

Disaster Risk Financing
& Insurance Program



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Assessment of Contingent Liabilities from Natural Disasters in Nepal



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Statement on COVID-19

To the extent possible this paper applies the principles of crisis and disaster risk management to the ongoing pandemic. However, the challenges posed by substantial restrictions on traveling, the organization of workshops, and face-to-face meetings with the government made data collection extremely difficult, and the team is unlikely to have a complete data set. Despite these challenges, the World Bank team was able to advance the existing analysis and discussion of both COVID-19 and crisis and disaster risk management.

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Acronyms and abbreviations

ADB	Asian Development Bank
ADPC	Asian Disaster Preparedness Center
BFI	Bank and Financial Institution
CCDR	Country Climate and Development Report
DCGF	Deposit and Credit Guarantee Fund
DDMC	District Disaster Management Committee
DRF	Disaster Risk Financing
DRFIP	Disaster Risk Finance and Insurance Program
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DRRM	Disaster Risk Reduction and Management
FSDS	Financial Sector Development Strategy
FY	Fiscal Year
GDP	Gross Domestic Product
GLOF	Glacial Lake Outburst Flood
GoN	Government of Nepal
GRID	Green, Resilient and Inclusive Development
IMF	International Monetary Fund
IRF	Inclusive and Resilient Finance
LDMC	Local Disaster Management Committee
LGOA	Local Government Operations Act
MoF	Ministry of Finance
MoHA	Ministry of Home Affairs
NDRRMA	National Disaster Risk Reduction and Management Authority
NPR	Nepali Rupee
NRA	Nepal Reconstruction Authority
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
PDMC	Province Disaster Management Committee
SME	Small and Medium Enterprise
UNDP	United Nations Development Programme
UNDRR	United Nations Office for Disaster Risk Reduction
USAID	United States Agency for International Development

Executive Summary

This report identifies and estimates the Nepal government's contingent liabilities from natural disasters. It provides an overview of the current risk landscape and identifies challenges in managing disaster risks. Finally, it offers options on how to strengthen the management of disaster-related contingent liabilities. Expenditures made in response to disasters are referred to as disaster-related contingent liabilities (OECD 2017) and arise only if a disaster happens. This report uses two methodologies to estimate the value of the government's contingent liabilities from natural disasters: direct estimation, using historical expenditure data, and indirect estimation, using probabilistic modeling.

Contingent liabilities are obligations that are triggered when a potential, but uncertain event occurs. They may be explicit — arising due to a pre-arranged explicit commitment made, for example in contracts or policies; or they may be implicit, arising due to a moral obligation without any prior commitment. For example, after the 2015 Gorkha earthquake, the Government identified its explicit liability from the event to be greater than US\$1.7 billion, (Nepali Rupee [NPR] 166 billion). However, it also accepted large, additional, implicit liabilities of approximately US\$3.7 billion (NPR370 billion) due to the need to provide homeowners with reconstruction grants, as well as the acceptance of uninsured private sector losses.

Governments are asked to provide financing for explicit commitments made prior to a disaster and are often under pressure to provide additional financing when no such previous commitments were made. In order to adequately budget for its explicit commitments — and quantify potential implicit liabilities that can cause both downside risks to government revenues as well as to expenditures — the Government of Nepal (GoN) needs to know its potential contingent liabilities. This report quantifies these contingent liabilities. It also provides an analysis of how they are managed. Ultimately, this can help the GoN to shift from post-event emergency borrowing to becoming more effective at managing its risks and matching its potential liabilities with appropriate financial resources and more effective governance structures.

The Government of Nepal's disaster-related expenditures between 2012 and 2020 amounted to over US\$3.8 billion (NPR451.45 billion), or an annual average of about US\$430 million (NPR50 billion). 97 percent of these resources were provided following the 2015 earthquake, mostly by the international community. Specific to the 2015 earthquake, the Government identified US \$7.7 billion of required post-event financing, with donors contributing most of this (approximately 75 percent). However, these funds have been slow to disburse. Indeed, several reconstruction projects have yet to start. Therefore, the true cost from this event is expected to have been much higher than identified.

The direct estimation method found the biggest source of government contingent liabilities to be grants awarded for the reconstruction of houses/buildings, totaling about US\$1.5 billion (NPR180 billion). Major sources of government contingent liabilities include relief payments and supplies, resettlement of affected communities, reconstruction of private housing, and the rehabilitation and reconstruction of public infrastructure and assets.

On average, the Government of Nepal experiences annual explicit contingent liabilities attributable to natural disasters of about 2 to 3 percent of its annual budget. Most of this is accounted for by losses from floods and earthquakes. Indeed, the average annual loss from flooding is about 0.6 percent of the annual budget (US\$80 million, NPR8,860 million). For earthquakes, the average annual loss is about 2 percent (US\$270 million, NPR29,303 million). Thus, the total average annual loss for these natural disasters amounts to 2.6 percent (US\$350 million, NPR38,763 million).

At present, the GoN manages its contingent liabilities through reallocations between budgeted lines of expenditures, dedicated budget lines, supplementary budgets and funds created for specific disaster response purposes. Pre-arranged financing (such as dedicated budget lines, reserve funds, contingent credit and insurance) is preferential to budget reallocations. Pre-arranged financial sources are readily available in the case of a disaster and can speed up financing, thereby saving lives and livelihoods. Uncertainties over available funding can undermine government planning of response efforts, and lead to shortages in the assistance provided to the affected population. Budgeted lines of public spending are often reduced to release resources for unbudgeted post-disaster categories. In the case of Nepal, unbudgeted lines of public spending include short-term site clearance and immediate post-disaster works, for example, for immediate repair of damaged roads, hydropower dams, telecommunications towers and electricity poles. As budget reallocations can be slow and insufficient, the GoN could put in place instruments to manage their contingent liabilities through alternative means.

In 2021, the GoN has adopted a National Disaster Risk Financing (DRF) Strategy that outlines Nepal's priorities for more effective financial management of disasters. The strategy seeks to put in place adequate financial instruments and resources. The main action areas include: (i) devising a risk analysis detailing Nepal's exposure and vulnerability, including risk mapping and actuarial exercises; (ii) building on risk analysis to prepare an update on disaster information systems at all levels of government; (iii) introducing capacity-building exercises; (iv) establishing risk financing instruments, including a Catastrophe Fund and a risk transfer instrument; (v) adopting policy reforms; (vi) improving the proper use of funds at all levels of government; and (vii) market development. Following the adoption of the DRF strategy the GoN approved an implementation plan which outlines a series of activities that contribute to the overarching strategic goals and objectives. To align with the DRF Strategy the

tasks are considered in the areas of i) disaster risk assessment, risk reduction and early warning; ii) risk financing and private sector development; and iii) awareness raising and capacity building.

Over the short-to-medium term, there are several options that the GoN could consider to manage its disaster-related liabilities. The GoN should consider preventative measures, such as those that can help to physically reduce the impact of disasters. It should also consider analytical and financial measures, such as those that can help to manage the cost from expected and unexpected contingent liabilities. In addition, the GoN should consider implementing its National Disaster Risk Financing Strategy, as this will help in the coordination and prioritization of options presented below. The options available to the GoN, some of which are included in its envisaged National Disaster Risk Financing Strategy, are detailed in Table 1.

Table 1: Disaster Risk Financing Options

Preventative Measures	Timeline
1. Increase investment in disaster risk reduction to reduce future contingent liabilities from natural disasters identified in this report.	Short term
Analytics	Timeline
2. Develop a comprehensive register of all GoN-owned and other relevant assets.	Short term
3. Develop national catastrophe risk models for DRF.	Medium term
4. Conduct a funding gap analysis to identify further financial instruments to include in the risk layering approach.	Medium term
Financial and policy measures	
5. Improve coordination across ministries in the provision of relief.	Short term
6. Establish dedicated DRF budget lines and improve budgeting.	Medium term
7. Review the existing architecture of catastrophe funds and identify how their complementarity could be strengthened.	Medium term
8. Foster domestic market development for disaster risk insurance.	Long term

Source: World Bank.

This report and the risk financing options presented to the GoN for managing their contingent liabilities from disaster risk are well aligned to the country’s Green, Resilient, and Inclusive Development (GRID) declaration published in September 2021 and also the Nepal Climate Change and Development Report (CCDR) published in September 2022. Nepal’s CCDR highlights the need for the GoN to adopt a DRF strategy in an effort to accelerate the implementation of market-based risk financing instruments, from the sovereign level to the household level, including the protection of public assets and also highlights the importance of developing improved risks analytics to support efforts to make the country and its financial system more resilient to shocks. These points are well highlighted throughout this report. In addition, Nepal’s GRID declaration recognizes the need to increase resilience to future pandemics, climate and earthquake risks, again supported by the development of the necessary analytical tools and capital mobilization from the private sector. The GRID agenda in Nepal also identifies the importance of resilience as one of the key options for the country to explore in reducing future vulnerability to climate risks. The alignment of these two important documents for Nepal’s future ambitions with this report clearly indicates the important role that risk analytics and risk finance have in building a resilient Nepal which is discussed throughout this report.

If disaster-related liabilities are managed well, and the national disaster risk financing strategy is implemented, this could lead to improved economic, fiscal and environmental outcomes, including better infrastructure and higher standard of living. However, if disaster-related liabilities are not well managed over the short-to-medium term, this could lead to a slowdown in reform momentum and growth, increased vulnerability to shocks, and a less favorable views by investors and financial markets.

1. See information about these terms in the Background section of this report.

The objective of this report is to identify and quantify the liabilities that may arise when natural disasters occur in Nepal, and to present to the Government of Nepal (GoN) with options to manage their share of these liabilities. Expenditures made in response to disasters are referred to as disaster-related contingent liabilities (OECD 2017). These expenses arise only if a contingent event, such as a disaster, happens. The size of such liabilities is determined by the frequency and severity of natural hazards, the exposure and vulnerability of people and assets, and the response of the governments to these events.

The GoN faces both explicit and implicit contingent liabilities. Explicit contingent liabilities are payment obligations that are based on government contracts, laws, and/or clear policy commitments that could fall due in the event of a disaster. Implicit contingent liabilities are expenditures the government is expected to make in response to a disaster due to a perceived moral obligation, political pressure, or even in attempting to stimulate growth by speeding up recovery. Thus, the government is expected to cover such expenditures although it has not entered into any formal commitments to pay for them. Implicit liabilities can also develop into explicit liabilities as the government learns from prior disasters and enhances laws or policies to include additional financial impacts.

Large-scale disasters, such as the 2015 earthquake, can significantly increase the contingent liabilities as the government becomes the insurer of last resort. For example, the government provided financial support for implicit liabilities, such as housing reconstruction and the human resettlement process. As a result, its liabilities grew to US\$3.7 billion (NPR370 billion). This placed a large financial burden on the Government of Nepal. Thus, having an improved understanding of future liabilities from natural disasters would help the GoN to identify if any implicit liabilities could become future explicit liabilities. It would empower the government to develop and implement suitable mitigation and management strategies.

Identifying and quantifying liabilities that may arise when natural disasters occur is relevant for Nepal, as the country is subject to acute climate and financial vulnerabilities. Nepal has been ranked tenth among countries most affected by extreme weather events over the last 20 years according to the Global Climate Risk Index 2021 (Germanwatch 2021). Moreover, Nepal is under increased fiscal pressure driven by its increasing level of public debt. In this context, the International Monetary Fund (IMF) conducted stress tests in 2020 that suggest that debt burden indicators are vulnerable to growth/export shocks and natural disasters. Thus, having an improved understanding of both disaster and financial vulnerability means that the GoN can develop appropriate strategies to manage these risks.

The World Bank Disaster Risk Finance and Insurance Program (DRFIP), working in collaboration with the GoN, has sought to define, assess and quantify the costs affecting the GoN after a disaster occurs. An increased understanding and quantification of post-disaster liabilities will assist the GoN in making more informed decisions about how best to manage these liabilities. With an assessment of such risks, it is hoped that the government will be better able to secure financing, monitor and cover its expenditures caused by natural disasters, thus reducing financial risk and the debt burden.

The integration of disaster risk into fiscal risk and public debt management can lead to improved budget allocations for risk reduction, operations and maintenance, and post-disaster budget response capacity. Effectively managing disaster risk should also help to reduce the negative impact of fiscal shocks from disasters on the economy. As studies have shown, each dollar invested in putting in place effective risk financing mechanisms before a disaster happens can save four or more dollars after a disaster strikes (World Bank 2019). Indeed, more money reaches more suffering people more quickly, thus enabling a faster recovery and preventing especially poor and vulnerable people from using negative coping strategies, for example, taking their children out of school or selling assets.

If disaster-related liabilities are managed well, and the National Disaster Risk Financing Strategy is implemented, this could lead to improved economic, fiscal and environment outcomes, including better infrastructure and a higher standard of living. However, if disaster-related liabilities are not well managed over the short-to-medium term, this could lead to a slowdown in reform momentum and growth, increased vulnerability to shocks for households, and a less favorable views by investors and financial markets.

This paper is structured in the following way: (i) the background section provides information concerning the frequency and severity of natural hazards, and the vulnerability of people and assets exposed to these hazards; (ii) section 3 presents governance arrangements surrounding natural disasters in Nepal; (iii) section 4 provides an overview of the nascent Nepali insurance market; (iv) section 5 addresses contingent liabilities. It details the country's contingent liabilities through a direct estimation by looking at its past disaster-related expenditures, as well as through probabilistic modelling; and (v) the final section provides recommendations on the next steps, as well as an indicative timeline for implementation.

Since the extent of contingent liabilities is, in part, determined by the frequency and severity of natural hazards, and the vulnerability of people and assets exposed to these hazards, this chapter presents information on these topics. The impact of disasters is the result of the interaction of hazards, exposures, and vulnerability.

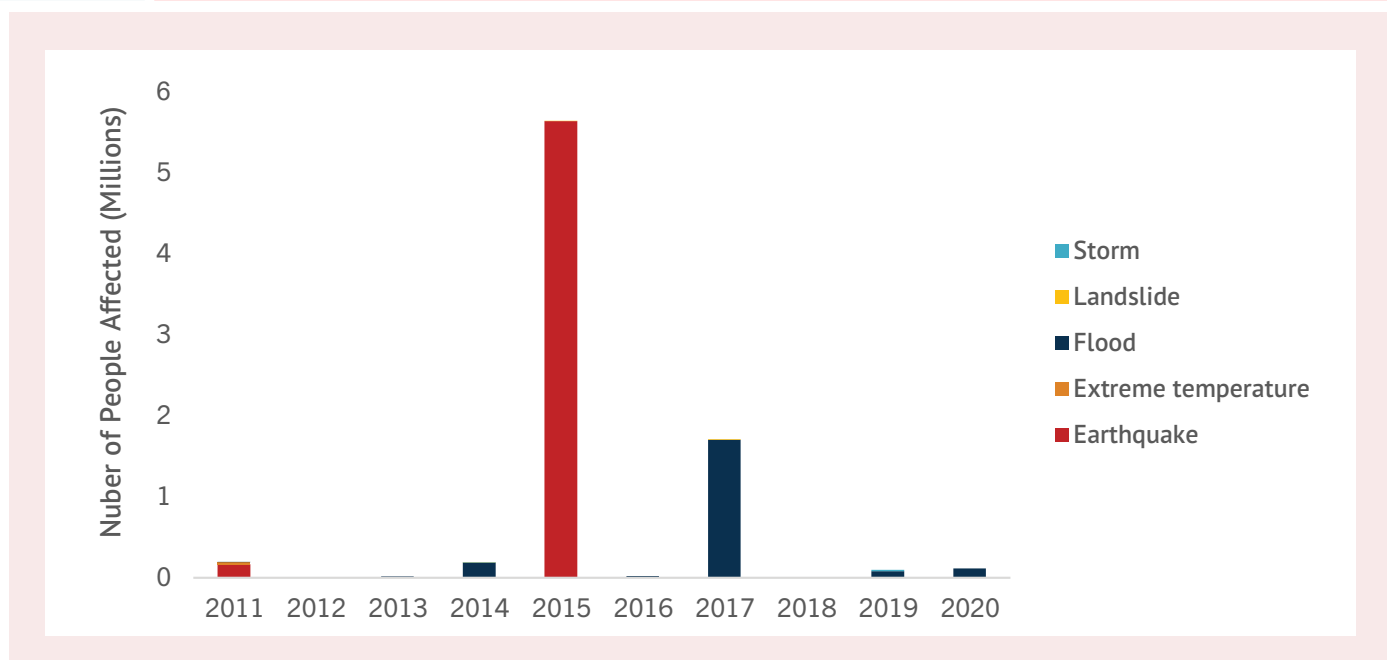
Natural hazards

Over 80 percent of the population are at risk of being impacted by one or more of the following risks: floods, earthquakes, landslides, extreme temperature events, and droughts. Due to its highly variable climate and location at the convergent boundary of the Indian and Eurasian plates, Nepal is highly vulnerable to both climate and earthquake risks.

While earthquake risks dominate, Nepal experiences regular localized flooding events and the frequency and intensity of these are expected to increase with climate change. Whereas the whole country is at risk from earthquakes due to the Main Himalayan Thrust Fault continuing across the length of the country, flooding effects are felt predominantly in the low-lying Terai plains to the south of the country. However, mountainous regions are also at risk from flooding through Glacial Lake Outburst Flood (GLOF) events, which are also expected to become more frequent with climate change.

The potentially significant impact of earthquake events was clearly seen in 2015 when an earthquake occurred close to the capital city of Kathmandu on the Main Himalayan Thrust Fault. This 7.8 magnitude earthquake affected more than 5.5 million people across half of the country, and it led to over US\$5 billion (NPR500 billion) in economic damage. Figure 1 provides details concerning the number of people affected by disasters from 2011-2020. It clearly shows how earthquakes and floods are the key drivers of risk.

Figure 1: Total Number of People Affected by Disasters in Nepal, 2011-2020



Source: EM-DAT, International Disaster Database.

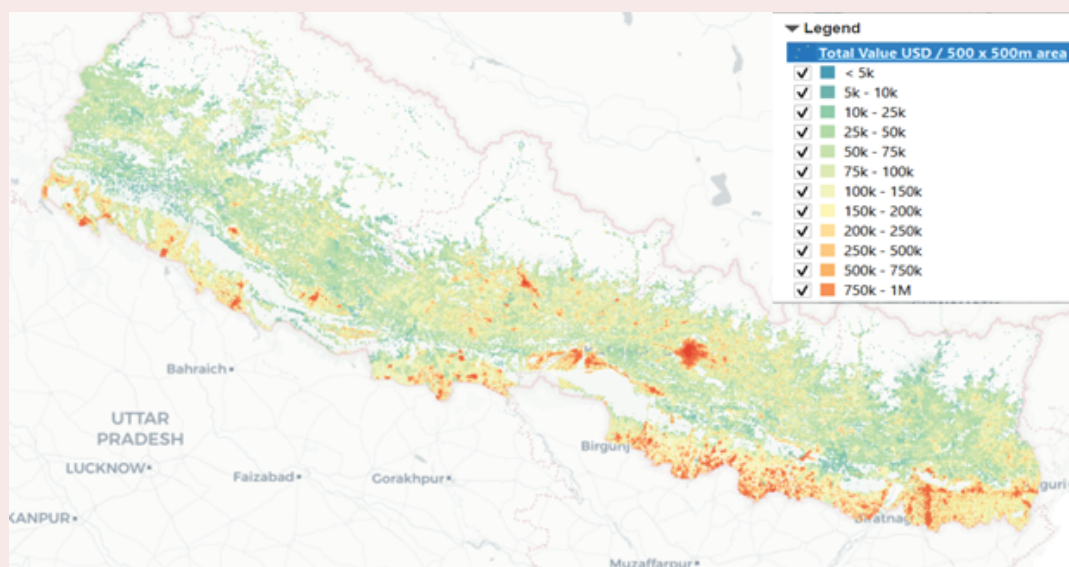
Floods and earthquakes have had by far the greatest impact on Nepal both in terms of financial losses and the number of people affected; each are also partially responsible for Nepal's relatively high risk of landslides. Landslides are very often caused by an associated hazard (for example, earthquake tremors or rainfalls). Although they can be very damaging to the built environment, their affects are low in terms of people affected as they are very localized in geographic coverage. As an example, the 2015 Gorkha earthquake triggered over 21,000 landslides over an area of more than 25,000 square kilometers (km²). However, individually, even the largest landslides posed a risk only to single villages, as was seen by the devastating Langtang landslide.

Another climatological hazard that should be considered for Nepal is drought. Indeed, the 2006 and 2009 droughts led to food deficits of 400,000 tons, increasing food prices by up to 300 percent (UNDP 2013). Although drought does not directly affect people in the same way as floods and earthquakes, it does so indirectly through impacting people’s access to food and water. In Nepal, drought risk affects the whole country. It has been seen to impact crop production relatively frequently, leading to significant increases in food prices for the main crops. Although price increases will have a direct effect on the cost of government food subsidies to rural areas, the overall financial impact of these price increases is still small in comparison to the financial impact of other types of disasters.

Exposure and Vulnerability

Nepal has a highly variable topography, ranging from the Himalayas in the north of the country to the low-lying plains on the southern border with India. Each region has a different population density, and the people living there are exposed to different disaster risks as described above. A key driver in the vulnerability of Nepal is the continued growth in the urban population, with the rate of urbanization doubling from 3.6 percent in 1991 to 7 percent in 2013. This is coupled with the mountainous regions, which have been experiencing a decline in population. This move from rural to urban areas is further concentrating risk exposure, as people and buildings are concentrated in the larger cities in the center and south of the country. This increasing urban population has also led to large increases in the country’s vulnerability, as growth has tended to be unplanned and unregulated, especially within the Kathmandu valley.

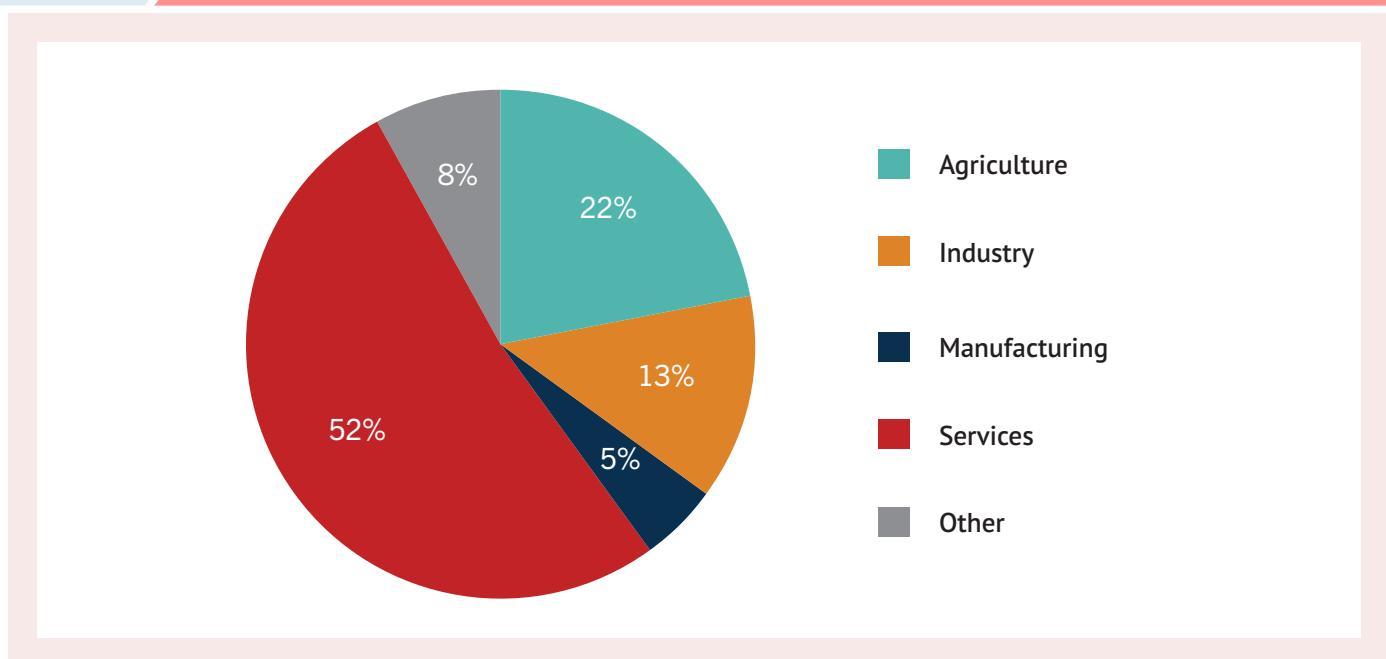
Image 1: Total Building Exposure



Source: METEOR project data (2021).

Along with Nepal’s high urbanization rate, there has been an increasing amount of emigration. Nepal’s economy is highly dependent on services and agriculture. A large proportion of the population has traditionally been employed in agricultural activities, and the limited alternatives for employment have led to a large migration of workers to other countries. This has resulted in Nepal becoming one of the highest recipient countries for remittances in the world as a percentage of gross domestic product (GDP), currently at 25 percent. As international remittances to Nepal decreased due to the ongoing COVID-19 crisis, financial resilience of Nepali households to natural disasters has decreased.

Figure 2: Contributions to GDP by Sector



Source: World Bank (2021b).

Socioeconomic Factors

The reliance on agriculture leaves the economy very vulnerable to disasters, with the possibility of millions of livelihoods being affected by earthquake or weather events. The majority of agricultural activities are located in the low-lying Terai plains, which are at great risk from increased monsoonal rain or the lack thereof. Thus, any changes in rainfall patterns can impact crop production. From 2001-2010 (excluding 2003 and 2007), excess rain and droughts caused between a 5 to 35 percent reduction in crop production (UNDRR 2019).

Lack of access to reliable and sustainable electricity has been cited as a key reason for the struggling industrial and manufacturing sectors, which together contribute to less than 20 percent of GDP. The government's ambition has been to overcome this through the construction of hydroelectric power facilities. Indeed, a large number have been constructed over the last 10 years, with many more dam projects in development. Although these facilities will be able to provide much-needed electricity, there are concerns about their reliability following an earthquake or a large landslide, as well as their long-term production capacity with ongoing climate change affecting water flow.

Tourism is another key area of the economy, contributing approximately 10 percent to overall GDP; however, it too is very vulnerable to disasters. Events impacting certain areas of the country, especially the mid and upper hills used for trekking, can dissuade tourists from visiting the country. Indeed, tourist numbers can decline for many years following a disaster. After the 2015 Gorkha earthquake, and trade blockade from September 2015 to March 2016, there was a 33 percent decline in tourist numbers. In this regard, the 2014 tourist numbers did not recover until 2017.

Socioeconomic factors also need to be considered when assessing disaster risk, as ongoing social processes can greatly compound societal risk or individual groups within a society. Oftentimes, the effects of disasters are felt most by the poorest in society. In Nepal, for instance, the low-caste populations are disproportionately affected. People falling into these categories often live in the most highly exposed locations and have no reserve resources or alternative livelihoods to recover from a shock.

The continuing impact of hazards on agricultural production has led to a significant proportion of the population being undernourished. Therefore, further hazards, especially those affecting food production, will exacerbate food security. Approximately one-third of Nepal's population lives close to the poverty line. Thus, any negative consequence from a catastrophic event has the potential to greatly increase the levels of poverty in the country.

Economic Losses

Disasters, in particular earthquakes and floods, have the potential to cause large economic losses in Nepal, thereby impacting the government's fiscal and budgetary situation. The 2015 Gorkha earthquake, described in Box 1, was estimated to have caused US\$5.4 billion (NPR517 billion) in damage to existing assets. In addition, economic losses resulting from this destruction totaled around US\$1.7 billion (NPR166 billion) (Government of Nepal 2015). The 2017 floods, described in Box 2, led to direct damages of US\$585 million (NPR60,717 million) and recovery needs of US\$705 million (NPR73, 245 million) (Government of Nepal 2017). Although the climatological and hydrological events are less severe, as shown by the lower flood losses, they happen much more frequently than earthquakes. However, even if infrequent, they can have an extremely large impact (Table 2).

Table 2: Historical Disaster Damages, 2011-2020 (US\$ thousands)

Year	Earthquake	Temperature	Flood	Landslides	Total
2011		123			123
2012			1,000		1,000
2013					
2014				15,000	15,000
2015	5,174,000				5,174,000
2016			15,000		15,000
2017			595,000		595,000
2018					
2019			204,000		204,000
2020					
Total	5,174,000	123	815,000	15,000	6,004,123

Source: Asian Development Bank (2019) and World Bank.

Box 1: Gorkha Earthquake of 2015

On April 25, 2015, the Gorkha district of Nepal was struck by a moment magnitude (Mw) 7.8 earthquake. It caused approximately US\$5.4 billion (NPR517 billion) in damages. The housing sector was hit hardest, with approximately 1 million private houses and 6,000 government buildings destroyed or damaged in the event. The worst hit parts of the economy were housing and tourism, totaling approximately 60 percent of the losses. Overall, the event reduced GDP growth from 5.4 percent in 2014 to 2.3 percent in 2015 and 0.01 percent in 2016. The costs became more apparent as the full consequences of the earthquake were felt, with continued losses of income and reduced production.

The event had a significant impact on the government's budget, reserves, and revenues for many years to come. The government's explicit liabilities from the event reached more than US\$1.7 billion (NPR166 billion). However, the government took on additional implicit liabilities as part of the housing reconstruction and human resettlement process. These implicit liabilities included providing several different kinds of cash compensation/grants to homeowners — including for loss of family members, immediate shelter support, managing temporary shelters, reconstruction, and the retrofitting of houses.

Source: Asian Development Bank (2019) and World Bank.

Box 2: Floods of 2017

In the summer of 2017, southern Nepal received many days of continuous rainfall leading rivers to burst their banks, thus overflowing and inundating nearby built-up areas. The flooding occurred across nearly 50 percent of the country's 77 districts, leading to the inundation of around 75 percent of the land across the Terai region. Many thousands of people were displaced from their houses and agricultural fields were submerged. Although the 2017 floods saw lower mortality rates than previous comparable events, it still affected around 1.7 million people and led to damages and losses of US\$585 million (NPR60.717 billion).

Nepal received minimal international humanitarian funding, amounting only to around US\$22 million (NPR2.28 billion) in humanitarian aid. The government provided an estimated additional US\$20-30 million (NPR2.075 – 3.11 billion) to assist with the flood response.

Source: Overseas Development Institute (2019).

Financial Sector Stability

Nepal's financial sector is vulnerable to instability due to large-scale natural hazards that can cause significant damage and loss. This can in turn lead to a deterioration in the asset quality held by lenders. Also, the potential for affected homeowners and businesses to repay their loans might be impacted. The 2015 earthquake illustrated this vulnerability. Although operational disturbances were short-lived with people quickly regaining access to their accounts, the event exposed potential downstream risks for the credit portfolios of microfinance enterprises and cooperatives. Many people withdrew their savings due to a loss of income. Furthermore, the asset quality of loan portfolios deteriorated due to the need to restructure the debt of businesses and resultant damage to real estate.

After the 2015 earthquake, an interest rate subsidy program was introduced by the Central Bank, the Nepal Rastra Bank (NRB) whereby loan extensions/refinancing was offered to homeowners to enable the repair and reconstruction of their assets. Anecdotally, participation in the program was limited due to the poor return to credit providers; also, any future risk of default remained with the borrowers. In the future, a comprehensive diagnostic of such subsidy schemes is recommended to build a better understanding of what a feasible scheme could look like. This could be done in coordination with the Deposit and Credit Guarantee Fund (DCGF) to minimize the impact of disasters on the debt servicing capacity of small and medium enterprises (SMEs) in particular. The financial sector as a whole would benefit from a diagnostic to assess the impact of disasters on the solvency of banks and financial institutions (BFIs) and insurance companies to ensure the sector is resilient to future shocks.

The COVID-19 Pandemic

The COVID-19 pandemic has been an unprecedented crisis that has impacted people's lives and caused significant economic damage. An overview of the situation in Nepal, including the economic impact of the pandemic, is included in this analysis due to its relevance as a shock. It also represents an event for which disaster risk financing principles can be applied. However, pandemics are not included in the later contingent liability analysis, as it is solely based on the impact of natural disasters on the country.

Although the direct health impact of COVID-19 on Nepal had been lower than expected at the outset of the pandemic, increases in the number of positive cases and deaths in April and May 2021 highlight the potential for this situation to rapidly evolve. It is difficult to fully understand why COVID-19 had not heavily impacted Nepal before this latest wave. However, it can, in part, be attributed to the severe lockdown that Nepal went through in 2020, as well as the closing of its various land and air borders.

As of March 9, 2022, Nepal has a total COVID case count of 977,269, with 7,517 active cases, and a total recovery rate of 98 percent. The largest impact has been felt within Kathmandu, where approximately 30 percent of the cases have occurred.

Nepal has been implementing a vaccine program for many months. As of March 9, 21.7 million people have received a vaccination, with 18.2 million people having received their second dose and 1.5 million people having received a booster shot. In the face of the most recent wave of COVID-19 infections, the government has increased its efforts to procure vaccines. As such, it has approached the Governments of China, India, Russia, and the United States.

Economic Impact of COVID-19

Similar to other countries in South Asia, the COVID-19 pandemic has significantly disrupted economic activity in Nepal, reducing economic growth from 7.0 percent in fiscal year (FY) 19 to 1.9 percent in FY20 — resulting in lasting damage to the country.

Nepal's economy has been hit hard by the COVID-19 pandemic, primarily through the shock to the service and tourism sectors, as well as remittance inflows. Prolonged mobility restrictions from March to July 2020, imposed to curtail the spread of the virus, have significantly impacted all sectors of the economy. The impact on tourism, transport, and associated services, such as hotels and restaurants, has been particularly devastating. It is estimated to have caused about 1 million job losses. Remittance inflows, a key driver of private consumption growth and poverty reduction, plummeted by 12.8 percent between mid-March and mid-July 2020 as compared to the same period in the previous year. It was driven by a slowdown in outmigration due to the suspension of labor approvals for foreign employment in March, and subsequent border closures. As a result, there has been contraction in growth of 1.9 percent in FY20 from an average of 7.3 percent in FY17-FY19. However, with vaccines successfully deployed and a gradual resumption of tourism into the country, real GDP growth is projected to be 3.9 percent in FY2022. However, there are multiple downside risks to these projected numbers.

With one-third of Nepal's population living close to the poverty line prior to the pandemic, poverty is likely to have increased due to the COVID-19 pandemic, especially with the increasing number of returning migrants — thus, making the situation more precarious in relation to any further disasters.

The poor and vulnerable have been disproportionately affected by the pandemic, suffering from reduced remittances, foregone earnings from potential migration, job losses in the informal sector, as well as rising prices for essential goods. Livelihoods of those working in the urban informal sector have also been severely affected. People working in this sector are unable to fall back on traditional subsistence production that is available in rural areas, and there are no formal social safety nets available to them. Approximately 20 percent of households are reported to have inadequate food consumption, particularly those households with low education levels, disabled members, female-headed households, daily wage laborers and migrant workers. This leaves many people more at risk of compounding adverse effects from future shocks.

Economic growth is projected to recover gradually to 3.9 percent by FY22. The baseline projections assume a successful domestic and global vaccination rollout, and a gradual resumption of international tourism. Agriculture should continue to contribute positively to growth, as should tourism — although improvements are required in nature-based tourism, enhancing infrastructure for better access, environmental management, and tourism diversification. Such improvements would help to ensure that the sector can fully recover. However, industrial activity is expected to remain below pre-pandemic levels up until early FY22, and services are expected to recover only gradually as domestic confinement measures are lifted. Furthermore, the economic outlook is subject to downside risks. Delays in vaccinations and/ or new outbreaks of COVID-19 both domestically and globally could dampen prospects for economic recovery. The resumption of tourism would be delayed if international travel restrictions are imposed. Domestic risks include political uncertainty, which could undermine investment sentiment. On the upside, effective vaccination campaigns in Nepal and abroad could facilitate the resumption of tourism (World Bank 2021a).



Credit: Photo by Simone D. McCourtie from World Bank Flickr

Understanding the legal and administrative framework, which guides the allocation of roles and responsibilities in fiscal risk management, determines how a government can be expected to manage the cost of disasters. This chapter presents the governance arrangements pertaining to natural disasters in Nepal and highlights areas for further discussion with the Government of Nepal.

The Government of Nepal is committed internationally to disaster risk management. Nepal has committed to implementing the Sendai Framework for Disaster Risk Reduction for 2015-2030,^[2] which is aimed at achieving a “substantial reduction of disaster risk and losses in lives, livelihoods and health, and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries” by 2030. Nepal is one of only nine countries to have submitted their second Nationally Determined Contributions under the Paris Climate Agreement. As such, it aims to achieve net-zero greenhouse gas emissions by 2050.

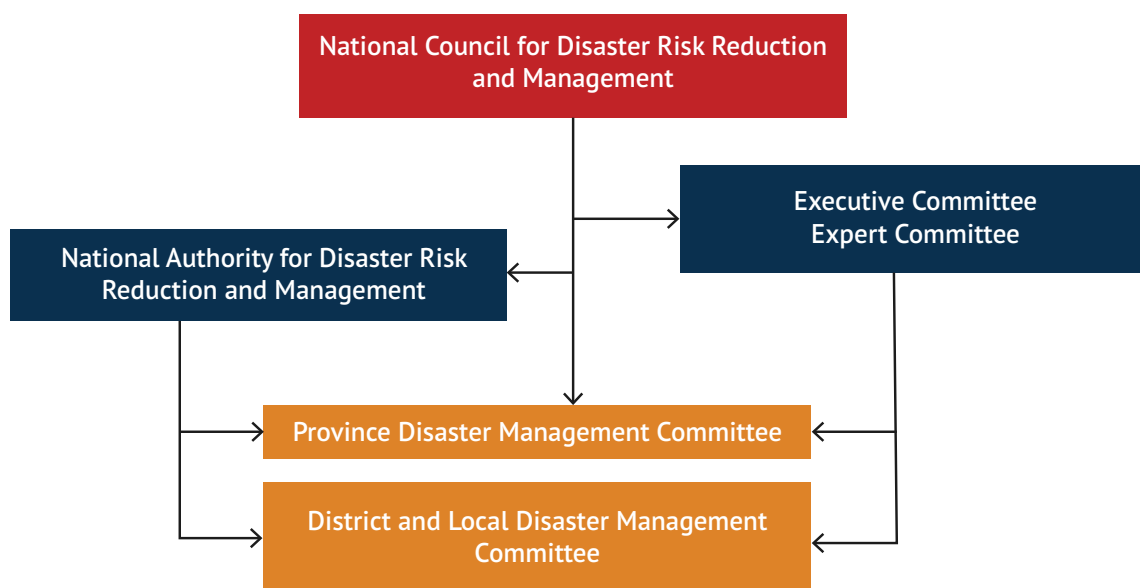
Domestically, Nepal is committed to disaster management at all levels of government. Nepal’s 2015 Constitution set the course for a major shift in power from the federal to the provincial and municipal spheres of government. The Constitution places the responsibility for disaster management with local governments, supported by the provincial and federal governments. Disaster management is on the concurrent list for all three jurisdictions and ‘Policy and national level activities for early preparedness, rescue, relief and recovery’ is on the concurrent list for federal and state jurisdictions.

The 2017 Disaster Risk Management and Reduction Act and the Constitution provide the legal and institutional foundation for Nepal’s disaster management system. Looking to create a dedicated institution for Disaster Risk Reduction and Management (DRRM), the GoN has established the National Disaster Risk Reduction Management Authority (NDRRMA). It has appointed a Chief Executive Officer (CEO) to lead the authority. The DRRM Act includes responsibilities for disaster risk reduction and management, as well as preparedness and response responsibilities for federal, provincial, and local tiers of government. It also proposes the establishment of disaster risk funds at the federal, provincial, district, and local levels. However, regulations governing the maintenance and use of these funds have not yet been established. Along with the Local Government Operations Act (LGOA) of 2017, the DRMM Act includes a comprehensive list of disaster management actions for local governments. The recent 15th Development Plan has mainstreamed disaster risk reduction and management issues into sectoral strategies and working policies. As such, it carries out the jurisdictional responsibility in accordance with the Constitution of Nepal and various legislative provisions on disaster management. A dedicated section on DRRM has also delineated various strategies and working policies to strengthen ‘disaster Resilience friendly governance process’ to achieve the national goal of a ‘safe and resilient Nepal from disaster risk’.

The DRM Act has led to the development of new institutional DRM structures. This includes a National Council for Disaster Risk Reduction and Management (NCDRRM) under the chairmanship of the Prime Minister. It is charged with formulating plans and policies. Implementation is supervised by an Executive Committee under the Home Minister and an expert team. The structure of the disaster response at the national, province and local levels — including the National Disaster Reduction and Management Authority (NDRRMA) under the Home Affairs Ministry, the Province Disaster Management Committee (PDMC) under the chairmanship of chief minister and the District Disaster Management Committee (DDMC), and Local Disaster Management Committee (LDMC) — shall guarantee the implementation of plans, programs and decisions approved by the Council and the Executive Committee. The DRM Act foresees the District Disaster Management Committees (DDMCs) and the Local Disaster Management Committees (LDMCs). The DRM institutional set-up is depicted in Figure 3.

2. The Sendai Framework for Disaster Risk Reduction was signed by 187 countries. It provides a blueprint to help governments plan for disasters.

Figure 3: Government of Nepal's Institutional Organization for Disaster Risk Management



Source: Nepal and others (2018).

Many stakeholders across different levels of government are involved in post-disaster relief, recovery and rehabilitation activities. The Ministry of Home Affairs (MoHA) carries out rescue and relief measures through disaster relief committees at the central, regional, district, and local levels. The MoHA is also responsible for rescue, response, and rehabilitation in coordination with Ministry of Defense as a resource support. Security forces are responsible for search and rescue under civilian command. The Ministry of Finance provides financial support for DRM through its budget. The National Disaster Risk Reduction and Management Authority (NDRRMA) is responsible for the National DRR Center and DRM implementation. The MoHA and the NDRRMA mainly prepare the DRF/DRM budget based on the decision of the DRM Executive Committee. The Ministry of Physical Planning, the Ministry of Energy, Water Resource and Irrigation, and the Ministry of Urban Development are mainly responsible for preparing the budget for post-disaster rehabilitation of the affected infrastructure. The National Reconstruction Authority (NRA) was established in 2015, and it has coordinated the earthquake reconstruction work. With the NRA winding down in 2021, the NDRMMA will take over the remaining work from the NRA. The National Planning Commission is mainstreaming disaster risk reduction into long-term, periodic, and annual development plans. It is also developing multisectoral DRM guidelines. All districts have developed Disaster Preparedness and Response Plans, but many of them are outdated.

The MoHA is the only ministry with a dedicated disaster response budget line. The Ministry of Home Affairs is the focal ministry for DRM in Nepal. As such, it plays a lead role in post-disaster response, particularly in managing rescue and relief operations through the mobilization of security forces and other humanitarian actors. These operations are coordinated by Disaster Relief Committees at the central, regional, district and local levels. The Office of the Prime Minister and the Council of Ministers is responsible for coordinating, directing, and facilitating the preparation of national policies and strategies to reduce disaster risk. The Prime Minister's Disaster Relief Fund is held under the Office of the Prime Minister, and it can also be drawn upon in times of need. The National Planning Commission mainstreams disaster risk reduction into development plans and develops multisectoral DRM guidelines. The MoHA/DRM Executive Committee also develops multisectoral DRM guidelines. The Ministry of Federal Affairs and General Administration increase local DRM capacity. Other public entities involved in DRM include, among others, the National Planning Commission, the Water and Energy Commission, the Ministry of Energy, Water Resources and Irrigation (through its Department of Water Resource and Irrigation and Department of Hydrology and Meteorology), the Ministry of Education, Science and Technology, the Ministry of Urban Development, the Ministry of Forests and Environment, the Ministry of Agriculture and Livestock Development, the Ministry of Health and Population, and the Ministry of Industry, Commerce and Supplies.

The National Policy for Disaster Risk Reduction of 2018 and the Disaster Risk Reduction National Strategy both highlight the need to develop a more vibrant Disaster Risk Financing sector in Nepal. Under this mandate, the Government of Nepal intends to move toward a more proactive and cost-effective approach to financial planning, one that protects national, provincial, and municipal budgets, as well as the lives and livelihoods of their residents from the impacts of disasters and climate change.

A national diagnostic assessment of budgetary and financing mechanisms for disaster risk reduction and management is essential to making an informed decision to align financial planning with the DRRM and LGOA Acts. For this reason, in its budget speech, the Government of Nepal promised to adopt a Disaster Risk Financing Strategy. It was subsequently adopted in mid-2021.

Several policies and guidelines (Table 3) help to guide agencies in post-disaster expenditures, as well as better financial management of disasters.

Table 3: Policies and Guidelines for Post-disaster Expenditures in Nepal

Name of policy	Purpose
Disaster Risk Reduction and Management Act (2017)	The policy calls for a clear provision for disaster management, fund allocation at the federal, provincial, and local levels. It also gives the Government of Nepal the ultimate responsibility of declaring a disaster emergency.
National Policy for Disaster Risk Reduction (2018)	The policy calls for agriculture, livestock and business insurance and collaboration with the private sector to work on DRM solutions.
National Disaster Risk Reduction and Management, Strategic Plan of Action (2018-2030)	The policy and Action Plan provide a framework for long-term DRM areas of action. The DRF-related areas include working with the private sector. Article 7.37 calls for the promotion of new risk transfer products, including agricultural insurance, as well as soft loans for disaster-affected communities.
Local Government Operation Act (2017)	The Act tasks the local level with responsibility for implementing National Building Codes and Standards and operating activities related to the Safe Settlement Development Program. It also governs the coordination and distribution of local disaster response and rescue; operations and management of the local DRR Funds; and local data management.
National Disaster Response Framework (2013)	The NDRF defines 61 emergency response operational activities in the case of a disaster, assigning responsibility to certain lead agencies.

Source: World Bank.

The GoN struggles to spend its allocated capital for post-disaster recovery. Nepal has devolved significant expenditure responsibility from the federal level to the 753 newly created municipalities and 7 provinces since FY18. This has exacerbated the underspending of capital budgets. Despite some guiding documents currently in place, there are still many guidelines missing for many types of post-disaster expenditures at all levels of government. Several additional factors have contributed to the underspending of the GoN's DRM-related budgets, including: (i) confusion over concurrent responsibilities; (ii) limited human resources; (iii) a fragmented public financial management system; (iv) slow procurement services; and (v) lengthy budget reallocation services that take substantial approval time from the Ministry of Finance (MoF).

Weaknesses in internal controls and oversight and capacity constraints further hamper the GoN's ability to spend allocated amounts for post-disaster recovery. There is a need to build capacity (skills, equipment, knowledge) at all tiers of government to enable them to fulfill their new responsibilities and manage disaster-related expenditures. Increased coordination of funding between layers of government would also increase the GoN's ability to respond to disasters in a more timely manner.

Disaster expenditures after the 2015 earthquake were slow during the first two fiscal years following the disaster. Allocated NRA grants for private houses and building construction were insufficient at first. Institutional conflict over responsibility for the reconstruction of public buildings, including health clinics and schools, further slowed expenditure rates. Frequent leadership changes at the sovereign level (for example, the NRA) down to local levels are believed to have further prevented quick, targeted disbursements. Donors, such as China and the United States Agency for International Development (USAID) have been implementing projects on a turnkey basis, but they do not report their expenditures to the GoN (NRA). Most recently, the COVID-19 pandemic has significantly slowed NRA expenditures. As a result, the NRA has been granted permission to extend its work until mid-November 2021, at which point all regular operations will cease. A further 6-month period will be utilized to conduct a hand over to the relevant successor agencies nationally, regionally, and locally. The NDRRMA will take over the majority of the NRA's operations. It has the challenge of institutionalizing the lessons, and ensuring that DRR, DRM and DRF are a continued focus for the government.

The Government of Nepal has limited disaster risk financing mechanisms to finance disaster response, recovery, and reconstruction. At present, budget allocations are the only ex-ante finance instrument. The Prime Minister’s Disaster Relief Fund collects funds through international appeals after disasters and disburses them to only provide relief to affected people. No money is spent on overhead or infrastructure. These funds are released to the District Relief Funds. In addition, the GoN uses post-disaster budget reallocations and humanitarian appeals in the case of major disasters. Through its 2021 National DRF Strategy, the GoN seeks to become a more proactive risk manager. As such, it has put in place additional instruments, including risk transfer, to improve its financial management of natural disasters.



Credit: Photo by Aisha Faquir from World Bank Flickr

The Nepali insurance market is still nascent. General insurance penetration in Nepal is only 4 percent. The market has 39 licensed insurance companies, including 19 life insurance companies and 20 non-life insurance companies. There is no dominant insurance company in the Nepali insurance market. For example, no non-life insurance sector firm has a market share greater than 13.3 percent. The general insurance sector premium Compound Annual Growth Rate (CAGR) has increased by 17 percent (from FY 2014/15 to 2018/19). Life insurance penetration amounts to 24.01 percent as of April 13, 2021.

Insurance penetration rates remain low. The ratio of premiums to GDP in FY2019/2020 in Nepal amounted to 0.65 percent for non-life business and 0.13 percent for property insurance, compared to 3.88 percent globally for non-life business and 1.64 percent in the Asia-Pacific region. It estimated that only 20-30 percent of properties in urban areas are insured and less than 5 percent in rural areas.

Nepal Re was established by GoN in 2014, and until recently remained the only domestic reinsurance company in Nepal. In May 2021, Himalayan Reinsurance received an operating license, and has since become the second reinsurance company to operate in Nepal. Nepal Re is a Public-Private Partnership (PPP) model company with 44.04 percent equity participation of the Government of Nepal, 16 percent public, and 39.96 percent institutional investment — predominantly from Nepali insurance companies. Apart from the government, 17 domestic insurance companies hold major stakes in Nepal Re. The GoN made it mandatory for Nepali insurers to reinsure at least 20 percent of their business with domestic reinsurance companies, on a proportional basis and to a limit of NPR300 million (US\$2.5 million). Beema Samiti has formed a committee to identify if/how the licensing of Himalaya Re will change mandatory cession requirements.

Beema Samiti, GoN's national insurance supervisor under the MoF, was founded in 1992 based on the 1992 Insurance Act. The 1992 supervisory framework is outdated, and central pieces of modern insurance legislation are missing, including legislation on corporate governance. Also, it has been noted that insurance accounting is not up to international financing reporting standards. However, new standards are expected to be implemented across the insurance industry and Beema Samiti.

The Nepali insurance sector offers conventional life and non-life insurance products. The following insurance products are available in Nepal: property, motor, engineering, marine and aviation insurance, as well as micro insurance for farmers. A wide range of policies are also issued under the “miscellaneous” category (more details are available in Annex 5 of this report).

Nepal's property insurance sector remains underdeveloped. A significant portion of Nepal's contingent liabilities from natural disasters are associated with the reconstructions of buildings and property. However, while the property insurance sector has grown by about 20 percent annually in recent years, property insurance premiums remain below the global and the regional average.

Property insurance in Nepal is a tariff product. Tariffs and other product terms are set by Beema Samiti with support by industry experts but without risk modelling. Beema Samiti sets the minimum price that must be charged as well as all perils to be covered. All property insurance products are comprehensive in their peril coverage meaning that they cover losses associated with fire, wind, water (flood, typhoon), earthquakes, land sliding or debris sliding, lightning, explosion, air objects, and other non-natural hazards. Until the introduction of the Directive on Property Insurance in 2019, only fire and earthquake coverage had been compulsory. The Directive also lowered the tariff rate for domestic property insurance. Most property insurance is sold through bank assurance.

Insurance products against natural disasters in addition to property insurance are not sufficiently available in Nepal due to a lack of suitable products, combined with anecdotal evidence which suggests a low level of demand for them. This is primarily due to low levels of awareness regarding insurance. For example, no disaster risk insurance is available for tourism operators. Crop and livestock insurance are available, and they are subsidized at an 80 percent premium rate.

The Nepali insurance industry introduced a COVID-19 product that provided a financial payout of US\$850 (100,000 NPR) to those who tested positive for the virus. The product does not cover long-term financial recovery or losses incurred. The financial arrangement has been made in association with the regulator and the Ministry of Finance. (It was also part of the Government's 2020 budget speech). As of April 12, 60,587 beneficiaries had received pay-outs amounting to over 5.85 billion NPR(US\$50.43 million). The deadline for insurance claims ended on July 15, 2021.

The Government of Nepal has envisioned Nepal's insurance sector to provide broader access to insurance and risk transfer mechanisms. In order to address the problems of the insurance sector, as part of its Financial Sector Development Strategy (FSDS) (2073/74 to 2077/78 2017/18 to 2021/22), the GoN proposed the following strategy (Government of 2017):

- a. Increase insurance participation by increasing access to the market and making it more inclusive.
- b. Strengthen the regulatory framework of the insurance sector.
- c. Implement risk-based supervision.
- d. Enhance the legal framework.
- e. Increase transparency and accountability.

As part of the FSDS, the regulator, Beema Samiti, the insurance industry and other private sector actors need to collaborate to ensure Nepal's risk from natural catastrophes is adequately identified, assessed, and communicated. This will facilitate the management of risk at all levels, including investment in DRR, DRM and DRF activities, as well as the potential for financial incentives to stimulate private investment. Alongside these activities, further efforts are needed to increase awareness among governments, businesses and individuals about disaster risks and their respective roles in managing these risks.



Credit: Photo by Simone D. McCourtie from World Bank Flickr

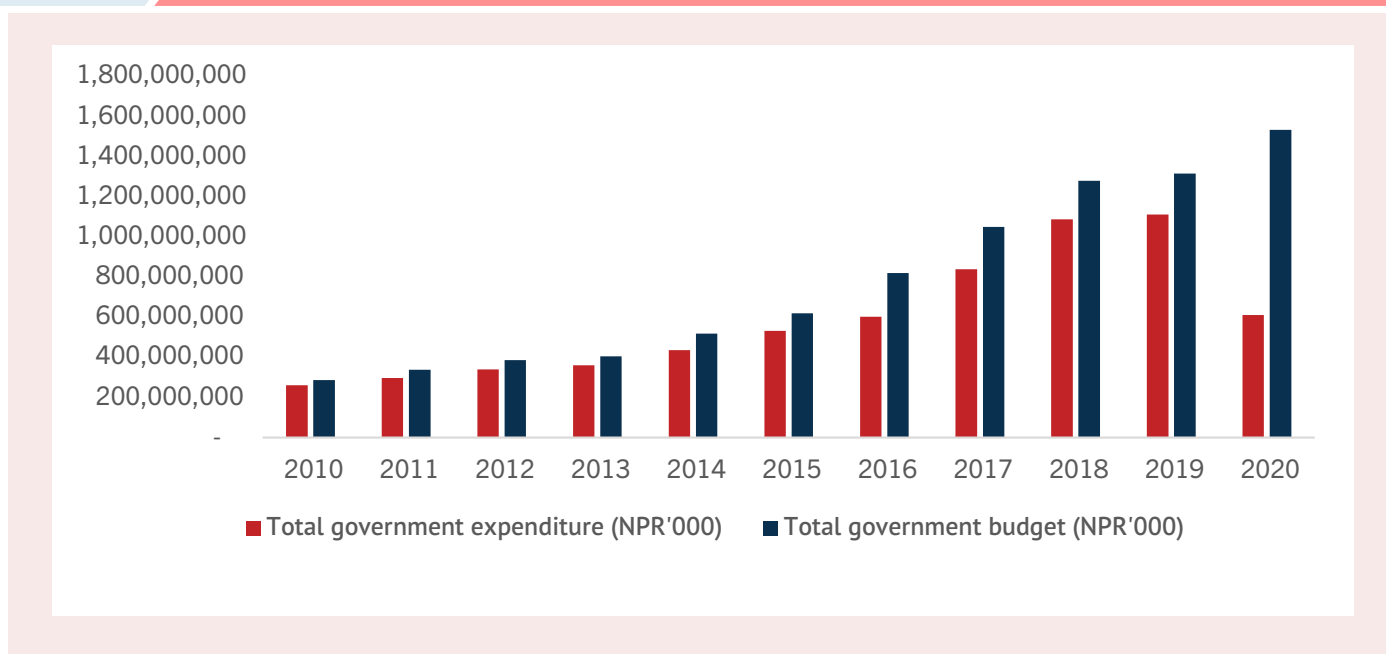
Contingent liabilities are obligations that are triggered when a potential, but uncertain event occurs. They may be explicit, arising due to a pre-arranged explicit commitment made, for example, in the form of contracts or policies. Alternatively, they may be implicit, arising due to a moral obligation without any prior commitment, for example, the reconstruction grants provided to homeowners following the 2015 Gorkha earthquake.

There are two complimentary methods that can be used to estimate the government's exposure to both types of contingent liabilities arising from natural disasters, namely, direct estimation and modelling. The first method, direct estimation, involves an analysis of all historical data concerning government expenditures in response to past disasters. The second method, probabilistic modelling, uses all available loss data from previous disasters to estimate the occurrence and costs of different types of disasters. This chapter presents an overview of each method. As such, it allows for a greater understanding of the range of the GoN's potential liabilities from natural disasters. However, as a caveat, it should be noted that there were significant challenges in developing both methods. This was due to key data limitations (accuracy and completeness), as well as difficulties in obtaining government information, predominantly due to the ongoing COVID-19 pandemic. Annexes 5 and 6 provide further information about the two calculation methodologies.

Direct Estimation of Contingent Liabilities

Since the 2015 earthquake, total government expenditures have markedly increased, with a larger increase in current expenditures than capital expenditures. A proportion of total expenditures are used by the GoN to fund relief, recovery, and rehabilitation activities after a disaster. However, although revenue has increased over this time,^[3] it has not kept pace. Thus, the overall fiscal balance showed a significant decline from 2016 to 2018. This corresponds with a rise in total public debt from a low of 25 percent of GDP in 2015 to 30 percent of GDP in 2018. This trend is expected to continue into the medium and long terms. This level of debt has also been shown to be vulnerable to natural disasters and other economic shocks.^[4]

Figure 4: Total Government Budget and Expenditures, FY2010-2020 ^[5]



Source: Red Books.

3. The Financial Comptroller General Office (FCGO) of Nepal notes revenue figures of NPR481.96 billion, 609.18 billion and 726.72 billion in 2016, 2017 and 2018, respectively. (GON Consolidated Financial Statement FY 2018/19, FCGO June 2020; www.fcgo.gov.np).

4. <http://documents1.worldbank.org/curated/en/970631570771837211/pdf/Nepal-Joint-World-Bank-IMF-Debt-Sustainability-Analysis-February-2019.pdf>.

5. The data does not include loan and principal repayments.

For the direct estimation of the GoN's contingent liabilities, data was collected from a wide range of ministries and other public agencies. Estimates in the tables below were calculated based on the following data:

- Expenditure data provided by the Ministry of Finance.
- Expenditure data from the Prime Minister's Office.
- Expenditure data provided by select line ministries and agencies including: the Ministry of Home Affairs, the National Reconstruction Authority, the Department of Urban Development, the Department of Roads, the Department of Water, and the Nepalese Army.
- Expenditure data by the National Electricity Authority and Nepal Telecom.
- Proxy estimates of expenditures at the local level derived from the average amount put toward the local disaster fund.^[6] In line with federalization reforms, the provinces and local governments have been allocated funding for the past three years.

The estimate of post-disaster liabilities provided below may underestimate expenditures by the GoN. This is due to a number of reasons. Firstly, there are several budget codes that can be used to record post-disaster expenditures. This means that it is likely that not all budget codes used for the relief, rehabilitation and reconstruction are captured in the calculations. Secondly, data was collected from most of the relevant federal ministries and other public authorities, however, some data remains to be collected from the Ministry of Education, the Ministry of Forests and Environment, the Ministry of Health, and the Ministry of Industry. Thirdly, as data was collected through working solely with federal authorities, the numbers may underestimate provincial and local expenditures.

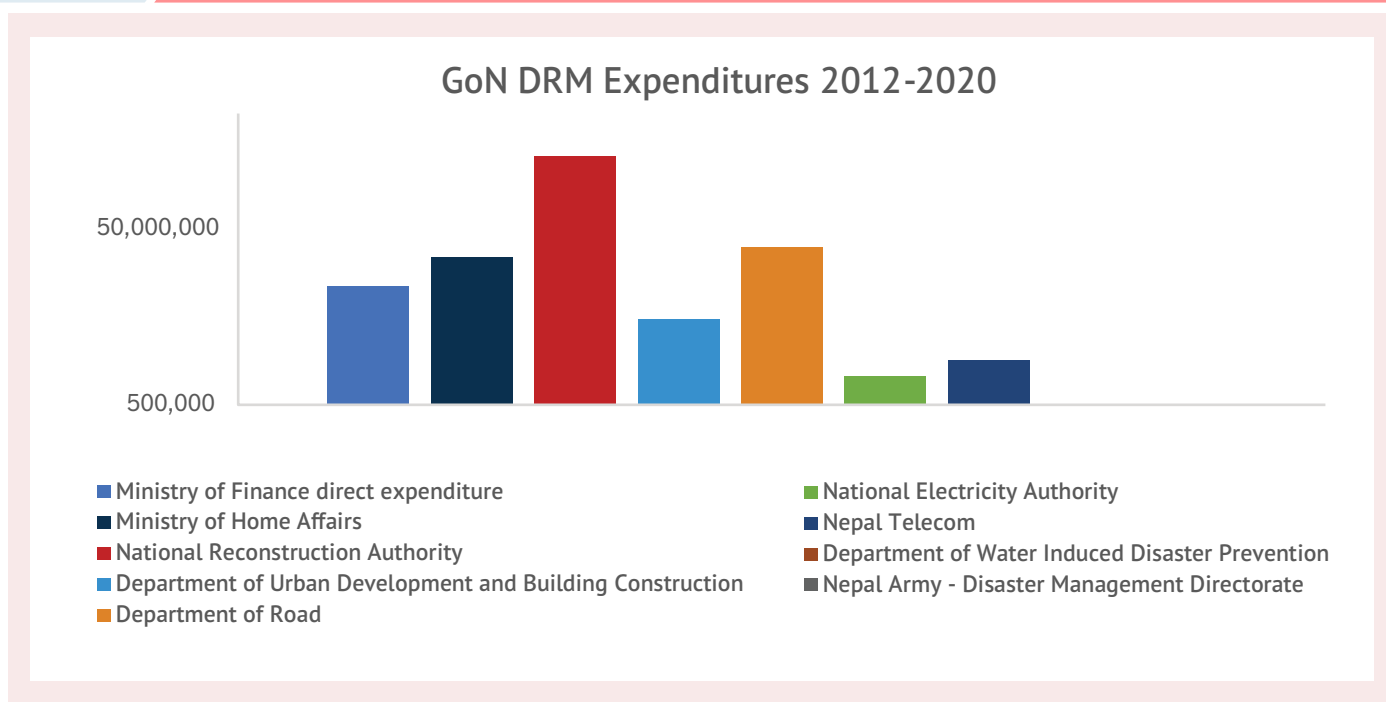
Table 4: Government Contingent Liabilities (direct estimation)

	2015 Earthquake	2016	2017	2018	2019	2020
Total post-disaster expenditure (NPRmillion)	21,571	46,672	66,004	135,227	104,888	64,387
Total post-disaster expenditure (converted into US\$ million as per end-of-year exchange rate)	199	425	601	1,312	909	541
Post-disaster expenditure as percent of total government expenditure (percent)	4.06	7.77	7.88	12.44	9.45	10.54
Post-disaster expenditure per capita	769	850	565	699	517	395
Post-disaster expenditure as percent of GDP (percent)	1	2	2.4	4.4	3	1.7

Source: World Bank.

6. The average figure was derived from five local governments in five provinces.

Figure 5: Federal Disaster-related Budgets for All Major Agencies (2012-2020)



Source: World Bank.

The Government of Nepal's disaster-related expenditures between 2012 and 2020 amount to over US\$3.8 billion (NPR451.45 billion), an annual average of about US\$430 million (NPR50 billion). 97 percent of these resources were provided after the 2015 earthquake, mostly by the international community. The direct estimation method found the largest source of contingent liabilities to be grants awarded by the National Reconstruction Authority (NRA) for the reconstruction of houses/buildings, totaling about US\$1.5 billion (NPR180 billion). Major sources of contingent liabilities for the GoN include relief payments and supplies; resettlement of affected communities; reconstruction of private housing; and the rehabilitation and reconstruction of public infrastructure and assets.

On average, the Government of Nepal experiences annual, explicit contingent liabilities attributable to natural disasters of about 2 to 3 percent of its annual budget. Most of the losses occur from floods and earthquakes. Excluding expenditures by the NRA for the 2015 earthquake, expenditures from disasters are estimated to be US\$690 million (NPR80 billion) over the past five years, or an average of US\$115 million (NPR13 billion) per year. This equates to approximately 2 percent of total government expenditures. However, the GoN's liabilities in the aftermath of the 2015 earthquake rose to at least 4.4 percent. The average annual loss for flooding is about 0.6 percent of the annual budget (US\$80 million, NPR8.860 billion), and for earthquakes, it is about 2 percent (US\$270 million, NPR29.303 billion). Thus, the total average annual loss for all disasters is 2.6 percent (US\$350 million, NPR38.763 billion).

Recent disasters, excluding the 2015 earthquake, have primarily been financed through dedicated budget lines and funds and post-disaster budget reallocations; these were made possible by stopping ongoing capital expenditure programs where possible. The government consistently struggles to spend its allocated capital expenditures across sectors. This should mean that significantly more resources from its overall budget could be made available to meet any disaster losses occurring that year. It also indicates issues with regard to coordination, budget lines and disbursement plans across the government. These issues are addressed in the recommendations section of this report. In relation to dedicated budget lines, the Ministry of Home Affairs is provided with an annual appropriation for relief payments into its Disaster Relief Fund. The Ministry of Finance also has a miscellaneous budget line that is used to provide additional funding to line ministries, for example, the Ministry of Home Affairs, as required. In addition, dedicated disaster funds are held by provincial and local governments and by the Prime Minister's Department. The NRA manages reconstruction funding associated with the 2015 earthquake. The Department of Water also manages post-disaster expenditures in case of a flood.

For major disasters, international assistance has been a significant source of funding. Analysis of the 2015 earthquake response

reveals Nepal's reliance on international assistance for large disasters. Following the earthquake, the government identified US\$7.7 billion (NPR838 billion) in financing needs that would be required to be invested in recovery and reconstruction, or approximately 100 percent of total government expenditures for FY14. During the International Conference on Reconstruction in June 2015, the GoN received donor pledges of US\$3.8 billion (NPR410 billion). Combined with the US\$1.3 billion (NRS135 billion) of its own resources, the government had a total of US\$5 billion (NPR545 billion) in terms of on-budget funding. Although the amount committed by donors reached around 95 percent of that pledged, at the end of FY2020, only 26 percent had been disbursed. Indeed, to this date, several reconstruction projects have yet to be started. This highlights some of the challenges that can be associated with this type of funding. In this context, the true cost is likely to be even higher than identified by the government. The difference between the on-budget funding and identified needs would have to be made up by off-budget funding, community funding and private sector funding. In 2018, Nepal received US\$1.450.7 billion (NPR158 billion) in official development assistance (ODA), constituting 24 percent of the national budget. However, over the past 10 years, Nepal has only managed to spend an average of 48 percent of its yearly allocation. In addition to ODA, the GoN now has access to a World Bank Development Policy Loan with a Catastrophe Deferred Drawdown Option (Cat-DDO) in the amount of US\$50 million/NPR5.9 billion. This loan will help to strengthen the country's fiscal resilience to disaster.

Composition of Disaster-related Contingent Liabilities

The GoN's post-disaster liabilities can be broadly categorized into six areas:

1. **Relief payments and supplies** provided to affected communities through the Disaster Relief Fund, which is managed by the Ministry of Home Affairs and the District Administration Office. This liability is primarily financed through dedicated budget lines, alongside additional funding from MoF as required.
2. **Resettlement of affected communities following a disaster.** The resettlement program is managed by the Ministry of Housing and Urban Development, with assistance from the army in some cases. It is financed through annual budget allocations to the Integrated Settlement Development Program.
3. **Response efforts provided by the GoN's armed forces.** After a disaster, the GoN's armed forces are actively involved in relief and rescue efforts. This liability is financed using funds already budgeted for, and/or a reallocation of additional funds from the MoF.
4. **Rehabilitation and reconstruction of private housing.** This support is managed by the National Reconstruction Authority and financed through annual appropriations. In future, the program will be managed by the Ministry of Home Affairs.
5. **Rehabilitation and reconstruction of damaged public infrastructure and assets.** This expenditure is budgeted and paid for by the line ministries and the provincial and local governments. Rehabilitation of infrastructure is also paid for by state-owned enterprises' own funds or through additional funds allocated by the MoF.
6. **Support to stimulate economic recovery.** Support includes infrastructure development through labor-based technology in the rural areas and use of modern technology in the urban areas; education and health-related activities; food security-related activities, especially in the agriculture and livestock sector; electricity; and microenterprise development. Available budget and expenditure data would need to be provided by the GoN to allow for a clearer picture of government spending on support to stimulate economic recovery.

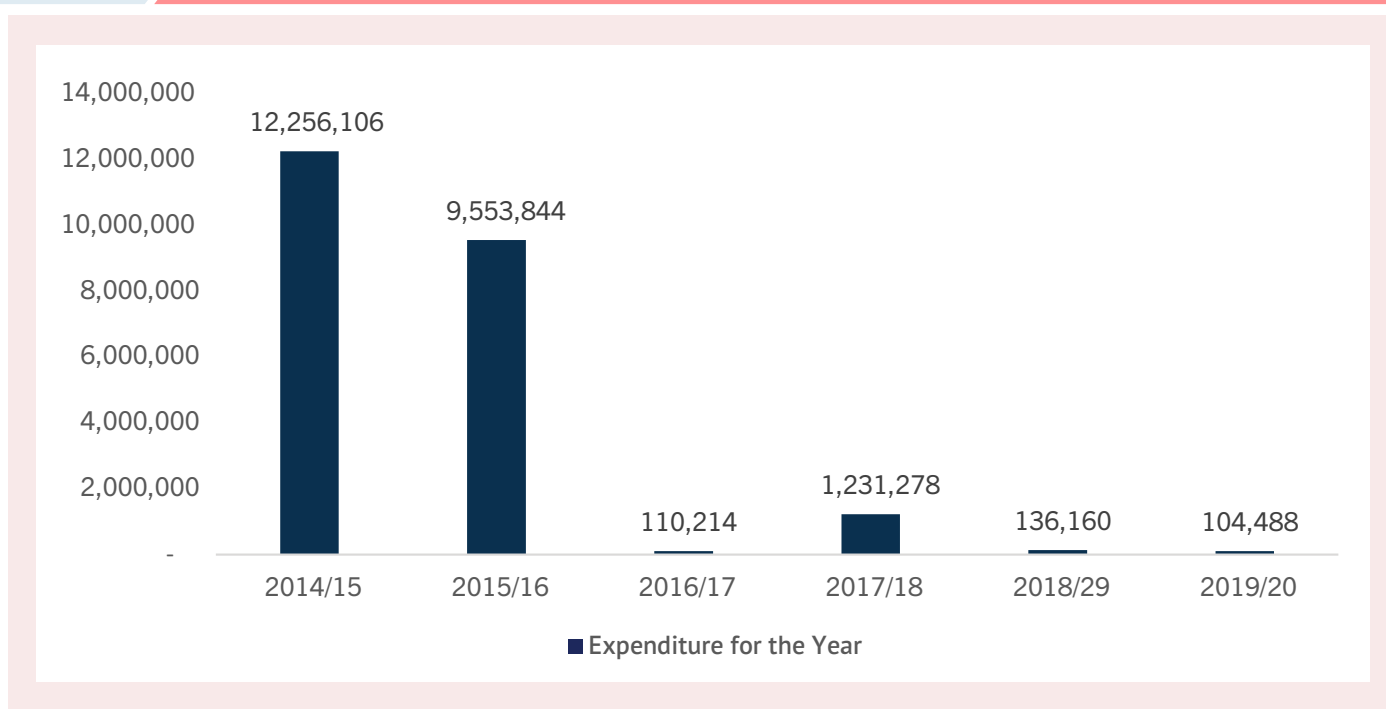
As noted, contingent liabilities may be explicit (those underpinned with some form of legal obligation) or implicit (where there is a social expectation that the government will act as an insurer of last resort). This distinction is important as explicit contingent liabilities are usually easier to identify and manage. However, they often represent a small proportion of the total contingent liabilities following an event. After the 2015 earthquake, only US\$1.7 billion (NPR166 billion) of the identified loss was the government's explicit liability. Yet, it also took on additional implicit liabilities, including a large proportion of housing losses and uninsured private sector losses. Expenditure data provided by the National Reconstruction Authority confirms this. The NRA has spent US\$2.8 billion (NPR329 billion) over the course of 5 years, that is between July 2015 and July 2020 (the figures for FY20/21 are not yet available). As identified prior to the reconstruction, the two largest NRA expenditures have been grants for private housing (55 percent) and the costs of various buildings. To date, 89 percent of the overall amount pledged (NRS136 billion) has been disbursed.

A breakdown of each expenditure area is provided in the following section. A table with expenditure data provided by the above-listed institutions is included in Annexes 5 and 8.

1. Relief payments and supplies

The GoN, through the Ministry of Home Affairs, provides immediate relief to disaster victims. Disaster relief funds are transferred from the MoHA to the District Response Committees (formed with the Chair of the Chief District Officer, under the Ministry of Home Affairs), which then distributes relief as required. The newly established National Disaster Risk Reduction and Management Authority (NDRRMA) will operate the fund in the future. A Disaster Response Committee at the local level decides how much is spent, on what, and how best to respond. The Disaster Relief Fund under the Prime Minister's Department may also be used for emergency relief and response efforts. Figure 6 shows expenditures through the Disaster Relief Fund over the past five years. The amounts provided to affected communities are disbursed according to guidelines that have been developed by the MoHA. The Disaster Relief and Rescue guidelines state that a compensation amount of US\$1,600 (NPR200,000) is provided to families for any person who dies because of a disaster, with an additional US\$800 (NPR100,000) for every additional person who may have also died within the same family. In addition, all disaster-affected families are to be provided with immediate one-off living assistance of up to US\$123 (NPR15,000) per family (for up to 5 family members) and up to US\$164 (NPR20,000 for families with more than 5 members). Should a family lose their housing, they are to be provided with temporary accommodations. If they do not have access to alternative accommodations, they are then eligible to access secure shelter construction grants of up to US\$800 (NPR100,000) per family.

Figure 6: Relief Expenditures through the Disaster Relief Fund, FY2015-2020



Source: MoHA.

2. Resettlement of affected communities following a disaster

Communities affected by a natural disaster, such as a landslide or a flood, are eligible for funding from the GoN through the Ministry of Housing and Urban Development. The Ministry is currently implementing an Integrated Settlement Development Program. This program provides US\$400 (NPR50,000) per household. Thus far, 3,000 households in 10 districts of 7 provinces have received funding. The Nepali Army also provides support in the resettlement of affected communities, and it has received funding directly from the MoF in the past for this initiative.

In the aftermath of the 2015 earthquake, the NRA has also been providing financial support to beneficiaries to purchase land and relocate. The GoN, through the NRA, has provided a grant of US\$800 (NPR200,000) to people who live in high risk areas or who are landless. This enables them to purchase land.

3. Response efforts provided by the GoN's armed forces

The armed forces play a vital role in relief and recovery efforts after a disaster, including fires, landslides, floods, and thunderstorms. Regular disaster response training is carried out in conjunction with international partners. The DRF-related spending of the armed forces amounted to US\$1.4 million (NPR15 million) in 2019, and US\$1.8 million (NPR20 million) in 2019 and 2020. This is financed partly through the national budget, and partly through the reallocation of funds from the MoF. Recently, the armed forces have also been operating COVID-19 crisis centers.

4. Rehabilitation and reconstruction of private housing

The NRA was established to direct government and donor financing for the reconstruction of private housing after the 2015 earthquake. Each private household whose house was deemed to require demolishing and a new home constructed in its place was provided with reconstruction grants of up to US\$2,400 (NPR300,000). This funding was provided in three tranches. As of January 2021, the NRA reports that of the 808,890 beneficiaries who have signed agreements for a reconstruction grant, 559,429 (69 percent) have built their houses and 167,573 (21 percent) are in the process of repairing their houses.

In 2021, the NDRRMA prepared and approved the “monsoon-affected private housing reconstruction and rehabilitation procedures”. In line with these guidelines, private houses damaged beyond repair by monsoon-related disasters will be provided with reconstruction grants. Beneficiaries selected in the mountainous districts will be provided with US\$4,100 (NPR500,000), those in the hilly region will receive US\$3,300 (NPR400,000), and US\$2,500 (NPR300,000) will be made available to those located in the Terai. Costs will be shared between the local, provincial and central levels of government. All three tiers of government will be responsible for allocating the reconstruction grants to families.

A recent report by the NRA notes that the GoN does not have data about the number of private houses damaged by monsoon-induced disasters. However, district disaster management committees have been tasked with gathering data on houses damaged by monsoon-related catastrophes.

5. Rehabilitation and reconstruction of damaged public infrastructure and assets

The rehabilitation and reconstruction of damaged public infrastructure and assets is paid for by the line ministries. The NRA has been responsible for the implementation of the reconstruction and rehabilitation program following the 2015 earthquake. It has also been responsible for the reconstruction of some of the infrastructure damaged by the 2015 earthquake (Table 4).⁷ For line ministries that may need to rehabilitate infrastructure, they are asked to spend from their existing budget in the first instance. If further funds are required, the MoF will utilize its miscellaneous budget line to provide additional funds. According to the Financial Procedures and Fiscal Responsibility Act, transfers between one budget code to another can be made up to a limit of 10 percent. This ceiling does not apply to the Ministry of Finance’s miscellaneous budget.

Table 5: Status of Reconstructed/Rehabilitated Public Infrastructure

	Target Number	Reconstructed	Under construction
Educational institutions	7,553	6,058 (80.6%)	1,468 (19.4%)
Health institutions	1,197	698 (58.3%)	143 (11.9%)
Cultural heritage	920	465 (50.4%)	272 (29.6%)
Public buildings	415	374 (90.1%)	25 (6%)
Security buildings	216	214 (99.1%)	2 (0.9%)

Source: NRA Report (December 2020-January 2021).

7. According to the National Reconstruction Policy, the objectives of the NRA are as follows: (i) to reconstruct, retrofit and restore partially- and completely-damaged residential, community and government buildings and heritage sites, and to make them disaster-resistant using local technologies as needed; (ii) to reconstruct (restore) damaged cities and ancient villages to their original form, while improving the resilience of the structures; (iii) to build resilience among people and communities at risk in the earthquake-affected districts; (iv) to develop new opportunities by revitalizing the productive sector for economic opportunities and livelihoods; (v) to study and research the science of earthquakes and their impact, including damages and effects, as well as post-earthquake recovery, including reconstruction, resettlement, rehabilitation and disaster risk reduction; and (vi) to resettle the affected communities by identifying appropriate sites.

The Deputy Auditor noted that the GoN does not, at present, have a consolidated view about the cost of the rehabilitation and reconstruction of damaged public infrastructure and assets. However, an estimate of 5 percent of capital expenditures may be used for repair/reconstruction activities in any given year.

The Department of Roads asks for US\$16.5 million (NPR2 billion) every year from the MoF for debris clearance and maintenance following the annual floods and landslides. However, it usually receives only 60 percent of this amount. In addition, the Department of Roads requests an annual budget allocation for the rehabilitation of roads and bridges. The MoF asks for a prioritization of needs and for the Department to first spend from under-utilized capital allocations before providing additional funds. On average, US\$41.4 million (NPR5 billion) is utilized every year for post-disaster expenditures. Nepal's Electricity Authority also asks for around US\$41.4 million (NPR3 billion every year), and the GoN provides funding predominately as a loan/investment.

Support to Stimulate Economic Recovery

Support to stimulate economic recovery after a disaster is primarily funded through existing programs led by the respective line ministries.

The GoN is implementing a variety of activities to stimulate economic recovery and job growth following disasters. Activities include, but are not limited to, infrastructure development through labor-based technology in the rural areas, and the use of modern technology in the urban areas; education and health-related activities; food security-related activities, especially in the agriculture and livestock sector; electricity; and microenterprise development.

Available budget and expenditure data would need to be complemented by additional data from the GoN to allow for a clearer picture of total government spending in support of stimulating economic recovery.

Probabilistic Calculation of Contingent Liabilities Resulting from Natural Disasters

Contingent liabilities can also be estimated using probabilistic modelling. To build a greater understanding of contingent liabilities from natural disasters, it is important to consider the potential future losses that could be faced by Nepal which could feasibly be expected to occur with different frequencies or return periods. This type of information can support financial planning for disasters as it enables the governments to develop risk-informed budgeting practices, such as establishing an optimal amount for a reserve fund to finance a disaster response.

Modelling techniques allow for the estimation of disaster losses and the calculation of government contingent liabilities from disasters. There are currently two analysis available, one performed by the Asian Disaster Preparedness Center (ADPC) in 2010 and the other using historical economic loss data available in EM-DAT. The use of such modelling techniques would allow for the investigation of the spectrum of possible losses that could occur for a range of potential events.

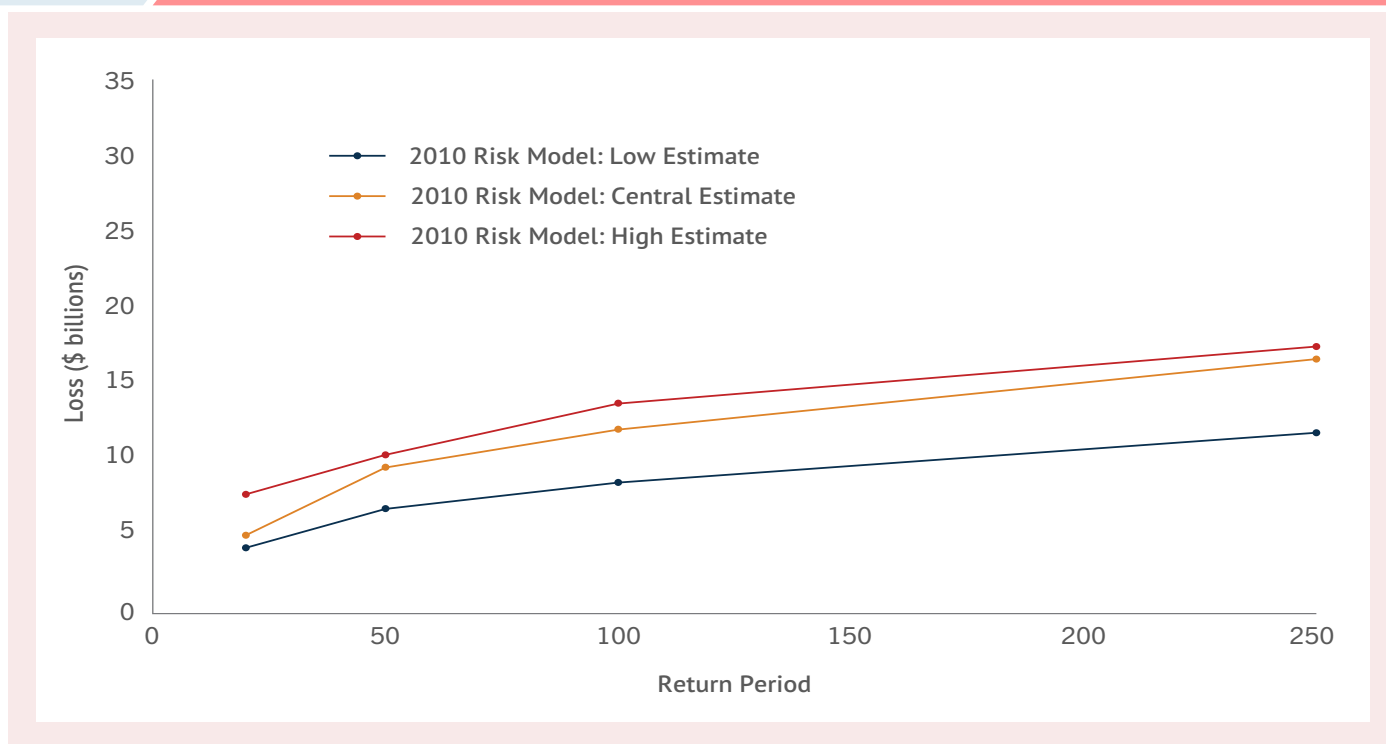
A report by the ADPC found that Nepal would struggle to fund damages and losses stemming from a combined 20-year flood and earthquake. This analysis was conducted in 2010 to build a better understanding of the potential economic losses from possible hazards. This work provided the first assessment of the plethora of risks that Nepal faces to the various sectors of its economy. As such, it sought to present the impact these could have on the country's budgets and available reserves.

The report presents its assessment of the potential distribution of risks using:

- i. Individual scenario events, for example, a repeat of the 1934 earthquake could lead to a substantial 20 percent reduction in GDP.
- ii. Return period losses. Figure 4 shows the three respective return period loss curves. Each point on the curve depicts the estimated likelihood of a loss of a particular size occurring within a given timeframe. For example, for the central estimate (yellow line) the expected loss from the combined disasters (earthquakes and floods) for the 100-year return period is in excess of approximately US\$12.5 billion (NPR1.384 trillion).

The hazard assessment was done for multiple disasters, such as earthquakes, landslides, floods, droughts, and epidemics. However, the financial assessment was only done for earthquakes and floods, as it is these particular disasters that drive Nepal's risk.

Figure 7: Potential Damages Due to Combined Flood and Earthquake Risks



Source: ADPC 2010.

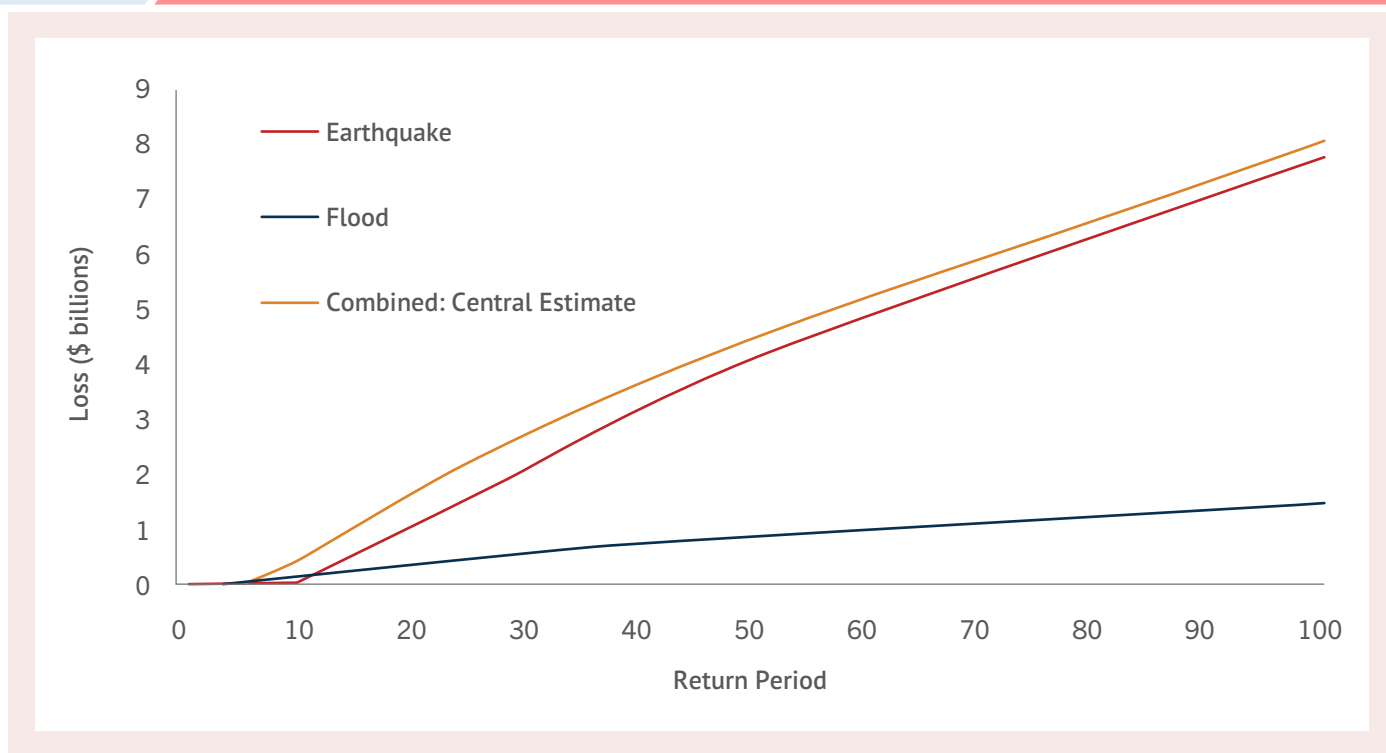
The second analysis method uses reported historical economic loss data for the period 1966 – 2018 to estimate potential future economic losses. It was conducted as part of this study by the World Bank.^[8] The disasters most suited to this type of analysis are those that occur more frequently, as there is a greater amount of data. For Nepal, flooding losses can be analyzed with greater certainty than earthquake losses because there have been nine times as many events over this period. However, there is insufficient historical data to run analyses for any of the other hazards that have occurred in Nepal.

To obtain the probabilistic disaster loss estimates shown below, historical economic loss data from EM-DAT was scaled to 2019 values using a GDP inflator for Nepal. A statistical distribution was then matched to the scaled data, thus providing a smoothed exceedance probability curve based on the historical loss data available. Estimated risk metrics were calculated using this curve. However, it should be noted that the fewer historical data points available, the less reliable the curve will be as a representation of reality and the curve should be taken only as an indicative. This is especially important when considering the upper part of the curve showing large losses, but with relatively fewer data points.

Figure 8 and Tables 6 and 7 show the estimated economic losses for a variety of return periods for natural disasters, both individually and combined. The average annual loss is the loss that would be expected to occur each year when averaged over many years, whereas the return period losses are the estimated likelihood of a loss of a given size or greater occurring within a certain time frame.

8. The World Bank, Crisis and Disaster Risk Financing and Insurance team.

Figure 8: Return Period Loss Curve



Source: EM-DAT.
Note: Losses are re-based to 2019 values.

Figure 8 clearly shows that earthquake losses are the key driver of the overall losses that Nepal is expected to experience. Thus, previously experienced events can be combined to these curves to understand how often events of this loss magnitude may occur. For example, the 2015 earthquake resulted in approximately US\$7 billion (NPR775 billion) of losses (re-based to 2019 prices). This would be expected to occur (or return) every 90-100 years based on this graph. This is a slightly lower return period than has been estimated elsewhere. However, with no full probabilistic catastrophe model available, there is a large degree of uncertainty. In comparison, the 2017 floods which led to a loss of approximately US\$600 million (NPR66.450 million), would be expected to occur approximately every 10 years.

Table 6: Average Annual Losses

	Floods (US\$ million)	Earthquakes (US\$ million)	Combined: Central (US\$ million)	Percentage of Nepal GDP	Percentage of GoN Budget
Average Annual Loss	80	270	350	1.1%	2.5%

Source: EM-DAT.

The combined (earthquake and flood) average annual loss of US\$350 million (NPR38.762 billion) is expected to be over 1 percent of GDP and 2.5 percent of the GoN's yearly budget; however, it should be noted that this is not the government's contingent liability, but the total economic loss. Often the government would be expected to fund disasters up to the 5-year return period (US\$60 million, NPR6.645 billion) through a mix of risk retention instruments, including contingency budgets and contingent loans because it is uneconomical to obtain insurance for this low return period risk. However, the loss quickly increases as a percentage of GDP and the budget, with a 1 in 50 loss of approximately US\$4.5 billion (NPR498 billion). This amounts to about 33 percent of the government's budget. This size of this loss would cause a large funding gap in the government's finances, as experienced during the lower return period of the 2015 earthquake.

Table 7: Return Period Losses

Return Period	Combined: Central (US\$ million)	Percentage of Nepal GDP	Percentage of GoN Budget
5	60	0.2	0.5
10	450	1.5	3.3
25	2,230	7.3	16.4
50	4,520	14.8	33.3
100	8,090	26.5	59.5

Source: EM-DAT.

The historical loss analysis produces loss results that are similar in magnitude to the lower estimate of the 2010 risk model. The lower estimate of the 2010 risk model is judged to be a better representation of the actual risk than the central/high estimates. However, without analyzing country-level losses using a catastrophe model, no firm conclusions can be drawn.⁹⁾

- i. **The 2015 earthquake led to estimated total economic damages of US\$7.0 billion (NPR775 billion) (\$5.4 billion (NPR598 billion) re-based to 2019 values.** The government's contingent liabilities can be calculated for the 2015 earthquake and 2017 flooding events by comparing the estimated damages (see Boxes 1 and 2), with the actual expenditures found as part of this study (see Section 5). From the earlier analysis of government expenditures, it can be estimated that the governments explicit liability from this event was about US\$1.7 billion (NPR188 billion), with an implicit liability of about US\$2.0 billion (NPR221 billion). This amounts to a total liability of US\$3.7 billion (NPR410 billion), which is 53 percent of the US\$7.0 billion (NPR775 billion) estimated damages from the event. It should be noted that this calculation only accounts for reconstruction costs; immediate relief and recovery costs are in addition and are estimated to be approximately US\$0.5 billion (NPR55 billion).
- ii. **The 2017 floods were a much smaller set of events, with the total losses estimated to be about US\$675 million (NPR74.756 billion) (re-based to 2019).** From the data obtained through this study, the GoN is estimated to have provided approximately US\$150 million (NPR16.613 billion) of funding for this event, meaning that it was liable for a 21 percent share of the total estimated damages. However, it should be noted that data on the government's response to the floods is less detailed and more difficult to separate from other expenditure sources.

Although the estimates for the government's share of any losses are approximate, they do allow for an analysis of potential government liabilities for different return period losses; they also highlight any losses that may go unfunded after a disaster. Given the contrasting percentage shares, it is assumed that for larger events the government accepts a greater share of the overall losses because the implicit liabilities become larger and overwhelm the financial capacity of businesses and households to manage. Therefore, for this analysis, it has been assumed that the government would take a 25 percent share of the losses for any event below a 1 in 100 return period and a 50 percent share for any event greater than that return period. Using this assumption as a proxy for contingent liabilities, the government's liability can be estimated for events with different return periods.

9. As part of its ongoing work, the World Bank's Crisis and Disaster Risk Finance team will use the latest IF earthquake model when available to further strengthen the loss analysis.

Table 8: Government Return Period Contingent Liabilities

Return Period	Total Economic Loss (US\$ million)	Total Public-Sector Loss (US\$ million)	Percentage of GoN Budget
2015 event	7,000	3,700	27
2017 event	675	150	1.1
5	60	15	0.1
10	450	113	0.8
20	2,230	560	4
50	4,520	1,130	8
200	8,090	4,050	30

Source: EM-DAT.

This analysis is indicative only, and the contingent liabilities faced by the GoN may differ from the results presented here. The analysis is aimed at developing an understanding of the contingent liability. However, it should not be used to precisely design financial strategies. However, the analysis does highlight the large amount of funding that is required to cover government liabilities for high return period events. As was seen with the 2015 earthquake, the government lacks the spending capacity to cover these losses. Instead, they rely on international aid, which may not provide sufficient levels of finance and can be slow to disburse. The analysis is subject to a range of assumptions that are summarized in Annex 5, along with the methodologies adopted.

To obtain a more accurate estimation of the potential losses from disasters, including the government's share, it is recommended to use a catastrophe risk model. These models go into greater scientific detail and look at not only historical data (as the above analyses do), but all events that are possible given the hazard in the country at risk (for example, identification and mapping of active faults).^[10]



Credit: Photo by Peter Kapuscinski from World Bank Flickr

10. The World Bank has produced a note for GoN on available risk models.

The identification and quantification of liabilities from disasters, as outlined in Chapter 5, creates the basis for the GoN to control the size of disaster-related expenditures and implement strategies to manage potential shocks to public finances, thus avoiding costly ad-hoc budget reallocations. Several financial instruments and approaches can be used to control the size of contingent liabilities and the remaining fiscal risk. This chapter presents options for the GoN to consider in managing its disaster-related liabilities.

The GoN currently manages its contingent liabilities through ex-ante interventions, for example, dedicated budget lines and ex-post actions, such as budget reallocations. The GoN uses dedicated budget lines to the MoHA for rescue and relief to the disaster victims. Regarding public and private building reconstruction and other public infrastructure reconstruction, the GoN uses dedicated budget lines to the NRA. Finally, post-flood reconstruction is done through dedicated budget lines to the Department of Water Induced Disaster Prevention. All other institutions are provided funding through budget reallocations.

Table 9 provides a description of the dedicated budget and budget reallocations for post-disaster reconstruction, recovery and relief. Funding/budget numbers are based on data collection that was carried out between November 2020 and June 2021. Through the collection of additional outstanding data, the updated version of this report will aim to provide a robust estimation of the GoN's funding gap in managing natural disasters. The dedicated budget line is also for a temporary purpose, such as for a project budget. During the last financial year, the GoN established the NDRRMA. A dedicated budget line was created for post-disaster response and NPR50 million (US\$418,000) was allocated to the NDRMMA. From 2021 onward, this institution should be given sufficient budget to manage all post-disaster activities as a dedicated institution.

Table 9: Funds/Budgets for Relief, Recovery and Reconstruction (NPR, thousands)

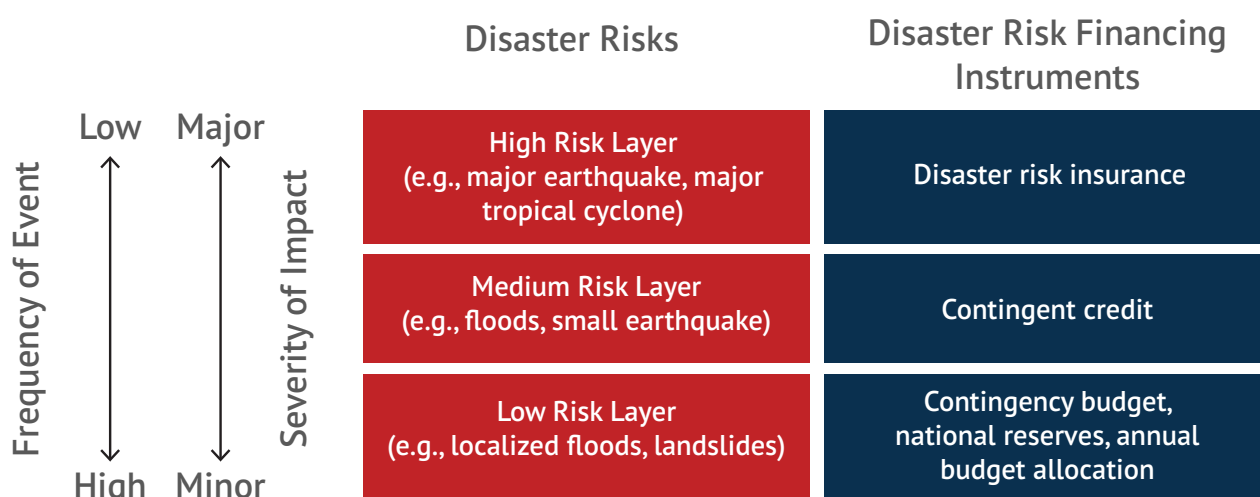
SN	Funds /Budget	Relief and Rescue	Recovery	Reconstruction
1	Prime Minister's Disaster Fund	16,116,642		
2	Ministry of Finance direct expenditures	3,381,034	7,637,734	
3	Ministry of Home Affairs	23,609,511		
4	National Reconstruction Authority			328,933,052
5	Department of Urban Development and Building Construction			4,650,559
6	Department of Roads		15,000,000	15,000,000
7	National Electricity Authority		871,180	183,448
8	Nepal Telecom		480,028	1,100,900
9	Department of Water Induced Disaster Prevention			50,223,000
10	Nepal Army - Disaster Management Directorate	48,270		
11	Provincial and local level expenditures (NPR)	335,000		
	Total	43,490,457	23,988,942	400,090,959

Source: World Bank.

The selection of instruments to manage contingent liabilities must be informed by the country context, and the frequency and severity of disasters. The GoN has in place risk retention instruments to manage losses for up to a 5-year return period. However, it should introduce additional instruments to manage its contingent liabilities from high-severity events that occur less frequently, a target set in its national DRF strategy. For high-risk contexts, certain risk transfer instruments, such as disaster risk insurance or catastrophe bonds, are more appropriate than budget lines or credit instruments. Therefore, the GoN has prioritized the development of a risk transfer product to better manage its contingent liabilities.

In order to ensure cost-efficient financing for emergency response and long-term recovery, the GoN should consider combining instruments to cover the different levels of identified risk, an approach called risk-layering. For high severity, low-frequency events, the most cost-effective method for the GoN will be transferring its risk to the international markets. For lower risk settings, other approaches will be more suitable, for example, contingency budget lines. Equally, multiple instruments may be used at the same time to manage financial risk. In selecting and developing approaches to manage disaster-related contingent liabilities, the GoN could apply a “risk-layering approach,” as outlined in Figure 9. The preceding discussion of options has started this exercise, considering the frequency and cost of disasters. However, further in-depth analysis of the comparative merit of options is required.

Figure 9: Risk-layering Approach



Source: World Bank (2012).

Financing disaster risk reduction is often more cost-effective than the financing of post-disaster search, rescue, relief, rehabilitation, reconstruction, and recovery. However, residual risk will remain and should be complemented with pre-arranged finance. Despite the fact that disaster events cannot be fully prevented, the extent of damage can be minimized by adopting disaster risk reduction measures. Increasing resilience through investments in risk reduction saves lives and livelihoods, and it is also a good return on investment. Every US\$1 invested in risk reduction and prevention activities can save up to US\$15 in post-disaster recovery.¹¹ Therefore, in addition to investing in pre-arranged disaster risk financing instruments, investing in ways to prevent and mitigate the effects of disasters can limit the GoN’s disaster-related liabilities — an action highlighted in its National DRF Strategy.

Considering the level of disaster-related liabilities and the risk profile of Nepal, the list below provides several options for the GoN to minimize the cost and scale of post- disaster expenditures.

The options have been divided into two categories:

(i) Analytics, developing risk models to design financial solutions, as well quantifying risk finance funding gaps.

The development of risk data can support the GoN in quantifying its risks and identifying its finance gaps. It can also help to demonstrate the advantages of implementing different financial instruments to cover events of different severities. The implementation of the recommendations below can help the GoN to realize its National DRF Strategy, which details the cross-cutting priority of increasing the availability and use of multi-hazard risk analytics.

11. <https://www.undrr.org/about-undrr/funding>

(ii) **Financial and policy measures, especially those that can help manage the cost from expected and unexpected contingent liabilities.**

Despite risk reduction and mitigation measures, residual risks will remain and these need to be managed through appropriate financing mechanisms. Financing should be complemented by adequate plans and transparent disbursement channels to ensure that resources reach the people who need it most when they need it the most.

The recommendations aim at supporting the GoN in reducing its risks, and in better managing its more frequent (1 in 5 years) losses. The recommendations can also help the GoN to start working toward better financial and public management of more severe, less frequent disasters (Table 10).

Table 10: Recommendations for Improved DRM/DRF in Nepal

Analytics	Timeline
1. Develop a comprehensive register of all GoN-owned and other relevant assets.	Short term
2. Use/develop national catastrophe risk models for disaster risk financing.	Medium term
3. Conduct a funding gap analysis to identify additional financial instruments to include in the risk-layering approach.	Start in FY22, medium term
Financial and policy measures	
4. Improve coordination across ministries in the provision of relief.	Short term
5. Establish dedicated DRF budget lines and improve planning and budgeting practices.	Medium term
6. Foster domestic market development for disaster risk insurance.	Long term

Source: World Bank.

The actual implementation of the National Disaster Risk Financing Strategy will help in the coordination and prioritization of the options presented above.

ANALYTICS

- 1. Develop a comprehensive register of all government-owned and other relevant assets.**

The Financial Comptroller General’s Office has been developing the Integrated Statement of Assets report, statement of assets and liabilities based on the book value of the government’s assets. The report should also include data on public buildings and infrastructure, including data on replacement cost valuation, geographic positioning and the condition of assets. This will enable the development of a risk management strategy for public assets.

- 2. Use/develop national DRF catastrophe risk models.**

Catastrophe models allow governments and other organizations to understand their total risk from different disasters, including how the risk from different events may combine, what the key drivers of the risk are, and what can be done to mitigate the risk. Mitigation can take many forms, including disaster risk reduction efforts, applying disaster risk management techniques, and transferring risk to the financial markets. Catastrophe models are often a prerequisite for implementing a DRF strategy as they quantify the level of risk and enable the analysis of different mitigation strategies across the full complement of DRF instruments. These models are also required for the finance industry to price risk and provide the necessary protection.

An earthquake model is currently available for Nepal that satisfies the requirements for a product to be accepted by the financial market; however, this is not the case for floods. A recent Impact Forecasting earthquake model has been built with a focus on insurance and should be sufficient to design suitable sovereign DRF products. By contrast, existing models for floods focus on DRM activities and would not be sufficient for financial products.

As it will take longer to develop sovereign DRF solution for floods, it is worth considering starting with a DRF instrument that covers only earthquake risk and then adding flood risk at a later stage once the prerequisite activities have taken place. This would also allow time for a flood model to be developed, as well as a confirmation of the feasibility of developing a DRF product that is priced within an acceptable range. In the meantime, to progress with the development of a DRF product for earthquakes, the World Bank's Crisis and Disaster Risk Finance team developed a Terms of Reference in Q2/2021 for the design of viable parametric risk transfer solutions.

Vulnerability data is important for the development of a probabilistic risk model. It details the expected physical damage to properties at risk from a spectrum of potential disaster intensities. In 2010, the World Bank and the Global Facility for Disaster Reduction and Recovery (GFDRR) partnership supported the Government of Nepal in commissioning the ADPC to perform a multi-hazard risk assessment for the country. As the study was developed for DRM purposes, it contains simplified hazard and vulnerability modules. As such, it was not sufficient to meet the requirements for market acceptability by financial institutions when creating DRF instruments. Therefore, the GoN should consider the development of additional vulnerability data as required for the implementation of its DRF Strategy.

3. Conduct a funding gap analysis to identify additional financial instruments to include in the risk-layering approach.

To complement this study, it is recommended that an analysis of the GoN's funding gap be conducted, that is, an analysis of the potential shortfall of funds that the government might face after a disaster. The analysis could provide key information as to how the GoN could strengthen its financial preparedness for disasters. The analysis should be based on the estimated contingent liability combined with full information about the available disaster risk finance. Thus, estimated funding could be derived for different scenarios. This report could serve as a basis to further refine contingent liability estimates. In addition, the GoN should provide full information about available DRF to allow for a clearer picture of likely funding needs/gaps and resources over time, distinguishing between the relief, early recovery, and reconstruction phases of the response effort for relevant types of natural hazards, such as earthquakes and floods. The World Bank and other development partners have gained significant experience on the implementation of risk layering strategies and the management of contingent liabilities. This experience can inform the GoN's further work on risk layering and the implementation of its DRF strategy.

FINANCIAL AND POLICY MEASURES

4. Improve coordination across ministries in the provision of relief.

Nepal's commitments in terms of DRR and DRM are expressed in a number of planning documents, including all Five-Year Development Plans since 2002. The Disaster Risk Reduction National Strategic Action Plan (2018-2030) proposes priority actions for 2018 to 2020 (short-term); for 2018 to 2025 (medium-term); and for 2018 to 2030 (long-term). It also assigns responsibilities within the relevant federal, provincial and local governments.

The Government of Nepal should invest in capacity-building, especially for local and provincial governments, thus enabling them to better fulfill their new responsibilities and manage larger disasters. The GoN needs to clearly define jurisdictional roles and responsibilities for all levels of government and ensure that they are held accountable for achieving performance targets. Also, linking the use of relief funds at the federal, provincial and local government levels could increase the coherence of relief efforts.

Intergovernmental and inter-agency coordination and collaboration are important to delineate the roles, responsibilities and accountabilities concerning disaster risk management and disaster risk finance. It will be the NDRMMA's role to coordinate with federal ministries and departments to improve coordination, for example, by increasing capacity in risk monitoring and forecasting, as well as the provision of relief in the aftermath of a disaster. For better inter-agency collaboration, the GoN could build on existing coordination mechanisms, including mechanisms with development partners such as the non-governmental organizations (NGOs), the private sector, and the United Nations (UN).

Given the recurring nature of natural disasters in Nepal — and the fact that they disproportionately affect the poor and vulnerable — it would be prudent to investigate the feasibility of consolidating, scaling up and/or amending existing social protection schemes. In order to increase the resilience of poor and vulnerable households against natural disasters, adding a shock-responsive component to allow protection schemes to provide additional support after a disaster would be a good option to implement in the future. Given that basic components, such as national IDs and social registries have yet to be established, building shock-responsive social protection systems could be a long-term goal for the GoN. Such systems could be established once all fundamentals of a social protection scheme are in place.

5. Establish and maintain dedicated DRF budget lines and improve budget execution.

The GoN's budget execution capacities need to be strengthened, including for disaster response. As an Asian Development Bank (ADB) report notes, the GoN has managed to spend only 73 to 88 percent of its total budget in recent years (ADB 2019). This could in theory free up significant resources for a disaster response. The reasons for low budget execution capabilities include failures to fill senior positions, limited government capacity, slow contractor performance, and insufficient administration. Thus, the GoN needs to build capacities to manage budget execution to better manage post-disaster relief and reconstruction efforts, as well as to put in place adequate financing instruments.

The GoN needs to maintain existing dedicated budget lines and establish new budget lines for post-disaster spending. The GoN uses various budgets to fund many of its contingent liabilities: for example, the MoHA is provided with an annual appropriation for relief payments into its Disaster Relief Fund. The MoF does not have dedicated budget lines for disaster response. Rather, it uses a miscellaneous budget line to provide additional funding to line ministries. Although the implementation of the Government Finance Statistics and Treasury Single Account (TSA) has increased the transparency of budget execution, the GoN still faces weaknesses in internal controls and oversight, as well as capacity constraints — particularly at the district and field office levels. Thus, the GoN should establish clearer budget lines based on a rigorous funding gap analysis and historical expenditure data and policies. It should also build capacities, especially on the regional and local levels. Such capacity-building measures would ameliorate low budget execution, increase spending transparency and strengthen financial reporting.

6. Foster the development of the domestic market for disaster risk insurance.

Nepal's insurance industry and its capital markets are still nascent, and insurance penetration as a percentage of GDP is very low. However, given Nepal's high exposure to natural disasters, there is significant potential for the more effective use of DRF solutions by the GoN, businesses, and households.

Appropriate DRF insurance products for key sectors, such as tourism and agriculture, are either missing or at a low penetration rate. No disaster risk insurance is available for tourism operators. No mandatory earthquake insurance product is available in Nepal beyond the compulsory insurance required by banks on collateralized houses and other assets. Although both crop and livestock insurance are subsidized at an 80 percent premium rate, participation in crop insurance has been low, partly because of a lack of awareness on the part of farmers. Also, input costs and market values determine the sum that can be insured in the agriculture sector. However, there are no objective criteria to measure them, leading to dissatisfaction among farmers. Thus, the GoN (Ministry of Agriculture) could lead the work in establishing these criteria.

At least 80 percent of Nepalis do not have property insurance, and most of the GoN's assets and properties are uninsured. Thus, there is a great potential to increase risk transfer in this area. The Financial Comptroller General's Office has been working on a statement of assets and liabilities. This work could be complemented by a larger study on the positioning, condition reporting and replacement values, which would, in turn, help to establish a risk management plan for these assets. As such, it would minimize exposure and vulnerability, as well as inform the development of adequate risk transfer solutions for these assets. As some reports have noted (for example, ADB 2019), the building code is not properly enforced, and workers are not trained to build in accordance with the code, thereby leading to risk uncertainty and ultimately higher insurance premiums. Thus, the GoN needs to ensure that the building code is both understood and enforced.

In recent years, many lessons were drawn concerning the key constraints and hurdles in the implementation of agriculture insurance schemes in Nepal. These include: (i) limited risk information and experience of implementing financial protection programs; (ii) limited economies of scale and diversification; (iii) few participants in the early years of pilots or organic private sector-developed schemes; (iv) lack of regulatory support and stability, especially for innovative products such as parametric insurance; (v) limited familiarity of households (especially poor and vulnerable households in rural areas), micro, small and medium enterprises (MSMEs), and the public sector with financial protection or a 'culture of insurance' against natural disasters and other shocks; (vi) a lack of interest by the reinsurance sector; (vii) inadequate networks of insurers, especially in remote areas; and (viii) a lack of resources and fiscal space in the short term to build and finance schemes. International experience has demonstrated that public-private partnerships can help to overcome some of these hurdles.

There are many options for the GoN to foster market development. For example, the GoN could undertake the following measures:

- **At the national level, the GoN could engage in the purchase of sovereign risk transfer products to provide a form of direct budget support to protect itself against disasters, including earthquakes and floods.** For example, it could purchase public asset insurance. As national insurers have expressed a need for capacity development, the GoN could explore options to

support capacity building in distribution, underwriting, claims administration and other areas of need. As Nepal Re enjoys a central position in the Nepali insurance market, the GoN needs to ensure that expertise and systems are in place to provide high-quality reinsurance.

- **At the local level, as governments have received increased responsibility for management of contingent liabilities related to disasters, local officials need to better understand the added value and availability of instruments to increase their financial resilience.**
- **At the individual level, the GoN could further educate people concerning the benefits of insurance. The lack of awareness and promotion of products is said to have led to the low adoption of crop insurance products.** Poor and vulnerable people, and especially women, lack knowledge about insurance.
- **Strengthen public-private partnerships to improve data collection, product development, outreach activities and public financial management activities.**



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Annex 2: List of People Interviewed

- Joint Secretary, Mr. Dhaniram Sharma, MoF, Budget.
- Under Secretary, Mr. Than Prasad Pageni, MoF, Budget.
- Secretary, Mr. Maniram Gelal, National Reconstruction Authority (At the time of meeting he was Director General of Department of Urban Development and Building Construction; later, he was promoted to Secretary and posted at the National Vigilance Center. He has since been transferred to the Nepal Electricity Authority).
- Joint Secretary, Mr. Gopal Prasad Aryal, National Reconstruction Authority.
- IT Officer, Mr. Shyam Prasad Upreti, National Reconstruction Authority.
- Engineer, Mr. Surendra Mohan Shrestha, Deputy Director General, Housing Division, Department of Urban Development and Building Construction.
- Secretary, Mr. Rabindranath Shrestha, Ministry of Physical Planning and Transport.
- Joint Secretary, Mr. Devi Prasad Gyawali, Ministry of Physical Planning and Transport.
- Joint Secretary, Mr. Narayan Adhikari, Office of the Prime Minister and Cabinet Secretariat (also oversees the Prime Minister Disaster Relief Fund).
- Joint Secretary, Mr. Shankar Nepal, Office of the Prime Minister and Cabinet Secretariat.
- Joint Financial Comptroller General, Mr. Gyanendra Paudel, Office of the Financial Comptroller General.
- Joint Financial Comptroller General, Mr. Bhagirath Panday, Office of the Financial Comptroller General.
- Joint Secretary, Mr. Sunil Das, Ministry of Water Supply.
- Director, Mr. Dilliraman Dahal, Finance, Nepal Electricity Authority.
- Deputy Director, Mr. Bashant Kumar Dhungana, Deputy Director Finance, Nepal Electricity Authority.
- Deputy Auditor General, Mr. Maheshwor Kafle, Office of the Auditor General.
- Brigadier General Army Spokesperson, Mr. Santosh Ballav Paudel.
- Engineer, Mr. Pradeep Thapa, Deputy Director, Irrigation Department and Chief of Water induced Disaster Response Program.
- Engineer, Mr. Bishnudev Yadhav, Senior Divisional Engineer, Irrigation Department and Chief of Water induced Disaster Response Program. Deputy Manager, Mr. Ganga Sagar Matanchhe, Nepal Telecom.

Annex 3: Post-disaster Expenditure Budget Codes

The list below lists some post-disaster expenditure budget codes that are currently in use by the Government of Nepal.

Budget Code: 39200011 – National Reconstruction Authority.

Budget Code: 30802102 – Building Resilience to Climate-Related Hazards.

Budget Code: 30803106 – River Control.

Budget Code: 30803107 – Water-Induced Disaster Control Technology Project.

Budget Code: 60200024 – MoF Miscellaneous: Disaster, Relief and Rehabilitation.

Annex 4: Government Post-disaster Expenditures

Annex 5 provides an estimate of the government's post-disaster expenditures based on an analysis of the previous year's expenditures. Data was obtained from the Red Books and supplemented through semi-structured interviews with government staff who have or are currently engaged in disaster risk management. For some agencies, the team was able to access detailed data. Thus, they acquired an understanding of which budget codes are used (see Annex 3 for further details). For other entities, for example, for expenditures at the provincial and local levels (2015-2017), estimates were made in conjunction with GoN officials. This was done because there was a manual accounting system at this time, including a lack of dedicated budget codes. Annex 8 provides further details about expenditures by programs/funds. In the future, there is a need to refine budget classifications and accounting practices of post-disaster expenditures at all three levels of government.

Annex 5: Government Post-disaster Expenditures

	2010	2011	2012	2013	FY 2013 - 2014	FY 2014 - 2015	FY 2015 - 2016	FY 2016 - 2017	FY 2017 - 2018	FY 2018 - 2019	FY 2019 - 2020	Total	USD equivalent ('000)
Total post-disaster expenditure (NPR) (000)	2,591,060	2,275,643	2,273,666	2,527,977	3,036,606	21,571,118	46,671,499	66,004,141	135,227,395	104,888,130	64,387,381	451,454,616	3,867,378.96
Total post-disaster expenditure (NPR)- 2015 earthquake (NRA) expenditure	2,591,060	2,275,643	2,273,666	2,527,977	3,036,606	21,569,682	24,197,264	16,312,410	20,461,472	15,366,720	11,909,064	122,521,563	1,049,579.07
National post-disaster expenditure (NPR)	2,591,060	2,275,643	2,273,666	2,527,977	3,036,606	21,521,118	46,621,499	65,954,141	135,177,395	104,823,130	64,317,381	451,119,616	3,864,509.19
Prime Minister's disaster fund	-	-	-	-	-	-	-	-	-	-	-	-	-
Ministry of Finance direct expenditure							2,504,000	2,754,500	2,504,534	3,130,434	125,300	11,018,768	94,392.11
Ministry of Home Affairs		78,347	50,004	50,002	39,068	12,256,106	9,553,844	110,214	1,231,278	136,160	104,488	23,609,511	202,250.51
National Reconstruction Authority						1,436	22,474,235	49,691,731	114,765,923	89,521,411	52,478,317	328,933,052	2,817,799.89
Department of urban development and building construction						409,430	599,217	410,593	97,703	557,208	2,576,408	4,650,559	39,838.94
Department of road						5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	30,000,000	256,994.53
National electricity authority	10,760	94,496	64,662	371,275	15,738	31,634	22,318	44,576	96,978	199,035	104,056	1,055,527	9,042.16
Nepal Telecom						511,312	502,385	102,327	126,479	140,883	197,542	1,580,928	13,543.00
Department of Water Induced Disaster Prevention	2,580,300	2,102,800	2,159,000	2,106,700	2,981,800	3,311,200	5,965,500	7,840,200	11,334,500	6,123,000	3,718,000	50,223,000	430,234.55
Nepal Army- Disaster Management Directorate									20,000	15,000	13,270	48,270	413.50
Any other relevant entity												-	-
Provincial and local level expenditure (NPR)						50,000	50,000	50,000	50,000	65,000	70,000	335,000	2,869.77
Total government expenditure (NPR1000)	259,690,000	295,360,000	339,170,000	358,640,000	435,050,000	531,558,360	601,015,580	837,247,790	1,087,279,820	1,110,457,090	610,680,000	6,466,148,640	55,392,162.01

	2010	2011	2012	2013	FY 2013 - 2014	FY 2014 - 2015	FY 2015 - 2016	FY 2016 - 2017	FY 2017 - 2018	FY 2018 - 2019	FY 2019 - 2020	Total	USD equivalent ('000)
Total government budget (NPR1000)	285,930,000	337,900,000	384,900,000	404,824,700	517,240,000	618,100,000	819,468,884	1,048,920,000	1,278,994,855	1,315,161,700	1,532,967,100	8,544,407,239	73,195,532.06
Total post-disaster expenditure as% of total government budget	0.91%	1%	1%	1%	1%	3%	6%		11%	8%	4%	0	0.00
Total post-disaster expenditure as% of total government budget- 2015 earthquake (NRA)	1%	1%	1%	1%	1%	3%	3%		2%	1%	1%		-
Total post-disaster expenditure as% of total government expenditure	1.00%	0.77%	0.67%	0.70%	0.70%	4.06%	7.77%	7.88%	12.44%	9.45%	10.54%	1	0.00
Total post-disaster expenditure as% of total government expenditure -2015 earthquake (NRA)	1.00%	0.77%	0.67%	0.70%	0.70%	4.06%	4.03%	1.95%	1.88%	1.38%	1.95%		-
Total population	26,454,504	26,454,504	26,875,445	27,264,592	27,660,775	28,062,832	28,469,460	28,879,636	29,291,746	29,704,501	30,116,424	309,234,419	2,649,051.85
Post-disaster expenditure (-NRA expenditure) per capita (NPR)	10	0	0	0	0	769	850	565	699	517	395	0	0.00
GDP in current prices (NPR)	1,192,770,000	1,366,950,000	1,527,340,000	1,695,010,000	1,964,540,000	2,130,150,000	2,253,160,000	2,674,490,000	3,044,930,000	3,458,790,000	3,767,040,000	25,075,170,000	214,806,054.79
Nominal GDP												-	-
Total post-disaster expenditure as% of GDP						1.01%	1.07%	0.61%	0.67%	0.44%	0.32%	0	0.00

*Source: World Bank.
Note: This table is based on data collection between November 2020 and June 2021.*

Annex 6: Probabilistic Loss Estimate Calculations: Methodology and Assumptions

Methodology

To aid in the understanding of the analysis and results, the following methodology was utilized:

- Historical estimated damages in dollars were obtained from the EM-DAT for the period 1954 - 2019. This database provides an estimation of all damages and economic losses directly or indirectly related to disasters.
- Losses were compiled and aggregated by year and type of disaster. Losses were then inflated to 2019 equivalent values using the GDP price deflator index for the same time period.
- Historic losses may be subject to trends due to climate change or changes in the resilience of the country. The losses were tested and found not to be subject to a 'statistically significant' trend.
- A range of statistical distributions were fitted to the loss data with the most appropriate distribution being selected based on tests of fit aptness with the data, as well as with actuarial judgement.
- Next, 50,000 potential years of loss were then simulated from the distribution in order to identify losses according to the various return periods.
- These losses were then scaled down to estimate the explicit public-sector losses based on the proportion of public-sector losses from known events (for 2015 and 2017).
- Where numbers are expressed as a percentage of GDP, historical GDP figures were used for the year in question.

Key assumptions

- Nepal's exposure to risk and associated losses is proportional to its GDP. Thus, adjusting losses for GDP changes is sufficient to allow for a comparison of losses from year to year.
- The EM-DAT database contains an accurate and consistent estimate of losses across all years for which it has records.
- Historical losses are a reliable indicator of potential future losses for return periods below 1 in 100.
- The chosen statistical distribution accurately represents the potential for losses in the future of up to the 1-in-100 return period.
- The proportion of public sector losses follows a similar trend to the 2015 and 2017 events and is dependent on the size of loss.

Annex 7: Insurance Products in Nepal

Property: Property insurance has replaced the existing fire policy. All property insurance products are comprehensive in their peril coverage meaning that they cover losses associated with fire, wind, water (flood, typhoon), earthquakes, land sliding or debris sliding, lightning, explosion, air objects, and other non-natural hazards. Properties that can be insured include office and residential buildings, factories, plants and machinery, and various types of equipment. Extended coverage is also available for explosions, aircraft / vehicle smoke, strikes and malicious damage.

Motor: Motor insurance in Nepal provides financial protection against physical damage and/or bodily injury resulting from vehicle accidents, as well as from the theft of the vehicle.

Engineering: The different types of coverage available include machinery insurance, electronic equipment insurance, contractor all risk insurance (CAR), erection all risk insurance (EAR), and contractor plant and machinery insurance.

Marine insurance: Marine insurance covers the loss or damage of ships, cargo, terminals, and any transport by which property is transferred, acquired, or held between the points of origin and the final destinations. It covers transit by any modes of transit, such as sea transit, inland waterways, land transit by road/rail vehicle, and transit by air.

Miscellaneous insurance: Miscellaneous insurance includes travel medical insurance, personal accident insurance, fidelity guarantee insurance, public liability insurance, product liability insurance, cash in transit insurance, medical insurance, health insurance, bankers indemnity insurance, burglary insurance, professional indemnity insurance, and jewelers block insurance

Micro insurance: Micro crop insurance (general crop insurance, fruit insurance, vegetable insurance, fish insurance and other products) for farmers is available against losses due to natural disasters, such as hail, droughts, and floods. Farmers pay only 50 percent of the total premium; the remaining 50 percent is subsidized by the government. Most farmers purchase micro insurance.

Aviation insurance: Aviation liability and property insurance is available against claims and losses arising from the ownership, maintenance, and/or use of aircraft, hangars, or airports. This includes damage to aircraft, personal injury, and property damage.

Annex 8: Expenditures for All Main Areas of Disaster Expenditures (NPRmillions/billions)

SN	Funds /Budget	Relief Payments and Supplies	Resettlement of Affected Communities following a Disaster	Response Efforts Provided by the GoN's Armed Forces	Rehabilitation and Reconstruction of Private Housing	Rehabilitation and Reconstruction of Damaged Public Infrastructure and Assets	Support to Stimulate Economic Recovery
1	Prime Minister's Disaster Fund	16,116,642					
2	Ministry of Finance direct expenditures	3,381,034	7,637,734				
3	Ministry of Home Affairs	23,609,511					
4	National Reconstruction Authority				209,046,377	119,884,676	
5	Department of Urban Development and Building Construction					4,650,559	
6	Department of Roads					30,000,000	
7	National Electricity Authority					1,055,527	
8	Nepal Telecom					1,580,928	
9	Department of Water Induced Disaster Prevention					50,223,000	
10	Nepal Army Disaster Management Directorate			48,270			
11	Provincial and local level expenditures	335,000					
	Total	43,442,187	7,637,734	48,270	209,046,377	207,394,690	

Source: World Bank.
 Note: This table is based on data collection between November 2020 and June 2021.

Disaster Risk Financing & Insurance Program



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs,
Education and Research EAER
State Secretariat for Economic Affairs SECO

