.int/report/nepal/psychosocial-counselling-helps-earthquake-survivors-nepal-overcome-loss>
- <sup>43</sup> *ibid.* Note 8.
- <sup>44</sup> MoHA. 2017. *Nepal Disaster Report: The Road to Sendai*. Kathmandu: Government of Nepal, Ministry of Home Affairs.
- <sup>45</sup> NPC. 2016. *Post Disaster Reconstruction Framework 2016*. Kathmandu: National Planning Commission.
- <sup>46</sup> Inter Cluster Gender Task Force (ICGTF). 2015. *Gender equality bulleting*

## Gender Concerns of Recovery and Reconstruction

*special issue in response to the Nepal earthquakes – one month on.* May 25. <https://reliefweb.int/report/nepal/gender-equality-bulletin-special-issue-inter-cluster-gender-task-force-response-nepal>

<sup>47</sup> [https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/common\\_charter\\_of\\_demand\\_final\\_in\\_english.pdf](https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/common_charter_of_demand_final_in_english.pdf)

<sup>48</sup> The Asia Foundation. 2017. *Independent Impacts and Recovery Monitoring Phase 4 Qualitative Field Monitoring: April 2017*. <https://asiafoundation.org/wp-content/uploads/2017/10/Aid-and-Recovery-in-Post-Earthquake-Nepal-Qualitative-Field-Monitoring-April-2017.pdf>

<sup>49</sup> Willits-King, B. and J. Bryant. 2016. *Scaling up humanitarian cash transfers in Nepal*. Working paper 503. London: Overseas Development Institute. <https://www.odi.org/sites/odi.org.uk/files/resource-documents/11288.pdf>

<sup>50</sup> Bhattarai, B. 2016. "Women at work." *The Kathmandu Post* March 02. <http://kathmandupost.ekantipur.com/printedition/news/2016-03-01/women-at-work-20160301085020.html>

<sup>51</sup> Khadka, D. And S. Thakuri. 2016. "Increasing severity of portable water aftermath of Gorkha earthquake with a case of Sindhupalchowk district, Nepal." *International Journal for Research and Development in Technology* Vol. 6(2): 2349-3585.

<sup>52</sup> *ibid.* Note 45.



---

CHAPTER 8

---

# Post-Earthquake Conflict Resolution

---

Dikshya Singh  
Mohan Das Manandhar

---

That disasters caused by exogenous natural phenomena are not entirely an environmental event, has already been established. Such disasters have resounding social, political, economic and demographic impacts. The destruction wreaked by the disasters and the resulting chaos in the social and economic order in their aftermath lead to different struggles. More than the damages caused by the disaster, it is the scarcity of resources in its aftermath and the power struggle to gain an upper hand in relief and rebuilding creates new conflicts or exacerbate existing ones.<sup>1</sup> Moreover, badly planned state aid interventions, that feed the perception that certain sections are being more favoured than others, fan conflicts.<sup>2</sup> Thus, given the scale of Nepal's 2015 earthquake, the mammoth task of reconstruction and the complex socio-economic characteristics of Nepali society, it is necessary to understand the different issues of conflict that arose during the course of reconstruction. It is equally important to explore the measures taken, or should be taken, to resolve those issues. Only then, will social cohesion be created that is able to expedite the rebuilding process and, ultimately, the formation of a resilient community.

Disasters destroy lives and livelihoods of people and create scarcity of resources—such as food, shelter, drinking water, title to land and others. As the communities compete with each other for their access, the rise of conflicts or disputes is natural. Moreover, a society marked with historical discrimination within and between communities, based on ethnicity and caste, conflicts are always simmering underneath the surface, if not out in the open.<sup>3</sup> Further, in places where state mechanism is not fully capable to come to the rescue and recovery of those affected, judicious distribution of reconstruction aid is doubtful due to various reasons. Hence, conflicts during post-disaster reconstruction are almost inevitable. The 2015 Gorkha Earthquake that affected eight million people across 31 districts of Nepal, and the ensuing recovery, have also given rise to conflicts. They were observed not just in access to housing aid but even in the use of land, water and forest resources, among others.

This chapter explores different kinds of conflicts that have surfaced in the aftermath of the earthquake in Nepal in 2015, by examining the course of reconstruction. In doing so, this article proposes recommendations that expedite rebuilding process contributing to the formation of a resilient community and thus mitigating conflicts. For the purpose of this article, 'conflict' has been used interchangeably with dispute, which refers to disagreement or discord between individuals or communities.

## **Disaster-conflict interface**

In their immediate aftermath, disasters are supposed to bring people together and create an environment of mutual support. It is widely believed that disasters "bring people together, reinforce interconnections and reveal surprising traits of heroism."<sup>4</sup> Such cohesions are experienced prominently during the emergency phase, when existing norms and practices are in disarray due to destruction. Moreover, survivors tend to experience a heightened sense of common humanity and fragility of human existence. This also helps in creating a bond among them.<sup>5</sup> After the April earthquake and the numerous aftershocks, heart-warming stories of neighbours and neighbourhoods helping those in need by offering shelter, food and psychological support had emerged. Even in areas where class and caste-based discriminations are prevalent, people were momentarily coming together forgetting their disparities. Everybody was experiencing similar risks and vulnerabilities—fear for their own lives and of their loved ones—against the larger external force.

Further, the large-scale rapid-onset disasters, such as earthquakes and floods, are considered to provide potential opportunities to reduce existing conflicts.<sup>6</sup> The cooperative spirit to deal with a disaster often breaks-down existing prejudices within communities and, at times, between countries. For example, the hostile relationship between Turkey and Greece thawed after the 1999 earthquake that hit both the neighbours. The rapprochement was dubbed 'disaster diplomacy'.

However, it would be fallacious to attribute the peace on disaster alone. There were multiple factors at play in bringing the two countries together.<sup>7</sup> Disaster experts such as Ilan Kelman have argued that disasters provide opportunities to facilitate better relations amongst states. However, "the principal caution is that disaster diplomacy does not provide the complete answer to a conflict. The reason is that a humanitarian imperative rarely dominates diplomatic decisions and actions."<sup>8</sup>

The sense of camaraderie and harmony may only be short-lived. As communities move towards the relief and recovery stage, the new-found sense of commonality may be replaced by communality as the survivors fight for limited available resources. According to Dawn Brancati (2007), "although many scholars, policy makers and relief organizations suggest that natural disasters bring groups together and dampen conflicts, earthquakes can actually stimulate intrastate conflict by producing scarcities in basic resources, particularly in developing countries where the competition for scarce resources is most intense."<sup>9</sup> Moreover, loss of livelihoods and assets can increase competition for existing resources leading to disputes between communities. Such conflicts become more prominent if the disaster forces people to migrate or it changes the demography of the affected areas.

## **Disaster-induced conflicts**

Generally, rapid-onset disasters such as earthquake and floods are considered less likely to contribute to widespread conflict in comparison to slow-onset disasters, such as drought and desertification. As the impact of slow-onset disasters are gradual and take time to unfold, the scarcity and worsening vulnerabilities and escalating battle for resources such as food, housing, medicines and so on push the wedge between communities further. Whether disasters are rapid-onset or slow-onset, existing unequal power dynamics and simmering divisions within communities manifest into local-level conflicts, particularly when they occur in highly vulnerable and resource-scarce contexts. More so, if the disasters

occur in places where people face high levels of poverty and competition over limited natural resources. Generally, two kinds of conflict surface after the disaster: one, resource-based conflict and two, conflict based upon uneven distribution of relief.

**(i) Resource-based Conflict:** Conflict is likely to surface where people face high levels of poverty and competition over limited natural resources. Moreover, massive disasters that displace communities forcing them to find safe refuge in other regions of the country, could lead to friction between the displaced and the host communities. The shortages of resources already being experienced by the host communities get aggravated. For example: A study, 'Detailed Livelihood Assessment', conducted by the The Asia Foundation, has suggested that the use of agricultural land had dramatically decreased in four districts: Rasuwa, Dhading, Sindhupalchok and Okhaldhunga in post-earthquake context. "Of the total sampled households in all four districts who own and farm on agricultural land, the area of land use decreases by 36 per cent. Agricultural households in Rasuwa shouldered the steepest decline in land use (59 per cent), followed by Sindhupalchok (43 per cent) and Dhading (38 per cent). The use of agricultural land in Okhaldhunga only declined slightly compared to other districts (12 per cent)." This led to the resource crunch as well as increased the number of internally displaced people. Although there were no reports of direct conflict because of land disputes, communities awaiting rehabilitation, particularly in the Sindhupalchok had put forth their concern on how they would be rehabilitated and compensated for the land and values they lost during the earthquake.

**(ii) Relief distribution based Conflict:** Disasters may be of large scale, but their impacts are always localized. It is always the households that bear the brunt—be it hurricanes or earthquakes. It is the surviving members who have to pick up the pieces and re-start. Hence, in the aftermath of disasters, if certain households get more aid than others or if there is a chance of households displaced from landslide encroaching public land, it is natural for conflicts to arise. The power relationships between individuals, groups and the

organizations that serve them also change and exacerbate conflicts. The once powerful may become powerless or those already in the lower rungs of community hierarchy may further slide, thus, fueling resentments. For example, uneven distribution of relief benefits, particularly among those who are politically well connected, but not a victim while those who are real victims are denied of relief has contributed to conflict in Nepal. A study, 'Rapid Assessment of Earthquake Affected Districts in Nepal' prepared by The Asia Foundation has suggested that conflict erupted between social mobilizer with affiliation to Communist Party of Nepal-Unified Marxist Leninist (CPN-UML) and the 'victim groups' in Katunje village in Okhaldhunga as the 'victim groups' claimed that only those who were close to CPN-UML were given 'victim cards'. As the conflict escalated, the cadres of CPN-UML were put behind the prison.<sup>10</sup> Even the perception of unequal treatments lead to conflicts in these situations.

Moreover, massive disasters displace communities forcing them to find a safe refuge in other regions of the country. This could lead to frictions between the displaced and the host communities. The shortage of resources already being experienced by the host communities thus get aggravated. Further, in an ethnically diverse country like Nepal, the religious and ethnic dimensions of conflict can become even more evident after the disaster, especially in the sharing of available natural resources with other communities.

## **During reconstruction**

In their immediate aftermath, disasters may bring people together, but during reconstruction, competition over limited resources, expectations from government, poor resettlement plans, real and perceived discrimination during aid distribution are some of the issues that create conflict. The conflict could be between beneficiaries and the government and between communities, including within communities. It could manifest into prolonged deprivation of aid to the victims and damage the society by reinforcing existing divides.

In the reconstruction phase, survivors have high expectations from the state about its ability to aid them to get back on their feet. The greater the deprivation experienced by survivors, the higher will be their expectation. Unmet expectations could easily turn into grievances against the government which result in conflict between the affected people and the government. During the Nepal earthquake, those who lost their houses expected the government to fund their rebuilding. When the government initially announced a NPR 200,000 grant, people were naturally dissatisfied with the fraction of the amount for the construction of their house. Then the aid was increased to NPR 300,000, but it was still far less than their expectation. The small aid amount came with numerous eligibility criteria and cumbersome procedures to become a recipient further heightening their grievances.

Considering the social structure of Nepal, with communities composed of different ethnicities and castes and the existence of social inequality, disasters can easily invigorate those divisions. The poor groups that are disenfranchised by the system may further be marginalized during reconstruction. If the policies—aid policy itself and/or distribution policy—are inefficient and discriminatory, then a section or class may appropriate the bigger slice of aid at the expense of others. In Nepal's case, many stories emerged that certain communities were channelling the aid to their communities only. Mostly, it does not matter whether such discrimination was actually performed or not. The mere perception that such discrimination is taking place is enough to create disputes.

**Housing disputes:** Given the scale of damage and destruction, the housing sector was the most affected by the disaster. The Post Disaster Needs Assessment Report (PDNA) estimated that about 500,000 private houses were completely destroyed while 250,000 suffered partial damage. Later, the Post Disaster Recovery Framework (PDRF) revised the number of fully damaged houses in rural districts to 625,000 with 180,000 as partially damaged. According to the final tally, 767,705 houses became eligible for the government grant across the 14 severely affected districts and 17 other less affected districts.<sup>11</sup>

Since housing is an essential part of helping build a safe shelter, it is a humanitarian imperative. Realizing this need, the state ventured towards supporting the survivors to build structurally sound houses that could withstand future earthquakes. Since the government could not get this message communicated properly, survivors misunderstood that the government was financing the entire construction. In fact, the survivors were to undertake their own reconstruction using their own funds, labour and materials salvaged from their collapsed structures. The government grant was only a partial support. This misunderstanding, not to mention the low amount of grant, delayed start of the distribution process and other procedural hassles to receive the grant have made post-disaster housing reconstruction a fertile ground for conflict.

**Grant distribution:** The revision of the NPR 200,000 grant, later, to NPR 300,000 created false expectation of possible further increments. Delays in setting up National Reconstruction Authority (NRA) and the preparation grant distribution procedures created confusion and fear among the survivors of being left out. The numerous safeguards put in place to avoid misappropriation of cash grants have inadvertently led to further delays and confusion. In the meantime, free from most of the procedural red tapes, international and domestic non-government organizations were able to push forward their own shelter construction plans.

Another source of confusion was the multiple rounds of beneficiary assessment. Identification of the damaged houses was undertaken first by local bodies<sup>12</sup> when they were providing immediate relief for shelter with an amount of NPR 15,000. This was followed by another round of identification done by the district chapters of Natural Disaster Rescue Committee.<sup>13</sup> The latter also distributed victim identification cards, popularly known as ID cards. During this period, the damaged houses were classified into: habitable, partially damaged and completely damaged. Finally, after NRA became functional, a comprehensive survey was conducted through Central Bureau of Statistics (CBS) to ensure that only the eligible could access the cash grant. The multiple rounds of assessment reduced the number of beneficiaries in some dis-

tricts and increased it in some. This led to the perception that the influential and those with ties to political parties got included in the grant recipient list at the expense of the actual victims.

It appears that conflicts started to emerge right from the beginning, when the initial cash grant of NPR 15,000 for temporary shelters were distributed. The Asia Foundation's report "Aid and Recovery in Post-Earthquake Nepal: Qualitative Field Monitoring June 2015" found the grant distribution procedures and amount to be different across districts.<sup>14</sup> For example, the government asked several INGOs and NGOs to distribute the government cash grants in Gorkha, making many believe that those were in addition to the government pledged amount.<sup>15</sup> They were expecting more to be coming from the government. Meanwhile, regarding the initial NPR 15,000 grant, insufficient funds in Syanga, one of the low-impact districts, led the local body to distribute only NPR 5,000. In some villages of Dolakha the amount was as low as NPR 2,000.

The damage assessment was found to be the most contentious issue during the relief distribution. The first round of assessment done by the local bodies was found to have been generous in assessing damages. The assessment teams had taken arbitrary decisions. For example, in Dolakha, technical teams declared all mud-stone structures as fully damaged. In Okhaldhunga, 'partially damaged' houses were to be reclassified as 'fully damaged' if the owners demolished them and submitted the proof of doing so by including photos to the district authorities. Such arbitrariness gave rise to conflicts between communities and local bodies and members of Ward Citizens Forum and technical staff involved in the assessment. In places, such as Gorkha, dissatisfied victims formally submitted a letter to their District Administration Office demanding a fairer classification.<sup>16</sup>

As a result, when NRA was formally mandated to start the reconstruction, it decided to undertake another round of assessment through CBS because of the controversy surrounding the earlier damage assessments. This attempt was also met with protests from the affected people for multiple reasons, the principle being inconsistent and ad-hoc assessment procedures and lack of clear policies

for classification. The differences among the multiple assessments were suspected by many to be due to manipulation and interference by political parties and influential people.

Further, as the process finally moved towards grant distribution, for what was called 'owner-driven reconstruction', more issues of exclusion came to light. The eligibility criteria for grant recipients were: a) recipients should have been identified by the CBS, b) they should have copies of their citizenship and land ownership papers, and c) they should not own another house elsewhere.<sup>17</sup> The requirement particularly regarding land title certificates created problems. Given the complicated land tenure system of Nepal, not all the pieces of land are under private ownership. Victims residing on public land, guthi land and forest land were, by default, going to be excluded as they did not own such papers. According to a report by Amnesty International, 1,313 households from Bhedpu VDC could not receive grant because one of the requirements was a land certificate. Bhedpu sits on land owned by Dolakha Bhimeshwor Temple Guthi. Seventy households in Singati were on land owned by a family-based guthi, which is now in the midst of a law suit.<sup>18</sup>

Eventually, NRA had to revise its grant distribution guidelines. The new procedure made land registration optional and cash grants would be available if two people attested that the damaged house belonged to the claimant. Similarly, the amendment also allowed victims residing on public land, guthi (trust) land, government land, forest land or on land with additional tenancy rights and other forms of customary land systems to also be eligible to receive the cash grant.

These requirements needed to be fulfilled to be eligible for cash grants. There were other additional conditions to be met to receive each of all the three instalments. Additionally, there were multiple levels of inspection. There are at least four guidelines that need to be followed, including, Procedure for the Reconstruction for Grant Distribution for the Private House Damage by the Earthquake 2016, Reconstruction of Structure Damaged by Earthquake Rule 2016, Procedure Relating to Grievances Management with Regard

to Reconstruction and Restitution 2016, Technical Supervision of the Reconstruction of private houses 2016.

To ensure transparency, fund transfer to the beneficiaries took place through their bank accounts. Although such direct transfer helped in preventing misappropriation of grants, it created documentation problems, like different spellings for the same name and other such small details, preventing many from accessing their own bank accounts. Moreover, the provision that allowed nominees of absent beneficiaries to collect money on their behalf came to a naught. This red tape defeated the very purpose of the provision it was devised to overcome. The grant disbursement procedures allow a person in the beneficiaries' list, who "is at home and is also the owner of the land but cannot be present" and anyone "whose name is in the beneficiaries' list but lives abroad currently and his/her spouse has come for the agreement" to nominate family members to receive the grants.<sup>19</sup> Again, banking regulations do not allow anybody other than the account holder to make withdrawals, thus, making this provision almost ineffective.

It is important to note that, in many places, these conflicts died down after the mediation of political parties, local bodies or non-government organizations that helped the victims navigate through the complex red tape network.

## **Grievance handling**

Much of the conflict that marred the reconstruction period was related to distribution of housing grants. The multiple rounds of assessment to determine the extent of damage and beneficiaries led to exclusion of the deserving and inclusion of those with minimal damage, or those owning houses elsewhere in the beneficiary list. NRA did introduce a grievance mechanism, as recommended by the Post-Disaster Recovery Framework, to ensure transparency and accountability. The Grievance Redressal Guideline, published in June 2016, includes "a specific protocol for handling grievances including the minimum timeframe within which different types of grievances should be addressed."<sup>20</sup> The guidelines encourage

settlement of grievances at the local and district level committees. Those not solved at the local level are passed on to the higher next level. The highest level in this case is NRA. According to NRA, 237,085 complaints had been registered by the end of March 2018 and 87 per cent of them had been redressed.<sup>21</sup> However, local level grievance redress bodies, headed by the Village Council secretaries, were found to have referred most of the complaints to the district level, thus defeating the very purpose of letting the community come out with the solution.<sup>22</sup>

**Community Mediation:** Nepal needs to be extra careful in managing the simmering conflicts, given the recent history of a decade-long armed conflict with roots in the socio-political fabric. Conflict management may not be straightforward when their causes are much more nuanced than what appears to the public. If the conflict arises due to confusion created by NRA's ambiguity in victim identification and cash distribution procedures, then it could be solved through redress procedures. Or, such conflict could have been prevented by simply having a proper information and communication strategy in place.

But, if the root of the conflict is everyday internalized discrimination against certain groups based on certain attributes, for example, their caste, it may require a much more complex treatment. If a community is banned from using community water sources because of caste, then conflict resolution might not be achieved by setting up just another supply pipeline. Future conflicts in such cases cannot be ruled out. Here, community mediation for conflict resolution could be opted. The mediation programmes could help repair fractured relationships and resolve disputes.

Mediation involves a process in which a neutral third-party assists in resolving a dispute between two or more other parties. Local level conflict resolution could facilitate dialogue between the disputing parties to negotiate and arrive at a mutually agreeable settlement. Community mediation holds greater currency in countries like Nepal, where judicial resolution may not be accessible or effective to root them out. Although it would be wrong to assume that community mediation erases all issues within and between

## Box 8.1

## Erosion of social ties

Unequal access to relief and reconstruction provisions has created a chasm between different ethnic groups and castes. Resentment between groups has grown with bias in treatment meted out to them – be it in reality or in perception – by humanitarian agencies. This may lead to deterioration in existing social relations. On the other hand, after the disaster, previous divisions, between the privileged and the unprivileged, may have been blurred as well. The so-called upper caste *Brahmins* and *Chhetris* also lost their habitats and livelihoods as did the oppressed *Dalits*. It is a different matter that resilience – ability to bounce back – could be stronger among previously privileged groups than ones who have been historically marginalised. Thus, when more relief and efforts seemed to be directed towards *Dalits*, it is but natural for Brahmins and Chhetris to feel resentment when everyone was in equal distress. This did deepen the social divides and conflicts.

Among neighbours, too, the earthquake and the reconstruction created new divisions. Instances were common where a neighbour received a favourable assessment, despite minimal damage, due to their connection in the right places. The needier neighbour without connections, meanwhile, was left high and dry. Such discrimination could take a whole new dimension if the neighbours start attributing such exclusion to them belonging to certain ethnicity or caste. Since these conflicts did not flare into violent incidents, they did not gather much attention. However, they are manifestations of already existing divides simmering beneath the surface. The badly managed reconstruction activities only added fuel to these tensions. Even within families, sharing of the grant money have resulted in fights between brothers, not to mention abuse of the elderly. Domestic violence is also considered to be on the rise in the post-disaster aftermath.

Likewise, existing ownership title disputes within families, between brothers and other members, have resulted in confusion and conflict while claiming the reconstruction grants. Similarly, women separated from their husbands, but yet to go

through legal divorce, have also faced a lot of difficulties. Cases of sexual assault and harassment were widely reported in the temporary camps that offer scant privacy.

Moreover, the earthquake also saw several instances of tussle brought about by religion. It was reported that only Christian communities were being delivered aid sent by Christian organizations or churches from Kathmandu. Moreover, suspicions that Christian organizations were promoting conversion through aid distribution was also rampant.

---

communities, but it is more sustainable than the resolution based on decrees from the authority.

## **Avoidable conflicts**

The Nepal earthquake and the reconstruction did cause conflicts, primarily related to housing grant distribution, because of procedural shortcomings and existing unequal power relations based on different socio-economic and political factors. At times, these conflicts were resolved through policy changes and redress meted out at the local level. A few required community mediation while some have been left unresolved. The uneven distribution of resources and information delivery created the conflicts and delayed the whole process, thus leaving many to remain homeless.

In the cases of conflicts resulting from policy deficiencies or lack of proper communication between parties, mediation through grievance hearings and policy amendment worked. Much of the problems came about due to lack of effective communication on the part of the government and its agents. The issues related to eligibility criteria and building-design changes would not have emerged in the first place had there been a proper flow of information. Moreover, centralised handling of reconstruction through blanket policies, without considering local realities, added fuel to the fire. Effective communication strategies would have also helped tackle perceptions about certain communities or sections

being unnecessarily favoured at the expense of others. Perception is important not only in quashing existing conflicts but in preventing future ones as well. Therefore, conflict resolution and mediation need to be an integral part of reconstruction activities as they avoid unnecessary delays in service delivery. ■

## Notes

- <sup>1</sup> UNDP. 2011. *Disaster-Conflict Interface Comparative Experiences*. New York: United Nations Development Programme.
- <sup>2</sup> Twigg, John. "DRR, social crisis and conflict." In *Disaster Risk Reduction*. London: Humanitarian Policy Group, Overseas Development Institute.
- <sup>3</sup> *ibid.*
- <sup>4</sup> Brancati, Dawn. 2006. "Political Aftershocks: The Impact of Earthquakes on Intrastate Conflict." *Journal of Conflict Resolution* 51(5): 715-743.
- <sup>5</sup> Seppala, Emma. 2012. "How the stress of disaster brings people together." *Scientific America* November 06. <https://www.scientificamerican.com/article/how-the-stress-of-disaster-brings-people-together/>
- <sup>6</sup> *ibid.* Note 1.
- <sup>7</sup> Lindsay, J. K. 2007. "Greek-Turkish rapprochement: The impact of disaster diplomacy?" *Cambridge Review of International Affairs* Vol. 14 (1): 215-232.
- <sup>8</sup> Kelman, Ilan. 2006. "Acting on Disaster Diplomacy." *Journal of International Affairs* 59(2): 215- 40.
- <sup>9</sup> *ibid.* Note 4.
- <sup>10</sup> The Asia Foundation. 2015. *Independent Impacts and Recovery Monitoring Phase 1: Qualitative Field Monitoring*. [http://democracyresource.org/wp-content/uploads/2017/04/Aid-and-Recovery-in-Post-Earthquake-Nepal-QualitativeReport\\_Round-1\\_September2015.pdf](http://democracyresource.org/wp-content/uploads/2017/04/Aid-and-Recovery-in-Post-Earthquake-Nepal-QualitativeReport_Round-1_September2015.pdf)
- <sup>11</sup> NRA. 2018. *Rebuilding Nepal, Rising from the Rubble*. Kathmandu: National Reconstruction Authority.
- <sup>12</sup> The Asia Foundation, 2016. *Nepal government distribution of earthquake reconstruction cash grants for private houses*. IRM-thematic study. <https://asiafoundation.org/wp-content/uploads/2016/12/Nepal-Govt-Distribution-of-Earthquake-Reconstruction-Cash-Grants-for-Private-Houses.pdf>
- <sup>13</sup> *ibid.*
- <sup>14</sup> The Asia Foundation, 2015. *Aid and recovery in post-earthquake Nepal*. Independent impacts and recovery monitoring phase 1, qualitative field monitoring: June 2015. <https://asiafoundation.org/publication/aid-and-recovery-in-post-earthquake-nepal-qualitative-field-monitoring-june-2015/>
- <sup>15</sup> *ibid.*
- <sup>16</sup> *ibid.*

## Initiating Dialogue on Post-Disaster Reconstruction

- <sup>17</sup> Guidelines related to land registration of earthquake affected persons 2072. available at [www.nra.gov.np/uploads/docs/2cb8PcxhZ1160607090216.pdf](http://www.nra.gov.np/uploads/docs/2cb8PcxhZ1160607090216.pdf) (in Nepali).
- <sup>18</sup> AI. 2016. *Building Inequality*. London: Amnesty International.
- <sup>19</sup> Grant disbursement procedures 2016 (2073).
- <sup>20</sup> AI. 2017. *Building Inequality*. London: Amnesty International. <http://www.amnesty.ie/wp-content/uploads/2017/04/ASA3160712017ENGLISH.pdf>
- <sup>21</sup> Obtained from National Reconstruction Authority website <http://nra.gov.np/> accessed on 10 March 2018.
- <sup>22</sup> *ibid.*

---

CHAPTER 9

---

From Tatopani to Rasuwa  
An Analysis of  
Nepal-China Trade  
after 2015 Earthquake

---

Paras Kharel

---

Two shocks hit Nepal in quick succession in 2015. The devastating earthquakes of April-May were followed by a stinging blockade of the Nepal-India border during September 2015-February 2016. The earthquake destroyed the only motorable link to China that was already struggling to overcome the effects of a huge landslide from a year earlier, which brought a whole mountain down at Jure, blocking the Sunkoshi and submerging a significant portion of the road. Besides taking a heavy toll on human life, the earthquake played havoc with industry and trade through various avenues, including damages to premises, equipment, raw materials and stock of finished goods, disruption of input supply, labourers' absence from work as they attended to their families, reduced demand, destruction of tourist sites and a fall in tourist arrivals, and increased time and cost of importing from and exporting to China due to the shutdown of Tatopani Customs.<sup>1</sup>

Some of these effects were temporary in nature. A distinct effect on international trade in goods that can be directly traced to the earthquake, and that persists over two years later, is the rerouting of Nepal's trade flows with China necessitated by the shutdown of the Tatopani-Zhangmu trade point on the Nepal-China border. The Rasuwagadhi-Kerung trade point, the only other major border point with a motorable road connection to Kathmandu, has been unable to fully absorb the traffic diverted from Tatopani due to poor conditions of the road and other infrastructure on the Nepali side. Tatopani remains closed.

Trade with China in the 10 months following the earthquake was hit by a double whammy, as a natural disaster met a manmade one. If the Tatopani shutdown disrupted overland trade with China to the north, the blockade of the Nepal-India border to the south foreclosed the option of accessing China via sea for landlocked Nepal, dependent as it is exclusively on India for access to the sea.

It is hard to isolate the effects of the earthquake and the blockade as the five-month-long border disruptions began around mid-September 2015, when the country was still reeling from the effects of the April-May quake and its aftershocks, not to mention those from the pre-quake landslide. The blockade compounded the

hardships caused by the quakes while the damages wrought by the tremors limited the country's ability to cushion the impact of the blockade. Yet, because the blockade happened so close on the heels of the devastating calamity, demonstrating that such disruptions can happen *any time*, the two shocks served to forcefully expose Nepal's economic and strategic vulnerabilities arising from an excessive dependence on a single country for trade and transit. It is, therefore, appropriate to assess the effects of the earthquake against the backcloth of the blockade, to be able to cull policy and strategic lessons in the areas of trade and transit.<sup>2</sup>

The Rasuwagadhi point on the Nepal-China border had opened in late 2014 just a few months ahead of the earthquake apparently as a response to the previous monsoon's infamous Jure landslide. Forced to take in a portion of the overland trade that used to flow through Tatopani, and as a point through which fuel imports from China were ferried through treacherous and narrow gravelled hairpins amid the southern border blockade, Rasuwa was catapulted from relative obscurity to the headlines. China had accorded decided priority to develop Kerung as a key gateway to Nepal long before the earthquake—as reflected in the well-developed road and port infrastructure there, its plan to extend the railways to Kerung by 2020 and its declaration in August 2017 of Kerung-Rasuwa as an "international" border crossing as part of Beijing's One Belt One Road Initiative. This has aided in Rasuwagadhi's irrevocable rise to prominence, as have high-level decisions to expedite the preparation of a detailed project report on further extending the railways from Kerung to Kathmandu and then to Pokhara and Lumbini.<sup>3</sup> The prime minister-elect's visit to Rasuwagadhi in December 2017, flanked by other top leaders of his party, is one measure of the importance attached to the Rasuwa-Kerung point by the current government of KP Sharma Oli.<sup>4</sup> The March 2016 agreement on transit transport between Nepal and China adds to the potential importance of Rasuwa. If operationalized with a protocol, the accord could pave the way for Nepal to trade with the rest of the world via China. The route to Rasuwagadhi, currently in extremely bad shape, is being replaced by a shorter, wider and easier one.

Against this backdrop, this paper analyzes changes in Nepal's trade with China in the wake of the earthquake and the border blockade, focusing on the shifts in routes and transport modes. To set the scene, the next section begins with an analysis of Nepal's aggregate trade performance—overall as well as, separately, with China, India and the rest of the world—amid the two shocks, and the recovery of 2016/17. Using monthly trade data to obtain trade flows during sub-periods of less than a year, it shows how the blockade compounded the earthquake's blow to trade. The paper, then, dissects Nepal-China trade performance and patterns at the product level, customs point/route level and product-customs point/route level. This granular analysis of changes in exports to and imports from China, disaggregated by products and customs points used, is a key novelty of this paper. It also obtains a back-of-the-envelope estimate of the time cost of the sea route detour of imports forced by the Tatopani shutdown. To do so, it combines the extra time taken by the sea journey with estimates of the cost of an additional day in transit taken from existing literature. The paper then proceeds to interpret the findings from the data analysis and discuss likely issues in the future of Nepal-China trade through the lens of transport and transit, including the emergence of the Rasuwa-Kerung option. The discourse draws on, *inter alia*, observations from a field trip to Rasuwagadhi and Kerung, and the views of government officials, private sector representatives and economists expressed in a seminar where this paper was presented.

We conclude this introductory section by discussing the data in brief and summarizing the main findings from the data analysis, leaving interpretation and policy implications to the final section. Data sources and issues are dealt at length where relevant. Here, suffice it to say that, two sources of data on trade in goods are utilized. Data from Nepal Rastra Bank (NRB)'s periodic *Current Macroeconomic and Financial Situation* updates are used mainly to analyse changes in trade flows over intervals of less than a year. Trade and Export Promotion Centre (TEPC) data are used mainly for the granular analysis of trade with China, disaggregated by products and customs points. Although services exports have surpassed

goods exports in value terms since 2012/13, this paper studies goods trade only in order to maintain a sharp focus and in recognition of the lack of disaggregated data on services trade required for a meaningful analysis. In the granular trade analysis, Fiscal Year 2013/14 (around mid-July 2013 to mid-July 2014) is taken as the pre-earthquake year and Fiscal Year 2016/17 as the post-earthquake year. The fiscal years are also referred to as 2013 and 2017, respectively. Since there was hardly any trade through Rasuwa in 2013 and Tatopani remained closed as of 2017, overland trade with China means trade through Tatopani in 2013 and Rasuwa in 2017. National accounts data are from the Central Bureau of Statistics (CBS).

With Tatopani shut and Rasuwagadhi yet to fully absorb the diverted trade traffic from Tatopani, portions of Nepal's overland imports from China are forced to take a costly detour via sea. The share of overland imports from China fell from 24 per cent before the earthquake to 12 per cent two years after the quake. There was a general shift towards using both sea and air routes rather than just a single route for imports. Among products that used a northern border point in both years or only in the initial year for imports, the sea route or both sea and air routes emerged as more prominent alternatives than the air route alone. The time cost imposed by the enforced detour for imports is equivalent to a tariff of 18 per cent to 62 per cent. During the same period, the share of overland exports to China fell from 69 per cent to 43 per cent. While changes in routes were stark for imports, they were modest for exports that initially used Tatopani. The limited route changes for exports occurred overwhelmingly towards the air route rather than the sea route. The relative importance of exports to China via air has increased, but total exports to China, as of the end of FY 2016/17, are yet to be restored to pre-earthquake levels.

Air route was the most important route taken by new exports (56 per cent of total value of new exports), followed by the Rasuwa (43 per cent) land route. Three quarters of products that ceased being exported, in value terms, had previously taken place through Tatopani, followed by Biratnagar (15.5 per cent) and Tribhuvan International Airport (TIA) (eight per cent). For Tatopani/Rasu-

wa, the gain from new products was 28 per cent of the loss from products that stopped being exported, implying a net loss along the extensive margin. For TIA, the gain from new products was 319 per cent of the loss from products that stopped being exported. Tatopani's initial share was positively associated with the subsequent export growth, until the share reached 44 per cent, which is half the mean share of 87 per cent. Thereafter, a higher Tatopani share was associated with a lower export growth. At the mean share, a one percentage point higher Tatopani share was associated with a 12.5 per cent lower export growth. While the initial share of Tatopani was not a statistically significant determinant of the probability of whether a product would continue to be exported, the number of customs points initially used was.

The bulk of new imports in value terms passed through TIA (30 per cent), Birgunj (18 per cent), Rasuwa (17 per cent), Biratnagar (15.6 per cent), Birgunj Dry-port (10 per cent) and Bhairahawa (6.6 per cent). Nepalgunj saw new imports of nine products, worth NPR 124 million, and did not see any import stops. For all customs points, the gain in imports from new products was higher than the loss in imports from products whose imports ceased—by a factor of three to 56 (Bhairahawa), implying a net gain along the extensive margin. Even for Rasuwa/Tatopani, there was a gain by a factor of three. Among the four major points, the gain ranged from 4.7 (TIA) to 9.4 (Biratnagar). An initial high exposure to Tatopani was associated with higher import growth until the share of Tatopani crossed 44 per cent, after which a penalty kicked in. The turning point was higher than the mean initial Tatopani share of 36 per cent. An increase in Tatopani share of 10 percentage points, at products in the 75th percentile of Tatopani share, was associated with a reduction in import growth of around two to three per cent. Looking at changes within the same product, on average, a one percentage point decrease in the share of Tatopani/Rasuwa was associated with a 0.37 per cent increase in import growth. The change in Tatopani/Rasuwa share accounted for about 10 per cent of the observed import growth between 2013/14 and 2016/17 of continuing products. The use of an additional customs point was

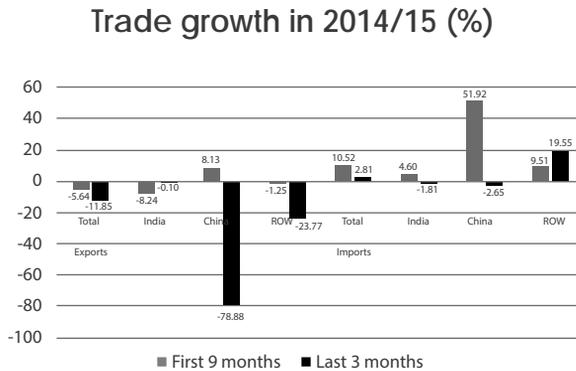
associated with a 45 per cent higher growth in imports among such products. A higher initial share of Tatopani was associated with a lower probability of a product imported in 2013/14 to continue to be imported in 2016/17.

### **Double whammy: An analysis of aggregate trade effects**

The CBS projected the gross domestic product (GDP) to grow by five per cent at market prices (4.8 at basic prices) in 2014/15, before the earthquakes struck. Revised estimates for the year put growth at 3.3 percent (three per cent at basic prices). The Post-disaster Needs Assessment (NPC 2015) projected the growth rate (at basic prices) for 2015/16 to be 5.5 per cent, taking into account the adverse shock of the earthquake and the revival on the back of reconstruction. The actual growth rate was nearly zero at basic prices and 0.4 per cent at market prices. The most important unforeseen shock to the economy in 2015/16 was the blockade, which also stymied reconstruction works. As a back-of-the-envelope estimate, therefore, the immediate cost of the blockade in terms of GDP loss was 5.5 per cent.

Exports were declining even in the first nine months of 2014/15, before the earthquake struck (Figure 9.1). Exports to India and the rest of the world (ROW) were declining while exports to China were increasing. In the last three months, when the quakes were battering the country, the rate of export decline doubled, with exports to China and ROW hit particularly hard. The shutdown of Tatopani border-point following damages to the road and the area around the customs offices explains the close to 80 per cent plunge in exports to China. Overall imports were growing at a rate of 10.5 per cent in the first nine months, only to slow down to just under three per cent in the last three months.<sup>5</sup> During the last three months, while imports from India and China declined, imports from ROW grew at twice the rate recorded in the previous nine months. In particular, imports from China declined by 2.7 per cent in the last three months compared to a nearly 52 per cent growth in the first nine months. Looking at year-to-year trade

Figure 9.1



Source: Author's calculation based on Nepal Rastra Bank's *Current Macroeconomic and Financial Situation*, various issues.

growth, exports declined by 7.3 per cent in 2014/15, compared to a 19.6 per cent growth in the previous year, while import growth fell to 8.4 per cent from 28.3 per cent. Exports to China saw a 21.5 per cent fall compared to a 6.3 per cent fall to India. The immediate negative effect of the earthquake on exports was greater for China-bound than for India-bound exports, for natural reasons.

Despite the inherent difficulty in disentangling the effects of the earthquake and the blockade on trade, basic trade flow data can be used to get an idea of how the border chokehold added to the earthquake-induced woes.<sup>6</sup> As opposed to a 15 per cent decline in exports in the first two months of 2015/16 (mid-July to mid-September)—compared to the same period in the previous year, well before disaster hit—exports plunged by a whopping 32 per cent in the next five months (mid-September to mid-February), a period when the blockade was fully in force (Figure 9.2). Import growth, which was negative 17.5 per cent in the first two months, further fell to 23 per cent in the next five months (Figure 9.3). The reductions were felt across India, China and ROW as trade part-

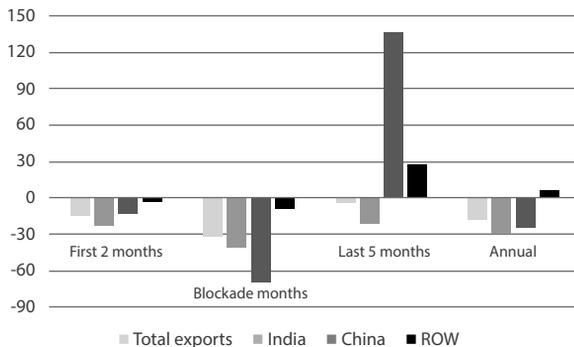
ners. The contraction was the sharpest in flows to and from China. Exports to China fell by 69 per cent during the blockade months, compared to a 12 per cent decline in the two months of 2015/16 preceding the blockade.

In contrast, exports to India and ROW fell by 40 per cent and nine per cent, respectively, during the blockade months and 23 per cent and three per cent during the two months before the blockade. On the import front, flows from India during the blockade contracted by 28 per cent compared to a 20 per cent contraction in the two months prior to the blockade. Imports from China, which had crashed in the last three months of 2014/15 following Tatopani shutdown, were slowly recovering, growing at six per cent, in the first two months of the next fiscal year (2015/16). Then came the southern border blockade, and imports from China fell again, by nearly 18 per cent.

Before the earthquake, 69 per cent of Nepal's exports to China happened overland through Tatopani Customs, 19 per cent via

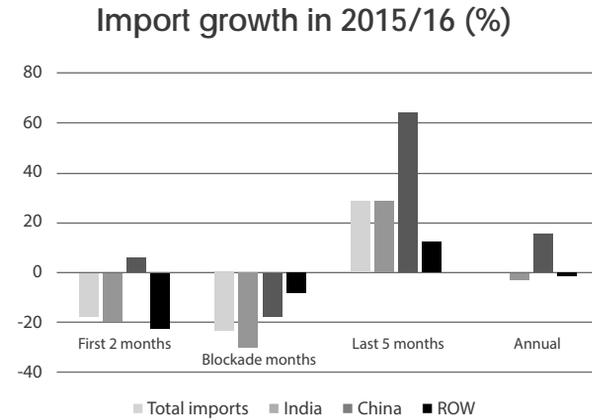
Figure 9.2

### Export growth in 2015/16 (%)



Source: Author's calculation based on Nepal Rastra Bank's Current Macroeconomic and Financial Situation, various issues.

Figure 9.3



Source: Author's calculation based on Nepal Rastra Bank's *Current Macroeconomic and Financial Situation, various issues*.

air using the country's only international airport in Kathmandu, Tribhuvan International Airport (TIA) and the rest by sea after transiting through India and using the nearest Indian seaport in Kolkata. Imports from China, originating mostly in the eastern and southern coastal regions of China, were less dependent on the Tatopani route. Tatopani handled about a quarter of imports while TIA handled another quarter, with the remaining half flowing through seven customs points along the Nepal-India border. Trade with China in the 10 months following the earthquake (late April 2015 to February 2016) was caught in a pincer movement, as a natural disaster met a manmade one. On the one hand, the earthquake-caused shutdown of Tatopani, the only customs point on the Nepal-China border connected to the capital city with a metallic road, played havoc with overland trade. Rasuwa—a potentially important customs point on the northern border, but largely neglected and underdeveloped, with extremely poor road conditions barely allowing a truck to pass through—was unable to absorb the

diverted traffic. On the other hand, the blockade along the Nepal-India border not only choked the existing sea-borne trade with China and other countries, but also denied an alternative route to the traffic diverted from Tatopani.

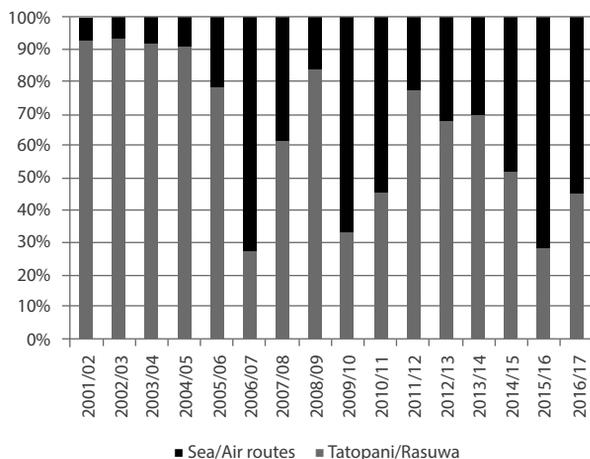
Within Nepal-China trade, the importance of overland trade through Nepal-China border declined sharply (Figures 9.4 and 9.5). Exports through Tatopani ground to a halt following the shutdown of the border point due to damages caused by the earthquake and remained so even a year after the quake (end of 2015/16).

Exports through Rasuwa increased from a negligible amount to some NPR 585 million. Tatopani Customs accounted for about 70 per cent Nepal's exports to China in 2013/14; the share fell to 52 per cent in 2014/15. The share of Rasuwa customs increased from a negligible figure in 2013/14 to 28 percent in 2015/16.

On the import side, Tatopani's share fell from about 25 per cent in 2013/14 to 11 per cent in 2014/15 to less than one per cent in 2015/16. Rasuwa's share increased to 8.5 per cent in 2015/16. Thus, the share of overland exports in total exports to China fell from 70 per cent to 28 per cent, with a corresponding increase in the share of exports through air and sea routes.<sup>8</sup> Similarly, the share of overland imports in overall imports from China fell from 25 per cent to nine per cent. A 25 per cent fall in exports to China in 2015/16 relative to 2013/14—a year before the earthquake—was driven by a fall of 70 per cent in exports via the northern border points, which dwarfed in value terms the 79 per cent growth in exports via air and sea routes.<sup>7</sup> Imports from China increased by 52 per cent, with imports through northern border points falling by 44 per cent and imports through sea and air routes increasing by 84 per cent. While it would be interesting to know the changes in the relative importance of TIA and Nepal-India customs points—and hence that of air and sea routes—used for Nepal-China trade during that period, we were unable to get access to data at the required product-customs points level for both 2013/14 and 2015/16. However, we were fortunate enough to get that data for 2013/14 and 2016/17. There is an advantage in comparing flows to and from China at the product-customs points level in 2013/14 (the year be-

Figure 9.4

## Exports to China, by route taken



*Note: Data for 2001/02 through 2010/11 are from TEPC (CD ROM), for 2011/12 through 2016/17 from TEPC (Export-Import Data Bank, online version). Data for 2001/02 through 2010/11 refer to Nepali fiscal years (mid-July to mid-July), while data for 2011/12 through 2016/17 are approximations to Nepali fiscal years (e.g., July 2011 to June 2012).*

for the earthquake) and 2016/17 (the year after the blockade). In doing so, we will be able to better discern shifts in customs points (and, therefore, routes) used in Nepal-China trade that can be plausibly traced to the quake-induced Tatopani closure and are far less liable to be confounded with the effects of the border blockade than when comparing, as we have done so far, flows in 2013/14 and 2015/16. We do that in the next section.

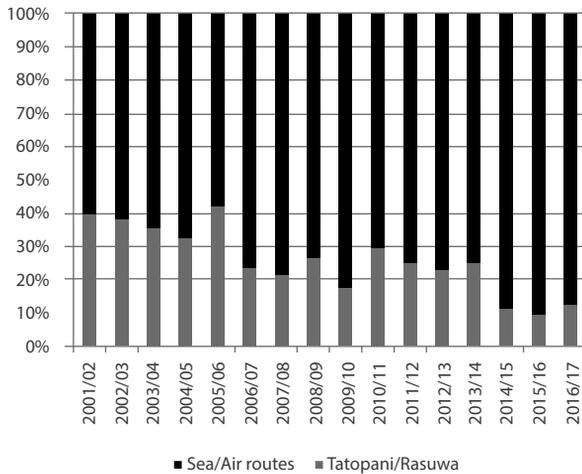
In the last five months of 2015/16—following the lifting of the blockade—import growth turned positive (28 per cent) and exports fell less sharply (-4.6 per cent). The latter was driven by a 21 per cent fall in exports to India, although exports to both China and ROW increased, by 136 per cent and 27 per cent, respectively. Imports from China grew twice faster than imports from India and

five times faster than imports from ROW. However, the rebound in trade in the latter part of the year was not sufficient to overturn the earlier massive reductions. At an annual level, exports fell by nearly 18 per cent in 2015/16—the combined effects of the earthquake and the blockade—compared to a reduction of seven per cent in 2014/15. Imports for the entire year of 2015/16 fell by 0.14 per cent, with imports from India and ROW declining but imports from China increasing.

A look at the changes in capacity utilization of manufacturing units also sheds light on how the natural and manmade disasters battered the manufacturing sector, a major source of Nepal's goods exports. Capacity utilization was on average 52.67 per cent in 2014/15. It fell to 48.2 per cent in 2015/16 (NRB 2016). During the first six months of 2015/16, it was even lower, 39.5 per cent. The disturbance in the Tarai hurt manufacturing production hard. The

Figure 9.5

### Imports from China, by route taken



Note: As in Figure 9.4.

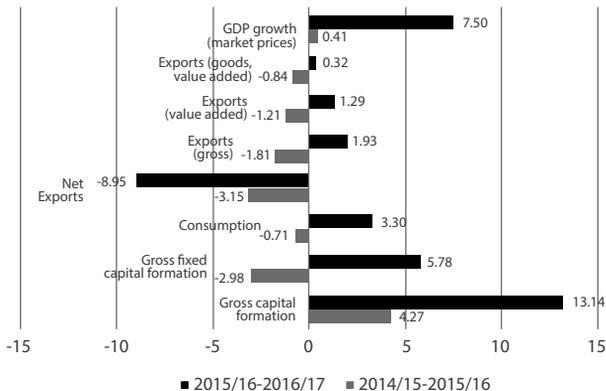
border blockages prevented/curtailed imports of vital raw materials and also restricted the outward passage of exports (*ibid.*). These were on top of the electricity shortages faced by factories and an earthquake-induced fall in demand for industrial goods (*ibid.*).

### The 2016/17 rebound

With border disruptions over, supplies returning to normal, weather conditions turning favourable for agriculture, drastic reductions in power cuts and post-earthquake reconstruction activities gathering pace, the economy perked up in 2016/17, registering a growth of 7.5 per cent, albeit from a low base.<sup>8</sup> All 15 sectors in the national accounts, including manufacturing, expanded. Average capacity utilization in the manufacturing sector had risen to 57.3 per cent in 2016/17.

Figure 9.6

### Contribution to GDP growth (% points)



Source: Author's calculation based on national accounts data of Central Bureau of Statistics. See text for details.

Table 9.1

## Trade growth (%)

	2012/ 13	2013/ 14	2014/ 15	2015/ 16R	2016/ 17P	Ratio of 2016/17 exports to 2013/14 exports
<b>Total exports</b>	<b>3.58</b>	<b>19.60</b>	<b>-7.25</b>	<b>-17.82</b>	<b>4.18</b>	<b>0.79</b>
India	2.79	16.89	-6.29	-29.30	4.95	0.70
China			-21.50	-24.59	1.19	0.60
ROW	5.16	13.97	-7.83	6.31	3.30	1.01
<b>Total imports</b>	<b>20.59</b>	<b>28.31</b>	<b>8.44</b>	<b>-0.14</b>	<b>27.99</b>	<b>1.39</b>
India	22.59	30.22	2.87	-2.94	32.79	1.33
China			36.62	15.50	9.98	1.74
ROW	16.90	-14.03	12.12	-1.19	26.84	1.41

Source: Author's calculation based on data from TEPC.  
See text for details.

Decomposing the sources of growth from the expenditure side of the national accounts, we see that of the 7.5 per cent GDP growth in 2016/17, gross capital formation contributed 13.1 percentage points (and, within it, gross fixed capital formation 5.8 percentage points), consumption 3.3 percentage points, and net exports (goods and services) negative 8.9 percentage points (Figure 9.6). Note that this is an accounting exercise with two major limitations, in that (i) it does not account for the fact that although imports detract from growth in this set-up they are also crucial for production, and (ii) even in an accounting sense, it overestimates the contributions of capital formation and consumption by subtracting all imports from exports only, although the other two components also contain imports. If we assume that exports have a zero-import content, then exports contributed 1.9 percentage

points to growth in 2016/17, compared to negative 1.8 percentage points in 2015/16. More realistically, if we incorporate into the decomposition exercise the 66.7 per cent value addition in Nepal's total exports in 2011, as calculated from the World Bank's Export Value Added Database (EVAD)<sup>9</sup>, we find that exports of goods and services (net of import content) contributed 1.28 percentage points to growth in 2016/17, as opposed to negative 1.2 percentage points in 2015/16. Considering only goods exports and assuming a 57.8 value addition in exports of goods, again as obtained from EVAD, we find that exports of goods (net of import content) contributed 0.32 percentage points to growth in 2016/17, compared to negative 0.84 percentage points in the previous year.

Both exports and imports grew—by four per cent and 28 per cent, respectively. Trade with India, China as well as ROW grew (Table 9.1). India's share of exports, which had fallen to 56 per cent in 2015/16, did not rebound and, so, was less than the average two-thirds share it had in the previous years. India's share of imports rebounded from 62 per cent in 2015/16 to 64 per cent, close to the previous levels of about two thirds. Despite the year-to-year growth, total export value was still lower than that in 2014/15 by 20 per cent. Imports, on the other hand, exceeded the 2013/14 value by 38 per cent. Exports to China were just 70 per cent of their 2013/14 levels, while imports from China had grown by 73 per cent. We now turn to a more detailed and granular analysis of changes in trade with China.

## **Granular trade analysis: Exports**

Exports to China fell by 39 per cent in 2016/17 relative to 2013/14. Exports through all customs points except TIA, Birgunj Dry-port and Rasuwa declined (Table 9.2). Part of the traffic through Tatoi, which has remained closed since the earthquake, shifted to Rasuwa, a minor trading point prior to the earthquake. However, overall exports to China through Nepal-China border points fell by 62 per cent in 2016/17 relative to 2013/14. The fall in exports through Nepal-China border points amounted to nearly 43 per

Table 9.2

**Exports to China by customs points**  
(trade value in NPR million)

Customs point	Export value, 2013	Export value, 2017	% share, 2013	% share, 2017	% change in value	Change in value	Contribution, sign adjusted (% points)	Change as % of exports in 2013	No. of products exported	
									2013	2017
Biratnagar	242.00	63.30	8.12	3.50	-73.84	-178.70	-15.27	-6.00	4	3
Birgunj	78.40	23.50	2.63	1.30	-70.03	-54.90	-4.69	-1.84	5	3
Dryport	27.10	59.30	0.91	3.28	118.82	32.20	2.75	1.08	2	4
Nepalgunj	7.77	0.11	0.26	0.01	-98.62	-7.66	-0.65	-0.26	8	1
TIA	572.0	888.0	19.19	49.06	55.24	316.00	27.01	10.60	53	57
Tatopani/Rasuwa	2050.0	775.0	68.79	42.82	-62.20	-1275.00	-108.97	-42.79	548	455
Total	2980	1810			-39.26	-1170			578	486

Source: Author's calculation based on data from TEPC. See text for details.

cent of the total exports to China in 2013/14. The increase in exports through TIA, by 55 per cent, amounted to nearly 11 per cent of the total exports to China in 2013/14. Exports through Birgunj Dry-port rose by 119 per cent, albeit from a low base. As a result, the share of exports through northern border points (Tatopani or Rasuwa) fell from 69 per cent to 43 per cent, whereas the share of TIA rose from 19 per cent to 49 per cent and the share of Birgunj Dry-port rose from less than one per cent to more than three per cent. The shares of Birgunj, Biratnagar and Nepalgunj also declined, along with the value of exports through these points on the Nepal-India border. The increase in the value of trade through TIA and Birgunj Dry-port was just 27 per cent of the decline in the value of trade through Nepal-China border points.

Exports to China flowed through six customs points (one on the Nepal-China border, one at the TIA and the remaining four on the Nepal-India border for onward movement to the seaport

---

Table 9.3

**Number of customs points used for exports**  
(trade value in NPR million)

No. of customs points used	2013			2017		
	No. of products	Export value	Share	No. of products	Export value	Share
1	542	897	30.11	453	560	30.86
2	31	918	30.82	30	1030	56.76
3	4	986	33.10	2	143	7.88
4	1	178	5.98	1	81.7	4.50
<b>Total</b>	<b>578</b>	<b>2979</b>		<b>486</b>	<b>1814.7</b>	

*Source: Author's calculation based on data from TEPC.  
See text for details.*

---

in Kolkata and then by sea) both before and after the earthquake. In both periods, any given product was exported through at most four routes (Table 9.3). There was a sharp change in the shares of exports contributed by products exported through two and three points. More precisely, the share in exports of products exported through two points increased from 31 per cent to 57 per cent while the share in exports of products exported through three points fell from 33 per cent to eight per cent. The share in exports of products exported through just one point was, more or less, stable at 30 per cent. Among the major categories of the number of points used for exports in 2013/14, the sharpest fall in exports was seen among products exported through three points (75 per cent fall), followed by products exported through one point (45 per cent) and two points (22 per cent). In both periods, about 93 per cent of the exported products were exported through only one point, but they accounted for about 30 per cent of total exports to China. The bulk of exports were accounted for by up to three dozen products exported through either two or three points. A total of 31 (30) products were exported through two points in 2013/14 (2016/17), while four (2) products were exported through three points in 2013/14 (2016/17).

The number of products exported fell by 16 per cent from 578 to 486 (and mean exports per product fell by 28 per cent). In both periods, the highest number of products was exported through the Nepal-China border (Tatopani or Rasuwa), followed by TIA (Table 9.4). The number of products exported through the Nepal-China border fell by 17 per cent from 548 to 455 (and mean exports per product fell by 55 per cent), while that exported through TIA rose from 53 to 57 (and mean exports per product rose by 45 per cent). If one considers only those flows of at least NPR 10 million at the commodity level, there is hardly any change in the number of products exported overall (29 in 2013/14 vs 28 in 2016/17), but the mean exports per product fell by 45 per cent. Applying the same threshold at the product-port level, the number of products exported through the Nepal-China border fell from 21 to 16 (with mean exports per product falling by 65 per cent), while that

Table 9.4

**Number of products and mean exports  
by customs points  
(trade value in NPR million)**

	No. of products/ Mean value of exports			Exports ≥ 10 million at commodity-port level		
	2013	2017	Change %	2013	2017	Change %
Biratnagar	4	3	-25	2	2	0
	60.40	21.10	-65.07	115	31.50	-72.61
Birgunj	5	3	-40	2	1	-50
	15.7	7.84	-50.04	37.9	12.2	-67.81
Dryport	2	4	100	1	2	100
	13.60	14.80	8.82	25	28.10	12.40
Nepalgunj	8	1	-87.5			
	0.97	0.11	-88.97			
TIA	53	57	7.55	8	13	62.50
	10.80	15.60	44.44	66.80	63.10	-5.54
Tatopani/ Rasuwa	548	455	-16.97	21	16	-23.81
	3.75	1.70	-54.50	87.30	30.90	-64.60
Overall	578	486	-15.92	29	28	-3.45
	5.16	3.72	-27.77	94.30	52.10	-44.75

*Source: Author's calculation based on data from TEPC.  
See text for details.*

through TIA increased from eight to 13 (with mean exports per product falling by six per cent).

Exports are concentrated in a few products (Table A1 in the Appendix, available in the working paper version of this chapter,

Kharel (2018)). The top 15 products made up 82 per cent of exports to China in 2013/14; the corresponding share fell to 71 per cent in 2016/17. There was a significant churning among the top 15 products. Seven of the top 15 products exported in 2013/14 were out of the top 15 list in 2016/17: two to three of them ceased to be exported,<sup>10</sup> while the export of others nosedived by as much as 98 per cent. Six to seven of the top 15 products exported in 2016/17 were new additions to the top 15 list, with one to two of them not previously exported at all and three having negligible exports in the base year. Of the top 15 products in the 2013/14 list, only three saw their exports grow (carpet, kitchen table or household articles, and statuettes), with statuettes jumping from tenth to first position in 2016/17. Exports of the top 15 products in the 2013/14 list plunged by nearly 60 per cent, compared to the 39 per cent fall in total exports to China.

There were some noticeable changes in the ports used among these top products (Table A1 in the Appendix. See also Tables A3-A5 for information on top products shipped via air, the northern border and sea). Exports of HS 12119090 (Plants and parts of plants, including seeds and fruits), the top export item in 2013/14, went almost exclusively through Tatopani in 2013/14 (with a 0.05 per cent share of TIA), whereas its exports in 2016/17, which had fallen by 98 per cent, went chiefly through TIA (98.53 per cent), with Rasuwa taking up the rest (1.47 per cent). In value terms, exports through the border point plunged while exports through TIA increased. Exports of HS 83062900 (statuettes of base metal), ranked fourth in 2013/14 and third in 2016/17, fell by 25 per cent, driven by the fall in exports through the border point, although exports through TIA increased. The result was that the share of Tatopani/Rasuwa fell from 97.65 per cent to 89.48 per cent, with a corresponding increase in the share of TIA. Likewise, exports of HS57011000 (Carpet~ knotted of wool or fine animal hair) more than doubled—among the very few products in the top 15 whose exports increased—although exports through Tatopani/Rasuwa fell by two thirds, implying that the increase in exports was driven by exports through TIA,

with the result that the share of Tatopani/Rasuwa fell from 67 to 10 per cent, while that of TIA increased from 31 to 89 per cent. There may have been a diversion of some traffic from Tatopani/Rasuwa to TIA for all these three products.

Exports of HS 41041900 (Tanned or crust hides and skins of bovine or equine animals~ without hair on whether or not to split~ but not further prepared~ in the wet state) had been taking place predominantly through Nepal-India border, with Tatopani accounting for less than six per cent. In 2016/17, this product was not exported through Rasuwa, while the share of Birgunj Dry-port increased from 14 to 33 per cent.<sup>11</sup> Some products, such as wheat flour, were exported entirely through Tatopani before the earthquake, crashed in the post-quake period although whatever meagre amounts were still exported continued to be routed through the Rasuwa border point. There were also products whose distribution across customs points hardly changed. For example, exports of HS 83062100 (Statuettes and other ornaments plated with precious metal) increased threefold, with the shares of TIA (93 per cent in 2013/14) and Tatopani/Rasuwa (6.6 per cent) hardly changing. There were also changes in port usage among some products that entered the top 15 list in 2016/17 from low positions in 2013/14. For example, exports of HS 62149000 (Shawls~ scarves~ mufflers~ mantillas~ veils and the like of textile material), exported in negligible amounts in 2013/14, increased dramatically through TIA in 2016/17. Rudrakshya is an interesting case. It is recorded under two different HS codes in the two years. In all probability, they are the same product. Of interest to us, is the shift in customs point used. Whereas, in 2013/14 about 38 per cent of the product was exported through Tatopani and the rest through TIA, in 2016/17 almost all of it was exported through TIA.

The 353 products in which exports to China had ceased by 2016/17 made up nearly 19 per cent of exports to China in 2013/14. Exports to China in 2016/17 were mostly accounted for by 225 continuing products (85 per cent), with 261 new products contributing 15 per cent (Table 9.5). Continuing products' exports fell by over 36 per cent. The fall in continuing products' exports

Table 9.5

**Export dynamics: starts, stops, continuing  
(trade value in NPR million)**

	No. of products	Value 2016/17	Value 2013/14	Change %	Share in 2016/17	Share in 2013/14	Contribution to change in value, sign adjusted (% points)
Stop	353		560			18.79	-47.74
Start	261	267			14.78		22.76
Continuing	225	1540	2420	-36.36	85.22	81.21	-75.02
Total		1807	2980	-39.36			

*Source: Author's calculation based on data from TEPC.  
See text for details.*

explained about 75 per cent of the total fall in exports to China, while export stops subtracted another 48 per cent and new exports contributed 23 per cent. The number of products with at least NPR 10 million in exports hardly changed, from 29 to 28. However, their shares in total exports declined, from 92 per cent to 81 per cent. Over 84 per cent of the exports that ceased were in 10 products with at least NPR 10 million in exports. Only five products accounted for 61 per cent of the value of new exports. Exports of 13 continuing products, each one having an export of at least NPR 10 million in both periods, fell by 46 per cent. The decline in these exports accounted for 78 per cent of the overall fall in exports to China. TIA was the most important route taken by new exports (56 per cent of total value of new exports), followed by Rasuwa (43 per cent).

For products that ceased being exported, nearly three quarters of such exports, in value terms, had previously taken place through Tatopani, followed by Biratnagar (15.5 per cent, albeit driven by just one product with an export value of NPR 86 million) and TIA (8 per cent). For Rasuwa, the gain from new products was 28 per

cent of the loss from products that stopped being exported, implying a net loss along the extensive margin.<sup>12</sup> In contrast, for TIA, the gain from new products was 319 per cent of the loss from products that stopped being exported, implying a net gain along the extensive margin. Among continuing products, TIA and Rasuwa/Tatopani accounted for 48 per cent and 43 per cent of exports in 2016/17, respectively. Exports through TIA rose by about 40 per cent while exports through Rasuwa/Tatopani fell by about 60 per cent. Of the 225 continuing products, 216 products saw continued use of at least one port, such that exports of the same product through the same port accounted for about 98 per cent and 96 per cent of export value of continuing products in 2013/14 and 2016/17, respectively. This means that just four per cent of the export value of continuing products in 2016/17 was explained by flows through new ports at the product level, ignoring the switch from Tatopani to Rasuwa. This further implies that flows through new ports at the product level accounted for less than four per cent of the export value of all products in 2016/17.

How many customs points were used by new products, discontinued products and continuing products? Of the 261 new products, 260 used just a single port, with exports amounting to 68 per cent of total exports of new products. Although the remaining one product (HS 14049050: Rudrakshya) used three ports, amounting to NPR 86 million, over 98 per cent of its exports were through TIA, less than two per cent through Birgunj Dry-port and a negligible amount through Rasuwa. Note that Rudrakshya exports may not actually be a new export flow since a different HS code (14049015) also denoting Rudrakshya saw exports of NPR 44 million in 2013/14, which were discontinued in 2016/17. Exports of this product in 2013/14 took place through TIA (NPR 27 million) and Tatopani (NPR 17 million). In this case, there appears to have been a shift in exports from Tatopani to TIA, with Rasuwa unable to replace Tatopani. Of the 353 products, whose exports were discontinued, 345 had been using just one customs points, accounting for about 75 per cent of exports of such products in 2013/14, and eight had been using two points, accounting for the

remaining 25 per cent of export value. Among the 225 continuing products, 198 used the same number of customs points in both years, accounting for 70 per cent of export value of continuing products in 2016/17, implying that continuing products that saw a change in the number of ports used made up 30 per cent of export value of continuing products in 2016/17.

We can thus infer that irrespective of whether continuing products use the same number of points in both periods or not, their export flows through the same customs point(s) in both periods make up most of their collective exports. However, we cannot *ipso facto* conclude that reshuffling of exports across ports at the product level is not quantitatively important. This is because we have not yet considered the changes in the distribution of exports across prior used ports at the product level. Let us clarify this with an example. Of the 41 continuing products that were exported through TIA in 2016/17, 28 had also been exported through TIA in 2013/14 and these accounted for over 98 per cent of the exports of these products through TIA in 2016/17. This does not rule out the possibility that some of these 28 products may have been exported through Tatopani as well in 2013/14 and part of the flows through Tatopani, with Rasuwa failing to absorb them fully, were diverted to TIA in 2016/17—a phenomenon that would not be captured by the analysis so far.

Since most products were exported through Tatopani/Rasuwa, let us investigate the use of additional customs points by these products. Of the 548 products that were exported through Tatopani in 2013/14, only 36 unique products were also exported through at least one other point. Among them, 31 were exported through just one additional point, four through two additional points and one through three additional points. TIA saw 32 products that were also exported through Tatopani, Birgunj four products and Biratnagar, Birgunj dryport and Nepalgunj two products. These 36 products' exports through Tatopani/Rasuwa accounted for 58 per cent of their own total exports, the rest being through other points, and 59 per cent of the total value of exports through Tatopani/Rasuwa. Their total exports accounted for nearly 70 per cent of total

exports to China. The mean share of exports through Tatopani/Rasuwa among products that were also exported through at least one more route was 39 per cent (median 35 per cent). The 32 products that were exported via TIA as well as Tatopani in 2013/14 accounted for 94 per cent of the export value of 53 products through TIA that year.

Of the 455 products exported through Rasuwa in 2016/17, only 30 unique products were also exported through at least one other point: 29 through one more point and one through two more points. Compared to 2013/14, the additional routes had fallen to two (TIA and Birgunj dryport) from five. TIA saw 30 products that were also exported through Rasuwa; the dry-port one product. These 30 products' exports through Tatopani/Rasuwa accounted for 26 per cent of their own total exports, a much lower share than in 2013/14, and 37 per cent of the total value of exports through Tatopani/Rasuwa, again a much lower share than in 2013/14. Their total exports accounted for 61 per cent of total exports to China. The mean share of exports through Tatopani/Rasuwa among products that were also exported through at least one more route was 29 per cent, lower than in 2013/14 by 10 percentage points. The median was even lower, 6 versus 35. The 30 products that were exported via TIA as well as Rasuwa in 2016/17 accounted for nearly 92 per cent of export value of 57 products through TIA that year.

The picture is different, however, for products chiefly exported through Tatopani/Rasuwa. In 2013/14, 524 of the 548 products exported through Tatopani had Tatopani as the most important customs point, with a mean (median) share of Tatopani of over 99 per cent (100 per cent). These products accounted for 97 per cent of exports through Tatopani. In 2016/17, 434 of the 455 products exported through Rasuwa had Rasuwa as the most important customs point, again with a mean (median) share of Rasuwa of over 99 per cent (100 per cent). These products accounted for over 94 per cent of exports through Rasuwa. The fact that in both the pre- and post-earthquake periods the average (and very high) share of Tatopani/Rasuwa hardly changed for products that used the

Nepal-China border point the most indicates that the Tatopani shutdown did not result in a significant emergence of alternative routes (the air route, or the sea route using Nepal-India border points) for these products<sup>13</sup> whose collective exports through the Nepal-China border point had plunged by nearly two thirds. A plausible explanation could be that these products are predominantly destined for Tibet and air or sea routes are not economically viable for them.

These shifts underlie the overall reduction in the share of exports through the Nepal-China border, with Rasuwa unable to absorb the traffic diverted from Tatopani. To summarize, in both periods, less than 10 per cent of products exported through the key Nepal-China border point (Tatopani/Rasuwa) were also exported through at least one additional route (mostly through TIA), but they made up over 60 per cent of exports (70 per cent in 2013/14 and 61 per cent 2016/17). Exports through TIA in both periods were predominantly in products that were exported through a Nepal-China border point as well. The share of exports through the Nepal-China border decreased on average for these products, from a median of 35 per cent to six per cent. The share of exports of these products through the Nepal-China border in total exports from Nepal to China, through the same route, fell from 59 per cent to 37 per cent. Exports of these products through Tatopani/Rasuwa fell by 76 per cent as compared to just six per cent for exports through other points and 47 per cent for exports through all points. In contrast, for the vast majority of products, chiefly exported through Tatopani/Rasuwa, the importance of the Nepal-China border point did not diminish and their collective exports through the border point fell by 63 per cent, a lower rate of decline than that witnessed by exports of products that had more route options.

### **Continuing products and route changes**

There is limited variation in the initial share of Tatopani among continuing products. Among 225 continuing products, 184 were

exported exclusively through Tatopani in 2013/14, while the number was 182 through Rasuwa in 2016/17. Some 13 and 14 products were not exported through Tatopani/Rasuwa at all in 2013/14 and 2016/17, respectively.

Of the 225 products exported in both years, 203 saw exports through the northern border in both years. They made up nearly 99 per cent of total exports of continuing products through the northern border in both years and close to 90 per cent of total exports of continuing products to China in both years. Their exports through the northern border plunged by 60 per cent, while exports via sea and air routes rose by 32 per cent, with the result that their total exports to China fell by 38 per cent. The mean or median share of Tatopani/Rasuwa in the export of these products hardly budged (a mean of about 92 per cent and a median of 100 per cent). Among these 203 products that were exported through the northern border in both years, 17 saw the share of Tatopani/Rasuwa fall. Their exports through the northern border fell by 80 per cent and exports through other routes fell by three per cent, with the result that their total exports to China fell by 60 per cent. Their share in total exports to China of the 203 products fell from 73 per cent to 46 per cent. Interestingly, the 15 products that saw the share of Tatopani/Rasuwa rise witnessed an increase in their overall exports to China, by 70 per cent, driven by a 123 per cent increase in exports through other routes even as exports through the northern border fell by 30 per cent. The increase in total exports was driven by a couple of products with less than an eight per cent share of Tatopani/Rasuwa. The share of the 15 products in total exports to China of the 203 products increased from 10 per cent to 28 per cent. Finally, a total of 171 continuing products exported through the northern border in both years saw no change in the share of Tatopani/Rasuwa, which remained constant at 100 per cent. Although their exports fell by five per cent, their share in total exports to China of the 203 products rose from 17 per cent to 26 per cent.

Nine of the continuing products stopped being exported through the northern border. Their exports through other routes

also fell, by 38 per cent, such that their total exports to China fell by 42 per cent. Their share in total exports to China of the 225 continuing products fell from 10.3 per cent to 9.6 per cent. Exports of eight products that were not exported through Tatopani in the initial year, but started to be exported through Rasuwa in the final year, rose by 31 per cent. But their share remained very low, less than 1.5 per cent. Exports of five products that were not exported through the northern border in either year fell by 70 per cent, but they did not matter quantitatively for overall exports of continuing

Table 9.6

**Route transitions of continuing products that used a northern border point in both years (exports)**

Year 2013: Number of products					
	Sea+ Tatopani	Air+ Tatopani	Sea+Air+ Tatopani	Tatopani only	Total
Sea+Rasuwa	0	0	0	0	0
Air+Rasuwa	0	13	3	8	24
Sea+Air+Rasuwa	0	0	0	0	0
Rasuwa only	1	7	0	171	179
Total	1	20	3	179	203
Year 2017: Growth in Exports					
Sea+Rasuwa	-	-	-	-	
Air+Rasuwa	-	-4.91	-75.21	24.94	
Sea+Air+Rasuwa	-	-	-	-	
Rasuwa only	-86.91	-44.49	-	-2.47	
Total	-86.91	-6.53	-75.21	3.07	
Share in 2013 (%)	0.022	32.87	45.95	21.16	
Share in 2017 (%)	0.005	48.06	17.82	34.12	

Source: Author's calculation based on data from TEPC.  
See text for details.

products to China much. Their share was less than 0.6 per cent in both years. Evidently, the fall in exports to China was not just due to the Tatopani shutdown, as exports of products that did not use the northern border fell, too.

Now, let us investigate the persistence or changes in routes for the same products. We shall consider the two most important categories among continuing products: those that used the northern border in both years and those that used the northern border in the initial year only. Let us start with the first category (Table 9.6). A total of 179 products among the 203 products in this category were exported only through Tatopani, initially. Their exports increased by three per cent, and their share in this category rose from 21 per cent to 34 per cent. Of the 179, 171 continued to be exported only through the northern border (Rasuwa) in the final year, with such exports falling by 2.5 per cent. Eight of the 179 products, however, started being exported through the air route besides Rasuwa, and their exports grew by 25 per cent. Initially, there were three products that used sea and air routes, besides Tatopani, with their exports making up 46 per cent of exports to China of products that used Tatopani/Rasuwa in both years. They stopped using the sea route in the final year, using only the air route besides Rasuwa. Their exports fell by 75 per cent, and their share fell to 18 per cent. Of the 20 products that used the air route besides Tatopani in 2013, 13 continued to use the two routes, with exports falling by five per cent, whereas the seven products that stopped using the air route and only used Rasuwa in the final year saw their exports nosedive by 45 per cent.

Now, turning to the second category: the five products that used the northern border in the pre-earthquake year only (Table 9.7). Two of them used sea and air routes as alternative routes in the initial year and continued using them in the final year, with exports falling by 51 per cent. The one product that used only the sea route and Tatopani in 2013 continued to use the sea route in 2017, with exports falling by 19 per cent, suggesting that the sea route was not able to absorb the exports deflected from the northern border. The one product that used only the air route and

Table 9.7

**Route transitions of continuing products  
that used Tatopani in 2013 but not  
Rasuwa in 2017 (exports)**

Year 2013: Number of products					
	Sea+ Tatopani	Air+ Tatopani	Sea+Air+ Tatopani	Tatopani only	Total
Sea only	1	0	0	1	2
Air only	0	1	0	4	5
Sea+Air	0	0	2	0	2
Total	1	1	2	5	9
Year 2017: Growth in exports (%)					
Sea only	-18.83			11618.42	
Air only		294.80		2592.00	
Sea+Air			-50.76		
Total	-18.83	294.80	-50.76	-38.82	
Share in 2013 (%)	27.87	0.30	71.81	0.02	
Share in 2017 (%)	37.59	2.00	58.75	1.67	

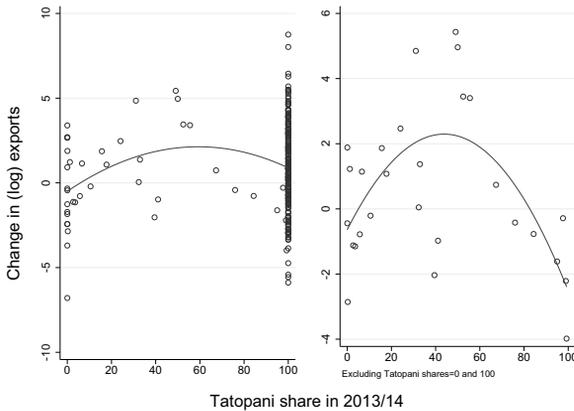
*Source: Author's calculation based on data from TEPC.  
See text for details.*

Tatopani in 2013 continued to use the air route in 2017, with exports rising by 295 per cent, albeit from a very low base. Of the five products that used only Tatopani in 2013, they had negligible exports in both years.

Let us explore, statistically, the relationship between export growth, on the one hand, and initial Tatopani share and the number of customs points used, on the other. Products that used Tatopani in 2013/14 had a significantly higher export growth than those that did not. A higher number of customs points used initially was associated with lower export growth. Initial Tatopani share is positively associated with the subsequent export growth up until

Figure 9.7

### Initial Tatopani share and subsequent export growth



Source: Author's calculation based on data from TEPC.

the share reaches 44, which is half the mean share of 87.<sup>14</sup> Thereafter, a higher Tatopani share is associated with a lower export growth (Figure 9.7, left panel). At the mean share, a one percentage point higher Tatopani share is associated with a 12.5 per cent lower export growth. The effect is statistically significant. The number of customs points used has no statistically significant effect when the square of Tatopani share is included. When we restrict the sample to exclude products that were only exported through Tatopani or were not exported through Tatopani at all initially (Figure 9.7, right panel), the effect is positive and statistically insignificant at the mean, but turns negative and statistically significant at the 75th percentile of the share, such that a one percentage point higher Tatopani share at the 75th percentile (about 61 per cent) is associated with a five per cent lower export growth. Nevertheless, the sample size is very small at 28.

Using thresholds of percentile share of Tatopani (25th, 50th, 75th and 95th) as an alternative measure of exposure to Tatopani instead of raw shares, we do not find a significant effect when using the entire sample. The estimates for all the thresholds are the same because all of them are equal to 100 per cent. However, when we use the restricted sample, the effect is statistically significant and negative at the 75th and 95th percentiles. For example, products with an initial Tatopani share in the 75th percentile or above have a 234 per cent lower export growth than those with a share in the 25th percentile or below.

Turning to the relationship between changes in exports, on the one hand, and changes in the share of Tatopani/Rasuwa or changes in the number of ports used, on the other, we do not find any statistically significant relationship. This is the case, whether we use the full sample or a sample that only includes products that were only exported through Tatopani in 2013/14 or a sample that saw a decline in the share of Tatopani/Rasuwa or an increase in the share of Tatopani/Rasuwa.

### **Determinants of export continuance**

While the initial share of Tatopani does not have a significant effect on the probability of whether a product will continue to be exported, the number of customs points initially used has a significant effect. This is the case when the initial share, the number of customs points and the log of initial exports are included together. Initial share is negative, statistically significant and of an order of magnitude when used as the sole regressor, but turns insignificant when used with additional regressors. The use of an additional one customs point is associated with a 17-percentage point higher probability of export continuance. The average probability of continuance is 39 per cent. The initial amounts of exports are also a statistically significant determinant of export continuance, albeit with a relatively small magnitude: a 10 per cent higher initial exports is associated with a 0.4 percentage point higher probability of export continuance. Probit estimates confirm ordinary least

squares (OLS) estimates. The story is similar when the initial share is replaced with a dummy denoting select percentiles of the Tatopani share distribution: the coefficient on exposure to Tatopani is insignificant while the coefficients on the number of points used and the log of initial exports are positive and statistically significant and of an order of magnitude. The estimates for all the thresholds are the same, because all of them are equal to 100 per cent.

### **New exports**

Considering only the 261 products that were not exported in the pre-quake year and were exported in the post-quake year, we find that the Rasuwa share in 2016/17 had a negative and statistically significant effect on the value of exports, while the number of customs points used that year had a positive and statistically significant effect on the value of exports. A one percentage point lower Rasuwa share was associated with a two per cent higher exports, while the use of an additional customs point was associated with a 252 per cent higher exports.

### **Granular trade analysis: Imports**

Imports from China rose by 66 per cent in 2016/17, relative to 2013/14, from NPR 78.6 billion to NPR 130 billion, with the number of products imported rising from 3,077 to 3,274 (Table 9.8). Imports occur through a higher number of customs points than exports, and the distribution of imports across custom points is more even than that of exports. A key reason for this is that even in the pre-earthquake period some three quarters of imports were routed via sea using Indian ports and these imports entered Nepal through different Nepal-India border points. With the exception of imports through Tatopani/Rasuwa, imports through all other seven customs points used in 2013/14 increased, and one additional point (Kailali) was used in 2016/17, albeit with a negligible share. Imports through Rasuwa in 2016/17 were lower by 16 per cent than imports through Tatopani in 2013/14. As a re-

sult, the share of Nepal-China border point (Tatopani/Rasuwa) in Nepal's imports from China halved, from 24 per cent to 12 per cent. Nepalgunj (although from a low base), Bhairahawa, Biratnagar and TIA saw the greatest percentage increase in imports, of over 100 per cent each. Imports through all points increased except for Rasuwa: Rasuwa saw 146 fewer products imported in 2016/17 than did Tatopani in 2013/14. Mean imports increased for all ports except Mechi and Rasuwa. While mean imports overall increased by 55 per cent, mean imports from Rasuwa fell by 11 per cent.

Table 9.8

### Imports from China by customs points (trade value in NPR million)

	No. of products		Import value		Import shares		Change in import value, %
	2013	2017	2013	2017	2013	2017	
Customs points							
Mechi	369	761	1559.34	1930.21	1.98	1.48	23.78
Biratnagar	830	1490	5242.42	14560.57	6.67	11.18	177.75
TIA	1660	2052	18099.47	37866.52	23.04	29.07	109.21
Birgunj	1636	2080	20014.31	29665.85	25.48	22.78	48.22
Dryport	994	1406	14085.18	25872.68	17.93	19.87	83.69
Tatopani/ Rasuwa	2313	2167	19083.83	15907.51	24.29	12.21	-16.64
Bhairahawa	113	600	442.21	3566.05	0.56	2.74	706.42
Nepalgunj	13	90	36.67	776.32	0.05	0.60	2017.02
Kailali		11		93.61		0.07	
<b>Total</b>	<b>3077</b>	<b>3274</b>	<b>78563.43</b>	<b>130239.33</b>	<b>100</b>	<b>100</b>	<b>65.78</b>

Source: Author's calculation based on data from TEPC.  
See text for details.

Table 9.9

**Number of customs points used for imports  
(trade value in NPR million)**

No. of points	2013			2017			Change in value, %
	No. of products	Import value	Share	No. of products	Import value	Share	
1	1047	6196.64	7.89	866	6443.42	4.95	3.98
2	668	8559.43	10.89	567	4975.80	3.82	-41.87
3	552	14056.29	17.89	494	10137.70	7.78	-27.88
4	380	17579.41	22.38	397	20043.22	15.39	14.02
5	256	19299.76	24.57	378	19874.92	15.26	2.98
6	149	10250.96	13.05	328	44304.68	34.02	332.20
7	24	2602.82	3.31	223	20111.36	15.44	672.68
8	1	18.12	0.02	21	4348.24	3.34	23894.39
Total	3077	78563.43	100	3274	130239.33	100	65.78

*Source: Author's calculation based on data from TEPC.  
See text for details.*

Clearly, Rasuwa was unable to absorb the import traffic diverted from Tatopani, even two years after the earthquake. It is likely that this traffic was diverted to other customs points, that is, TIA and/or Nepal-India border customs, which, in turn, would imply that air and sea routes were used to bring in some goods that were previously hauled overland through Tatopani.

In both periods, any given product was imported through, at most, eight customs points (Table 9.9). However, there was a distinct shift in the distribution of imports towards products imported through a higher number of customs points. While the number of products imported through less than six points fell from 2,903 to 2,702 and their share in imports fell from 84 per cent to 47 per cent, the number of products imported through six points increased from 149 to 328, through seven points increased from 24

to 223 and through eight points increased from one to 21, with the share of products exported through at least six points increasing from 16 per cent to 53 per cent. Imports having more diversified customs points than exports, as well as seeing a sharper shift to the use of more customs points, is partly explained by the sea route being more important for imports, sea-borne imports having to enter Nepal via the border with India, which simply has more customs points than the Nepal-China border, and freight forwarders choosing the most convenient point depending on, *inter alia*, the destination of the consignment in Nepal.

Of the 2,313 products that were imported through Tatopani in 2013/14, 1,763 unique products were also imported through at least one other point. Most of them (1,738) used five or less points, 24 used six points and one used seven points. Whereas TIA accounted for most of the non-Tatopani exports of products exported through Tatopani, in the case of imports non-Tatopani imports were more spread out across different customs points—the leading ones being TIA, Birgunj, Birgunj Dry-port and Biratnagar. These products' imports through Tatopani accounted for 29 per cent of their own total imports, the rest being through other points, and 92 per cent of the total value of imports through Tatopani. These 1,763 products' total imports accounted for nearly 78.7 per cent of total imports from China. The mean share of imports through Tatopani among products that were also imported through at least one more route was 36 per cent (median 23 per cent). The bulk of imports through the seven different points other than Tatopani was in products that were also imported through Tatopani—for major points, the share of such products was at least over 50 per cent and up to 87 per cent.

Of the 2,167 products imported through Rasuwa in 2016/17, 1,861 were also imported through at least one other point. They accounted for 79.4 per cent of imports from China. There was a distinct shift towards the usage of a higher number of points among these products. Notably, the number of products using five points more than doubled from 153 to 324, that using six points increased from 24 to 222, and that using one point rose from one to 21. All

seven points saw an increase in the number of products that were also imported through Rasuwa. These 1,861 products' imports through Rasuwa accounted for 14 per cent of their own total imports, a share that was half of that in 2013/14. They accounted for 93 per cent of imports through Rasuwa, very similar to the share of such products in imports through Tatopani in 2013/14. Recall, that in exports, the share had fallen from 59 per cent to 37 per cent. Unlike in the case of exports, non-Tatopani/Rasuwa imports of products that also used Tatopani/Rasuwa were higher (by 100 per cent) in 2016/17 relative to 2013/14.<sup>15</sup> Exports in that category had fallen by six per cent. Imports through Tatopani/Rasuwa of products that did not use any other route fell by 23 per cent compared to 42 per cent for exports. These hint at the possibility that the import traffic diverted from Tatopani was more amenable to being rerouted using other customs points than the export traffic similarly diverted. This will be investigated more thoroughly later, when we distinguish between products in terms of continuing products, new products and exiting products. The mean share of imports through Rasuwa among products that were also imported through at least one more route was 29 per cent (median 8.6 per cent) in 2016/17, lower than the corresponding figure in 2013/14. Recall that a similar decline was also observed for exports.

If Tatopani was the most important customs point for 1,193 products in 2013/14 (or 52 per cent of the products imported through Tatopani), the number fell to 723 in 2016/17 with respect to Rasuwa (or 33 per cent of the products imported through Rasuwa). The mean (median) share of Tatopani/Rasuwa for such products fell from 88.5 per cent (99.5 per cent) to 83.5 per cent (95.4 per cent). Such products accounted for 84 per cent of imports through Tatopani in 2013/14. The share fell to 77 per cent with regard to Rasuwa in 2016/17. Observe that this decline in the importance of such products in imports through the Nepal-China border is more pronounced than for exports. Further, the collective imports of such products through the Nepal-China border had fallen by 23 per cent, whereas their imports through other points had risen by 63 per cent. In contrast, both exports through the northern bor-

Table 9.10

**Import dynamics: starts, stops, continuing**  
(trade value in NPR million)

	No. of products	Value 2013	Value 2017	Change %	Share in 2013	Share in 2017
Start	594	0	12520.76		0	9.61
Stop	397	2187.78	0		2.78	0
Continuing	2680	76375.65	117718.57	54.13	97.22	90.39
Total		78563.43	130239.33	65.78		

*Source: Author's calculation based on data from TEPC.  
See text for details.*

der and through other routes had declined by about 63 per cent for products that that relied on the northern border as the most important exit point. A possible inference is that because products that were imported through Tatopani as the chief customs point in 2013/14 had, on average, more diversified route options than did exports, they fared better following the Tatopani closure. Strictly speaking, all of these products may not be continuing ones; some may be new ones, and some may have stopped being imported.

The 2,680 continuing products accounted for 97 per cent of imports in 2013/14 and 90 per cent in 2016/17 (Table 9.10). The 397 products that stopped made up the rest of imports in 2013/17 and the 594 products that started to be imported accounted for the rest of imports in 2016/17. Continuing products' imports grew by 54 per cent, a major driver of the growth in total imports from China.

The bulk of new imports in value terms passed through TIA (30 per cent), Birgunj (18 per cent), Rasuwa (17 per cent), Biratnagar (15.6 per cent), Dry-port (10 per cent) and Bhairahawa (6.6 per cent). For all customs points, the gain in imports from new products was higher than the loss in imports from products whose

imports ceased, by a factor of three to 56 (Bhairahawa), implying a net gain along the extensive margin. Even for Rasuwa/Tatopani, there was a gain of a factor of three. Among the four major points, the gain ranged from 4.7 (TIA) to 9.4 (Biratnagar). Nepalgunj saw new imports of nine products worth NPR 124 million, and did not see any import stops.

Among continuing products, imports increased through all points, except Tatopani/Rasuwa, which saw a decline of 25 per cent. The number of continuing products also exported through Tatopani/Rasuwa fell from 2,050 to 1,900, while all other ports saw an increase. Notably, Bhairahawa saw an increase from 108 to 578. Of the 2,680 continuing products, 2,402 saw continued use of at least one customs point, such that the imports of the same product through the same point accounted for about 95 per cent and 89 per cent of the import value of continuing products in 2013/14 and 2016/17, respectively—a fall much higher than for exports. This means that 11 per cent of the import value of continuing products in 2016/17 was explained by flows through new points at the product level, ignoring the switch from Tatopani to Rasuwa. The corresponding proportion for exports was four per cent, hinting that rerouting of existing imports through new customs points was likely more pronounced than that of existing exports.

While nearly 98 per cent of 2016/17 imports through Rasuwa of continuing products was due to products that were imported through Tatopani in 2013/14, only 23 per cent of continuing products' imports through Bhairahawa in 2016/17 was due to 66 products that were also imported through Bhairahawa in 2013/14. This means 77 per cent of continuing products' imports through Bhairahawa in the post-quake period was due to existing products that were not previously imported through Bhairahawa. The corresponding figures for some major ports are: Birgunj (8 per cent), Biratnagar (33), Dry-port (10), TIA (<1) and Mechi (48). A comparison of these figures with those for exports, discussed in the previous section, provides further suggestive evidence of a greater magnitude of rerouting of existing products through new customs points for imports than for exports.

To get a more practical sense of the rerouting taking place, let us concentrate on the top 20 imports from China in the two years and consider a few concrete examples. At one extreme is HS 85171200 (Telephone used for cellular or cordless networking), mostly imported through TIA and negligibly through the Nepal-China border in both years. Or HS 31021000 (Urea fertilizer), imported only by sea and using customs points on the Nepal-India border in both years. Fresh apples (HS 08081000) were predominantly imported through Tatopani/Rasuwa in both years, and not only did their imports increase by over 200 per cent, the share of their imports through Tatopani/Rasuwa also increased, from 82 per cent to 89 per cent.

The share of Tatopani/Rasuwa in imports of some key apparel and footwear products, previously at least 98 per cent, declined sharply, by up to a half. For HS 62033300 (M&B Jackets and blazer of synthetic fibres) and HS 62032200 (M&B cotton ensembles~not knitted), the number of points used increased from two to seven and six, with Biratnagar emerging as a major new point. Total imports fell for both these products. HS 61099000 (T-shirts~singlets and vest knitted) saw an overall increase in imports even as imports through Tatopani/Rasuwa fell, with Biratnagar's share increasing from zero to 13 per cent and that of TIA from less than one per cent to 17 per cent. HS 85176200 (Machines for the reception~conversion and transmission or regeneration of voice~images or other data~including switching and routing apparatus) saw imports through Tatopani/Rasuwa decline even as overall imports grew by nearly 52 per cent, with the result that the share of Tatopani/Rasuwa fell from 44 to 14 per cent, while the share of TIA increased from 27 to 73 per cent.

We now drill into, separately, route changes among continuing products, determinants of import continuance and determinants of the value of new imports.

### **Continuing products and route changes**

Among continuing products, nearly 62 per cent (1,657) were imported through a northern border point in both years. Their total

imports through Tatopani/Rasuwa fell by 25 per cent while imports through other points increased more than proportionately so as to take their import growth to 57.6 per cent. Their share in total imports of continuing products increased by nearly two percentage points from 76 per cent. Interestingly, there were 243 products which were not imported through Tatopani in 2013/14 but which were imported through Rasuwa in 2016/17. Their total imports grew by 87.5 per cent and their share in total imports of continuing products increased by a percentage point, from 4.5 per cent. The lowest growth rate was seen by products that stopped being imported through the northern border (30 per cent), followed by products that did not use the northern border in either year (33 per cent). Their shares in imports of continuing products fell correspondingly, from 4.4 per cent to 3.7 per cent, and from 15 per cent to 13 per cent, respectively. For the former group of products, Rasuwa failed to absorb any of the traffic diverted from Tatopani.

Comparing products that used the northern border in both years with those that used the northern border in the pre-quake year and stopped using it in the post-quake year, we observe that the average share of Tatopani in the pre-quake year was lower for the former group of products (mean of 45.6 per cent vs 50 per cent; median of 35.7 per cent versus 46.5 per cent). This hints at the possibility that the negative impact on import growth of Tatopani's closure kicked in for products with an initial exposure to Tatopani beyond a certain threshold. The mean (median) share of Tatopani/Rasuwa for products that used a northern border in both years fell from 45.6 per cent (35.7 per cent) to 28.8 per cent (10.8 per cent).

Among the 1,657 products that were imported through Tatopani/Rasuwa in both years, those that saw the share of the northern border decreasing<sup>16</sup> saw the absolute value of imports through the northern border falling by 53 per cent, while imports through other points more than doubled with the result that overall imports grew by 63 per cent, more than the 38 per cent growth recorded by products which saw the share of the northern border point increasing.<sup>17</sup> The mean share of Tatopani in the pre-earthquake year was

higher for products for which the share subsequently decreased (52 per cent) than for products for which the share subsequently increased (17 per cent).

Among the 1,657 products that were imported through Tatopani/Rasuwa in both years, 234 were imported using only Tatopani in 2013/14, making up just 1.8 per cent of total imports of the 1,657 products. The number of products using only Rasuwa in 2016/17 fell to 132, and their share in imports of the 1,657 products fell to 0.2 per cent. The number of products using, apart from Tatopani/Rasuwa, the sea route only or the air route only fell between the two periods, as did their shares. Correspondingly, there was an increase in the number of products using both sea and air routes, from 882 to 1,141, and their shares rose from 78 per cent to 87 per cent. The mean share of Tatopani/Rasuwa for these products fell from 31 per cent to 19 per cent (median share fell from 17 per cent to seven per cent). Products that had the air route as the only used alternative to Tatopani, in the initial year, were on average more dependent on Tatopani than products that had the sea route as the only alternative. This was true for the final year, too.

Now we turn to route persistence or changes among the same products. Among products imported in both years through Tatopani/Rasuwa, nearly 89 per cent of those that also used both sea and air routes in the initial year continued to use both the routes in the final year (Table 9.11). They accounted for 75 per cent of imports of such products in the initial year, a share that rose to 77.4 per cent in the final year. Products that used the sea route as the only other route in the initial year saw imports grow by 66 per cent in aggregate, products that used only Tatopani in the initial year saw imports grow by 42 per cent, and products that used air and sea routes, apart from Tatopani, in the initial year saw imports grow by 61 per cent. Products that used Tatopani and the air route in the initial year saw imports fall by 24 per cent in aggregate, with the result that their share in total imports of products that used the northern border in both years fell from 4.7 per cent to 2.29 per cent. The importance of Tatopani for these products, which used the air route as the only other route in the initial year, was substan-

Table 9.11

### Route transitions of continuing products that used a northern border point in both years (imports)

Year 2013: No. of products					
	Sea+ Tatopani	Air+ Tatopani	Sea+Air+ Tatopani	Tatopani only	Total
Sea+Rasuwa	147	22	74	60	303
Air+Rasuwa	7	26	18	30	81
Sea+Air+Rasuwa	206	92	783	60	1141
Rasuwa only	25	16	7	84	132
<b>Total</b>	<b>385</b>	<b>156</b>	<b>882</b>	<b>234</b>	<b>1657</b>
Growth in imports					
Sea+Rasuwa	84.34	191.32	54.51	410.45	
Air+Rasuwa	-76.58	-13.27	-78.64	12.85	
Sea+Air+Rasuwa	48.27	-26.72	62.78	-35.52	
Rasuwa only	-75.36	31.91	-81.41	13.71	
<b>Total</b>	<b>65.90</b>	<b>-23.70</b>	<b>61.34</b>	<b>41.95</b>	
Share in 2013 (%)	15.39	4.74	78.04	1.82	
Share in 2017 (%)	16.20	2.29	79.87	1.64	

Source: Author's calculation based on data from TEPC.  
See text for details.

tially higher than for products that used the sea route as the only other route in the initial year or for those that used both sea and air routes in the initial year. Only 16.7 per cent of the 156 products that used the air route as the only route, other than Tatopani, in the initial year, continued using only the air route besides Rasuwa in the final year.

The preceding four sentences hint that among products that used Tatopani/Rasuwa in both years, but were not exclusively dependent on Tatopani in the initial year, those that were already using the sea route as an alternative before the earthquake, col-

lectively fared better than those that did not initially use the sea route at all. Drilling further, among products that used only the air route besides Tatopani in the initial year, those that switched to using only the sea route besides Rasuwa in the final year collectively saw the highest import growth, those that used the air route, either as the only other route or in combination with the sea route, registered a negative import growth in aggregate, and, interestingly, those that ended up using only Tatopani in the final year recorded an import growth of 32 per cent in aggregate. Similarly, drilling into products that used only Tatopani in the initial year, those that started using the sea route as the only other route in the final year saw imports grow by a whopping 410 per cent in aggregate, albeit from a relatively small base, those that used the air route as the only other route in the final year saw imports grow by 12.8 per cent, while those that used both air and sea routes as additional routes in the final year saw imports fall by 35.5 per cent. The 84 products that used only Tatopani initially, and only Rasuwa in the post-quake year, saw imports grow by 13.7 per cent in aggregate, although they made up less than 0.5 per cent of imports of products that used the northern border in both years.

Among the 393 products that were imported through Tatopani in the initial year but were not imported through Rasuwa in the final year, 107 used only Tatopani in the initial year. The number of products using the sea route as the only other route rose from 113 to 161 (Table 9.12). The number of products using both sea and air routes increased from 110 to 168. The number of products using the air route only hardly changed. Products for which the air route was the only used alternative to Tatopani in the initial year were, on average, more dependent on Tatopani than products that had sea route as the only alternative. Those that switched to using only the sea route recorded higher import growth in aggregate than those that switched to using only the air route or a combination of air and sea routes. And, those that switched to using a combination of air and sea routes registered higher import growth in aggregate than those that switched to using only the air route.

Among the 387 products that did not use a northern border

Table 9.12

**Route transitions of continuing products that  
used Tatopani in 2013 but not Rasuwa in 2017  
(imports)**

Year 2013: No. of products					
	Sea+ Tatopani	Air+ Tato- pani	Sea+Air+ Tatopani	Tatopani only	Total
Sea only	68	13	23	57	161
Air only	4	21	7	32	64
Sea+Air	41	29	80	18	168
<b>Total</b>	<b>113</b>	<b>63</b>	<b>110</b>	<b>107</b>	<b>393</b>
Growth in imports					
Sea only	56.67	223.70	-6.11	2080.27	
Air only	-99.91	39.26	-77.59	-89.71	
Sea+Air	-4.55	47.98	-23.15	201.37	
<b>Total</b>	<b>36.15</b>	<b>53.19</b>	<b>-21.69</b>	<b>441.71</b>	
Share in 2013 (%)	56.01	3.71	36.77	3.51	
Share in 2017 (%)	58.76	4.38	22.19	14.66	

*Source: Author's calculation based on data from TEPC.  
See text for details.*

point in either year, the number of products using only the air route or sea route declined, with a corresponding increase in the number of products using both routes (Table 9.13). Products that used only the sea route in the initial year for exports grew the fastest in aggregate, followed by those that used both sea and air routes and those that used the air route only. Those that shifted to using only the air route for exports shrunk, with the sharpest falls registered by those shifting from using either only the sea route (86 per cent decline) or both sea and air routes (73 per cent decline).

Among the 243 products that did not use any northern border point in the initial year but used it in the final year, the most strik-

ing change was the surge in the number of products that used both air and sea routes, from 71 to 116, with also a sharp increase in import share, from 38 per cent to 79 per cent.

We have looked at the aggregate growth in imports in different categories defined by routes taken and switched. The aggregate growth in imports is basically weighted averages of import growth of the products and, hence, is influenced by initial import shares of products (in the relevant category). The simple mean of product-level import growth is, in contrast, a measure of how the average product (regardless of its initial share in imports) fared in terms of import growth. Comparing such means across, say, different modal choices in 2017, while con-

Table 9.13

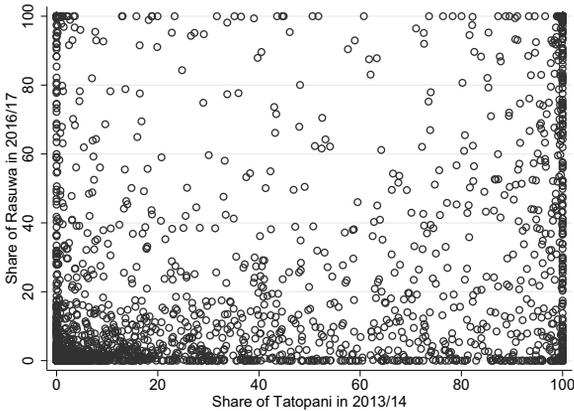
**Route transitions of continuing products that did not use a northern border point in 2013 and 2017 (imports)**

		Year 2013: No. of products			
		Sea only	Air only	Sea+Air	Total
	Sea only	118	18	22	158
	Air only	15	63	17	95
	Sea+Air	46	37	51	134
	Total	179	118	90	387
		Growth in imports			
Year 2017	Sea only	48.71	3258.67	165.61	
	Air only	-86.32	-4.18	-72.80	
	Sea+Air	47.75	455.00	48.78	
	Total	47.24	3.40	22.80	
	Share in 2013	62.81	25.78	11.41	
	Share in 2017	69.45	20.02	10.53	

Source: Author's calculation based on data from TEPC.  
See text for details.

Figure 9.8

### Share of northern border in initial and final years for continuing products (imports)



Source: Author's calculation based on data from TEPC.

trolling for modal choices in 2013, we find that, even on average, products that used the sea route or both sea and air routes saw higher import growth than those that used only the air route.

In sum, there was a general shift towards using both sea and air routes rather than just a single route for imports. Among products that used a northern border point in both years or only in the initial year for imports, sea route or a both sea and air routes emerged as more prominent alternatives than air route alone. Changes in routes were stark for imports but modest for exports, when considering products that initially used Tatopani. The limited route changes for exports were overwhelmingly towards the air route rather than the sea route.

We, now, statistically explore the relationships between the exposure to Tatopani customs point and import performance.

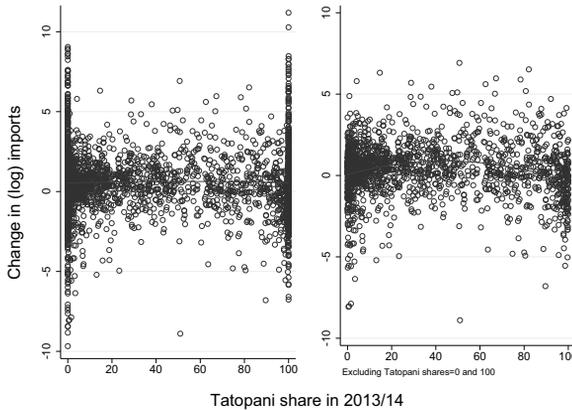
Products that used Tatopani in 2013/14 saw their total im-

ports grow by 24 per cent less than products that did not. Note that there are a substantial number of products that *only* used Tatopani in the pre-quake year, as also observations that did not use Tatopani at all (Figure 9.8). On average, products that initially only used Tatopani had a subsequent higher import growth than products that did not use that customs point at all. When we control for whether a product was initially imported only through Tatopani<sup>18</sup>, the difference, not surprisingly, increases to 54 per cent. The association with the number of customs points used initially turns statistically insignificant.

Figure 9.9 indicates a non-linear relationship between import growth and initial share of Tatopani. This non-linearity is more pronounced when restricting the sample to products that initially used Tatopani, but not exclusively (second panel). In all regressions in this subsection, henceforth, we employ two types of specifications.

Figure 9.9

### Initial Tatopani share and subsequent import growth



Source: Author's calculation based on data from TEPC.

In the first one, we use the full sample and control for, using two dummies, whether the product was imported exclusively through Tatopani and whether it did not use Tatopani at all. In the second, we use a restricted sample, excluding products that were imported either exclusively through Tatopani or not using that point at all.<sup>19</sup>

An initial high initial exposure to Tatopani is associated with higher import growth until the share of Tatopani crosses 44 per cent, after which a penalty kicks in. The turning point is higher than the mean initial Tatopani share of 36 per cent. The effect of an increase in Tatopani's share of 10 percentage points, at products in the 75th percentile of Tatopani share or above, is a reduction in import growth of around two to three per cent. The number of customs points used initially does not have a statistically significant effect.

We reconfirm the non-linearity using an alternative specification, where we replace the share of Tatopani as an explanatory variable with a dummy denoting whether the share of Tatopani initially was no less than a certain percentile threshold (25, 50, 75, 95 and, where applicable, 99) in separate regressions. We find that the effect is positive and significant for the 25th and 50th percentile exposure definitions and negative and significant for the 75th and 95th percentile definitions, when using a restricted sample, as defined earlier. An initial exposure to Tatopani in the upper quarter of the distribution of such exposure was associated with a 40 per cent lower import growth than for an initial exposure in the bottom 75 per cent. The number of customs points used initially has a positive and significant effect on import growth in regressions with the 25th and 50th percentile share thresholds, and becomes insignificant in regressions with higher percentile share thresholds. Using the full sample yields a negative effect of 56 per cent (of initial Tatopani exposure) for the 75th percentile exposure definition, but the effect reverts to positive territory in the 95th percentile.

Let us zoom in on the group of products that were exclusively imported through Tatopani in the pre-earthquake year. To the extent products initially imported only through Tatopani have some common attributes that set them apart from other products (e.g., region of origin in China (supply-side), taste in Ne-

pal (demand-side)), such attributes will be controlled for when considering only these 341 products. A question, then, is: how did changes in their dependence on the northern border point (Tatopani/Rasuwa) relate to their import growth? A one percentage point decrease in the share of Tatopani/Rasuwa was associated with a 1.2 per cent higher growth in imports. The use of one more customs point was associated with a 40 per cent higher growth in imports. The mean change in the share of Tatopani/Rasuwa for these products was 55 percentage points (standard deviation of 44), while the mean change in the number of points used was 1.09 (standard deviation of 1.28), and the mean change in (log) imports was 1.15 (or about 115 per cent).

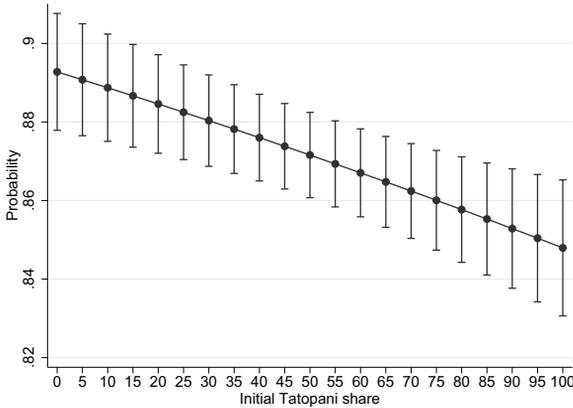
Considering all continuing products together, we still find that a decrease in the share of Tatopani/Rasuwa was associated with a higher import growth. A one percentage point decrease in the share of Tatopani/Rasuwa was associated with a 0.37 per cent increase in import growth. Given that the mean change in share was 15 percentage points and the average import growth was 56 per cent, this implies that the change in Tatopani/Rasuwa share accounted for about 10 per cent of the observed import growth between 2013/14 and 2016/17. The use of an additional customs point was associated with 45 per cent higher growth in imports. The effects are similar when we consider, separately, only those products that saw a decline/increase in the share of Tatopani/Rasuwa.

### **Determinants of import continuance**

A higher initial share of Tatopani is associated with a lower probability of a product imported in 2013/14 continuing to be imported in 2016/17. A one standard deviation higher share of Tatopani is associated with a three-percentage point lower probability of import continuance, which is about 3.5 per cent of the average probability of import continuance (87 per cent). The use of an additional point initially is associated with a four-percentage point increase in the probability of continuance. A 100 per cent higher initial imports is associated with a two-percentage point increase in the

Figure 9.10

### Initial Tatopani share and probability of import continuance



Source: Author's calculation based on data from Trade and Export Promotion Centre, Nepal.

probability of continuance. All these associations are relative low in magnitude. Probit estimations yield similar estimates. Figure 9.10, based on a probit estimation that controls for the number of customs points used initially and the log of initial imports, shows the probability of import continuance to be monotonically declining in initial share of Tatopani, for shares ranging from 0 through 100.

Defining initial exposure to Tatopani in terms of percentile share thresholds, as in the previous analysis of continuing products, we find that having an initial exposure in the 75th percentile or above in the Tatopani share distribution is associated with a 2.8 percentage points lower probability of continuance (OLS estimates). The effect increases to 19 percentage points when the threshold is set at the 95th percentile. Probit estimates are higher (lower) in magnitude for the two thresholds: 3.5 percentage points and 7.2 percentage points.

## **Determinants of imports of new products**

A 10-percentage point higher share of Rasuwa in 2016/17 is associated with a 8.8 per cent lower imports among 594 new products. The use of an extra one customs point is associated with a 126 per cent increase in imports.

## **Time cost of rerouting**

We have found, through an analysis of trade flows at the product-customs level, that Tatopani shutdown resulted in a shift in the relative importance of trade routes, from the Nepal-China border to sea and air routes, particularly for imports. To the extent a product's imports from China through the northern border declined or grew slower than its imports from China through air or sea routes after the earthquake, a simple revealed preferences logic would suggest that the use of air or sea routes, instead of the Rasuwa point, must have raised trade costs. For, the alternative routes were available to importers in the year before the earthquake, too, but were not chosen over Tatopani. Of course, using sea or air routes must have been more optimal than using Rasuwa, especially because of the poor conditions of the road to Rasuwa and the relatively undeveloped customs infrastructure on the Nepali side of the border there. Provided Tatopani was reopened, and/or Rasuwa customs' and its connecting road's capabilities for handling trade traffic were brought up to par, it is reasonable to expect the preferred route for some products to be an overland route traversing the northern border, again.

With this premise, we now attempt to get a ballpark estimate of the time cost imposed by the enforced sea detour on imports from China. Hummels and Schaur (2013) estimate that each day in transit is equivalent to an ad valorem tariff of 0.6 per cent to 2.1 per cent.<sup>20</sup> The time taken to bring goods to Kathmandu from China by sea, via Kolkata Port in India, is some 30 days longer than via Tatopani or Rasuwa.<sup>21</sup> Combining this with the Hummels and Schaur (2013) estimates implies that the time cost imposed by the enforced detour is equivalent to a tariff of 18 per cent to 62 per cent.

## Discussion

In the pre-earthquake period, exports via Tatopani were usually destined for China's Tibet. Planes also carried cargo to Lhasa, Tibet. Exports to the mainland went via air, mainly to Chengdu (Szechuan Province), and via sea, mainly to Guangzhou. There was also a direct flight to Guangzhou. Imports were mostly from the mainland, routed mainly via air or sea.

Until the earthquake, Nepal's overland trade with China was mostly through the Tatopani-Zhangmu border point. This route was built with Chinese assistance in the 1960s. Sections of the 114-km road from Kathmandu to Tatopani, Araniko Highway, are narrow and obstructed by frequent monsoon landslides. The makeshift parking at the customs point can only hold about 80-90 trucks (SAWTEE 2016). Many trucks line up on the narrow road right up to the customs making traversing extremely difficult. Neither the customs point, nor the connecting road was expanded to better accommodate the growing trade traffic. The earthquake damaged the port infrastructure on both sides of the border at Tatopani-Zhangmu and road sections either collapsed or were buried under landslide debris on the Nepali side. The settlements on both sides of the border sustained heavy damage, prompting China to relocate its border settlements. A flooding of the Bhotekoshi River in July 2016 took another toll on the highway. The border crossing has remained closed since the earthquake despite reopening it having been high on the official agenda. In the joint communiqué issued at the end of KP Sharma Oli's visit to China as Nepal's prime minister in March 2016, the Chinese side agreed to accelerate the feasibility study on Araniko Highway Repair and Opening Maintenance Project.<sup>22</sup> Likewise, during the Chinese Vice Premier's visit to Nepal in August 2017, Nepal reiterated its request for an early opening of the Tatopani-Zhangmu border point.<sup>23</sup>

With Tatopani shut, part of the traffic through it was diverted to the Rasuwagadhi-Kerung trade point, some 145 km north of Kathmandu, officially opened in December 2014, four months be-

fore the earthquake. It had been prematurely opened in August 2014 following the disruption of the road to Tatopani. A monsoon-triggered landslide that year brought almost a whole mountain down blocking the river below and submerging a substantial portion of the road. Rasuwagadhi is the only major border crossing with China, besides Tatopani, that is connected to Kathmandu with a (barely) motorable road. Vehicles have to navigate narrow hairpins built on cliffs with frequent rockfall. The port infrastructure on the Nepali side was not designed to be able to handle the huge traffic diverted from Tatopani, either. Even the rudimentary customs facilities at Rasuwagadhi as well as the road to the border point were also damaged by the earthquake. This meant that a portion of Nepal's overland trade with China was rerouted via air or sea.

Tatopani's loss has been Rasuwa's gain (see, for example, Murton (2016)). While truck drivers of Sindhupalchowk District, where Tatopani is located, found themselves suddenly unemployed, locals of Rasuwa got the opportunity to drive trucks to and from Tibet via Rasuwagadhi-Kerung. Locals living within 30 km of the Nepal-Tibet (China) border are allowed to travel to the other country upon producing a document certifying their residence. Hence, the preference for truck drivers from the district where the trading point is located. Residents within the 30-km radius are also allowed to engage in barter trade across the border. Traders from Sindhupalchowk do not have as easy an access to Kerung, Tibet as traders from Rasuwa, who have special permits by virtue of their residence. The Sindhupalchok traders had similar access to Tibet while Tatopani lasted. The arrangement has been part of a Nepal-China agreement for long. Even as hotels and restaurants at and nearby Tatopani pulled down their shutters, Rasuwagadhi and nearby areas saw hotels and restaurants sprouting up on the back of increased trade flows through the border point. In short, business activities at Tatopani collapsed, while they increased at Rasuwagadhi and its vicinity.

In a study on Nepal's export trade with China, conducted within a year of the earthquake, traders complained about Chinese

officials not accepting documents of Nepali exports at the Rasuwa-Kerung point like they used to at the Tatopani point (SAWTEE 2016). The closure of Tatopani Customs initially also affected people travelling overland to take part in fairs in Lhasa (*ibid.*). Some of them shifted to taking those goods by air (*ibid.*).

As the bulk of Nepal's exports to China is being absorbed by Tibet, the air route generally proved to be the best alternative to overland trade following the Tatopani closure, with Rasuwa unable to take in the entire deflected trade traffic and the sea route being too costly a detour. In contrast, because the majority of imports were sourced from mainland China, mostly via sea and partly via air, and most of the products that used Tatopani also used sea or air routes and accounted for the bulk of import value, the rerouting took place both via sea and air. Given the competitiveness pressures facing Nepal's exports and the difficulty in penetrating the mainland markets, it is highly likely that the surge in exports taking place through the air route is merely a rerouting of exports destined for Tibet. However, given the relative diversity of import sources in China, one cannot rule out the possibility that the extra imports via sea and air that are partly replacing imports via Tatopani may have been partly sourced from mainland China. The available trade data does not allow us to investigate this possibility in detail.

### **Tatopani or Rasuwa? Both**

The relative importance of Tatopani and Rasuwa for Nepal's overland trade with China, once Tatopani reopens, is anybody's guess. Throwing this question among government officials, exporters, importers and freight forwarders did not produce a conclusive answer. The distance from Kathmandu to Rasuwagadhi is 145 km as opposed to 114 km to Tatopani. The time taken for a cargo truck to travel from Rasuwagadhi to Kathmandu is some four hours more than it took from Tatopani to Kathmandu. The dry port on the Chinese side, Kerung, is 24 km from Rasuwagadhi compared to the five km distance between Zhangmu and Tatopani.

Road conditions on the way to and from Rasuwa are worse than they used to be on the way to and from Tatopani. Owing to the ongoing construction of the Birgunj-Galchhi-Mailung-Syaphrubesi-Rasuwadhi highway, vehicular movement is not allowed along sections for some six hours a day. On the dry-port front, China-assisted construction works for a relatively spacious and well-equipped dry-port at Larcha, some six km from the Tatopani, which were disrupted by the 2014 landslide and 2015 tremors, have resumed.<sup>24</sup> The construction of a dry-port in Timure, about two km from the Rasuwadhi, is expected to begin soon—also with Chinese assistance.<sup>25</sup>

From a longer-term perspective, however, the Rasuwa route has the potential to emerge as a major route for Nepal as the goods will not have to pass through Kathmandu if they are destined for other parts of the country. The future appears better not just for Nepal's trade with China but also Nepal's trade with other countries. This is so because the trade infrastructure in Kerung is extremely well developed and China has chosen Rasuwa-Kerung to extend its railway to the Nepal border. The railway extension was initially meant to connect the Tatopani-Zhangmu border point (SAWTEE 2012). In August 2017, China designated Rasuwa-Kerung as an "international" border crossing, as part of Beijing's One Belt One Road Initiative.<sup>26</sup> The Rasuwa customs is being upgraded with Chinese assistance. Importantly, Nepal and China signed a transit-transport agreement in March 2016, potentially paving the way for Nepal, hitherto entirely dependent on India for transit routes, to use Chinese ports for its trade with other countries. There are also plans to further extend the railway from Rasuwa to Kathmandu and then to Pokhara to the west and Lumbini to the south, bordering India. Even with road transport, once the Birgunj-Galchhi-Mailung-Syaphrubesi-Rasuwadhi highway is completed, a cargo truck can reach Birgunj on the Nepal-India border from Rasuwa in a single day as opposed to the approximately two days it takes from Tatopani (SAWTEE 2012), further indicating the potential of the Rasuwa-Kerung point to reemerge as an entrepot for China-India trade

like it was until less than two hundred years ago. The impending opening of the Mailung-Syaphrubesi road section, under construction by Nepal Army, would cut the distance to Rasuwagadhi by some 23 km.

Nepal needs both Tatopani and Rasuwa trading points and more—backed by well-developed infrastructure. Test runs by the Chinese railway have already proven that the time it takes for cargo to travel from that country to Nepal is considerably reduced, compared with current sea routes.<sup>27</sup> This is especially so as the sea routes are not only plagued by a longer travel distance, but also by port delays, congestion and unnecessary demurrage. However, the topography on the way to both areas is prone to landslides and having multiple trade points will make disruption of one route to the northern border less painful. Furthermore, as part of the planned reduction of its absolute dependence on India for meeting its oil needs, if Nepal were to source 30 per cent of its oil imports from China—via Kerung-Rasuwa—the highway in the works on the Nepali side, even when completed, could be overwhelmed.<sup>28</sup> Hence, the importance of multiple trading points.

Beyond Tatopani and Rasuwa, diversifying overland trade routes to the north, which could reduce trade costs, is a crucial means of boosting economic ties between different regions of Nepal with the world's second largest economy that is projected to become the largest within the next 15 years. Further, a few of these proposed corridors could turn into transit routes for China-India trade, most of which currently takes a long and circuitous sea journey. It was with such multiple factors in mind that Nepal and China in late 2015 agreed to initiate the process to open seven additional commercial trading points: Olangchungola (Taplejung District), Kimathanka (Sankhuwasabha), Lamabagar (Dolakha), Larke (Gorkha), Korala (Mustang), Nagcha (Mugu) and Hilsa (Humla) (see Shrestha 2015). Establishing proper road connectivity to these border points, followed by customs, dry-port, quarantine and immigration offices and police posts, are prerequisites to operationalizing them (*ibid.*).

## Land, rail, sea or air? It depends

While Kolkata (West Bengal) is the most-used port for Nepal's overseas trade, Nepal has also been using the port in Vishakhapatnam (Andhra Pradesh in southern India) for third-country trade since it was formally opened for Nepal's transit trade in June 2017. Although our data cannot distinguish between Indian ports used for Nepal's sea-borne trade with China, Vishakhapatnam is reportedly increasingly used for imports from China and other third countries.<sup>29</sup> There are several advantages of importing through Vishakhapatnam over Kolkata despite being located at twice the distance from Birgunj-Raxaul, a key trading point on the Nepal-India border: it is a deep seaport where large cargo ships (mother vessels) can dock, leading to lower ocean freight; it is spacious and less congested, leading to speedier clearance and, therefore, lower detention and demurrage charges; and the shipping liner directly bills to the Birgunj Dry-port in Nepal, taking responsibility for any delays that might occur at the seaport. The emergence of Vishakhapatnam as an alternative port is expected to prompt Kolkata to offer better services and terms and conditions. Some indications to that effect are already visible.<sup>30</sup> Preparations are under way to shift customs paperwork to Birgunj Dry-port from Kolkata, too.<sup>31</sup>

Nepal and India have launched a pilot project to ease cargo movement using an electronic cargo tracking system, beginning with imports from Kolkata.<sup>32</sup> The government of Nepal is also mulling negotiating with India to allow over one dozen private railway operators in India to offer cargo railway services to Nepal, breaking the monopoly of the state-owned Container Corporation of India (Concor), which fails to make available rakes in an adequate and timely manner. All these developments could make sea-borne trade (particularly imports) with China more attractive in future. This is potentially so, as some traders argue, even for exports to China because two-way fare is, in general, already paid on containerized imports, partly subsidizing the return journey. This argument would be relevant to exports to mainland China; currently, exports are mostly destined for Tibet, for which road and air routes are argu-

ably the most feasible options. If exports to the mainland increase in future, the sea route may become important for exports, too. As the mainland is a huge expanse, however, the overland route, possibly rail-linked, might well be the preferred option for certain destinations within China, especially for time-sensitive cargo.

Given the plethora of non-tariff barriers facing Nepali exports to China (SAWTEE 2012), there is scepticism about whether the proposed rail-link would help Nepali exports, not to mention the nagging concern that it would only facilitate imports from China, as expressed by some participants in a seminar where this paper was presented. A contrasting viewpoint was that non-tariff measures bedevil Nepal's exports to not just China but virtually all destinations, and to argue that Nepal should defer establishing a rail-link with its northern neighbour until all market access issues are resolved amounts to throwing the baby out with the bathwater.

Better physical connectivity is a precondition for enhanced bilateral trade—imports or exports. The proposed railway has a potential to achieve that. Even if the railway did not increase exports, it could lower import costs, a no mean achievement for a landlocked country. Moreover, the railway is not just about bilateral trade. The expansion of railway links between China and Europe and the growth in trade volumes they carry point at the opportunity, even if not immediate, for Nepal to tap into those networks for its third-country trade via the proposed Nepal-China railway. This would help Nepal realize its longstanding quest for transit-route diversification. After all, the ancient salt routes to China, especially those connecting Xigatse, used to pass all the way through Kashghar (Xinziang) to central Asia and beyond.

The Tatopani shutdown forced freight forwarders to explore the sea option for imports. It is plausible that some of them discovered the sea route to be competitive with the existing land route (Tatopani or Rasuwa) and, hence, have not turned to Rasuwa. Still, there are importers who import via land route (Rasuwa) only, even two years after the earthquake. For them, the time to import via the land route is much less (by up to 30 days) while the direct cost of haulage up to Kathmandu is only slightly more

expensive than via sea. However, those who consider the sea option holding greater promise point out that the haulage cost up to Kolkata is US\$1,200-1,500 as opposed to US\$4,000 up to Tatanipani/Rasuwa, while the cost of transporting cargo from Kolkata to the Nepal-India border could be reduced substantially from NPR 200,000-240,000 at present, if transit facilities through India improved, as discussed earlier.

Are traders who mostly import through Rasuwa simply unaware of the benefits of importing via sea? Unlikely. The type of products, including whether they are branded or non-branded, also determines modal choice. Within mobile phones, for example, while smartphones, with a relatively short shelf life, are predominantly imported by air, basic cell phones are still imported mostly by sea.<sup>33</sup> Likewise, for the 215 apparel items at the HS 8-digit level imported by Nepal from China in 2017, the share of Rasuwa ranged from zero per cent to 100 per cent, with a mean of 39 per cent, median of 33.7 per cent and standard deviation of 34.7. Correspondingly, the share of the air route ranged from zero per cent to 100 per cent, with a mean of 27 per cent, median of 11.4 per cent, and standard deviation of 31.5. The share of sea route ranged from zero per cent to 100 per cent, with a mean of 33.7 per cent, median of 24.8 per cent and standard deviation of 31.6. On a weighted average basis, Rasuwa accounted for 54 per cent of the imports of these products from China. Assuming unit values to be a proxy for average price and quality, we compare the unit values of apparel products across three modes in 2017: air, sea and land (Rasuwa).<sup>34</sup> Among 167 products that used both air and Rasuwa, the unit value of shipments was higher for air than for Rasuwa in nearly 93 per cent of cases. Among 168 products that used both air and sea, the unit value of shipments was higher for air than for sea in close to 77 per cent of cases. Among 167 products that used both sea and Rasuwa, the unit value of shipments was higher for sea than for Rasuwa in nearly 93 per cent of cases. Further, performing t-tests on unit values for three mode pairs—air-Rasuwa, air-sea and sea-Rasuwa—among products using both modes in a pair, we find, not surprisingly, that unit

values are significantly different between any two modes by an order of magnitude. One-sided t-tests also confirm a natural prior about the direction of the difference in unit values across the three modes, that the highest-value items are shipped via air, followed by sea and overland (Rasuwa): air>Rasuwa, air>sea and sea>Rasuwa.<sup>35</sup>

When Tatopani was in operation, most branded goods imported from China were reportedly routed via sea, while non-branded products were mostly sourced via Tatopani (SAWTEE 2012). The Chinese discouraged exports of branded goods through Tatopani as they considered Khasa (or Zhangmu), the market across the border from Tatopani, as a local market center (*ibid.*). Continuance of this practice may also be affecting the type of goods imported via Rasuwa versus other routes. A fallout of this practice is the reluctance of banks to issue letters of credit to finance imports through the northern border.

Preferential treatment to imports from or via Tibet under certain conditions creates an incentive to import via a northern border point. For example, first, goods produced in China and imported under an L/C procedure from Tibet are granted a rebate of three per cent on customs duty if the chargeable customs duty (provided it is ad valorem, not specific) is five per cent or more (Department of Customs 2017). This provision is presumably aimed at encouraging L/C-based trade through the northern border. Second, full exemption from customs duty is granted for goods imported from Tibet for some 384 agricultural goods (HS 8-digit level), on which an agricultural reform fee (ARF) of five per cent—which is less than the most-favoured-nation tariffs on these goods—is imposed instead. An ARF of eight per cent is imposed instead of customs tariffs on nine other agricultural goods imported from Tibet. Third, imports through barter are also allowed when importing from Tibet under certain conditions. The barter option is allowed for imports of raw wool, live goat and sheep, salt, yak and yak tails, carpet and herbs. Payment via banks is not mandatory for imports (as well as exports) of up to a value of NPR 16,000.

## Summary

In a nutshell, Nepal's strategy should be to diversify trade and transit routes, exploring all options. The temptation to make a cost-benefit analysis comparing trade costs along different routes, without factoring in the value of transit needs, must be avoided. Obviously, you cannot compare apples with oranges. Top priority should be accorded to developing the necessary road, dry port and customs infrastructure to enable the Rasuwagadhi-Kerung border point to realize its potential for handling greater amounts of bilateral trade and, possibly, part of Nepal's third-country trade. The process of establishing a rail-link from Rasuwa to, at least, Kathmandu should be expedited, beginning with a feasibility study. Diplomatic efforts to reopen Tatopani-Zhangmu should be complemented by repairing and upgrading the Araniko Highway and upgrading the customs and port infrastructure there as national priority projects. A long-term vision that recognizes the possibility of Nepal not only emerging as an entrepot for China-India trade but also benefitting from north-south economic corridors should guide the development of trading points on the Nepal-China border. Connectivity with the northern neighbour should not be confined to Rasuwa and Kerung. It is imperative to act on the 2015 agreement between Nepal and China to open seven additional border points as commercial trading points. To begin with, proper road connectivity with these border points, coupled with dry ports, must be initiated in a time-bound manner. As the bulk of imports from China are routed via sea, and the sea route is likely to continue to be the best option for the import of certain products, the government of Nepal must redouble its efforts in negotiating with India on transit arrangements for a quicker and cheaper movement of cargo between Indian seaports and Nepal, capitalizing on recent developments such as moves to shift customs procedures from the seaport to the Nepal-India border. ■

*The author thanks participants in a seminar at SAWTEE for helpful comments and is grateful to Mr. Suyash Khanal and Mr. Rabindra Duwadi, of Trade and Export Promotion Centre, Kathmandu, for facilitating access to data. The author is grateful to Mr. Alabhya Dahal for research assistance.*

## Notes

- <sup>1</sup> NRB (2015) and NPC (2015).
- <sup>2</sup> In the fiscal year preceding the earthquake, in 2013/14, China was Nepal's fourth most important export destination (share: 3.1 per cent) and second most important import source (share: 10.7 per cent). India was Nepal's largest trade partner, with a share in exports and imports of about 66 per cent each. Although China is a fairly important trade partner of Nepal, Nepal significantly under-exports to China despite potential (see Narain and Gonzalo 2017).
- <sup>3</sup> Republica. 2018. "Nepal-China to expedite feasibility study, DPR on rail." *Republica* April 19. <http://www.myrepublica.com/news/40159/?categoryId=81>
- <sup>4</sup> Ghimire, B. 2017. "Oli and co visit Rasuwagadhi border point." *The Kathmandu Post* December 20. <http://kathmandupost.ekantipur.com/news/2017-12-20/oli-and-co-visit-rasuwagadhi-border-point.html>
- <sup>5</sup> It should be noted that international oil prices have a significant bearing on imports from India. Imports of petroleum products from India, which accounted for 30 per cent of total imports from India in 2013/14, were already falling in the first nine months of 2014/15—before the earthquake and the border disruptions. The reason was the fall in global oil prices, which translated into lower import prices. This explains the slow growth of imports from India of 4.6 per cent. In the last three months of 2014/15, i.e., after the quake, imports fell by 1.8 per cent. This would have been the combined effect of lower petroleum import prices and a dampened demand owing to the earthquake (which must also have dampened demand for petroleum products).
- <sup>6</sup> Comparing the Post-disaster Needs Assessment (PDNA)'s goods trade projections for the post-earthquake years, made in the aftermath of the quake but ahead of the blockade, with subsequent estimates is another way to get an inkling of how the blockade compounded the quake's effects. Estimated exports in 2015/16 were 20 per cent lower than the PDNA projection. Estimated exports in 2016/17 were still less than the PDNA projection for 2015/16. Estimated imports in 2015/16 were 15 per cent less than the PDNA projection for that year. The estimates are drawn from the national accounts section of the central bank's Current Macroeconomic and Financial Situation database (revised estimates for 2015/16 and initial estimates for 2016/17).
- <sup>7</sup> Since we are looking at trade flows through customs points in this sentence, the data source is TEPC. However, note that NRB data show total exports to China fell by 41 per cent and Department of Customs data show total exports to China fell by 45 per cent, a significantly higher fall than the 25 per cent decline shown by the TEPC data. At the heart of the difference is the export value for 2015/16 of around NPR 1.7 billion in the NRB and Customs dataset versus NPR 2.1 billion in the TEPC dataset. One possible explanation for

the discrepancy is that NRB and Customs data are for the fiscal year running from mid-July of one year to mid-July of another, whereas the TEPC data, extracted from its online export-import databank, are for a period that approximates the fiscal year (from July of one year to June of another). As our focus here is the relative trade flows through different customs points and as trade data by customs points are not available for 2013/14 in the NRB and Customs datasets, we choose to ignore this discrepancy. Moreover, it is reassuring that the aggregate export and import figures vis-à-vis China for 2016/17 are fairly consistent across the three datasets, as we will be extensively comparing flows for that year with flows for 2013/14 for most of the remainder of the paper from the next section onwards.

<sup>8</sup> CBS projection based on first nine months of data. GDP at (constant) market prices are used because the decomposition exercise below can only be done with market prices. GDP at (constant) basic prices grew by seven per cent in 2016/17.

<sup>9</sup> 2011 was the latest year for which EVAD data on Nepal was available at the time of writing this paper.

<sup>10</sup> Rudrakshya was exported under one HS code in 2013/14 and in another code in 2016/17.

<sup>11</sup> Exports through the dry port increased by about eight per cent, whereas exports through Biratnagar, previously the most important exit point, fell. Total exports of the product to China fell by 54 per cent.

<sup>12</sup> For Rasuwa, new products mean products not exported via Tatopani in 2013/14, while products that stopped being exported mean products that were exported via Tatopani in 2013/14 but not in 2016/17.

<sup>13</sup> Note that these products include continuing products as well as, possibly, new products and products that have stopped being exported.

<sup>14</sup> In the regression analysis, henceforth, in this sub-section, we use three core specifications. In the first specification, the dependent variable is a first differenced log of exports while the explanatory variable is the share of Tatopani and its squared term. In the second specification, the dependent variable is the same as the first, but the explanatory variable is changed to a treatment dummy that switches on if the product used Tatopani with at least a cut-off corresponding to the 25th, 50th, 75th and 95th percentile in 2013/14. The third specification is like the first one, but without the squared term and all the variables are first differenced. The number of customs points used (initially used or in changes) and the log of initial exports are controlled for, where applicable. We also control for whether a product did not use Tatopani at all or used only Tatopani in 2013/14. We also run the regressions on a restricted sample, excluding products that did not use Tatopani at all or used only Tatopani in 2013/14.

<sup>15</sup> Recall that total imports from China had increased by 65 per cent.

## Initiating Dialogue on Post-Disaster Reconstruction

- <sup>16</sup> 1,165 products accounting for 80 per cent and 82 per cent of total value of imports of the 1,657 products.
- <sup>17</sup> 408 products accounting for 20 per cent and 17 per cent of the total value of imports of the 1,657 products.
- <sup>18</sup> Whether a product did not use Tatopani at all is already captured by the dummy variable of interest.
- <sup>19</sup> The sample is reduced from 2,680 to 1,180. The restricted sample covers, in both years, about 80 per cent of imports of continuing products.
- <sup>20</sup> Hummels and Schaur (2013) use the trade-off between fast and expensive air transport versus slow and inexpensive ocean shipping to identify the value of time saving. To do so, they use disaggregated import data of the United States at the level of exporting country  $\times$  HS 6 digit product  $\times$  US entry coast  $\times$  year, combined with a detailed ocean shipping schedule for all ocean vessels worldwide that yields shipping times for each exporter  $\times$  US entry coast. Djankov et al. (2010), using a gravity model on cross-country aggregate trade flows, obtain a similar estimate.
- <sup>21</sup> This is based on press reports that quote traders who have had to reroute from Tatopani to the sea port in India, which was confirmed in a seminar where this paper was presented. One report states that shipping time from China to Kathmandu via Kolkata is at least 45 days, with delays at Kolkata adding to the time, while transportation of the same goods takes only two weeks via Tatopani or Rasuwa.
- <sup>22</sup> Pangen, Rudra. 2015. "With Tibet routes down, China good to come via Kolkata." *Republica*. June 10. <http://admin.myrepublica.com/economy/story/22530/with-tibet-routes-down-china-goods-to-come-via-kolkata.html>. Another states that it takes between 45-60 days for Nepali traders to import goods via sea from Guangzhou, compared to the 15-20 days it used to take when importing through Tatopani. See also: Xinhua. 2017. "Nepal's businesses still suffering 2 years after devastating quake shutters main trade route with China." *Xinhuanet* April 25. [http://news.xinhuanet.com/english/2017-04/25/c\\_136234396.htm](http://news.xinhuanet.com/english/2017-04/25/c_136234396.htm)
- <sup>23</sup> Government of Nepal, Ministry of Foreign Affairs. 2016. "2016 Joint press statement between the People's Republic of China and Nepal." March 23. <http://mofa.gov.np/joint-press-statement/>
- <sup>24</sup> Republica. 2017. "Nepal-China sign three agreements on economic cooperation." *Republica* August 16. <http://www.myrepublica.com/news/25720/?categoryId=81>
- <sup>25</sup> Tiwari, Anish. 2018. "Construction activities at Larcha dry port resume." *The Kathmandu Post* April 9. <http://kathmandupost.ekantipur.com/news/2018-04-09/construction-activities-at-larcha-dry-port-resume.html>
- <sup>26</sup> Ghimire, Balram. 2018. "Rasuwagadhi dry port building okayed." *The Kathmandu Post* January 23. <https://kathmandupost.ekantipur.com/news/2018-01-23/rasuwagadhi-dry-port-building-okayed.html>

- <sup>27</sup> Post Report. 2017. "Rasuwagadhi-Kerung becomes int'l crossing point." *The Kathmandu Post* August 31. <http://kathmandupost.ekantipur.com/news/2017-08-31/rasuwagadhi-kerung-becomes-intl-crossing-point.html>
- <sup>28</sup> For example, a cargo service was launched in December 2016, transporting goods from Guangzhou to Xigatse by railway, and then to Kerung and Nepal on trucks. See: The Times of India. 2016. "China launches new cargo service linking Tibet with Nepal." *The Times of India* December 10. <https://timesofindia.indiatimes.com/world/china/China-launches-new-cargo-service-linking-Tibet-with-Nepal/articleshow/55908913.cms>
- <sup>29</sup> Based on comments received in a seminar where this paper was presented.
- <sup>30</sup> Based on comments by Mr Rabi Shanker Sainju, Joint Secretary, Ministry of Commerce and Supplies, Government of Nepal, in a seminar where this paper was presented. See also: Acharya, Shankar. 2018. "Cargo movement via Visakhapatnam up." *The Kathmandu Post* January 23. <http://kathmandupost.ekantipur.com/news/2018-01-23/cargo-movement-via-visakhapatnam-up.html>
- <sup>31</sup> *ibid.* Note 28.
- <sup>32</sup> Tripathi, Ritesh. 2018. "Customs formalities for Nepal bound cargoes at Indian ports to ease." *Republica* April 23. <http://www.myrepublica.com/news/40388/?categoryId=81>
- <sup>33</sup> ADB. 2018. "India, Nepal to launch electronic tracking of transit trade." Asian Development Bank. February 06. <https://www.adb.org/news/india-nepal-launch-electronic-tracking-transit-trade>
- <sup>34</sup> This is based on an observation made during the seminar where this paper was presented. In our data, all cell phone imports are lumped under a single HS code (HS 85171200). In 2017, 92 per cent of NPR 17.4 billion worth of imports of cell phones from China were transported by air and the rest by sea. The unit value (total import value divided by total quantity—in pieces) for air was higher than that for sea. The unit value by air was 3.68 times higher than that by a customs point on Nepal-India border (which means, by sea) having the next highest unit value. This is consistent with the fact that smart phones cost on average more than basic cell phones.
- <sup>35</sup> Unit values are computed at the level of product-mode: total value divided by total quantity. All but four apparel products at the HS 8-digit level are recorded in the same quantity unit: pieces. As it is not meaningful to compare unit values of products in different quantity units, the four products not recorded in pieces are dropped; they account for barely 0.1 per cent of the total imports of apparel from China.
- <sup>36</sup> There is a caveat to this interpretation, though. Since the financing of imports by sea is conducted largely through letters of credit (L/C), while the bulk of imports via the northern border is based on bank drafts and telegraph transfers (SAWTEE 2012), and if there are reasons to believe that under invoicing in terms of price is more prevalent in non-L/C-based trade, part of the lower

## Initiating Dialogue on Post-Disaster Reconstruction

unit values observed for imports via Rasuwa may be due to underpricing. Investigating this aspect is beyond the scope of this paper.

## References

- DoC. 2017. *Customs tariff 2017/18*. Kathmandu: Government of Nepal, Department of Customs.
- Djankov, S., Freund, C., and Pham, C.S. 2010. "Trading on Time." *Review of Economics and Statistics* 92 (1): 166–73.
- Hummels, D.L., and Schaur, G. 2013. "Time as a Trade Barrier." *American Economic Review* 103(7): 2935–59.
- Kharel, P. 2018. "From Tatopani to Rasuwa: An Analysis of Nepal-China Trade after the Earthquake". *SAWTEE Working Paper/18/02*. Kathmandu: South Asia Watch of Trade, Economics and Environment. [http://www.sawtee.org/publications/An\\_analysis\\_of\\_Nepal-China\\_trade\\_after\\_the\\_earthquake.pdf](http://www.sawtee.org/publications/An_analysis_of_Nepal-China_trade_after_the_earthquake.pdf)
- Murton, G. 2016. "A Himalayan Border Trilogy: The Political Economies of Transport Infrastructure and Disaster Relief between China and Nepal." *Cross-Currents: East Asian History and Culture Review*, E-Journal No. 18 (March).<http://cross-currents.berkeley.edu/e-journal/issue-18>.
- Narain, A., and Gonzalo, V. 2017. *Trade Policy Reforms for the Twenty First Century: The Case of Nepal*. Washington, D.C.: The World Bank.
- NPC. 2015. *Nepal earthquake 2015: Post Disaster Needs Assessment. Vol. A and B*. Kathmandu: Government of Nepal, National Planning Commission.
- NRB. 2015. *Economic Activities Study: Annual Report 2014/15*. Kathmandu: Nepal Rastra Bank.
- NRB. 2016. *Economic Activities Study: Annual Report 2015/16*. Kathmandu: Nepal Rastra Bank.
- SAWTEE. 2012. *A study on Nepal-China trade*. Kathmandu: South Asia Watch on Trade, Economics and Environment.
- SAWTEE. 2016. *Nepal's Export Trade with China*. Unpublished study.
- Shrestha, Buddhinarayan. 2015. "Seven Nepal-China border points." *Nagarik*, 18 November. Also available at <https://bordernepal.wordpress.com/2015/11/29/nepal-china-seven-border-crossing-points/>.

---

## ANNEX

---

### **First Monthly Forum**

#### **Nepal Post Disaster Reconstruction Experience: Current Status and Lessons Learnt**

**Presentation:** Dr. Jagadish Chandra Pokharel, Former Vice Chairman, National Planning Commission

**Chair:** Dr. Posh Raj Pandey, Executive Chairman, SAWTEE

**Chief Guest:** Prof. Dr. Gobinda Raj Pokharel, CEO, Nepal Reconstruction Authority

#### **Discussants:**

- Mr. Surya Narayan Shrestha, Deputy Executive Director, National Society for Earthquake Technology-Nepal
- Mr. Surya Bhakta Sangachhe, Former Director General of Department of Urban Development and Building Construction (DUDBC)
- Mr. Kishore Thapa, Expert Advisor of the Steering committee at the NRA

### **Second Monthly Forum**

#### **Migration and Labour Dynamics in Post Disaster Nepal**

**Presentation:** Dr. Ganesh Gurung, former Member, National Planning Commission

**Chair:** Dr. Posh Raj Pandey, Executive Chairman, SAWTEE

#### **Discussants:**

- Mr. Ramesh Badal, Secretary, General Federation of Nepalese Trade Unions
- Mr. Kiran Nepal, Editor, Himal Khabarpatrika

### **Third Monthly Forum**

#### **Expenditure Analysis and Tracking of Post-Earthquake Reconstruction Programmes**

**Presentation:** Mr. Kishor Maharjan, Associate Professor, Faculty of Management, Tribhuvan University

**Chair:** Mr. Rajendra Prasad Nepal, Financial Comptroller General, Government of Nepal

**Discussants:**

- Mr. Murari Niraula, Member Secretary, Public Expenditure and Financial Accountability, Ministry of Finance
- Ms. Padmini Pradhananga, General Secretary, Transparency International Nepal

### **Fourth Monthly Forum**

#### **Building Safer Urban Spaces in Post-Disaster Nepal**

**Presentation:** Mr. Kishore Thapa, Former Secretary, Ministry of Urban Development

**Chair:** Prof. Dr. Sudarshan Raj Tiwari, Former Dean, Institute of Engineering

**Discussants:**

- Mr. Bhesh Narayan Dahal, Director General, Department of Archaeology
- Mr. Surya Bhakta Sangachhe, Former Director General, Department of Urban Development and Building Construction

### **Fifth Monthly Forum**

#### **Post – Earthquake Conflict Resolutions**

**Presentation:** Mr. Mohan Das Manandhar, Executive Director, Niti Foundation

**Chair:** Mr. Madhav Prasad Paudel, Chairperson, Nepal Law Commission

**Discussants:**

- Dr. Ram Krishna Timalsena, Executive Director, National Law College and former Registrar, Supreme Court of Nepal
- Mr. Ajaya Dixit, Executive Director, ISET- Nepal
- Ms. Preeti Thapa, Senior Programme Officer, The Asia Foundation

## Sixth Monthly Forum

### **Unpacking and Operationalizing Disaster**

**Presentation:** Mr. Ajaya Dixit, Executive Director, Institute for Social and Environmental Transition (ISET)-Nepal

**Chair:** Prof. Dr Pramod Bdr. Shrestha, Professor, Institute of Engineering

**Chief Guest:** Mr Narayan Gopal Malegu, Former Secretary, Government of Nepal

### **Discussants:**

- Mr. Basanta Raj Gautam, Development Practitioner and Former Joint Secretary, Government of Nepal
- Dr. Prem Nath Maskey, Earthquake expert

## Seventh Monthly Forum

### **Reconstruction Experience: Lessons for Economic Management**

**Presentation:** Dr. Yubaraj Khatiwada, Former Vice Chairman, National Planning Commission

**Chair:** Dr. Shankar Sharma, Former Vice Chairman, National Planning Commission.

**Special Remarks:** Dr. Bishnu Dev Pant, Executive Director, Institute for Integrated Development Studies (IIDS).

**Special Guest:** Mr. Yuba Raj Bhusal, Chief Executive Officer, National Reconstruction Authority.

## Eighth Monthly Forum

### **Assessing the Gender Implications in Post Disaster Reconstruction Period**

**Presentation:** Ms. Neelu Thapa, Programme Coordinator, SAWTEE

**Chair:** Dr. Renuka Joshi, Campus Chief, Padma Kanya Campus, Tribhuvan University

**Chief Guest:** Ms. Chandni Joshi, Senior Gender Expert and Chairperson, Homenet South Asia

### **Discussant:**

- Ms. Nirmala Dhungana, President, Women for Human Rights
- Ms. Bhubaneswari Parajuli, Gender, Social and Environment Management Specialist, NSET-Nepal

## **Ninth Monthly Forum**

### **Nepal-China trade after the 2015 earthquake**

**Presentation:** Dr. Paras Kharel, Research Director, SAWTEE

**Chair:** Dr. Dilli Raj Khanal, Senior Economist and Former Member of Parliament

**Discussant:**

- Mr. Rabi S. Sainju, Joint-Secretary, Ministry of Industry, Commerce and Supplies
- Mr. Jib Raj Koirala, Former Joint-Secretary, Government of Nepal
- Mr. Bachchu Poudel, President, Nepal Trans Himalaya Border Commerce Association
- Mr. Prabhakar Shumsher Thapa, General Manager, Him Electronics

---

Conventional wisdom among policymakers and the public is that a “Big One” is always waiting to occur in Nepal as the country straddles the Himalayan fault lines. However, when the 2015-Gorkha Earthquake actually occurred, everyone appeared to be caught by surprise. Later, reconstruction activities made it evident that even Nepal’s preparedness and planning to withstand the aftermath of such disasters and their impacts were woefully inadequate. Considering Nepal’s vulnerability to multiple types of hazards, it is necessary to review the policies and efforts towards ‘building back better’ so that the country can spring back from such calamities with less pain. This book is a collection of essays by economists, planners and practitioners of disaster management, urban planning, migration, conflict management and gender relations. It is their attempt to highlight the efforts that worked and those that did not during the post disaster phases of rescue, relief and reconstruction.

---

