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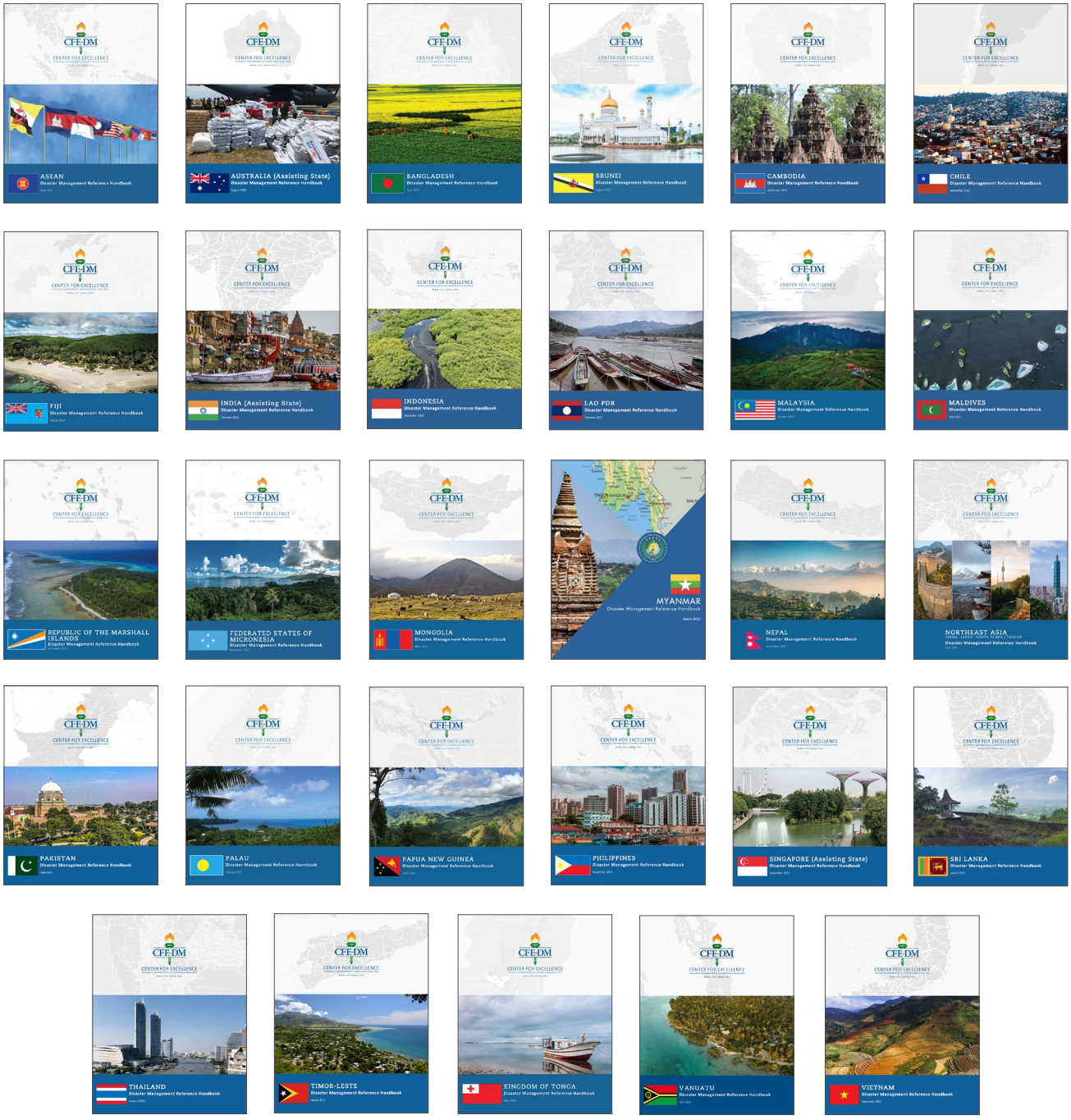
# NEPAL

## Disaster Management Reference Handbook

September 2023

# Disaster Management Reference Handbook Series

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## Front Cover

Kàtmandu, Nepal by Avel Chuklanov on Unsplash.com. https://unsplash.com/photos/8__IZFB9AD8

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# Table of Contents


**Acknowledgements** ..... **3**

**Letter from the Director** ..... **7**

**About the Center for Excellence in Disaster Management & Humanitarian Assistance** ..... **8**

**Executive Summary** ..... **9**

**Country Overview** ..... **10**

History ..... 10

Culture and Demographics ..... 13

Ethnic Makeup ..... 14

Key Population Centers ..... 15

Language ..... 15

Religion ..... 15

Vulnerable Groups ..... 16

Economics ..... 24

Government ..... 26

Environment ..... 28

Geography ..... 28

Borders ..... 29

Climate ..... 29

**Disaster Overview** ..... **30**

Climate Change ..... 30

Hazards ..... 33

History of Natural Disasters ..... 36

Country Risk ..... 43

INFORM Risk Profile ..... 44

World Risk Report ..... 45

Global Climate Risk ..... 47

**Organizational Structure for Disaster Management** ..... **48**

Lead Government Agencies in Disaster Response ..... 48

Disaster Relief and Emergency Response ..... 50

Armed Forces Role in Disaster Relief ..... 53

Disaster Management Partners ..... 57

The International Red Cross and Red Crescent Movement ..... 60

U.S. Government Agencies in Nepal ..... 61

Laws, Policies, and Plans on Disaster Management ..... 62

Disaster Management Communications ..... 63

Early Warning Systems ..... 63
Information Sharing ..... 65
**Infrastructure ..... 70**
Transport ..... 70
Airports ..... 70
Seaports ..... 73
Roads ..... 75
Railways ..... 76
Waterways ..... 77
Schools ..... 77
Disaster Risk Reduction in the Education Sector ..... 78
Communications ..... 80
Utilities ..... 82
Power ..... 83
Water and Sanitation ..... 83
**Health ..... 85**
Health Care System Structure ..... 85
Health Strategies and Surveillance ..... 87
Communicable Diseases ..... 87
Non-Communicable Diseases ..... 92
Training for Health Professionals ..... 93
**Women, Peace, and Security ..... 95**
**Conclusion ..... 97**
**Appendices ..... 98**
DoD DMHA Engagements in the Past Six Years (FY 2017-2023) ..... 98
International/Foreign Relations ..... 100
Participation in International Organizations ..... 102
Force Protection/Pre-Deployment Information ..... 103
Passport/Visa ..... 103
Safety and Security ..... 105
Emergency Contact Information ..... 106
Currency Information ..... 106
Travel Health Information ..... 106
Sendai Framework ..... 110
Country Profile ..... 124
Acronyms and Abbreviations ..... 138
Endnotes ..... 143

# Figures

Figure 1: Concentrations of Nepal's Population....15
Figure 2: Nepal's Merchandise Trade (2022/2023)....26
Figure 3: Map of Nepal....28
Figure 4: Nepal's Climate, 1991-2020....29
Figure 5: Average Annual Natural Hazards Occurrence in Nepal (1980-2020)....30
Figure 6: Nepal's Institutional Arrangements to Address Climate Change....33
Figure 7: Categories of Earthquake-Affected Districts, MoHA (2015)....42
Figure 8: INFORM Risk Index, Nepal (2023)....46
Figure 9: INFORM Climate Change Risk Index, Nepal (RCP8.5, Year 2080)....46
Figure 10: Nepal Government DRRM Coordination Relationships....49
Figure 11: National, Provincial, and District EOCs in Nepal....51
Figure 12: International Assistance Coordination Structure....52
Figure 13: Coordination Mechanism Linking National and International Actors....53
Figure 14: Organogram of the Nepal Police Disaster Management Division....54
Figure 15: Organogram of the Nepal Police State Disaster Management Company....55
Figure 16: UN HCT Provincial Focal Point Agencies....58
Figure 17: Nepal BiPAD Portal on 20 July 2023....64
Figure 18: Nepal Department of Hydrology and Meteorology Homepage on 20 July 2023....65
Figure 19: Airports of Nepal....71
Figure 20: Nepal's National Highway Network....76
Figure 21: Nepal Railways Network (with Planned Expansions)....77
Figure 22: Top 10 Causes of Death and % Change, 2009-2019....85
Figure 23: Daily New Confirmed COVID-19 Cases in Nepal, 1 March 2020 - 20 June 2023....88
Figure 24: HEOC Roles during COVID-19....89
Figure 25: Annual Distribution of Visceral Leishmaniasis Cases and Deaths in Nepal, 1980–2019....91
Figure 26: Nepal's Scores across 11 Indicators in the 2021 WPS Index....95
Figure 27: UN Sendai Framework for Disaster Risk Reduction 2015-2030....111
Figure 28: Population Pyramid, Nepal (2023)....126

# Photos

Photo 1: Kathmandu, Seen from the Hills....10
Photo 2: "Gorkha" Earthquake Damage in Kathmandu Valley (UNDP, 2015)....41
Photo 3: Nepal Police Disaster Management Squadron....55
Photo 4: U.S. Special Forces Civil Affairs Team Provides Medical First Responder Training to APF....56

# Tables

Table 1: Castes and Ethnic Groups as a Percentage of Total Population (2021)....14
Table 2: First Languages Spoken by Nepalis (2021)....16
Table 3: Sectoral Make-up of Nepal's GDP and Growth Rate, 2019-2022....25
Table 4: National and Local Clusters for Disaster Relief and Emergency Response....51
Table 5: Hazard-Specific Deployment Capacity of Disaster Management Section....55
Table 6: Leads and Co-Leads for the Cluster System in Nepal....58
Table 7: Details for Nepal's Airports....72
Table 8: CDC Information for Vaccine- or Prophylaxis-Preventable Diseases in Nepal....107
Table 9: CDC Information for Non-Vaccine-Preventable Diseases in Nepal....108

# Letter from the Director

This Nepal Disaster Management Reference Handbook provides the reader a baseline understanding of key national entities involved in Humanitarian Assistance/Disaster Response (HADR), disaster management, and the military's role in disaster relief in the country. In addition, this resource details disasters occurring in the country over the last ten years. More than 80% of Nepal's population is at risk from natural hazards.[1] The climate of Nepal is dominated by the monsoon, causing annual flooding and subsequent landslides. It has also been seriously affected by earthquakes. Disaster risk has intensified due to a combination of factors, including unplanned urbanization, environmental degradation, and climate change. Furthermore, from 1992 to 2021, climactic disaster frequency and mortality has significantly increased in the country.[2] Therefore, understanding the foreign disaster relief coordination mechanisms, emergency response process and coordination structure, and internal and external stakeholders is an integral part of understanding disaster management and response in Nepal.

The United States (U.S.) and Nepal engage together on a range of security cooperation activities focused on HADR. [3] They have partnered in the Nepal Pacific Resilience Disaster Response Exercise and Exchange (DREE), a multilateral and multinational coordination, communication, and cooperation exercise, hosted by Nepal and bringing together the U.S. Army Pacific (USARPAC), the Nepal Army, emergency responders, and approximately a dozen nations to respond to natural and man-made disasters.[4] Recent HADR engagements between the U.S. and Nepal also include the South Asia Regional DREE in July 2023, the Indo-Pacific Intelligence Chiefs Conference (IPICC) in September 2021 and 2022, Pacific Endeavor in August 2018, and Exercise Pacific Angel in August 2017. The relationship between the U.S. and Nepalese militaries and the recurring military training exchanges between the two nations allow them to rapidly and easily work together as they conduct relief operations.[5]

Sincerely,

Joseph D. Martin, SES
Director

# About the Center for Excellence in Disaster Management & Humanitarian Assistance

## Overview

The Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM) is a United States (U.S.) Department of Defense (DoD) organization comprised of nearly 30 subject matter experts that provide academic research, civil-military coordination training, and operational insights to support decision making before, during, and after crises. The Center is designed to bridge understanding between humanitarians, civilian, and military responders. CFE-DM partners with a diverse group of governmental and nongovernmental actors, as well as academic institutions to increase collaborations and capabilities in humanitarian assistance and disaster response. While maintaining a global mandate, the Indo-Pacific region is our priority of effort and collaboration is the cornerstone of our operational practice. The Center is a direct reporting unit to U.S. Indo-Pacific Command (USINDOPACOM) and is located on Ford Island, Joint Base Pearl Harbor-Hickam, Hawaii.

## Vision

The Joint Force, allies, and partners are fully prepared to conduct and support foreign humanitarian assistance.

## Mission

CFE-DM builds crisis response capacity in U.S. and partner militaries, enhances coordination and collaboration with civilian and foreign partners, and strengthens those relationships to save lives and alleviate human suffering before, during, and after humanitarian crises.

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# EXECUTIVE SUMMARY

Landlocked Nepal is mountainous with major rivers flowing southward from the Himalaya into India. The country is the scene of the ongoing collision of the Eurasian and Indian tectonic plates and, therefore, is home to many faults that make the country seismically active. Earthquakes frequently cause major human and material losses and displacement. Meanwhile, the prevailing monsoon brings heavy rains from June through September, and these rains cause floods and landslides that deliver losses almost every year. The country continuously deals with impacts of hydrometeorological and seismic events alongside climate change-driven warming and drought. As these conditions destabilize high mountain slopes and river valleys, landslides will become more common during seismic events or intense rainfall.

Although the country has long experience with earthquakes, the April 2015 "Gorkha" quake triggered social and political changes, coming as it did, amidst the final stages of the process to build a new democratic political structure. After a decade of civil war that ended in 2006, the warring sides had agreed upon a framework for a Constituent Assembly, and one of the major results was abolition of the monarchy. However, other contentious issues meant that the process of drafting a new constitution dragged on until a sense of urgency was built in the aftermath of the 2015 earthquake when the various political parties reached an agreement to focus efforts toward reconstruction. The new constitution came into effect in latter 2015. Institutions have been built and maintained that have earned the confidence of international investors and bilateral partners that have allowed Nepal to ensure best practices inform its evolving disaster management system.

The National Council for Disaster Risk Reduction and Management, chaired by the Prime Minister, and the Disaster Risk Reduction and Management Executive Committee, chaired by the Home Minister, are the top policy bodies for disaster management. Under them, the National Disaster Risk Reduction and Management Authority (NDRRMA) coordinates the whole-of-government approach. The Chief Executive of the NDRRMA is a member-secretary of the Council and Executive Committee and chairs the National Platform for Disaster Risk Reduction (NPDRR), which coordinates, facilitates, and implements disaster risk reduction (DRR) activities nationally. Support to the NPDRR also comes from the Disaster Preparedness Network Nepal (DPNet-Nepal), a structure that brings together national and international agencies and organizations alongside disaster-affected communities. It seeks to strengthen coordination, collaboration, learning, and information sharing among stakeholders. Each of the country's seven provinces is also legally required to develop and operate its own Disaster Management Council, which develops policies and plans for DRR and emergency response in the province. Provincial Councils are responsible for disaster response within their jurisdictions. Below the provincial level, District Disaster Management Committees bring together local government, health and security authorities, Red Cross leaders, and local non-governmental organizations (NGO) to support local disaster management activities.

Nepal has struggled with the impacts of natural disasters and various other external shocks, including trade shocks given the country's reliance on imports. The 2015 earthquake and a simultaneous trade dispute with India walloped the country's economy, and during the height of the Coronavirus Disease 2019 (COVID-19) pandemic, the country saw negative growth. As one of the countries in the world most at risk of climate change-influenced hazards – e.g., flooding and drought – Nepal's vulnerabilities stem not only from topography and hydrology, but also from unplanned settlements and a lack of resilient infrastructure. The population is susceptible to extreme heat stress and air pollution on top of the direct threats of flooding and earthquakes.

# COUNTRY OVERVIEW

Nepal is a landlocked republic that is home to more than 29 million people. Its topography and communities are diverse and, outside of the heartland of the Kathmandu and Pokhara Valleys, the land is sparsely populated. The country is highly exposed to natural hazards that have frequently disrupted economic development, and climate change impacts have the potential to increase the risks to Nepal's people in terms of both physical safety and livelihoods.

## History

Various narratives describe the indigenous communities of the Kathmandu Valley, the historic heart of what is today Nepal. Photo 1 shows the modern city of Kathmandu, surrounded by hills.[6] From the 7th or 8th century BCE, rule fell to the Sino-Tibetan Kirantis whose King Yalumber is mentioned in the Mahabharat (circa 400 CE), one of the two major Sanskrit epics of ancient Indian Hinduism.[7] Other references to the Valley and lower hill areas of modern Nepal are found across India's classic epic literature, and these writings suggested that these areas were closely related culturally and politically to the Gangetic Plain of India by at least 500 BCE. Buddhist accounts from these centuries also tell of southern Nepal's Lumbini, the birthplace of Gautama Buddha, and of the Kathmandu Valley, and there is substantial archaeological evidence of an early Buddhist influence, including a famous column from the 3rd century BCE and several shrines.[8]

The Kirantis ruled until around 300 CE. During the 3rd century CE, the Indo-Aryan Lichhavi tribe had arrived from northern India and eventually overthrew the Kirantis.[9] Although the Kiranti dynasty had claimed the status of the Hindu "Kshatriya" caste of rulers and warriors, the Lichhavis were, in fact, of Indian origin and set a precedent for Hindu kings of high-caste Indian origin who ruled over a population that was mostly neither Indo-Aryan nor Hindu. Meanwhile, during the period of the 5th to the 7th centuries, a powerful, unified kingdom had emerged in Tibet, and the Himalayan passes to the north of the Kathmandu Valley were opened. Extensive cultural, trade, and political relations developed between the Lichhavi kingdom and Tibet and transformed the Valley into a major intellectual and commercial center between South Asia and Central Asia.[10] In the early 7th century, Amshuvarma, the son-in-law of one of the latter Lichhavi kings, took the throne as the first "Thakuri" king. There is some debate over whether Nepal's "Thakuri" constituted a transitional period from the Lichhavi or a combination of dynasties that represented various families and castes. Regardless, the Thakuri period ended when Ari Malla became the first Malla king in the year 1200.[11]

A flowering of culture came under the Mallas who ruled up to the 18th century; they built numerous temples and palaces with picturesque squares. It was also during their rule that society and the cities became well organized; religious festivals developed, and literature, music, and art were encouraged.[12] Although the Lichhavi had been devout Hindus, they did not impose associated social codes or values on their non-Hindu subjects. The Mallas took a different



**Photo 1: Kathmandu, Seen from the Hills**

tack, especially under Jaya Sthiti, who reigned in the latter 1300s and introduced legal and social codes strongly influenced by Hindu principles.[13] Despite this centralizing influence, from the latter 1400s, the territory that makes up modern Nepal was divided into about 46 independent principalities.[14] Each sustained independence through a balance of power based on traditional interrelationships and, in some cases, common ancestral origins among the ruling families. By the 16th century, virtually all of these principalities were ruled by dynasties claiming that their origins were among high-caste Indians who had fled to the hills in the wake of Muslim invasions of northern India.[15]

One among the principalities was Gorkha, which began a slow expansion in the 17th century.[16] The Mallas, weakened by internal dissent and widespread social and economic discontent, were no match for the Gorkha ruler Prithvi Narayan Shah,[17] who embarked on a conquering mission that led to the defeat of all of the kingdoms in the Valley in the latter 18th century. Instead of annexing the newly conquered states to Gorkha, Prithvi Narayan moved his capital to Kathmandu and established the Shah dynasty in the former Malla heartland. Recognizing the threat posed by the British Raj in India to his rule over the Valley and its fiefs, Prithvi Narayan dismissed European missionaries from his Kingdom and, for more than a century, Nepal remained in isolation.[18]

Despite the challenges of extreme diversity and ethnic and regional parochialism, Prithvi Narayan's descendants, the Shah rulers, did succeed in establishing a centralized political system. However, from 1775 to 1951, Nepalese politics was characterized by confrontations between the royal Shah and noble families. The Shah dynasty was especially weakened when two kings came to the throne in succession as minors; they ruled between 1777 and 1832, and during this time, the regents and nobility competed for political power and used the young rulers as puppets. Meanwhile, the Shah quest to bring the entire territory from Bhutan to Kashmir under their authority was frustrated by wars with China and Tibet (1788–1792), with the Sikh kingdom in the Punjab (1809), with British India (1814–1816), and again with Tibet (1854–1856).[19] Indeed, the outcome of the 1814-1816 Anglo-Nepalese War was the treaty that established what would become Nepal's current boundaries.[20]

Domestically, the Rana family succeeded in gaining influence over the throne. During the period 1846–1951, the Shah ruler was relegated to an honorary position without power, while effective authority was concentrated in the hands of the leading members of the Rana family. No effective national political institutions were created, and the noble families who were out of power had to either accept inferior posts in the administration and army or conspire for the overthrow of the dominant family. Internal political weakness meant little ability to resist the pressures brought by British rule in India. Nepal had to seek an accommodation with the British to preserve its independence. After 1860, Kathmandu was forced to permit the recruitment of Nepali soldiers for the highly valued Gurkha units in the British Indian Army and to accept British "guidance" on foreign policy; in exchange, the British guaranteed the Rana regime against foreign and domestic enemies and allowed it virtual autonomy in domestic affairs. The British withdrawal from India in 1947 deprived the Ranas of a vital external source of support. Anti-Rana forces, composed mainly of Nepali residents in India, formed an alliance with the Shah family, led by King Tribhuvan; they launched a revolution in November 1950. With strong diplomatic support from New Delhi, the rebels reached a settlement with the Ranas under which the sovereignty of the crown was restored and the revolutionary forces, led by the Nepali Congress party, gained an ascendant position in the administration.[21]

Soon after the overthrow of the Ranas, King Tribhuvan was reinstated as the Head of State. In early 1959, Tribhuvan's son King Mahendra issued a new constitution, and the first democratic elections for a national assembly were held. The Nepali Congress Party formed a government, but by 1960, King Mahendra

had dissolved Parliament and dismissed the government.[22] The constitution of 1959 was abolished in 1962, and a new constitution established the crown as the source of authority. King Mahendra obtained both Indian and Chinese acceptance of his regime, and the internal opposition shriveled. Mahendra died in January 1972 and was succeeded by his son Birendra, who sought to expedite economic development programs while maintaining the political system. However, by 1979, crises had developed. In May 1979, King Birendra announced a national referendum to decide between non-party and multi-party political systems. In the May 1980 vote, the political groups supporting the existing non-party system won by a small margin. Nonetheless, the King decided to liberalize the political system by providing for direct popular election of the National Assembly. The government also permitted activity by still nominally "illegal" political parties.[23]

After many years of struggle under the non-party system, democracy advocates started the People's Movement in 1990. King Birendra accepted constitutional reforms and established a multi-party parliament with the King as the Head of State and an executive Prime Minister.[24] In April 1990, the King appointed a coalition interim government headed by the president of the Nepali Congress Party, but it also included the moderate faction of the communist movement, the United Leftist Front. In parliamentary elections in May 1991, Nepali Congress gained 110 of 205 parliament seats, but the moderate Communist Party of Nepal (Unified Marxist-Leninist), or CPN(UML), won 69 seats and emerged as a strong opposition party. The Nepali Congress government appointed by the King would try to address the major economic and social problems dividing the country.[25] Instead, it soon confronted a Maoist revolt, which erupted in 1995.[26] While Nepali Congress and CPN(UML) struggled on the political level, Maoist rebels broke away to establish the Communist Party of Nepal (Maoist), or CPN(M). The rebels used violence to champion the cause of the rural poor and advocated overthrowing the monarchy.[27] Also amidst the conflict, on 1 June 2001, the entire royal family, including King Birendra and Queen Aishwarya, were killed in a massacre in the palace. The only surviving member was King Birendra's brother, Gyanendra, who was crowned King.[28] In July that year, Maoist rebels stepped up violence and drove the Prime Minister to quit. In November, the Maoists declared that peace talks with the government failed and launched coordinated attacks on army and police posts. Amidst a state of emergency, King Gyanendra ordered the army to crush the rebels, and during the early months of 2002, many hundreds of people were killed in rebel and government operations.

By May 2002, Parliament was again dissolved, and the subsequent interim government was, itself, dismissed by the King in October. The King then announced that elections were indefinitely postponed. Although January 2003 saw rebels and the government declare another ceasefire, by August, rebels had pulled out, and there was a resurgence of violence alongside frequent clashes between student-activists and police. In May 2004, more street protests by opposition groups demanded a return to democracy. The royalist Prime Minister resigned.[29] Then, in February 2005, King Gyanendra dismissed the Parliament to wield absolute power. In April 2006, the united democratic parties launched another People's Movement focused on Kathmandu. It elicited a 19-day curfew, but eventually, King Gyanendra relinquished his powers and reinstated Parliament. On 21 November 2006, Prime Minister Koirala of the Nepali Congress Party and Maoist Chairman Prachanda signed the Comprehensive Peace Agreement (CPA), which led to election of a Constituent Assembly and the declaration of a Federal Democratic Republic. The monarchy was abolished.

The Constituent Assembly also collected public input and wrote a new constitution. However, due to political disagreements on some contentious issues, the Assembly could

not complete its task before termination of its mandate in 2012. The Second Constituent Assembly was elected in November 2013 and was given a one-year timeline to complete the new constitution. Nonetheless, the process dragged on, and as it was finally nearing completion in 2015, the magnitude-7.8 "Gorkha" earthquake struck. The temblor caused widespread death and damaged infrastructure and property, including in Kathmandu. The disaster also built a sense of urgency among political parties to conclude the political process and thereby allow energy to be directed toward reconstruction. The new constitution was promulgated through an overwhelming majority of votes in the Assembly on 20 September 2015. Per the provisions of the new constitution, elections were held in October,[30] and Parliament subsequently selected a Prime Minister and President, the latter of whom, Bidhya Devi Bhandari, was the country's first female leader. The government collapsed in July 2016, another change of government came in May 2017, and elections later in 2017 brought resounding victory for a communist coalition. CPN(UML) and CPN(M) merged in May 2018, and the Nepal Communist Party (NCP) formed the government. However, it would also experience internecine conflicts that, in December 2020, saw the Prime Minister recommend that the President dissolve Parliament and call early elections. Attempts to build and sustain a government were largely unsuccessful through local elections in May 2022, when independent candidates notched victories in major races in an indication of the electorate's frustration with the country's major political players.[31]

## Culture and Demographics

As of the 2021 census, there were 29,164,578 people in Nepal, some 2.6 million more people than were counted in the 2011 census. There are more women than men, with women making up 51.5% of the population. The annual population growth rate stands at approximately 0.92% and has been falling for over a decade. Census responses indicated that more than 23% of households had one or more members absent and living abroad; of Nepalis living abroad, more than 82% were male. The 2021 census also showed that more than 61% of Nepal's total population is between the ages of 15 and 59 years, a five-percentage point gain among this age group over 2011; meanwhile, the population aged 14 years or below and 60 years or above sat at just more than 27% and 10%, respectively, in 2021.[32] The average life expectancy for Nepalis is approximately 71 years while the median age is 25 years.

Based on census findings, more than 80% of Nepalis follow the Hindu religion, and Nepali society is structured strongly by Hindu concepts, including the life cycle and caste system. A key notion is that life has four ashramas (stages) and that lives are driven by four goals: Brahmacharya (sexual abstinence or the life of a student), Grihastha (marital life or householder), Vanaprastha (life in the jungle), and Sannyasa (asceticism). Each ashrama prepares for the next stage, with the final goal of attaining moksha (redemption) from the cycle of rebirth. Hinduism contributes to Nepal's value system through the goal of dharma (duty), which refers to the responsibilities a person has in everyday life according to their place in the life cycle. Knowledge of customs and norms and compliance with these traditions is expected across community members.[33]

The Hindu-based caste system has permeated society for several hundred years regardless of the faiths followed by individuals. With some exceptions for high mountain Buddhists or remote shamanistic or animistic groups, after the promulgation of the National Legal Code in 1854, the caste system became a major determinant of identity, social status, and opportunity as it laid out detailed codes for inter-caste behavior and specified punishments for their infringement. In this system, everyone was organized in terms of relative ritual purity with the Dalits technically "outside" the caste system because of their "ritually defiling" occupations.[34]

Thus, there was essentially a three-tier social order with the upper castes at the top, the indigenous tribes in the middle, and the lower castes at the bottom.[35] In 1963, the Legal Code was revised to make "untouchability" illegal and to recognize all Nepalis as equal under the law, and in 2011 caste-based discrimination was finally criminalized. However, the deep roots of the system are still evident as caste is reportedly among the primary vehicles for discrimination.[36] There is nominally a reservation system whereby 45% of positions in the federal civil service go to specific disadvantaged (caste, ethnic, gender, etc.) groups,[37] but representation of the Dalits or other lower castes is minimal. Indeed, although Dalits should nominally have 38 representatives in Parliament, they have only 16. Moreover, Nepal's impoverished people disproportionately come from the Dalits, indigenous groups, and Muslim communities rather than from the "Khas-Arya," which includes the Brahmin (priestly) caste and Newari ethnic group.[38]

Despite this overarching structure, the country's multi-dimensional heritage encompasses various ethnic, tribal, and social groups, and this diversity manifests in various cultural practices, including music and dance, arts and crafts, folklore, literature, philosophy and religion, festivals and celebrations, and everyday foodways. Traditions go back more than two millennia. For example, in Lumbini (Rupandehi District, Lumbini Province), Buddha was born in the 6th century BCE. Old, famous temples of Hinduism stand alongside Buddhist monasteries. Tantric traditions are rooted deeply and include animal sacrifices. Cows are sacred animals and are never considered acceptable for sacrifice.[39] Indeed, there are laws criminalizing the slaughter of cows.[40] Dance is a critical type of cultural expression, and the dances of Nepal differ in style across regions and groups. Accompanying music and musical instruments also vary across space and occasion. Dashain is the longest and the most important festival; it falls in late September to mid-October, right after the end of the monsoon, and is a day of "Victory over Demons."[41]

## Ethnic Makeup

There were 142 castes or ethnic groups enumerated in the most recent National Population and Housing Census in 2021. Table 1 shows the breakdown of self-reported ethnic or caste identity for groups that make up more than 1% of the population in the 2021 census.[42] The ethnic groups inhabiting Nepal in the 21st century are the descendants of various groups of people who migrated into the territory over the millennia. Early settlers included Asian groups from Tibet and Indo-Aryan people from northern India. People with Indo-Aryan ancestry, especially the Pahari (including the Kshetri and Brahman-Hill), have enjoyed greater prestige for centuries, and the ruling families were mostly of Indo-Aryan and Hindu background. Most of the Tibeto-Nepalese groups, including the Tamang, Rai, Limbu, and others, live in the north and east, although others, such as the Magar and Gurung, inhabit west-central Nepal. A third set of groups, which includes the Newar and the Tharus, are believed to have settled Nepal before the Tibetan and Indo-Aryan migrations.[43]

| Caste/Ethnicity | Population | Percent |
|---|---|---|
| Kshetri | 4,796,995 | 16.45 |
| Brahman - Hill | 3,292,373 | 11.29 |
| Magar | 2,013,498 | 6.9 |
| Tharu | 1,807,124 | 6.2 |
| Tamang | 1,639,866 | 5.62 |
| Bishwokarma | 1,470,010 | 5.04 |
| Musalman | 1,418,677 | 4.86 |
| Newa (Newar) | 1,341,363 | 4.6 |
| Yadav | 1,228,581 | 4.21 |
| Rai | 640,674 | 2.2 |
| Pariyar | 565,932 | 1.94 |
| Gurung | 543,790 | 1.86 |
| Thakuri | 494,470 | 1.7 |
| Miiar | 452,229 | 1.55 |
| Yakthung/Limbu | 414,704 | 1.42 |
| Chamar/Harijan/Ram | 393,255 | 1.35 |
| Koiri/Kushwaha | 355,707 | 1.22 |

**Table 1: Castes and Ethnic Groups as a Percentage of Total Population (2021)**

## Key Population Centers

In the 2021 census, the population in urban municipalities accounted for 66% of the total population, three percentage points higher than in the 2011 census. There is an average population density of 198 persons per square kilometer ($km^2$; 512 persons per square mile). The population of the country is concentrated in Kathmandu and the country's southern areas. By region, the highest population density is 460 persons per $km^2$ (1,187 persons per square mile) in the Tarai, and the lowest is 34 persons per $km^2$ (88 persons per square mile) in the mountains. Figure 1 illustrates the relative population size of each district, per the 2021 census.[44] Almost all Nepalese live in villages. Outside Kathmandu (population: approximately 1.5 million), there are no cities larger than 1 million people. Smaller urban centers in the Tarai along the Indian border include Biratnagar, Nepalgunj, and Birgunj; Pokhara, a city of approximately 600,000, is in a valley in the mid-mountain region, and a few townships have begun to emerge in the foothills and hill areas, where economic activity has developed.[45]

## Language

The principal and official language of Nepal is Nepali, which is the native language of many in the Tarai and the mid-mountain region. Nepali is written in Devanagari script.[46] There are various regional dialects of Nepali found in these areas. The languages of the north and east belong predominantly to the Tibeto-Burman family, and they include Magar, Gurung, Rai, Limbu, Sunwar, Tamang, Newari, and various Bhutia dialects, including Sherpa and Thakali.[47] As a first language, Nepalis speak 124 different languages. Those with more than 100,000 native speakers are all local or regional languages whereas languages used as a second language also include English. Table 2 shows the list of main languages spoken as a first language by Nepalis.[48]

## Religion

The constitution establishes the country as a "secular state" and provides for the right of citizens to profess and practice their own religions. The constitution prohibits converting persons from one religion to another and prohibits religious behavior disturbing public

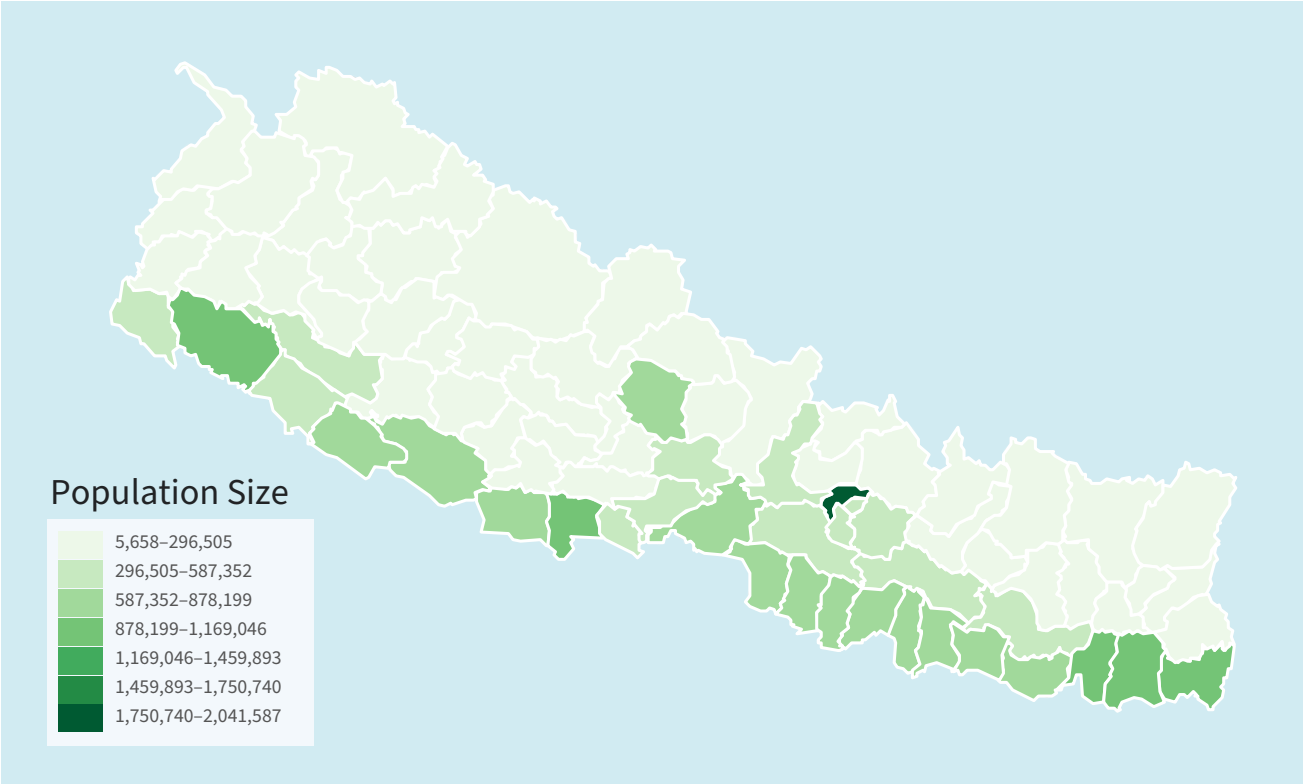



**Figure 1: Concentrations of Nepal's Population**

| Mother Tongue | Population | Percent |
|---|---|---|
| Nepali | 13,084,457 | 44.86 |
| Maithili | 3,222,389 | 11.05 |
| Bhoipuri | 1,820,795 | 6.24 |
| Tharu | 1,714,091 | 5.88 |
| Tamang | 1,423,075 | 4.88 |
| Bajjika | 1,133,764 | 3.89 |
| Avadhi | 864,276 | 2.96 |
| Nepalbhasha (Newari) | 863,380 | 2.96 |
| Magar Dhut | 810,315 | 2.78 |
| Doteli | 494,864 | 1.70 |
| Urdu | 413,785 | 1.42 |
| Yakthung/Limbu | 350,436 | 1.20 |
| Gurung | 328,074 | 1.12 |
| Magahi | 230,117 | 0.79 |
| Baitadeli | 152,666 | 0.52 |
| Rai | 144,512 | 05 |
| Achhami | 141,444 | 0.48 |
| Bantawa | 138,003 | 0.47 |
| Rajbanshi | 130,163 | 0.45 |
| Sherpa | 117,896 | 0.4 |
| Khash | 117,511 | 0.4 |

**Table 2: First Languages Spoken by Nepalis (2021)**

order or contrary to public health, decency, and morality. The law prohibits both proselytism and "harming the religious sentiment" of any caste, ethnic community, or class.[49]

The 2021 census found that Hindus make up the largest religious congregation in the country with more than 81% of Nepalis (23.7 million people) adhering to this faith. Some 2.4 million Nepalis (8% of the population) self-reported as Buddhists while 1.5 million (5% of the population) follow Islam. Other small congregations of local or world faiths comprise fewer than 1 million adherents each.[50] These other groups include Kirats (an indigenous religion with Hindu influence), animists, adherents of Bon (a Tibetan religious tradition), Jains, Baha'is, and Sikhs. Many individuals adhere to a syncretic faith encompassing elements of Hinduism, Buddhism, and traditional folk practices, according to scholars.

Except for Buddhist monasteries, which are served by a dedicated development committee under the Ministry of Culture, Tourism, and Civil Aviation, all religious groups must register as NGOs or nonprofit organizations if they intend to own land or other property, operate as institutions, or gain eligibility for public service-related government grants and partnerships. Religious organizations follow the same registration process as other NGOs and nonprofit organizations, including preparing a constitution and furnishing information on the organization's objectives as well as details on its executive committee members.[51]

## Vulnerable Groups

Community members have different roles when preparing for and responding to a disaster event. The result of these culturally constructed roles means that information regarding a hazard or emergency must not only be tailored to specific activities, but it must be delivered in appropriate formats to reach each target audience effectively. Moreover, these groups can experience differing impacts from a disaster. Age, sex, displacement status, economic class, and other characteristics can change a person's needs and options for action after a disaster.

Within the context of Nepal, people who were still recovering from the conflict of 1996-2006 or from the 2015 earthquake confronted greater difficulties participating in community, district, or national disaster response planning and preparation because of social, economic, and political factors. Thus, when the COVID-19 pandemic struck, these people were at higher risk for violence, poverty, or extraordinary care burdens as the pandemic compounded post-conflict and post-disaster challenges. The impacted groups included women, children, the elderly, displaced people, lower castes, people living in poverty, and people living with disabilities, among others. Many of these groups had been vulnerable due to discrimination that was rife under the monarchy; for 240 years, gender, caste, class, and ethnicity could and did dictate access to resources, privileges, and opportunities. Although the 2015 constitution criminalizes many types of traditional

discrimination, lingering attitudes may complicate the already difficult task of including vulnerable groups into DRR and climate change adaptation (CCA) planning and execution.

The following large categories of vulnerable groups are intended to provide an overview of the coping capacities and vulnerabilities of various socio-economic categories of people. In reality, any one person may belong to several of these categories at once and, therefore, experience greater vulnerability.

***Women***

On average, Nepal's women marry at a young age (18 years), but there remains a concerning rate of marriages of girls as young as 10 years of age.[52] Nonetheless, teenage fertility among Nepal's women is not especially high. Among all Nepali women, fertility is low among adolescents (71 births per 1,000 women ages 15–19 years), and it peaks at 160 births per 1,000 among women ages 20–24 years before decreasing thereafter. Women ages 15-19 years with no education (33%) are more likely to start childbearing earlier than those with at least some secondary education (8%).[53] Women who marry younger, have more children, and have less education are less likely to have the resources and networks to allow them to participate in disaster preparedness or recovery. Moreover, crafting DRR and CCA messages that are useful and actionable for these women is more complicated and may strain the capacity of government and non-government agencies who are often staffed and run by elites who do not consider illiteracy, language differences, low rates of technology access, or lack of resources, all of which limit the actions of women who are burdened with household chores and caregiving.

During the 1996-2006 conflict, tens of thousands of women fought within the Maoist combatant forces. Thus, women faced violence and trauma, suffered disappearances, became widows, were displaced and separated from families, and experienced economic crises as both fighters and victims of fighting. After the conflict, they dealt with conflict-related disabilities and dislocations from traditional social support structures despite the post-2008 government commitment to promote women's participation at all levels of politics and security. There are formal quotas for women's representation in the national parliament, police forces, and military forces. But in the non-government realm, women's participation is significantly lower. The Nepal Labor Force Survey 2017–2018 reported that for every 100 employed males, there were only 59 employed females, the literacy rate for women was 57% compared to 75% for men, and the average monthly income for women was Rs 5,834 (US$44) less than men's earnings. These numbers were worse for women from lower castes and minority ethnic groups.[54]

Historically marginalized, single women – including women who are widowed, divorced, or in a female-headed households – face especially difficult circumstances. Widows are sometimes considered inauspicious, unlucky, promiscuous, or even responsible for their husband's death. Rituals such as banning widows from wearing red clothing, breaking a widow's bangles, and excluding widows from community gatherings are still commonly practiced in some parts of Nepal. Nonetheless, several recent laws are beginning to protect the rights of single women, including the right to retain a deceased husband's property after remarriage, the right to inherit marital property regardless of age, the right to obtain a passport without a male family member's consent, the right to sell or transfer property without permission from adult children, and the right to receive a single woman social security allowance from the government regardless of age.[55]

The Women Friendly Disaster Management (WFDM) Core Group was formed by key Nepal-based, women-led organizations after the 2015 earthquake. Among other activities, it delivers training on DRR and disaster response coordination for women who live in high-risk areas of the country and who do not have access to formal education systems where they might otherwise learn about DRR topics.[56] The WFDM

core group is comprised of 11 organizations - Beyond Beijing Committee, Feminist Dalit Organization, Forum for Women, Law, and Development, Home Net South Asia, Jagaran Nepal, Sabah Nepal, Media Advocacy Group (Secretariat host), SAATHI, Women for Human Rights, Blue Diamond Society, and Disability Human Rights Promotion Society. WFDM is supported by the European Union, Friedrich Ebert Stiftung, Geneva Global, Helvetas, South Asian Women's Fund, United Nations Development Programme (UNDP), United States Agency for International Development (USAID), the United Nations Entity for Gender Equality and the Empowerment of Women (UN Women), and the World Wildlife Federation (WWF).

Along with WFDM, the Women Humanitarian and Disaster Risk Reduction Platform (WHDRRP) brings together 100 of Nepal's women professionals and DRR and humanitarian practitioners. The platform is an advocacy vehicle that prioritizes the leadership and representation of women professionals and grassroots women. It campaigns for representation and participation of women in high-level government DRR and disaster management committees. Hosted by the Centre for Disaster Management Studies in Kathmandu, WHDRRP is supported by Care Nepal, Finn Church Aid Nepal, Good Neighbor International, the International Federal of Red Cross and Red Crescent Societies (IFRC), and Johanniter International, among others.[57]

Despite the existence of key groups working to ensure women have equal access to hazard information and DRR knowledge and training, the COVID-19 pandemic exacerbated existing social and economic hardships for women in the country. Pandemic lockdowns caused immense economic difficulties for daily wage laborers and domestic workers, which make up a large percentage of Nepal's labor force. The impacts fell disproportionately on women, who make up two-thirds of domestic workers. More than 90% of women who work in Nepal are part of the informal economy with no social protections against the loss of jobs or income. A study conducted by the government to assess the gendered impacts of the pandemic found a 33% rise in the number of women not involved in any paid work. Of the study's respondents, 83% reported losing their jobs and income. The study also found that women's unpaid care workload increased due to school closures and restrictions on mobility outside the home. The situation for many single women during the pandemic has been precarious as the sole income-earner and caretaker for their family.[58] The Nepal Economic Census of 2018 indicated that women owned and managed 30% of the country's pre-pandemic micro-enterprises. The multiple COVID lockdowns damaged these enterprises, and during the recovery phase, women across all sectors face debt as they cannot earn money unless they are working. Debt risk is even higher for rural farming women who borrowed informal loans at extremely high interest rates.[59]

As an additional snapshot for the impacts that the COVID-19 pandemic had on women and that disasters in general can have, between March 2020 and June 2021, there was an increase in cases of gender-based violence.[60] In the first six months, police reported 1,221 rape cases – seven cases per day.[61] Although reported cases slowed, the first year of the pandemic saw over 1,750 incidents reported to police; rape and sexual assault represented 82% of cases. Pandemic lockdowns also led to new vulnerabilities for women who sought out quarantine shelters, as physical security in some was poor. Finally, with gender-based violence already more prevalent among women and girls of low caste, the pandemic made it worse. The Samata Foundation, a Nepal-based rights group, reported 90 cases of gender-based violence faced by women and girls of low caste within the first six months of the pandemic.[62] Even prior to COVID-19, the United Nations Population Fund (UNFPA) found that 48% of women in Nepal had experienced violence at some point in their lives, with 27% of women experiencing physical violence. COVID-19 protocols then forced women to stay with their abusers, exacerbating violence.[63]

***Children***

An estimated 10.7 million Nepalis are under age 18 years, and nearly 3 million are under age 5 years. The country still struggles with child mortality with 15 neonatal deaths per 1,000 births, 27 deaths among children under age 5 years per 1,000 children in this age group, and 5 deaths among children ages 5-14 years per 1,000 children in this age group. Despite these numbers, the country has performed better than others in South Asia. Broadly, immunization rates for common vaccine-preventable diseases top 90%, although disasters and economic shocks can disrupt the routine health services via which vaccinations are delivered. An estimated one-fifth of Nepal's newborns are born with low birthweight, 30% of children ages 5 years or younger are stunted from malnutrition, and 16% of school-age children (5-19 years) are underweight while 8% are overweight.[64]

In the wake of major disasters, children may be subject to abuse and exploitation as they are out of school and living in households in straitened financial situations. Among the consequences are upticks in child trafficking. Indeed, during the COVID-19 pandemic, Nepal saw a rise in the number of children reported missing. Compared to 2019/2020 when 2,219 children were reported missing, 3,009 were reported missing in 2020/2021, and 4,646 were reported missing in 2021/2022. The National Child Rights Council (NCRC) under the Ministry of Women, Children, and Senior Citizens reported that 4,269 of those reported missing in 2021/2022 were found, but NCRC says most of the missing children had been trafficked to India before being found.[65]

Even under normal circumstances, there are many Nepali children who are engaged in labor and may, therefore, be missing out on schooling where they might otherwise learn about risk reduction, disaster preparedness, and social structures that can support them. In its State of the World's Children report for 2023, the United Nations Children's Fund (UNICEF) reports that many children of school age are out of school when they should be in lower and upper secondary education; while the country has attained 100% primary school enrolment rates, in lower secondary, 7% of boys and 3% of girls are out of school, and in upper secondary, 26% of boys and 13% of girls are out of school. Completion rates for primary school are above 80%, although only 70-75% of children complete lower secondary, and 27-28% complete upper secondary.[66] The combination of early departure from formal education and mismatches between education and labor force needs mean that many children are in the workforce and may be performing menial or dangerous work. The government's 2018 labor force survey estimated that 1.1 million children were engaged in labor. The Ministry of Women, Children, and Senior Citizens has approved procedures to help curb abuse of children online and off, and the NCRC formed new Child Protection Committees in 129 local governments. However, Nepal's children remain subjected to the worst forms of child labor, including commercial sexual exploitation and forced begging.[67] Moreover, child marriage (before the legal minimum age of 20 years) remains extremely common and may become more prevalent in times of emergency as families seek to reduce the number of dependents in a household. The Constitution does explicitly prohibit child marriage and has mapped out a strategy to end child marriage,[68] and enforcing these prohibitions is critical to protecting children.

***Elderly***

Individuals 60 years of age and older are considered elders. As the life expectancy of Nepalis has increased rapidly in recent decades, the elderly population growth rate has been higher than the total population growth rate, and it is projected to increase rapidly in the coming decades.[69] One estimate finds that some 85% of Nepal's elderly live in rural areas with poor access to health services and high dependence on remittances from community members who have migrated to urban areas or overseas. Moreover, there is a higher rate of illiteracy, limited income, and poor nutrition among the

elderly, a constellation of elements that increases the rates of acute and chronic diseases and that is exacerbated by a lack of ability or resources to access information or services.[70]

In Nepal, the family serves as the primary caregiver for elderly members, with family members assisting with daily tasks and providing various forms of support. Nonetheless, as families shrink and younger workers migrate into cities or overseas, the traditional set up has been eroding, and older Nepalis are increasing vulnerable to isolation, hunger, and ill health. Studies show that Nepal's older people suffer from loneliness, depression, sleep disorders, functional disabilities, elder abuse, and various chronic diseases, all of which mean Nepal's older people are experiencing falling quality of life, and the caregiving burden for their loved ones is rising.[71] Since 1995, the government has allocated old-age pensions for people ages 75 years and above or widows ages 60 years and above. However, the actual distribution of the pensions has been poorly implemented such that many elders cannot rely on them even just to cover health costs.

The upshot of these gaps has been a failure to cultivate a geriatric health care system and, therefore, elders routinely simply do not seek health care or they rely on family members to pay high costs for privatized care, a circumstance that can drive some families into poverty and result in abuse of elders.[72] The living arrangements of Nepal's elderly people are contingent on their level of support, e.g., the availability of care from a spouse or child. Older people depend on their children, particularly sons, for support and security, and the most recent community study shows that the highest proportion of older people live with a son and daughter-in-law (66.3%), with a spouse (11.6%), alone (6.2%), with a daughter and son-in-law (6.1%), with an unmarried child (4%), with grandchildren (2.3%), or with other family members (2.7%).[73] The pressures on a family or community to care for ailing elders who are living longer is acute in some place, and it poses a long-term challenge for the country. The heretofore informal social structures that have looked after elders will require formalization and government promotion if elders are to become resilient to disasters along with the rest of society.

***People Living with a Disability***

In emergencies, persons living with disabilities are at great risk because they experience increased difficulties due to separation from family or caregivers, loss of assistive and mobility devices, and difficulties with accessing information and humanitarian relief. The situation can be compounded by pre-existing cultural and social discrimination.

Nepal ratified the United Nations Convention on the Rights of Persons with Disabilities in 2008, and Nepal's 2015 Constitution explicitly prohibits discrimination in applying general laws on the grounds of disability. The Disability Rights Act of 2017 provides a framework for disability classification, as well as the services, facilities, and opportunities available for persons with disabilities. Persons with disabilities can register under social welfare to access several disability-targeted benefit packages (social assistance, education, healthcare, transportation, and vocational training and employment). However, to access these programs, they must first undergo an assessment of their disability and be issued a Disability Identification Card. Those assessed with having "severe disability" (difficulty to perform daily activities without the help of others) are eligible for a Disability Grant. Estimates indicate that the proportion of persons with disabilities and who have a Disability Identification Card is low due to barriers to access and to completing the application. Moreover, perception of disability remains generally negative. Many Nepalis do not consider persons living with disabilities to be relevant contributors to public life, and this perception appears to have roots in Hindu religious beliefs and cultural practices, which view disability as the result of sins in a previous life. Thus, persons with disabilities – especially women and girls – tend to be made "invisible," and this stigma adds to the challenges that make receiving health services, education, and work opportunities

challenging. Thus, persons living with disability tend to be the poorest in their community, with no or low education levels and unstable incomes.[74]

In the 2021 census, 2.2% of the population reported living with a disability; disabilities were slightly more common among men than women with 2.5% of men and 2.0% of women reporting living with a disability. Physical disabilities were, by far, the most common type of disability at more than 37%; low vision or blindness account for more than 22% of claimed disabilities while hearing difficulties or deafness account for approximately 16% of all disabilities. Speech impairments account for 6.4% of disabilities while psycho-social or intellectual disabilities account for slightly more than 6% of claimed disabilities. Nearly 9% of persons claiming to live with a disability cite more than one disability type.[75]

The National Federation of the Disabled Nepal (NFDN) is the country's umbrella organization that brings together 300 member organizations from 74 of the country's districts. Run by persons with disabilities, it advocates for rights, interests, and entitlements in coordination with national and international governmental and non-governmental bodies to establish disability-inclusive structures, laws, systems, safeguards, capacities, and meaningful participation of persons with disabilities in all social, political, cultural, and economic sectors. NFDN has a presence in all seven provinces within the leadership of Provincial Executive Committees in the capital cities of the provinces.[76] Among its key projects, NFDN has worked on the "Mainstream age and disability in relief, early recovery and reconstruction process in worst earthquake affected districts of Nepal" to include older people and persons with disabilities from 10 Village Councils of three districts (Kavrepalanchok, Makwanpur, and Sindhupalchok) in the specific programs of organizations working in humanitarian response after the 2015 earthquake.[77]

***People Marginalized because of Caste or Ethnic Group***

The findings of successive censuses and housing surveys have been controversial in Nepal as there are fears that issues of caste or ethnic identity will attenuate public buy-in to programming aimed at reducing vulnerability.

The country still struggles with discrimination against some social and ethnic groups. The government has formed the National Dalit Commission and the National Foundation for Development of Indigenous Nationalities. Nonetheless, there were reports of discrimination against indigenous people during rescue and relief efforts and with regard to resettlement and reconstruction decisions after the 2015 earthquake.[78] Women from these communities face systematic marginalization as they are without access to land, formal or informal institutions, health services, education, or livelihoods. As an illustration, when the pandemic struck, some 99% of Dalit women interviewed by the Samata Foundation reported experiencing food insecurity and financial stress due to COVID-19.[79]

The indigenous groups of Nepal, the Adivasi Janajati, include more than 60 distinct groups, and some advocates suggest that they make up more than one-half of the population, although official numbers say they make up somewhat more than one-third of the total population.[80] Not all of Nepal's indigenous peoples are marginalized. The two groups considered "advantaged" are the Newar and Thakali, both of which have built large communities in towns and have, thereby, gained economic influence and become integrated in political systems. Meanwhile, other major hill and mountain indigenous groups like the Magar, Rai, Gurung, Limbu, and Sherpa tend to have gradually integrated with outsiders, although they continue to confront low levels of literacy and access to services in many cases. While these groups' political power and participation remains low, they have raised their socio-economic status through various group movements – e.g., Sherpa tourism or Magar, Rai, Gurung, and Limbu

service in foreign armies.

Marginalized indigenous groups include two major ethnic groups, the Tamang in the hills and the Tharu in the Tarai, along with several minor groups. They have not had opportunities like those that the Sherpa have exploited, and the minor groups are disadvantaged because of their small numbers and subsequent under-representation in decision making. Their literacy and other social development indicators are generally low, and many find themselves in subservient relationships with neighbors of higher economic status and higher education levels. Many Tharu, who lived in bonded labor on land they previously owned, have been freed, and now live on small plots of government-donated or illegally occupied land in towns and forests. Highly marginalized and endangered groups are very small in size (e.g., Lepcha and Meche), and they may also live far from any town and lack integration with the larger society (e.g., Raute and Chepang). These groups have problems in maintaining their languages and cultural identities as they are too few in number to build community education, health, and development services.[81]

National parks and other "protected areas" cover almost one-quarter of Nepal, with the vast majority are located in the ancestral homelands of the Adivasi Janajati. Decades after these areas' establishment, many people who were evicted remain landless and at risk of further forced evictions from the informal settlements where they took up residence. They have not been provided access to alternative livelihoods or compensation. Without access to ancestral resource bases,[82] they have no ability to build up resilience to natural or human-made shocks, and many are marginalized from formal governance structures where they could help shape policies for use of natural resources, nature-based solutions to hazards, or building back better after disasters.

From as early as the mid-19th century, when the legal code was promulgated, the Madhesh people of the Tarai were excluded from the formal social structure. The Madhesh included many people and groups – i.e., Chamars, Musahars, and Tatma – involved in "untouchable" occupations; they remain among the poorest people in modern Nepal. While some of the Madhesh groups have subsequently gained economic prosperity, those 15 Dalit castes among hill and Madhesh residents fall, as groups, at the bottom of the country's wealth structure. Indeed, an estimated one-half of "hill" Dalits are in the bottom quintile of wealth outcomes while about one-tenth of Madhesi Dalits fall into the bottom quintile. This lack of wealth is accompanied by gaps in education and poorer health outcomes, and the overall outcome even includes poor access to information. Surveys have indicated that gender and caste play a significant role in media consumption. While high-caste men have multiple sources of information, lower-caste men seem to rely on the radio. Meanwhile, as much as 30% of Nepal's women and 17% of Nepal's men may have absolutely no access to traditional media,[83] and this gap all but ensures that some of the country's most vulnerable groups have little means to acquire information on hazards or government programs to reduce risk.

Illustrative of the disproportionate impacts of a disaster on marginalized groups is the way in which the 2015 earthquake struck Dalit and indigenous communities. Already exposed to lower standards of health care, these people were often offered help last, although their need was generally greatest, in part because more low-caste people lived in poorly constructed houses, which collapsed in the earthquake. In addition, a majority of Nepali doctors and volunteers were from higher castes and were sometimes prone to prioritizing care for high-caste victims over Dalits. People from many different castes and ethnic origins were displaced by the earthquake, and the layout of camps for the displaced surfaced issues of purity, wherein both those affected and those responding questioned whether it is acceptable in a disaster zone to accept water and food from a volunteer who is of a lower caste, among other issues. Many observed that, during relief efforts, many normal rules were suspended, and aid agencies

took care to provide foods acceptable to all castes. Beyond caste, the direct impacts of the quake were disparate; a Ministry of Home Affairs (MoHA) survey after the quake identified that over one-half of the 607,212 buildings damaged were situated in areas dominated by the Tamang (indigenous) group, which also suffered 34% of total deaths from the dual earthquakes. The location of Tamang communities in rural Bagmati Province directly contributed to the high death rate.[84]

***Stateless Persons***

Persons not registered at birth or whose citizenship rights are not recognized due to marriage, gender, or displacement status are at risk of being left out of assistance and relief programs that target citizens.

An estimated 6.7 million people in Nepal live without citizenship and are at risk of statelessness due to citizenship laws. Nepal's 2006 Citizenship Act and the 2015 constitution contain provisions that discriminate against women by making it harder for them to pass Nepali citizenship to their children.[85] In its 2016 review, the UN Committee on the Rights of the Child criticized Nepal for conditions placed on acquisition of citizenship by descent, which requires evidence that both the father and mother of the child are Nepal citizens; these restrictions exclude children of unwed mothers, children of a Nepali mother and a foreign or unknown father, children of refugees or of parents who are unable to prove citizenship, and children of same-sex parents. The Committee further expressed concern that children of Nepali mothers and non-national fathers are not granted citizenship until they attain majority, and this condition exposes them to the risk of statelessness until adulthood.[86]

The UN Special Rapporteur on extreme poverty and human rights further detailed the problem of citizenship and statelessness in Nepal when he pointed out that individuals who wish to acquire a land ownership certificate based on the occupation of land must provide a citizenship certificate, which, in turn, requires either the father's (or husband's) citizenship certificate or proof of permanent residency, which requires showing land or a house in one's name or in the name of a family member. Without land or male relatives with citizenship, individuals become trapped in a cycle wherein they are unable to obtain a legal identity and therefore cannot buy land in their name, which, in turn, they need to obtain citizenship.[87]

***Sexual or Gender Minorities***

Nepal has developed policies to protect lesbian, gay, bisexual, transgender, queer, intersex, and other gender expression (LGBTQI+) people since 2007. However, implementation gaps persist, and strong legislation is needed to prevent abuses, particularly against transgender people.[88] The constitution of 2015 recognizes LGBTQI+ and intersex rights, including the reference to "gender and sexual minority" in the grounds for discrimination that are prohibited under article 18 (right to equality); moreover, the government does provide identity documents in a third gender category, recognizing genders other than "male" and "female."[89] Most recently, in March 2023, the Supreme Court ordered legalization of same-sex marriage. Nonetheless, advocates point to key shortcomings in protections that bear on inclusion of LGBTQI+ people in DRR and the ability of LGBTQI+ individuals to access information, services, and relief after a disaster. Transgender people are especially susceptible in post-disaster contexts when gender-based violence and sexual abuse tend to rise; there is generally no legal redress for such violence experienced by transgender people since the Criminal Code describes rape as a forceful act committed by a man upon woman. Moreover, access to health care is a key shortfall, as many providers lack understanding of the vulnerability of gender identity and sexual orientation issues. To add to this plight, LGBTQI+ individuals encounter bigotry in health institutions based on the delusion that they are sex workers or HIV-positive, even as Nepal's Constitution entitles every citizen to health care service regardless of their medical status. Meanwhile, workplace

harassment, mistreatment, and discrimination are common in both the public and private sectors.[90]

***People Living in Poverty***

Poverty in Nepal has many roots, including displacement after conflict and natural disasters, high food prices, limited farm productivity, corruption, infrastructure shortfalls, skills-jobs mismatches, high housing prices, etc. Moreover, Nepalis living in poverty often fall into one or more of the other vulnerable groups discussed in this section. Nonetheless, over the past 50 years, Nepal has achieved two of three goals (i.e., the Human Asset Index and the Economic Vulnerability Index) required for graduation from status as one of the world's Least Developed Countries.[91] However, a combination of poor statistics management and the COVID-19 pandemic suggests that poverty rates remain high. By the end of 2022, at least one-fifth of jobs lost due to the pandemic had not been recovered, and women and agricultural households were seeing the slowest recovery.[92] Indeed, in recent years, Nepal has experienced the phenomenon known as "feminization of poverty," which occurs due to the combined impacts of gendered labor precarity and women's caring burden along with economic shocks such as the COVID-19 pandemic.[93]

No new survey of incidence of poverty has been completed since 2010 to allow the government to fully understand the country's impoverished people. During 2023, the Nepal Living Standards Survey will reach all parts of the country to gather data on health, education, jobs, migration, and social protection, all of which will supplement 2021 census data to allow a better understanding of where recovery and development are lagging.[94] Based on official data, in 2011, 39% of Nepalis were multidimensionally poor, and that rate fell to 25.7% in 2016 and 17.5% in 2019. The UNDP Global Multidimensional Poverty Index 2022 noted that at least 5 million Nepalis were still living in poverty based on the Index, which examines deprivation across health, education, and living standards with further sub-indicators. One of the most significant improvements in the rate of multidimensional poverty was in the reach of clean drinking water, which had knock-on impacts for overall health. At the same time, the UNDP underscored that the unmeasured impacts of COVID-19 on poverty rates in Nepal were likely to mean Nepal's poor sank further into poverty than the report might otherwise indicate.[95]

## Economics

During the 1990s and early 2000s, civil conflict deterred investment in Nepal and hobbled its economic development. Since the 2006 peace agreement, efforts have been made to ensure that the government structure does not disrupt public or private investment, and the relative political stability since 2008 has increased opportunity. While there remain challenges defining governance over key sectors, the World Bank is optimistic that two successive cycles of peaceful transfer of political power indicate that there will be sustained improvement in investments into public services, infrastructure, and regulation to ensure a thriving private sector.[96] At the same time, the World Bank warns that climate change-related hazards pose a longer-term threat to the country's economic development. Extreme weather events can cause large-scale disruptions of supply chains, or a persistent drought could cause food shortages and rising prices with lasting impacts on farm incomes, nutrition, and poverty. Floods and landslides in recent years have severely damaged transport and water supply infrastructure, and these events are expected to increase in frequency and severity, thereby increasing the cost of doing business in the country.[97]

Nepal's gross domestic product (GDP) growth has been modest but somewhat volatile since the 2006 peace deal as the country has struggled with the impacts of natural disasters and various trade disputes with India. Moreover, as the country's own market exposure is insufficient to impact global prices, Nepal is a price taker on key inputs,

including fertilizers and some fuels. Overall growth averaged 4.4% over the period 2007-2017. However, this average masks major swings such as the economic reversal that followed the 2015 earthquakes and simultaneous trade disruptions with India; together, these influences helped slow economic growth to just 0.6% in 2016. Economic growth more than rebounded in 2017 to 7.9% and in 2018 to 6.3%.[98] In 2020, during the height of the COVID-19 pandemic, the country saw negative GDP growth (-2.4%). However, the economy rebounded relatively swiftly to notch a 4.2% growth rate in 2021, 5.8% in 2022, and a projected 4.1% in 2023.[99] As these rates are in line with the long-term, pre-COVID average, they suggest a positive direction. Indeed, the Asian Development Bank points to key underlying elements that help pave the way toward the country's development goals; they are accommodative macroeconomic policies, increased hydroelectricity generation, improved manufacturing output, an expansion in construction, and a gradual revival of tourism.[100]

In the Central Bureau of Statistics' estimates for Fiscal Year (FY) 2021/2022, the agriculture, industry, and services sectors were estimated to have grown, in line with overall GDP. Their shares of GDP stood at 23.95% (agriculture, forestry, and fisheries), 14.29% (industry), and 61.76% (services). Table 3 shows GDP growth and sectoral contribution rates over the period 2019-2022, per the Central Bureau of Statistics.[101] Note that the FY in Nepal begins on 15 July.

In addition to making up nearly one-quarter of GDP, the agriculture sector employs more than two-thirds of the workforce. The service sector has grown in importance, and the industrial sector, particularly manufacturing, has declined as a share of the economy in recent years.[102] The country faces major challenges to building economic prosperity and driving down poverty rates. One challenge is that informal workers represent 84.6% of the labor force, with women overrepresented; 81% of employed men work informally whereas 91% of women do. Informality favors abuse and exploitation, and informal workers are excluded from social insurance mechanisms. What is more, agriculture is one of the hotbeds of informal labor, and the country's overall reliance on agriculture for revenues indicates that the precarity of the agricultural labor force is a long-term challenge.[103]

Exports have declined as a driver of economic growth as the country has struggled to compete with similar economies; the struggle is driven by a lack of adequate power supply for production and the appreciation of real exchange rates. Meanwhile, imports have remained high, fueled by remittances from Nepali workers abroad. Remittances themselves can be a source of liquidity or a vulnerability; before the COVID-19 pandemic, remittances peaked at almost 29.5% of GDP in 2016, declined to 26.3% in 2017, and declined further in 2018 due, in part, to cuts in public spending in oil-producing countries such as Malaysia, Qatar, Saudi Arabia, and the United Arab Emirates where many Nepali migrants work.[104] An additional shock came from the mass return of Nepali workers from abroad when economies shuttered during the initial stages of the COVID-19 pandemic. As economies

| Sector | 2019-2020 | 2020-2021 | 2021-2022 |
|---|---|---|---|
| **Share of GDP** | | | |
| Agriculture | 25.16% | 24.90% | 23.95% |
| Industry | 13.66% | 13.69% | 15.29% |
| Services | 61.18% | 61.41% | 61.76% |
| **Real GDP Growth Rate** | | | |
| GDP Growth | -2.37% | 4.25% | 5.84% |
| Agriculture | 2.43% | 2.85% | 2.30% |
| Industry | -4.02% | 4.51% | 10.19% |
| Services | -4.53% | 4.19% | 5.93% |

**Table 3: Sectoral Make-up of Nepal's GDP and Growth Rate, 2019-2022**

reopened and Nepalis could again travel overseas for work, remittance inflows increased 4.8% year-on-year to hit US$8.5 billion in FY 2021/2022.[105] In the same period, the number of Nepali workers applying for approval for foreign employment increased to 354,660 after it had fallen 62.8% in the previous FY.[106]

The proportion of Nepali households living in poverty declined by 30% from the late 1980s through 2018. In the late 1980s, Nepal had one of the world's lowest Gross National Incomes per capita (US$140) and the highest share of labor force in agriculture, where income is relatively low. The poverty rate had reached 40% in 1995, but it declined to 31% in 2003 and to 13% in 2010. While some gains were made in terms of agricultural productivity, a significant influence on poverty reduction was massive outmigration of labor. This outmigration had two key impacts, the unprecedented increase in private remittances that arrived and an increase in domestic wages in both farm and non-farm sectors with less labor supply in the country.[107]

Nepal imports far more than it exports,[108] and the trade deficit widened considerably up through 2018 after which trade numbers have been impacted by the COVID-19 pandemic. In 2019, the trade deficit stood at US$9.2 billion.[109] India has long accounted for a majority of Nepal's total trade, although in the past decade, China's share of total trade with Nepal has grown. In 2021, India remained the largest merchandise trade partner of Nepal and represented more than 80% of exports and 60% of imports. Somewhat more than 15% of Nepal's imports by value are traded with China. Other significant trade partners are Argentina, Australia, Indonesia, Malaysia, South Korea, Ukraine, the United Arab Emirates, and the United States.[110] Exports were long dominated by palm and soybean oil until a change in Indian customs duties in 2022 all but halted Nepal's palm oil refining and exports.[111] Refined soybean oil is still exported alongside woolen carpets, polyester yarn, juices, tea, spices, textiles, jute goods, ready-made garments, and other apparel. Main imports are petroleum products, industrial use items (mainly steel billets), gold, construction equipment, cement clinker, rice, and telecommunications equipment.[112] Figure 2 shows top merchandise trade commodities before the 2022 change in refined palm oil exports.[113]

## Government

Following decades of political tumult, in 2006, a peace deal was struck among political factions, some of them armed, and an interim constitution was promulgated in 2007. Following the 2008 elections, the historic monarchy was dissolved, and political parties continued negotiating on the form of the country's government. Finally, in September 2015, the new constitution was promulgated.[114] It describes Nepal as a secular, democratic, socialism-oriented, "federal

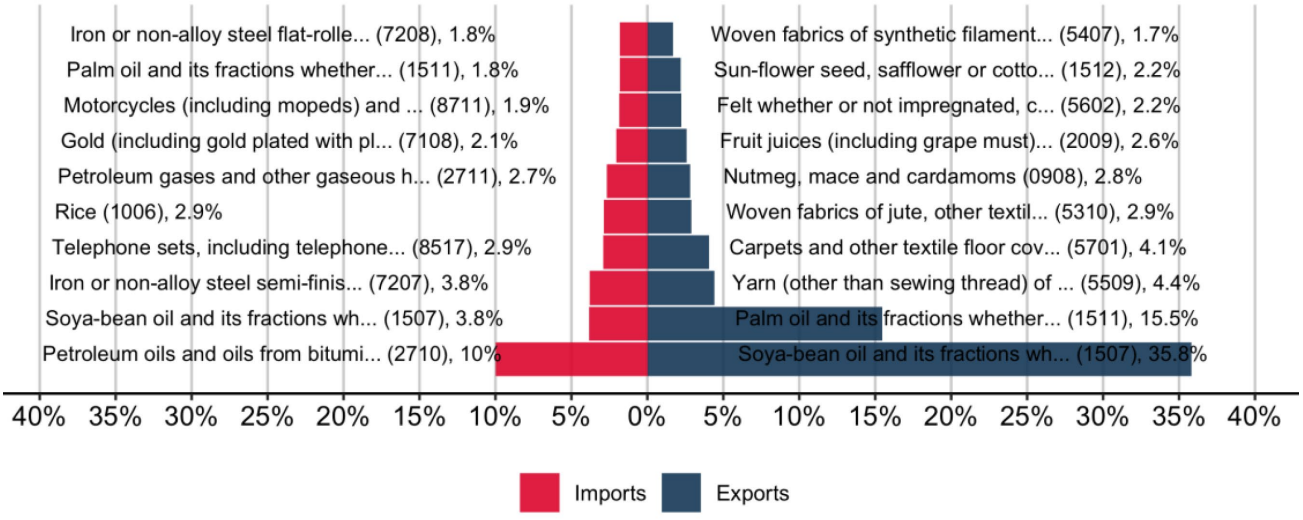



**Figure 2: Nepal's Merchandise Trade (2022/2023)**

democratic republican state." It has three levels of government – i.e., federal, state, and local – and there are seven provinces – Bagmati, Gandaki, Karnali, Koshi, Lumbini, Madhesh, and Sudurpashchim.

The President is the head of state and is selected by an electoral college, which is comprised of members of the Federal Parliament and the State (Provincial) Assemblies. The Constitution requires that the President and the Vice-President are of different sexes or represent different communities. There is a two-term limit for the President. Executive powers are vested in the Council of Ministers. The President appoints as Prime Minister the leader of the political party with the majority in the House of Representatives, and the Prime Minister forms the Council of Ministers, which may not exceed 25 Ministers, including the Prime Minister.

The legislative powers of the federal government are held by the Federal Parliament, which consists of two houses – the House of Representatives and the National Assembly. The House of Representatives has 275 seats; of Representatives, 165 are elected through a first-past-the-post system, and 110 are selected through proportional party representation. In its proportional lists, each party must include women, Dalits, indigenous peoples, Khas Arya, Madhesi, Tharu, Muslims, and "backward" (underdeveloped) regions, on the basis of population, and ensure geographical and territorial balance. At least one-third of the total number of Representatives elected from each political party in the Federal Parliament must be women. The National Assembly has 59 members; eight members, including at least three women, are elected from each of the seven provinces, and three members, including at least one woman, are nominated by the President.

There are three tiers of courts – the Supreme Court, one High Court in each province, and one District Court in each district. The Supreme Court may have up to 20 judges in addition to the Chief Justice. Other specialized courts may be formed to settle specific types of cases.

Each province has a Chief of State appointed by the President to represent the federal government within the province. The leader of the parliamentary party commanding a majority in the unicameral State Assembly becomes the Chief Minister, and the State Council of Ministers is constituted under the Chief Minister. State Assembly members are elected through a 60-40 split between a first-past-the-post system and proportional lists.[115] Below the provinces, in total, there are 753 local-level administrative units: six metropolises, 11 sub-metropolises, 276 municipalities, and 460 rural municipalities.[116] There is a Village or Municipal Executive for local areas. Each Village Executive is led by a Chair, and each Executive must include four women members and two members from the Dalit or minority communities, as appropriate; members are elected by the Village Assembly. Each Municipal Executive includes a Mayor, and each Municipal Executive must include five women members and three members from the Dalit or minority communities, as elected by the Municipal Assembly. The District Assembly is responsible for coordination between the Villages and Municipalities within the district, and the District Assembly consists of Chairpersons and Vice-Chairs of the Village Executives, and Mayors and Deputy Mayors of the Municipal Executives within the district. There are also requirements for women's representation in the assemblies of each level.[117]

Heading into 2022 general elections, surveys indicated high levels of trust in local governments, which, under the 2015 constitution, hold responsibility for everything from citizenship paperwork to COVID-19 services. Nonetheless, resource allocation from the federal to the local levels has not always been sufficient to ensure local officials can deliver the services with which they are tasked. Heading into the latest polls, women held more than 40% of elected, local-level offices, although there was a clear disparity between chair/mayor posts and deputy posts with 98% of the former held by men and 91% of the latter held by women.[118]

# Environment

Located between China and India, Nepal is mountainous with major rivers flowing southward from the Himalaya into India. Northern, mountainous zones experience cooler temperatures while the southern plains have mild winters and sub-tropical summers. The country is landlocked. It is also the scene of the ongoing collision of the Eurasian and Indian plates and, therefore, home to many faults that make the country seismically active. A map of Nepal is shown in Figure 3.[119]

## Geography

Nepal covers 147,181 km$^2$ (56,827 square miles) of territory, of which 3,830 km$^2$ (1,479 square miles) is covered in water, nearly all held in glacial lakes.[120]

Approximately 75% of Nepal is mountainous although the country can be roughly divided into four belts, each running east-west across the country. The Tarai, in the south, is a belt of plains running along the border with India; more southerly parts of the Tarai are fertile while more northerly parts are marshy. Just north of the Tarai lie the Churia Range and the Inner Tarai; the Churia escarpment rises to above 1,200 meters (m; 4,000 feet) before giving way on its northern side to the high basins of the Inner Tarai, which sits at 600-900 m (2,000-3,000 feet) of altitude. The Churia and Inner Tarai host forests and grasslands that stretch northward to the third belt, the Mahabharat Mountain Range, which reaches up to 2,400-4,200 m (8,000-14,000 feet) in height. The Mahabharat ridges are steep to the south but slope gently to the north, including into the Kathmandu and Pokhara Valleys, before then rising again to the snow-capped Inner (Lesser) Himalaya. The Kathmandu and Pokhara mid-mountain region is shaped into basins of former glacial lakes that rise to the Annapurna massif in north-central Nepal. Last, the northernmost belt is the Great Himalaya, which rises to more than 8,850 m (29,000 feet) and is home to many of the world's highest peaks.

The Kathmandu Valley is drained by the Bagmati River, which flows southward out of the valley through the Chobar gorge. The Pokhara Valley, west of Kathmandu, is drained by the Seti River, which also flows southward. Other major rivers - the Kali, Kosi, Narayani (Gandak), and Karnali – all also run southward from the Tibetan plateau and across the Himalayan ranges where they form deep valleys. In places, the Kali forms Nepal's western border with India. The rivers and streams of the Tarai are small, especially in the dry season.[121]

Nepal's mountains are formed by the northward movement of the Indian tectonic plate, which, for the last 40-50 million years, has been colliding with the Eurasian plate. This collision first formed the Himalaya, the largest mountain range in the world, and has since formed the country's other mountain ranges, which continue to rise. The Indian plate moves northward at a rate of nearly 2 centimeters (cm; 0.787 inches) per year. However, this movement is not smooth, and sudden jerks of the plate are the genesis of the earthquakes that rack Nepal. As this tectonic movement proceeds, southern Nepal, areas of which are currently




**Figure 3: Map of Nepal**

nearly flat, will also be impacted.[122]

## Borders

Nepal shares land borders with China and India. Of the total 3,159 km (1,963 miles) of border, the border with China is 1,389 km (863 miles), and the border with India is 1,770 km (1,100 miles).[123] The border with China runs largely along the Himalaya and was laid out in a series of treaties signed between the two countries in the early 1960s. Much of this border is remote, and it is demarcated by a chain of pillars, set kilometers apart.[124]

The border between Nepal and India is primarily based on an 1816 treaty, signed between the British East India Company and the Kingdom of Nepal, although subsequent treaties and agreements further delineated the boundary. Various disputes over actual location linger as of 2023. Disputed areas are primarily concentrated in the western and eastern regions of Nepal. In the west, the disputed area is the Kalapani-Limpiyadhura-Lipulekh tri-border junction where Nepal, India, and China all meet;[125] the dispute covers some 400 km$^2$ (154 square miles) of territory.[126] In the east, there is a dispute over the Susta area, located in the southern part of Nepal's Nawalparasi district. Both of these zones have seen military activity in the past. The border between India and Nepal has over 8,000 boundary pillars, but many of them are missing due to natural disasters and human activities. Several rounds of talks have been held to attempt an acceptable resolution, but progress has been slow.[127]

## Climate

Nepal's climate changes with elevation and latitude, and it ranges from subtropical in the Tarai, through a warm temperate climate between 1,219 and 2,134 m (4,000-7,000 feet) in the mid-mountain region, to cool temperate conditions in the mountains between 2,134 and 3,353 m (7,000-11,000 feet), to an Alpine climate at altitudes between 4,267 and 4,877 m (14,000-16,000 feet) along the lower slopes of the Himalaya. At altitudes above 4,877 m (16,000 feet), the temperature is always below freezing, and the surface is covered by snow and ice.

The eastern Tarai is the wettest region with rainfall totaling 1,800-1,900 millimeters (mm; 70-75 inches) per year while the western regions of the country may receive as little as 760-900 mm (30-35 inches) each year. Most of the Kathmandu Valley's approximately 1,400 mm (55 inches) of rain falls in the period from June to September, the monsoon. This season also brings an average of 2,540 mm (100 inches) of rain to the Pokhara Valley as warm rain-bearing winds discharge most of their moisture as they encounter the Annapurna.

In Kathmandu Valley, average temperatures range from 10°C (50°F) in January to 26°C (78°F) in July, although winter temperatures can fall below 0°C (32°F) and summer temperatures can top 37°C (99°F). At Pokhara, the temperature ranges from 4°C (40°F) in January to 38°C (100°F) in June, although winter temperatures in this valley can also reach 21°C (70°F) during the day.[128] Figure 4 shows the monthly minimum temperature, mean temperature, maximum temperature, and precipitation for Nepal for the period 1991-2020.[129]

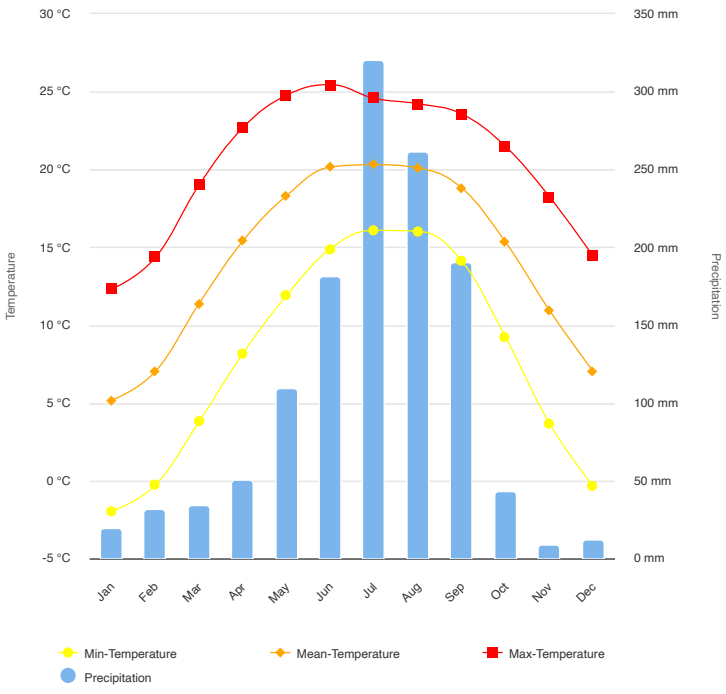



**Figure 4: Nepal's Climate, 1991-2020**

# DISASTER OVERVIEW

Nepal is highly exposed to natural hazards and to climate change due to its topography, and it is highly vulnerable to the impacts of these hazards due to socio-economic conditions. This vulnerability means an overall high risk of grave consequences from disaster events. Overall, Nepal is one of the world's most vulnerable countries to the impacts of climate change, including water-induced disasters and hydrometeorological extreme events such as droughts, storms, floods, landslides, debris flow, soil erosion, and avalanches. The country is also prone to geophysical risks such as earthquakes, which could trigger landslides, floods, and fires.

## Climate Change

Nepal is a negligible (approximately 0.1%) contributor of global greenhouse gas (GHG) emissions,[130] yet the country is vulnerable to climate change-induced hazards. These vulnerabilities stem not only from topography and variable monsoon-driven hydrology, but also from unplanned settlements and roads, and a lack of resilient infrastructure. An estimated 80% of the population is assessed to be at risk from natural and climate-induced hazards, including extreme heat stress, flooding, and air pollution, but actual exposure to these hazards differs widely across the country. Since the late 20th century, floods and landslides have been the most frequent hazards, and the number of flood events has doubled in recent years; another recent change is that the country's mountain ranges are warming faster than the plains, and this difference triggers melting ice and permafrost and an increase in the risk of landslides. Figure 5 illustrates the prevalence of various types of hazard events in Nepal in the past four decades.[131]

Modelling based on past climate data and future GHG emissions provides a means to understand potential changes to the hazards a country will confront. The range of changes are encapsulated in the Representative Concentration Pathway (RCP) scenarios. RCPs describe possible trajectories for carbon dioxide emissions and the resulting atmospheric concentration. There are four commonly used RCPs (2.6, 4.5, 6.0, and 8.5), which were developed based on their end-of-century (2100) radiative forcing – a measure of the combined effect of greenhouse gases, aerosols, and other factors that can influence climate to trap

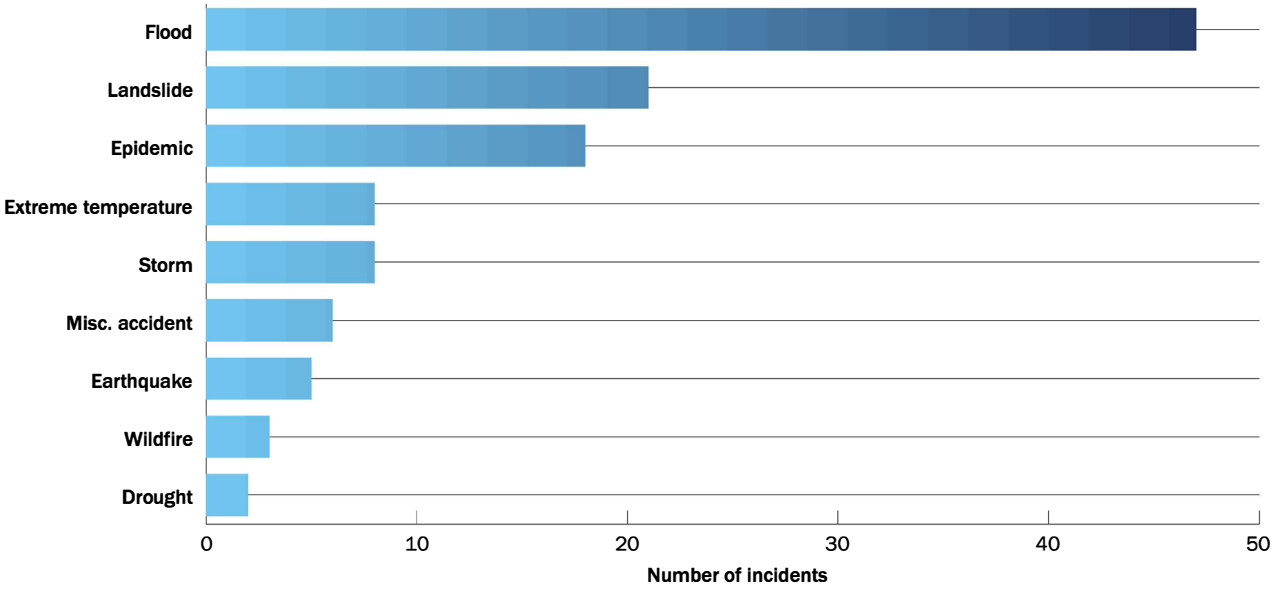



**Figure 5: Average Annual Natural Hazards Occurrence in Nepal (1980-2020)**

additional heat.[132] RCP2.6 is the most optimistic scenario and indicates a 2.6 watts per meter squared ($W/m^2$) forcing increase relative to pre-industrial conditions. RCP8.5 is the most pessimistic of the four scenarios and indicates an 8.5 $W/m^2$ forcing increase.[133] Across all models, Nepal is projected to feel consistent warming that will be more significant for northern regions. Rainfall projections are less certain and vary across RCP scenarios; in general, projected precipitation trends show a decrease in rainfall in the 2050s and an increase in rainfall for the 2090s. More precipitation is expected to be received through increased intensity and more frequent occurrence of extreme events.

Climate risks are expected to increase for Nepal. Warming is projected to be higher than the global average. Under lower emissions scenarios, warming is projected to be significantly lower, although the rises in maximum and minimum temperatures across all scenarios are expected to be higher than the rise in average global temperature with the greatest rises felt from November through April. Under RCP8.5, warming is projected to reach 5.0°C (9°F) by the 2090s. Under RCP2.6 scenario models, warming could be 1.4°C (2.5°F) by the 2040s, followed by relatively constant temperatures up through the 2090s. Warming in monthly minimum and maximum temperatures is projected to be higher, with minimum temperatures in Nepal projected to rise by 5.0°C (9°F) by the end of the 21st century under the highest emissions pathway.[134] Annual precipitation is also expected to increase by 2-6% by 2040 and 8-12% by 2060, with more precipitation expected in regions with higher altitudes. However, this increased precipitation will not be uniform across the year as winters are projected to be drier and monsoon summers wetter, with up to a threefold increase in rainfall.[135] Moreover, precipitation changes are not expected to be spatially uniform as wet areas become wetter and dry areas drier. The Himalaya already experienced increasing average annual precipitation at a rate of 6.5 mm (0.25 inches) per year during the period 1982–2006.[136]

It is not only that temperatures rise and precipitation patterns shift, it is that the number of people in Nepal annually affected by river flooding caused by climate change-influenced events could more than double to around 350,000 in 2030 (from 157,000 in 2010). The economic impact could also triple and, therefore, contribute to an even greater increase in Nepal's relative exposure as it cannot build back at all, let alone better after events. Indeed, climate variability is already a major driver of poverty, food insecurity, and energy insecurity because of lower agricultural output, high energy imports, and high health and coping costs due to prolonged water and electricity shortages.

Warming threatens the future of Nepal's high mountain glaciers, which are a critical supply of freshwater. In Kathmandu, water stress is so severe that piped supply is reported to meet less than 32% of household demand in the monsoon and 19% in the dry season. Water availability also affects small-scale hydropower and agriculture. Annual declines in the availability of water come at critical cropping times, decrease soil moisture, and lead to prolonged droughts that result in crop failures and productivity losses. Meanwhile, hydropower, which makes up 90% of domestic electricity generation, is run-of-river, and productivity is impacted by river runoff volume and sedimentation caused by poor land and forest management as well as extreme weather events. Other infrastructure systems are also vulnerable to heavy rainfall, flooding, and landslides, all of which are increasing in terms of frequency and intensity.[137]

For Nepal, more severe temperatures are projected to amplify flooding, and, therefore, flood damage to infrastructure. In all RCP scenarios, flooding is projected to damage the built environment, thereby undermining economic output. In the RCP 8.5 scenario, flooding is projected to shave off about 3.5% from GDP by the end of 2050. As growth and consumption slow, government revenues would decrease. Across all RCPs and all models, flooding's negative impact on built infrastructure is the largest shock projected. However, the

impacts modeled for agriculture are also deeply negative due to rising temperatures. The negative impacts are projected to be relatively similar across warming scenarios through 2030. By 2050, there are larger differences across scenarios. Under RCP 8.5, lower agricultural yields due to heat are projected to reduce overall GDP by a cumulative 2.2% while losses under RCP 2.6 are three times lower at 0.8%. Some of this loss is related to falls in labor productivity, which is very sensitive to temperature changes. Productivity losses due to heat are projected under all scenarios. Consumption would also be reduced under the worst-case RCPs as lower labor productivity translates into lower household income and lower domestic demand. Even in the optimistic RCP2.6 case, GDP by 2050 is projected to have fallen to 3% lower than the baseline.[138]

Despite its negligible contribution to historic GHG emissions, Nepal has committed to reducing its own emissions, which have grown as the country has developed in the past three decades. In its Second Nationally Determined Contributions (NDC), submitted in 2020, the country committed to a strategy to achieve net-zero GHG emissions by mid-century with emissions reductions targets for all sectors in the assumption of international support. Some of the key energy sector targets are to expand clean energy generation to 15,000 Megawatts (MW) before 2030 by including mini and micro-hydro power, solar, wind, and bioenergy alongside the country's already important major hydropower generation. Additional targets focus on promoting use of electric vehicles and electrifying the public transportation network as well as delivering clean cooking (electric) stoves to at least one-quarter of the population.[139]

In Nepal's unique context, rising emissions have both long-term impact on global climate and a more immediate impact on Nepal's people in terms of pollution. In recent years, Nepal has been ranked among the world's worst five countries for air quality, and virtually all of the population is exposed to unhealthy levels of air pollution. The sources of air pollution vary, with transportation, household use of biomass, and industry among the biggest sources in the Kathmandu Valley where vehicle emissions and manufacturing emissions (especially from brick kilns and cement factories) are two of the three main sources of air pollution. In rural areas, household use of biofuel and burning agricultural residue contribute significantly to indoor and outdoor air pollution. Implementation of air quality management measures would lead to significant climate co-benefits as they would not only prevent premature deaths but also improve food security, as black carbon and methane not only have negative effects on leaf health, growth, and productivity of rice, wheat, maize, and soybean, but also contribute to snow and glacial melt.

Through the National Adaptation Program of Action in 2010, the Local Adaptation Plans for Action framework in 2019, and the National Adaptation Plan Summary for Policy Makers in 2021, Nepal has laid the policy foundation for adaptation action. The long-term strategy steps up mitigation ambition by aiming to achieve net-zero GHG emissions by expanding hydropower for domestic and regional use, e-mobility, shifting away from fossil fuels for industrial processes, and reducing methane emissions from waste. The government has also developed institutional arrangements to address climate change, as shown in Figure 6.[140] The Environmental Protection and Climate Change Management Council, under the leadership of the Prime Minister, is envisioned as an apex institution to provide overall guidance and leadership. The Ministry of Forests and Environment (MoFE) is the federal-level lead whereas the Ministry of Industry, Tourism, Forests, and Environment (MoITFE) is a provincial-level lead. The government established the Inter-ministerial Climate Change Coordination Committee (IMCCCC) and the Provincial Climate Change Coordination Committee (PC4) to facilitate cross-sectoral coordination at all levels.

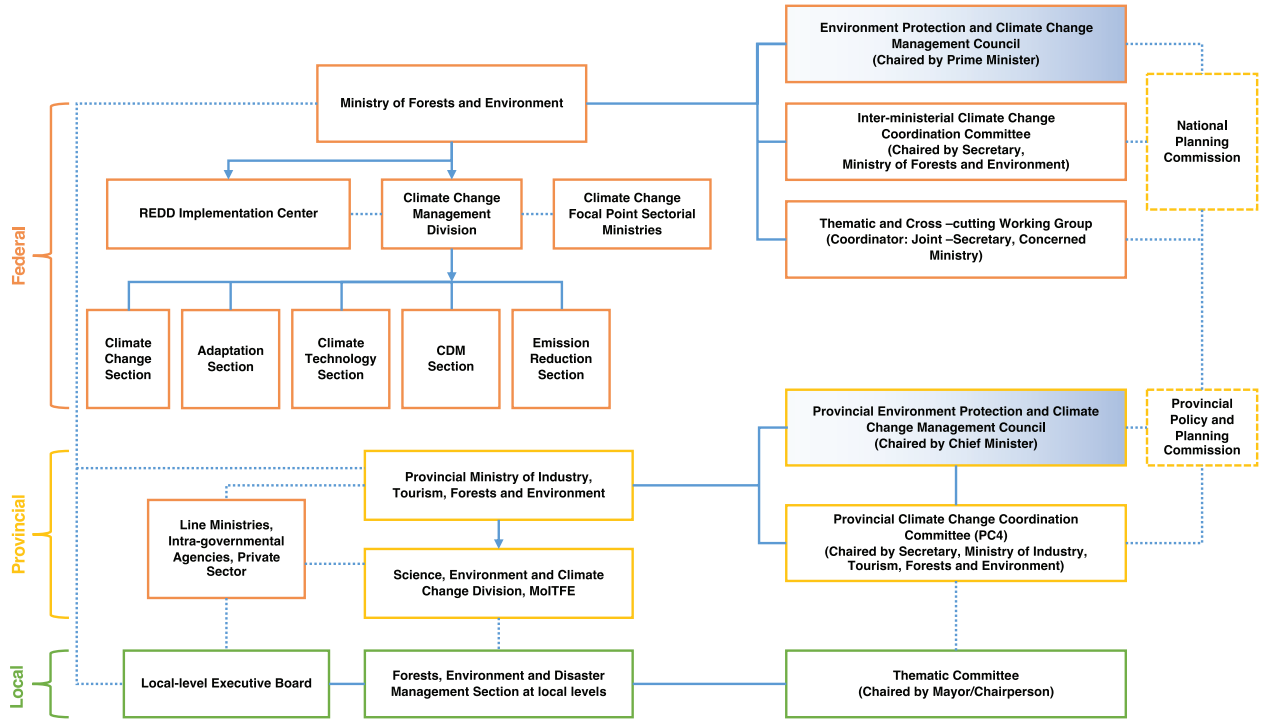



**Figure 6: Nepal's Institutional Arrangements to Address Climate Change**

# Hazards

Every year, monsoon rains cause floods and landslides that displace thousands; although less predictable, earthquakes are also a key cause of disaster displacement. The 2015 "Gorkha" earthquake displaced an estimated 2.6 million people.[141] Together, the lasting impacts of earthquakes and climate change-influenced shifting weather and climate patterns also affect landslide and flood risks throughout the Himalayan region. Additionally, warming in Nepal is projected to be higher than the global average, with heat waves and extreme temperatures becoming more frequent. There is evidence suggesting that drought has increased in frequency, severity, and duration in recent decades. The probability of drought is expected to increase with climate change, and dry spells can also lead to wildfires, which can, in turn, not only displace people but also, by destroying natural vegetation, boost the risk of floods and landslides.

### *Diseases*

Many vector-borne diseases are prevalent in Nepal; they include malaria, dengue, chikungunya, Japanese encephalitis, visceral leishmaniasis, and lymphatic filariasis. Most are endemic in the Tarai and hills, which, together, are home to 80% of the population, who are, consequently, at risk of outbreaks of these diseases.[142] Dengue is an annual challenge. Cases tend to begin rising in July after the monsoon arrives in June, and September tends to show the highest number of cases each year.[143] The number of people at risk is expected to increase under climate change as warming allows disease vectors to push further into Nepal's highlands.[144] Vector suitability ranges, particularly for mosquitoes, are highly sensitive to climate. Analyses indicate that climate change will place an additional 600,000 people at risk of malaria and an additional 400,000 at risk of dengue.[145] Moreover, climate change will increase the potential for transmission of water-borne diseases. Higher temperatures have already been correlated with greater diarrhea incidence, and studies in other parts of the world have shown the potential for flooding and drought to drive transmission of both water and vector-borne diseases.[146]

### *Drought and Fire*

Two primary types of drought affect Nepal,

meteorological (precipitation deficit) and hydrological (deficit in surface and subsurface water flow). In 2021, the World Bank assessed that Nepal faced an annual median probability of severe meteorological drought of around 2%, and the country appears to have felt more frequent droughts during the period 1981-2012.[147] Some parts of the Tarai, hills, and trans-Himalaya belts are especially prone to drought, and a lack of irrigation facilities exacerbates the effect of drought on crops. Historic droughts in 1972 and 1979 were especially damaging for people, livestock, and crops. The 1994 drought was the worst in the country's history; it affected 35 districts in the western hills and Tarai.[148]

Wildfires are a potential consequence of drought. Indeed, although floods are the most frequent hazard that impacts Nepal's people, the most common hazard overall is fire, especially forest fires. Data from the International Centre for Integrated Mountain Development's Forest Fire Detection and Alert Information System for Nepal for the period 2001-2019 shows an increasing trend in fire events.[149] The Pacific Disaster Center assesses that approximately one-quarter of Nepal's people are exposed to moderate, high, or very high risk of wildfire hazard with high concentrations of risk in the southwest and central-southern areas of the border with India.[150]

The average duration of drought over the period 2001-2019 was 102 days per year with 56% of the country's territory affected.[151] Modeled projections of future climate identify a likely increase in the frequency of fire weather occurrence in some parts of the country as an increase in temperature and greater variance in rainfall[152] mean easier ignition, faster fire spread, increased fire intensity, prolonged fire, and greater areas and more settlements burned. It may result in more difficult fire suppression and increase fire suppression costs and damages.[153] Across RCP scenarios, the country is not expected to see substantially worse drought conditions through mid-century compared to the 1995-2014 baseline. The historically drought-prone areas of Lumbini, Karnali, and Sudurpashchim Provinces are expected to see roughly the same periodicity of drought.[154] However, by the end of the century, all RCP scenarios project a rise in drought probability to 10%.[155]

***Earthquake***

The entire population of Nepal is exposed to earthquake hazard.[156] Nepal is in a seismically active area as the Indian tectonic plate continues to dive underneath the Eurasian plate and lift up the Himalaya and other mountain ranges. The Main Himalayan Thrust (MHT) absorbs the energy of about one-half of the entire region's tectonic convergence. The strain that accumulates along the MHT is released by occasional major earthquakes, and the MHT is the largest and fastest slipping continental megathrust; it traverses some 2,500 km (1,550 miles) from Pakistan through India and Nepal, along the southern side of the Himalayan range.[157] In the sub-Himalayan zone, the frontal Siwalik range shows an abrupt physiographic break along the Himalayan Frontal Thrust and is characterized by large active fault systems.[158] Historical data shows that the country has witnessed many major earthquakes, including one magnitude-8.9 quake in 1505 and the 2015 earthquake, which was magnitude-7.8. There is a 5% probability that an earthquake will displace 1 million people at some point in the next 50 years.[159] The seismic pattern of the country shows clusters of faults with Siwalik, the Lesser Himalaya, and the frontal part of the Higher Himalaya as the most vulnerable zones.[160] Given the country's topography, earthquakes also have the potential to become cascading events as the temblor may trigger landslides, avalanches, and glacial lake outbursts and other floods.

***Flooding***

The climate of Nepal is dominated by the monsoon, which provides around 80% of annual precipitation. The summer monsoon generally arrives in early June, is characterized by violent lightning and thunderstorms, and lasts through September. With more than 6,000 rivers and

rivulets flowing from north to south through the country, there is a nation-wide threat that, during the monsoon season, rivers will swell and damage villages and crops, and threaten livestock and people in the river basins.[161] The river flood hazard is highest along the southern border areas and in and around urban settlements in the Kathmandu and Pokhara Valleys because of their populations, built-up assets, and agricultural land. Across multiple RCP scenarios, with climate change, the country is expected to see some changes in spatial precipitation trends with western regions expected to experience more frequent extreme rainfall events.[162] There is good agreement among models that, by mid-century, what would historically have been a 1 in 100-year flood is projected to become a 1 in 50-year or 1 in 25-year event in Nepal.[163]

An additional flooding risk is rooted in the fact that climate change is already causing glaciers to melt, and glacial lake outburst floods (GLOF) – in which water pours out of a naturally formed dam – threaten communities. When a moraine that holds back the water is breached, either as a result of climate (heavy rains or heat-related glacial melt) or geological (seismic) processes, flood surges damage downstream communities.[164] In the past 45 years, Nepal has experienced 26 GLOFs. With the mountainous landscape, large volumes of precipitation in the monsoon season, and rising temperatures, the incidence of GLOFs is likely to rise. The country has identified 21 glacial lakes as potentially dangerous, with risks of breaching, melting, and the creation of reservoirs of water that could eventually lead to floods downstream.[165] Those lakes with significant disaster risk include Phoksundo Tal, Tsho Rolpa, Chamlang North Tsho, Chamlang South Tsho, and Lumding Tsho. Moreover, glacier lakes are believed to be rapidly forming in the Nepal region of the Himalayas as a result of glacier melting. Indeed, most of the existing lakes have formed since the mid-20th century. As increasing numbers of glacial lakes form, the risk of GLOFs during earthquake events is also believed to be increasing.[166]

***Landslide or Avalanche***

Approximately one-third of the population is assessed as being at high or very high risk of landslide hazard, with very high threat concentrated across a belt running east-west through the country's middle.[167] Steep slopes, fragile geology, high intensity rainfall, deforestation, and unplanned settlements are key drivers of landslide risk, which is exacerbated by land use, encroachment onto vulnerable slopes, and construction of infrastructure in the vulnerable mountain belt.[168] During earthquakes, landslide hazard is considerable and forms a compounding disaster event. Outside of an earthquake, landslides are primarily triggered by heavy rainfall during the monsoon season in mountainous and steep hilly terrain. Nearly the entire country is exposed to moderate to high landslide hazard, with exception of the southernmost municipalities where there is minimal risk.[169] Indeed, landslides are among the most common natural events in the hilly regions of Siwalik, the Mahabharat range, the midlands, and the Himalayas. Like landslides, avalanches are a rapid movement of snow and debris flowing down through the slope or flanks of mountains. Slopes, snow thickness, and human activity are potential triggers, and the high mountainous region has concentrations of the rugged and steep slopes most susceptible to avalanche.[170] The impacts of climate change on landslide and avalanche risk will relate to changes in slope and bedrock stability due to changes in precipitation and temperature.[171]

***Lightning***

The country's most commonly recurring hazard, lightning caused more than 2,800 deaths and injuries between 2015 and 2022.[172] According to the DesInventar dataset, collated by the UN Office for Disaster Risk Reduction (UNDRR), the national fatality rate from lighting is 1.77 deaths per 1 million people per year.[173] Detectors in Nepal have noted an average of more than 1 million lightning strikes in the country annually; of course, most of those are not in populated

areas, but strike density is highest in the southern areas that are the most densely populated. The greatest frequency of strikes occurs during the period March-August. The risk of death or injury from lightning increases in areas where roofing material is flammable and where people have high rates of agricultural livelihoods.[174] The established early warning system for lightning is minimal with detectors mostly located at main airports.[175] In 2022, USAID launched its Tayar Nepal program that supported small communities who installed Lightning Protection Systems in places where people gather for essential services. Each of the Systems comprises a lightning arrester that captures potentially dangerous lightning strikes and safely diverts the electricity to the ground. This diversion minimizes the risk to lives and property; it is an affordable and sustainable technology that communities can maintain themselves.[176] Nonetheless, public knowledge of the hazard is low, according to recent studies that attribute shortcomings to the dispersed and individual nature of lightning-caused casualties.[177]

***Temperature Spikes or Dips***

At present, Nepal has about a 3% annual probability of experiencing a heatwave, made up of three or more days where the daily temperature is above the long-term 95th percentile of daily mean temperature. There is approximately the same probability that the country will experience a cold wave, also a period of three or more days but where the daily temperature is below the long-term 5th percentile of daily mean temperature. The probability of a heatwave is projected to increase significantly, potentially to as high as 27% by the 2090s under RCP8.5. Simultaneously, the probability of a cold wave is projected to decrease significantly, to less than 1% annually over the same period. More populous, lower altitude regions confront a greater risk in these scenarios as they are home to more vulnerable communities and economic sectors that can be disrupted by extreme heat.[178]

## History of Natural Disasters

The following is a list of natural disasters in Nepal in the last ten years.

***COVID-19 Pandemic – March 2020-June 2023***

During the three years of the officially-declared COVID-19 pandemic, Nepal confirmed more than 1.1 million infections with more than 12,000 total deaths.[179] More than three-quarters of the confirmed cases were in Bagmati, Koshi, and Lumbini Provinces, and more than 40% of cases were in the Kathmandu Valley area. The Ministry of Health and Population (MoHP) also reported that 27.8 million first doses and 20.8 million second doses of the five vaccines available in the country had been administered.[180] This section will focus on the government response; the details of the outbreak and health concerns are addressed in the Health – Communicable Diseases section of this handbook.

After the first case was reported in the country on 9 January 2020, MoHP moved to strengthen operations at health desks at Tribhuvan International Airport and at domestic airports, and it equipped additional health desks at the ground points of entry on the Nepal–China and Nepal–India borders. MoHP also activated the Incident Command System (ICS) and Health Emergency Operation Center (HEOC) and initiated coordinated efforts to respond. After an additional case was found in mid-March, schools closed, and gatherings of more than 25 people were discouraged. On 22 March, the Government prohibited all international flights and suspended operations of nonessential businesses and domestic long-distance transportation. All international borders were closed on 23 March. A nationwide lockdown came into effect on 24 March for an initial four-month period.[181]

In terms of institutional direction, the High-Level Coordination Committee (HLCC), led by the Deputy Prime Minister, formed on 2 March 2020.[182] The 11-member HLCC included nine

other senior members of the Federal Council of Ministers plus the Chief Secretary. It had a sweeping mandate to "carry out necessary functions relating to prevention and control of COVID-19."[183] On 29 March, the COVID-19 Crisis Management Centre (CCMC), chaired by the Deputy Prime Minister, formed to serve as the implementing authority of the HLCC.[184] A Facilitation Committee to support the CCMC's functions was formed under the leadership of the Chief Secretary; it included the Secretary of the Federal MoHA and the Chiefs of four security forces (Nepal Army, Nepal Police, Armed Police Force, and National Investigation Department). Four different operations were set up under the Facilitation Committee – i.e., Medical Ops for health services and treatment, Logistics Ops for medicine and equipment supply, Security Ops to maintain law and order, and Media and IT Ops for information and technology support.[185]

On 9 April, the Health Cluster for COVID-19 was activated, headed by the ICS coordinator, and co-led by the World Health Organization (WHO). With this activation, regular cluster meetings were held every Thursday with health officials at the federal and provincial levels and with representatives from private partnerships. The government ramped up testing, quarantine and isolation facilities, and hospital capacity during the initial four-month lockdown period. Nonetheless, in April, COVID-19 hospitals, testing facilities, Health Directorates, Provincial Health Emergency Operations Centers (PHEOC), and the Ministry of Provincial Social Development Ministry all started to observe a surge in cases. In May 2020, the Government formulated the Preparedness and Response Plan to prevent and minimize the spread of the disease. The plan suggested forming 1,075 contact-tracing teams at the local level. Local governments were primarily responsible for establishing and managing quarantine centers in each municipality with support from the government and partial involvement of private organizations.[186]

***Landslides and Flooding – June 2023***

Heavy rainfall caused widespread landslides and flooding in Koshi Province from 17 June 2023. As of 19 June, seven people had been confirmed dead – five due to landslides and two to flooding. Dozens were reported missing, and 300 families had been affected across the districts of Kaski, Nuwakot, Okhaldhunga, Panchthar, Shankhuwasabha, Taplejung, Dhankuta, and Ilam.[187] Government authorities had dispatched security forces for search and rescue.[188]

***Earthquake – January 2023***

A magnitude-5.6 earthquake struck northeast of Martadi, Bajura District, Sudurpashchim Province, on 24 January 2023. An estimated 55,000 people felt the shaking, but only one fatality was reported; 42 houses were damaged across Bajura District. The army had been mobilized for rescue and recovery in support of local authorities.[189]

***Measles Outbreak – November 2022-March 2023***

Between 24 November 2022 and 10 March 2023, 690 measles cases and one associated death were reported from seven districts in western Nepal (Banke – 327 cases; Surkhet– 62 cases; Bardiya – 49 cases; Kailali – 39 cases; Kanchanpur – 27 cases; Bajura – 13 cases; and Dang – 12 cases), and three districts in eastern Nepal (Mahottari – 103 cases; Sunsari – 34 cases; and Morang – 24 cases). Both clusters of districts are in the southern region bordering India. The outbreak started in Nepalgunj, Banke District, Lumbini Province, on 24 November 2022. The dates of the onset in Mahottari, Morang, and Sunsari were reported as 24 December 2022, 23 December 2022, and 16 January 2023, respectively. The number of cases increased sharply in the last week of December but started declining in the second week of January and then continued to decline afterward. This was the country's first reported outbreak of measles since 2004. In the 2022-2023 outbreak, some

86% of cases were in children under 15 years of age, a population with suboptimal population immunity, due, in part, to the disruption of routine immunization services during the COVID-19 pandemic, as well as to the quality of nationwide measles-rubella supplementary immunization activities conducted in 2020. According to WHO/UNICEF estimates of national immunization coverage for 2021, the measles-containing vaccine first dose and second dose coverage was 90% and 87%, respectively. During the 2022-2023 outbreak, the MoHP, with support from WHO, partners, and NGOs, implemented response measures, which included case reporting, health worker mobilization, non-selective outbreak response immunization targeting children ages six months to 15 years, and surveillance and mobilization of the district rapid response team in Banke district.[190]

***Earthquake – November 2022***

On 9 November 2022, a magnitude-6.6 earthquake struck Khaptad Chhanna, Doti District, Sudurpashchim Province. The main quake was followed by several aftershocks, and the shaking was felt in adjoining districts and as far away as India. A follow-on quake struck neighboring Bajhang District on 12 November. The government reported that six people had been killed. Emergency shelter was the most significant need, followed by psychosocial support, protection services, and water, sanitation, and hygiene (WASH) services. The Nepal Red Cross Society (NRCS) reported a total of 10,732 households (approximately 30,000 people) affected in Doti, Achham, Bajura, and Bajhang districts, with 1,882 houses destroyed. However, the remoteness of the area and difficulty accessing affected communities meant the actual scope of need was difficult to assess. National security forces deployed for search and rescue and for some emergency food distribution. NRCS was the major distributor of non-food items to affected communities.[191]

***Landslides and Flooding – June-October 2022***

From June 2022, rains caused flooding and landslides throughout the country. By late June, 21 people had been killed.[192] In the last two weeks of July, at least 20 people were killed in landslides, floods, heavy winds, and rainfall events nationally. On 1-2 August, a cluster of landslides in Gandaki Province killed six people.[193] In the first week of August, Koshi and Madhesh Provinces were the hardest hit with 1,500 families evacuated by security forces while an additional 30,000 people were affected by floods in Belaka, Udayapur District. More than 250 homes were damaged in these areas, and maize and rice fields were inundated.[194] By late August, at least 129 people had been killed, and 1,100 families were affected.[195] In September, floods across Darchula and landslides in Kanchanpur, both in Sudurpashchim Province, killed seven people. Across 30 districts, some 100 families were displaced due to damaged homes.[196] Then, on 17 September, heavy rains in Achham District caused landslides that killed 22 people and displaced six families when their homes were destroyed.[197] After three days of rain, on 11 October, landslides across Jumla, Pyuthan, Kalikot, and Salyan Districts left another 15 people dead.[198]

***Landslides and Flooding – June-October 2021***

The 2021 monsoon arrived early. In one week in June, more than 300 mm (11.8 inches) of rain fell in central and western regions.[199] From 09 June, the Melamchi and Indrawati river basins began to receive rain. On 11 June, the hourly precipitation reached 37 mm (1.5 inches) per hour, and, by 15 June, one station in Sermathang village in Sindhupalchok District had recorded 200 mm (7.87 inches) of rain in just six days. This precipitation came on the heels of a warm snap that saw higher than usual snow melt, and the result was the erosion of moraines that held back the glacial lakes that were the headwaters of the Pemdang, Yangri, and Larche Rivers, which are tributaries of the Melamchi River. These lakes overtopped their moraine dams. Water and debris flowed into the main Melamchi channel and began to fill a 1-km (0.62-mile) plain behind another debris dam, which, in turn, failed. The

flows also cut into riverbanks and triggered a new landslide at Melamchigaon where the river flow was, again, temporarily dammed. The failure of the blockage at Melamchigaon[200] sent water and debris tumbling 40 km (25 miles) along the Melamchi River to Melamchi town, Sindhupalchok District, Bagmati Province. The debris flow inundated neighborhoods, ripped bridges from their moorings, and sent them into the river, where they acted as dams that trapped rubble from the landslide upstream. The headworks of the US$800 million project at Melamchi to deliver water to Kathmandu was buried under a 10-m (33-foot) layer of rocks and mud.[201] According to the NDRRMA, five people were killed, 337 houses were damaged, and 525 families were displaced. The floods also destroyed 259 businesses, including a hydropower plant and trout farms, damaged two bazaars, and destroyed agricultural lands.[202]

Floods and landslides continued to affect 72 districts across Nepal with Tarai and hill regions especially hard hit by heavy rainfall in August and October 2021. The MoHA reported that, during the monsoon rains, 262 people were killed, and 195 people were injured. More than 16,400 families were affected, of which 5,136 were displaced; 2,473 houses were destroyed. Most of the displaced used temporary shelters, while a few stayed with relatives or in schools. Roads were blocked, and electricity and communication services were interrupted. NRCS volunteers and security forces conducted search and rescue in landslide-affected districts and helped to maintain drainage systems in flooded areas.[203]

***Landslides – June-October 2020***

Landslides affected 40 districts across the country during the monsoon season in 2020. A total of 360 people were killed while 23,478 families (117,390 people) were affected. A reported 5,125 houses were destroyed, and 7,457 houses were partially damaged. Nearly 20,000 of the affected families were able to return to their homes when the situation normalized. The remaining displaced persons were hosted in camps, temporary shelters, or with family.[204] During the 2020 season, 488 landslides resulted in 297 human deaths. Bagmati, Gandaki, and Koshi Provinces were the most affected. Gandaki faced the greatest number of landslides with 127 deadly incidents across the province. Altogether, 2020 landslides affected 58 districts while 18 districts faced more than 10 landslide incidents.[205]

***Landslides and Flooding – July-August 2019***

Days of rainfall during 11-14 July 2019 triggered flooding and landslides. The worst affected areas were in the southern regions, in the districts of Rautahat, Sarlahi, Mahottari, Dhanusha, Siraha, and Saptari. According to the MoHA, 117 people were killed, and 80 people were injured. Nearly 20,000 houses were destroyed, 41,343 houses were partially damaged, and 6,096 houses were moderately affected.[206] Authorities in Limchungbung, Udayapur District, declared their area a disaster zone because of major damage to roads that cut the area off from food supplies that were helping residents recover after a March-April drought that had caused crop losses across the district.[207] Across all of the 35 affected districts, more than 1.7 million people were impacted in some way, and NRCS mobilized assessment and first aid teams and helped distribute relief items.[208] Continued monsoon rains in August saw a landslide kill three people and injure seven others in Baglung District; the army responded with helicopters for search and rescue as well as medical evacuation.[209]

***Storm – March 2019***

A windstorm struck Bara and Parsa Districts in Madhesh Province on 31 March 2019. It left 30 people dead and 650 people injured,[210] and it affected more than 2,400 families (14,400 people). More than 2,400 buildings, including three schools, were damaged, and displaced persons were at risk of heat-related ailments as spring temperatures were rising. As the storm damaged electricity infrastructure and blocked rural roads, various non-food relief items were being distributed by local NGOs; they included lanterns, hygiene kits, baby kits, toilet

and sanitation facilities, kitchen utensils, and clothes.[211]

***Cold Snap – January 2018***

A period of extreme cold affected Nepal's Tarai region in January 2018. The worst affected districts were Saptari, Rautahat, and Siraha. By 8 January, 24 people were reported to have died from the cold with children and the elderly disproportionately impacted.[212] Three more deaths were reported on 11 January, and a key source of illness and death during this period was identified as smoke inhalation as people burned fuels in enclosed spaces.[213] As the cold continued, Rautahat authorities reported five more deaths on 14 January and identified people who had been affected, including those who had been displaced, by the August 2017 floods.[214]

***Flooding – August 2017***

A low-pressure system formed parallel to the foothills of the Churia Range in mid-August 2017. It brought more than 500 mm (19.7 inches) of rain to the Tarai in just a few days. Post-event studies found that every stream and river that originated from the Chure Hills flooded the Tarai plains from Jhapa in the east to Kailali in the west.[215] Especially heavy rainfall during 11-14 August caused floods across 31 districts and affected more than 1.7 million people. The worst affected areas were Sunsari, Udayapur, Saptari, Siraha, Mahottari, Rautahat, and Bardiya Districts, where recovery operations stretched into latter 2018. Official reports indicated that 149 people were killed, 134 people were injured, and 210,000 houses were damaged or destroyed.[216] Affected communities faced shortages of food, water, and non-food items as crops were lost alongside homes and belongings. Many suffered infections from contaminated water. The affected tried to cope after evacuating from their homes and moving to community centers. Schools were used as temporary shelters.[217] Various shelter items, food, water, and health services were badly needed. Alongside local administrators, the NRCS was a primary responder, delivering more than 13,000 non-food relief sets, 7,000 emergency shelters, 13,000 jerry cans, and 3,300 mosquito nets from the NRCS pre-positioned stocks and additional relief deliveries from partners. Moreover, more than 8,600 families received ready-to-eat food, and 20,000 patients were treated by NRCS-run health centers before immediate relief operations wrapped up in November 2017.[218] In the Post-Disaster Needs Assessment,[219] the Government noted that, in comparison to flooding events in 2001 and 2008, which killed more than 1,500 people each, the 2017 floods saw reduced mortality and injuries. Immediately following the floods, the Government activated the Humanitarian Cluster System and mobilized 27,000 security personnel and civil servants to support relief efforts. Government agencies undertook more than 100 helicopter flights to rescue the stranded and injured and to deliver aid. It also mobilized its emergency stockpile to meet immediate needs and launched a cash-based distribution for the most severely affected people for 30 days. Humanitarian partners in the response included UN system agencies, IFRC, NGOs, and development partners. The UN's Central Emergency Response Fund allocated US$4.8 million to flood response efforts, and donors provided additional support to relief operations. National Red Cross societies from Australia, Bulgaria, Canada, Finland, Germany, Japan, Kuwait, Liechtenstein, Netherlands, South Korea, the United Kingdom, and the U.S. provided funding to the IFRC. Australia, Estonia, the European Union, Italy, New Zealand, Sweden, and the United Kingdom also contributed resources.[220]

***Landslides and Flooding – May-July 2016***

The pre-monsoon in May 2016 brought heavy rains to Nepal's western and central regions. Even before the official start of the monsoon, flooding and landslides had killed 12 people.[221] When the monsoon began in mid-June, heavy rains fell over most of the country. On 20 July, 52 mm (2 inches) of rain were recorded in 24 hours in Bhairahawa, Rupandehi District, in central-southern Nepal.[222] Especially heavy rains on

23-24 July impacted the country's eastern regions with 79 mm (3.11 inches) of rain recorded in Biratnagar and 64 mm (2.5 inches) in Dhankuta in 24 hours. Nepal's security forces mobilized alongside local authorities and NRCS to conduct evacuation and rescue missions.[223] By 31 July, flooding and landslides had affected 35 districts and had killed 111 people and displaced more than 6,800 families. More than 2,200 homes were either damaged or destroyed. Among responding agencies, NRCS mobilized 890 volunteers to deliver shelter and other non-food relief items across the affected areas.[224] NRCS worked alongside the army and police to conduct evacuation and rescue missions by helicopter and boat.[225]

***Earthquake – April 2015***

On 25 April 2015, at about noon local time, a magnitude-7.8 earthquake struck between Kathmandu and Pokhara. The epicenter was about 80 km (50 miles) northwest of Kathmandu, in the Gorkha District,[226] and its impact was felt across 57 districts.[227] Photo 2 shows some of the damage in the Kathmandu Valley.[228] In the first two months after the main quake, there were more than 300 aftershocks of greater than magnitude-4.0. Four aftershocks were greater than magnitude-6.0,[229] including one measuring magnitude-7.3 on 12 May. The combined impacts resulted in the deaths of 8,896 people and injuries to 22,303 people. The Government of Nepal reported that 8 million people felt impacts to their lives,[230] 2.8 million people needed assistance,[231] and the total value of disaster damage and losses was US$7 billion. Upwards of 600,000 houses were destroyed along with 2,656 government buildings and 19,000 classrooms. Many of the hardest-hit areas were rural, and some of them were remote and difficult to reach, the more so because of landslides and damaged or blocked access routes.

The Government declared a state of national emergency and made an official request for international assistance within hours of the first earthquake.[232] Authorities promptly activated the National Emergency Operations Center (NEOC) and led the search and rescue operations and relief efforts. At the national level, the MoHA and its Central Natural Disaster Relief Committee (CNDRC) had central control of the response, and, at the local levels, the CNDRC's regional and district counterparts, Regional and District Disaster Relief Committees, assumed responsibility for coordinating and overseeing distribution of relief. In early May, MoHA declared a "one door policy" for responding players to follow; these responders were then required to first report to district authorities and take direction from them regarding where to work and whom to assist. In practice, District Committees would assign NGOs, UN agencies, and other actors to village development areas and direct them to work with the relevant local authorities.[233] The Government classified 14 severely affected districts as "Category A" (Gorkha, Kathmandu, Bhaktapur, Lalitpur, Sindhupalchok, Ramechhap, Dolakha, Nuwakot, Dhading, Rasuwa, Sindhuli, Okhaldhunga, Makwanpur, and Khavre). Nine districts with



**Photo 2: "Gorkha" Earthquake Damage in Kathmandu Valley (UNDP, 2015)**

medium damage were classified "Category B" (Sangja, Chitwan, Kaski, Tanahu, Khotang, Solukhumbu, Udayapur, Bhojpur, and Lamjung).[234] Figure 7 shows MoHA's map of district classifications.[235]

Several donor meetings were convened to seek international assistance for search and rescue and immediate relief operations. The Nepal Army, Police, and Armed Police Force carried out immediate and continuing search and rescue. The Indian National Disaster Response Force, Indian Air Force, and Indian Army Medical Corps were the first foreign contingents to land in Kathmandu within hours and they were joined by 134 international search and rescue teams from 34 countries. MoHA reported that these operations were conducted over the course of 4,236 helicopter flights, and 7,558 persons were rescued by air while 4,689 persons were rescued by land. Emergency relief and humanitarian assistance was delivered by over 60 countries, UN system agencies, and other international agencies. Fixed wing and rotary aircraft from various countries carried out numerous sorties to bring relief supplies into the country and to distribute them in remote areas. The Government and partners constructed a new humanitarian staging area at Tribhuvan International Airport, and it facilitated the receipt of cargo by air and by truck immediately. As is typical in disasters, community members were the very first responders; they dug out neighbors from the rubble and provided whatever assistance they could before the arrival of rescue and relief teams. The network of NGOs and local affiliates of international NGOs based in Nepal swiftly rallied to support community rescue and relief efforts. Several volunteer groups, especially of youth and professionals like doctors and engineers, were active in treating the wounded, setting up temporary shelters, supplying food, and attending to vital needs.[236]

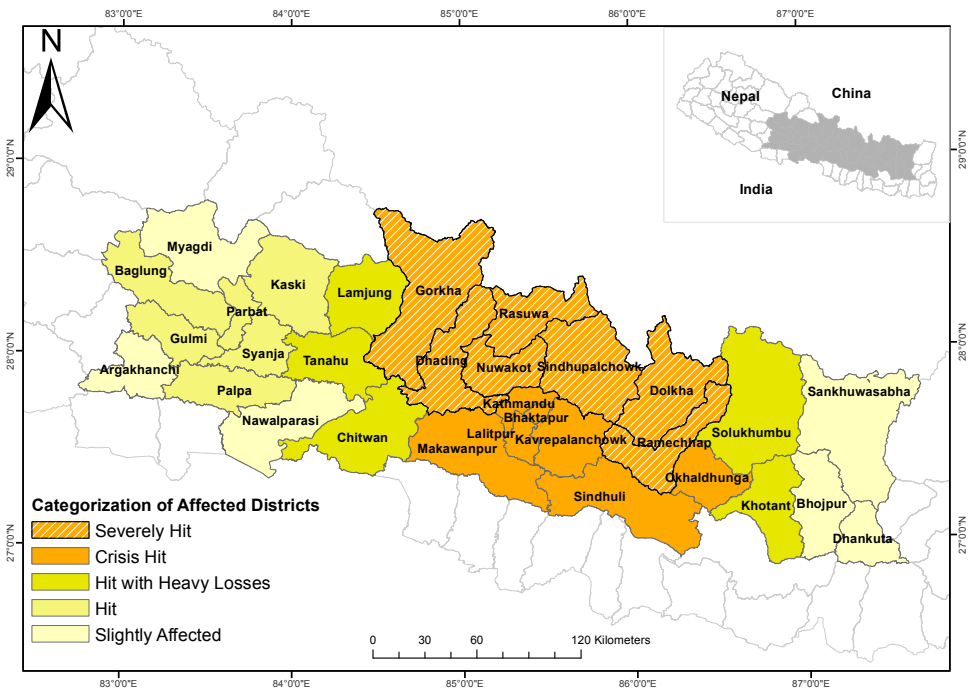



**Figure 7: Categories of Earthquake-Affected Districts, MoHA (2015)**

Among the key humanitarian responders, the International Red Cross and Red Crescent Movement mobilized the full range of their resources to support the relief and recovery efforts in line with Nepal government's overall strategy. On behalf of Movement partners, the NRCS led the implementation and delivered immediate humanitarian assistance to more than 3.5 million people in more than 44 affected districts from 160 Village Development Committees. In the immediate aftermath of the earthquakes, NRCS activated its emergency operation centers (EOC) at national headquarters and in all affected districts. NRCS governance, staff and volunteers were fully engaged and mobilized some 8,000 trained volunteers from 50 districts chapters to deliver immediate humanitarian assistance to the affected communities. NRCS was joined by 492 international staff and volunteers from 30 sister National Societies to deliver hospital services,

communication systems, water and sanitation supplies, child protection, and logistic facilities.[237]

Years after the earthquake, recovery and reconstruction were on-going, and displaced and impacted people were continuing to try to rebuild their livelihoods and remained vulnerable to hazards, such as floods and landslides that threatened hastily built structures. Moreover, a post-disaster assessment found that there were significant shortcomings in the response that related to marginalized groups. Save the Children reported that a majority of the affected population were from vulnerable and marginalized groups; 41% of houses damaged in the earthquake belonged to Dalits and indigenous communities, 26% to female-headed households, and 23% to senior citizens. None of these groups had been meaningfully engaged in local governance structures and decision-making bodies, nor were they proactively engaged in the earthquake response by international responders.[238]

***Landslides and Floods – June-September 2014***

The monsoon was particularly destructive in 2014 with more than three dozen floods and landslides reported throughout Nepal. MoHA reported that 265 people were killed in landslides and floods between June and September, and hundreds were reported missing.[239] On 2 August, a massive landslide hit Sindhupalchok District. It cut off more than 200 families as it delivered debris that created a 2.5-km (1.5-mile) long dam that blocked[240] the Sunkoshi River. Security forces spent more than one month trying to dislodge the debris safely before successfully using explosives to release some water in early September.[241] Then, torrential rains during 14-16 August 2014 caused floods and landslides in 23 districts; the worst affected were Banke, Bardiya, Dang, and Surkhet. At least 200 people were reported dead, and nearly 185,000 people were affected, 51,000 of them displaced after their houses were destroyed.[242] The government mobilized the Army, Police, the Armed Police Force as well as district mechanisms for search and rescue, evacuations, and warnings. District Committees in affected districts evacuated families from risk zones, and, along with NRCS chapters and civil society, the District Committees distributed food in some places. On 16 August, MoHA, UN agencies, and the NGOs operating in the country noted an urgent need for ready-to-eat food, shelter, non-food items, and medical support. The government requested international stakeholders to mobilize their resources swiftly.[243] NRCS conducted an initial rapid assessment and distributed relief items.[244] Among other NGOs delivering relief, ShelterBox teams hiked or drove small trucks and tractors to impacted communities cut off by damage to roads and bridges in Surkhet; other teams joined NRCS and UNICEF to deliver ShelterBoxes to Taranga.[245] European and U.S. funding also helped NGOs, like Save the Children, deliver various types of support, including psycho-social and protection services, health care, and education.[246] In September, Adventist Development and Relief Agency (ADRA) established two health camps in Bardiya and Banke, where all four health centers were damaged.[247]

## Country Risk

Risk calculation takes into account exposure to hazards, vulnerability, and coping capacity. Addressing all of these elements is important in reducing and mitigating disaster risk. Various indices emphasize structural or institutional risk while others emphasize hazards or losses (human and economic). Regardless of emphasis, disaster risk calculations use some form of the equation:

$$\textit{Disaster Risk} = (\textit{Hazard} \times \textit{Vulnerability}) / \textit{Capacity}$$[248]

Taken from the UNDRR glossary, definitions will help clarify this formula:

- Capacity - The combination of strengths, attributes, and resources available within an organization, community, or society to manage and reduce disaster risks and strengthen resilience.
- Disaster risk - The potential loss of life,

injury, or destroyed or damaged assets, which could occur to a system, society, or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability, and capacity.
- Hazard - A process, phenomenon, or human activity that may cause loss of life, injury, or other health impacts, property damage, social and economic disruption, or environmental degradation.
- Vulnerability - The conditions determined by physical, social, economic, and environmental factors or processes, which increase the susceptibility of an individual, a community, assets, or systems to the impacts of hazards.[249]

In general, the goal of indexing risk is to inform decision makers and DRR and CCA practitioners of the level of risk to and underlying capacity of the target community. The various risk calculation models support proactive crisis management frameworks and are helpful for prioritizing allocation of resources and for coordinating actions focused on anticipating, mitigating, and preparing for humanitarian emergencies.

## INFORM Risk Profile

INFORM is a collaboration of the Inter-Agency Standing Committee Reference Group on Risk, Early Warning, and Preparedness with the European Commission. It is a multi-stakeholder forum for developing shared, quantitative analysis relevant to humanitarian crises and disasters. The Joint Research Center of the European Commission is the scientific lead. There are three operational dashboards – i.e., INFORM Risk, INFORM Severity, and INFORM Climate Change.

- INFORM Risk is an open-source risk assessment for humanitarian crises and disasters. It can support decisions about prevention, preparedness, and response.
- INFORM Severity is a way to measure and compare the severity of humanitarian crises and disasters globally. It can help develop a shared understanding of crisis severity and ensure all those affected get the help they need.
- INFORM Climate Change is an upgraded INFORM Risk Index that includes climate and socio-economic projections with results intended to inform policy choices across climate mitigation, climate adaptation, disaster risk reduction, sustainable development, and humanitarian assistance.[250]

The INFORM Risk Index measures the risk of humanitarian crises and disasters in 191 countries. The INFORM model is based on the standard dimensions of risk: Hazards and Exposure, Vulnerability, and Lack of Coping Capacity. The first dimension measures the natural and human hazards that pose the risk. The second and third dimensions cover population factors that can mitigate against or exacerbate the risk. The Vulnerability dimension considers the strength of individuals and households relative to a crisis while the Lack of Coping Capacity dimension considers factors of institutional strength.[251]

The INFORM model is split into different levels to provide a quick overview of the underlying factors leading to humanitarian risk. INFORM gives each country a risk score of 1-10 (1 being the lowest and 10 the highest) for each of the dimensions, categories, and components of risk, as well as an overall risk score.[252] The higher the score the more at risk a country is. In the 2023 INFORM Risk Index, Nepal had an overall risk score of 4.4/10, which INFORM categorizes as the "Medium" risk class and lands Nepal as the 61st most at risk country in the Index. The Hazards and Exposure dimension score takes into account a combination of both natural and human hazards, and Nepal rated 3.6/10 or 65th of 191 countries. The Vulnerability dimension score was 4.4/10 or 65th of 191, and the Lack of Coping Capacity dimension score was 5.5/10 or 53rd of 191. Physical exposure to Earthquake, at 9.9/10, was the greatest threat in the Hazards and Exposure dimension, with Development and Deprivation measuring at a 7.1/10 for

the Vulnerability dimension and Governance rated 6.8/10 in the Lack of Coping Capacity dimension. Figure 8 shows the INFORM risk dashboard for Nepal for the year 2023.[253]

Based on 2022 baseline assessments and projections of climate change influences on major hazards, the INFORM Climate Change tool suggests that Nepal will be at somewhat heightened risk from hydrometeorological hazards by the end of the 21st century. The index examines the country's potential experience under two RCPs – 4.5 and 8.5 – and it projects out to the years 2050 and 2080.[254] The most significant change to hazards that Nepal confronts is that under high-emissions scenarios, by 2080, the country is more exposed to drought and epidemics. The risk of experiencing flood barely changes, and the risk of tropical storms remains minimal. In addition to the potential for the country to feel climate shifts that open the way for more vector-borne illnesses to thrive, changes to the water cycle that increase the risk of drought also are assessed as driving potential conflicts in the country. Figure 9 displays the INFORM Climate Change tool for Nepal for comparison with its baseline 2023 in Figure 8.[255]

## World Risk Report

The World Risk Report by Bündnis Entwicklung Hilft strives to raise awareness of disaster risk among the global public and political decision-makers and to provide practitioners with data to promote faster orientation to complex situations – i.e., societies experiencing disasters. This effort stems from the perception that disaster risks are not solely determined by the occurrence, intensity, or duration of extreme events. Social factors, political conditions, and economic structures play an important role in turning these events into crises. Thus, this index is based on the assumption that every society can take precautions – e.g., effective disaster preparedness and management – to reduce the impact of extreme events and lower the risk of disasters.

The World Risk Report calculates the level of risk a country faces based on a formula of exposure to hazards and vulnerability. It provides an assessment of the risk that countries will confront disasters but does not indicate probabilities for the emergence of disasters, nor does it forecast the timing of future disasters. This index uses 100 indicators that include risk, hazard exposure, vulnerability, and coping capacity (as defined above), and adds two others:

- Susceptibility - The disposition to suffer damage in the event of extreme natural events. Susceptibility relates to structural characteristics and frameworks of societies.
- Adaptation - A long-term process that also includes structural changes and comprises measures and strategies that address and try to deal with future negative impacts of natural hazards and climate change. Analogous to "lack of coping capacity," the lack of adaptive capacities is included in the Index.

In the 2022 World Risk Report, Nepal ranked 131 of 192 countries wherein the lower the rank (1), the greater risk the country faces. Nepal's total Index score was 2.62 (on a scale of 0-100 wherein the lower the number the less risk a country faces), putting it in the "low" risk class. The component scores were:

- Exposure: 0.25 (low)
- Vulnerability: 27.54 (high)
  - Susceptibility: 27.17 (high)
  - Lack of Coping Capacity: 13.52 (high)
  - Lack of Adaptive Capacity: 56.89 (high)

For comparison, Nepal's score puts it below the regional (Asia) median of 5.93 and below the sub-regional (South Asia) median of 5.93. In part, this better-than-average performance stems from the fact that Nepal shares both a region and sub-region with several of the world's most at-risk countries. In terms of Exposure, Nepal is below the medians for Asia and South Asia (both 1.60) in a reflection of Nepal's exposure to somewhat fewer or less intense hazards than its neighbors. In the Vulnerability dimension, the country is above the median for Asia (21.99) but sits on the median for South Asia (27.54) in a reflection that Nepal, like its neighbors, has relatively less capacity to build resilience

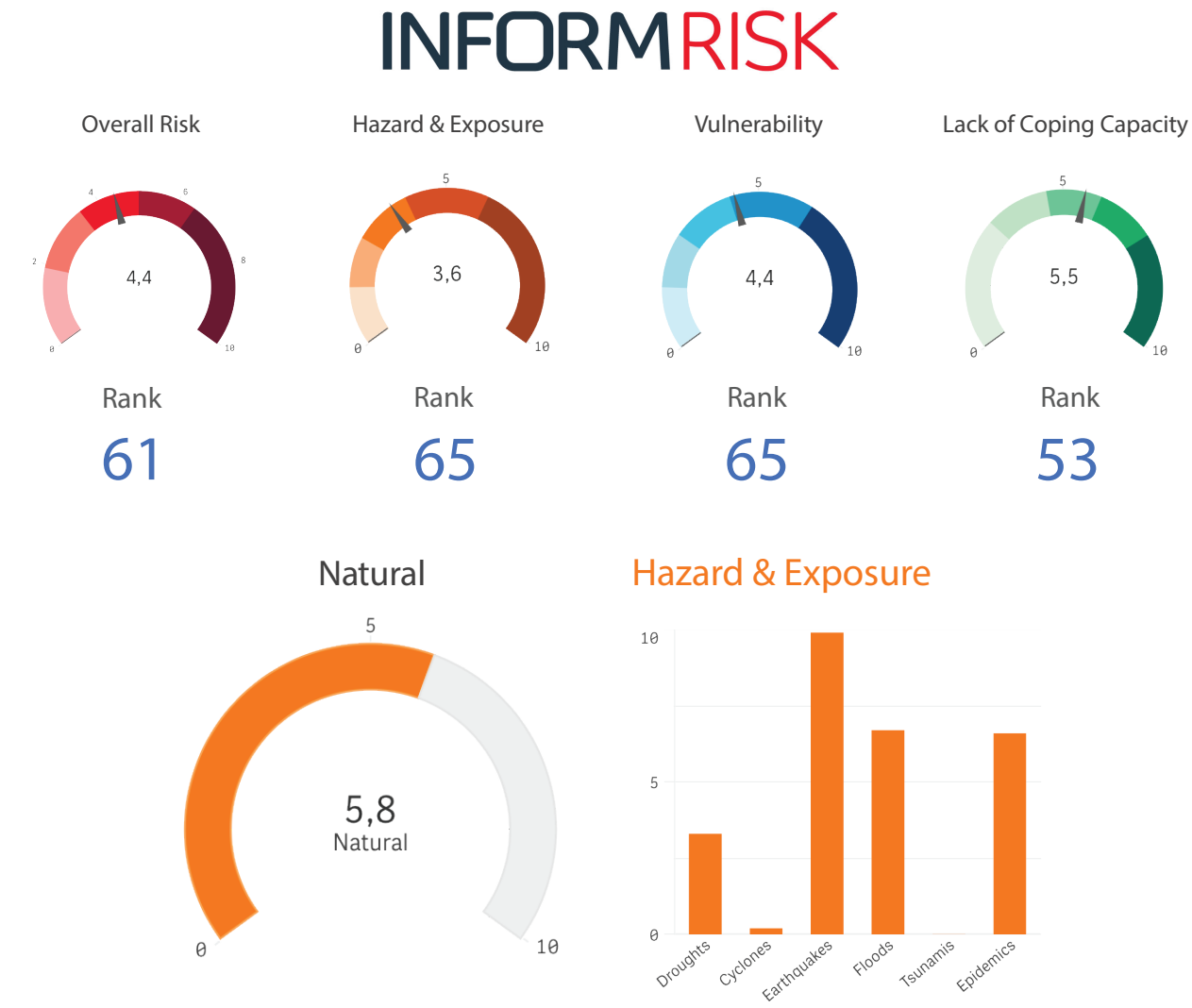



**Figure 8: INFORM Risk Index, Nepal (2023)**

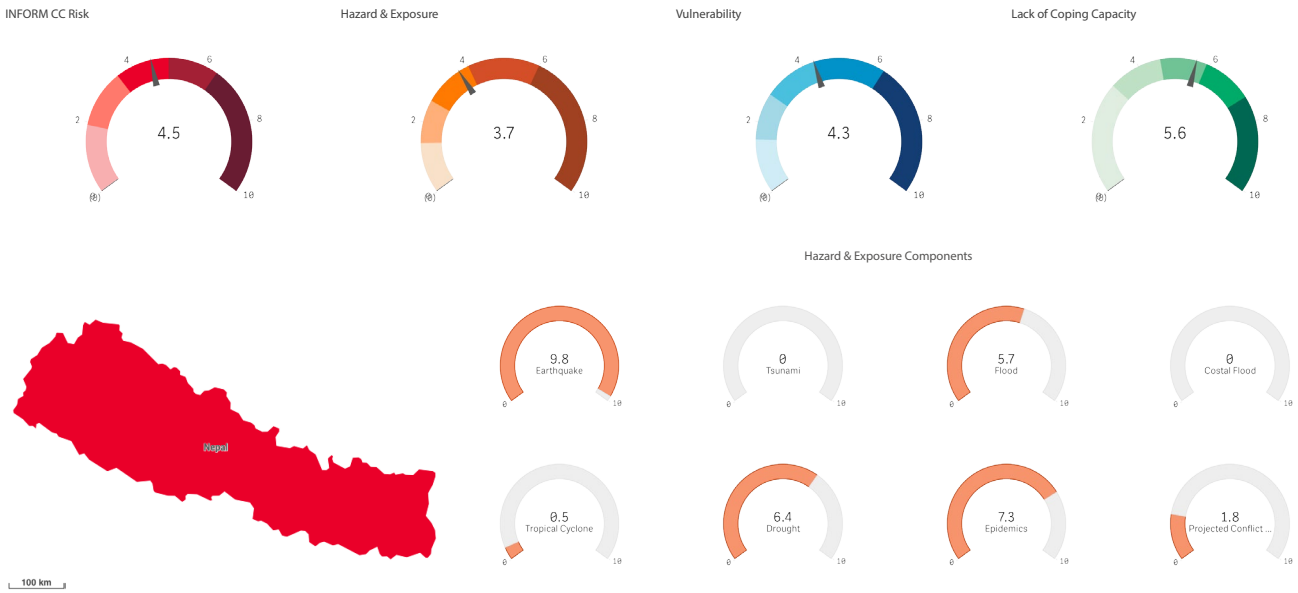



**Figure 9: INFORM Climate Change Risk Index, Nepal (RCP8.5, Year 2080)**

by reducing the three component parts of Vulnerability. Under Susceptibility, Nepal is above the median for Asia (15.87) and sits on the median for South Asia (27.17) due, in part, to greater exposure of vulnerable populations and lingering socio-economic disparities. In the Lack of Coping Capacity dimension, Nepal is also above the median for Asia (12.98) but below that for South Asia (55.38) as it experiences regular shocks but also has a strong state and government foundation for disaster management. Finally, on the Lack of Adaptive Capacity score, Nepal sits above the medians for Asia (43.77) and South Asia (47.58) in a reflection of a lack of investment capacity and longer-term effects of deprivation.[256]

## Global Climate Risk

The Global Climate Risk Index (CRI) developed by Germanwatch analyzes impacts of extreme weather in terms of both fatalities and economic loss. The index is based on the Munich Re (a re-insurance company) NatCatSERVICE databases, among the most complete databases in the world in these categories of loss. The CRI examines disaster impacts in both absolute terms (e.g., number of fatalities) and in comparative, relative terms that allow analysts to set events and their impacts alongside each other to assess how a given country or community used its strengths or struggled due to its weaknesses in the face of an extreme event. The countries ranking highest on the CRI experience either frequent smaller-scale weather events or rare but extraordinary events. In sum, the CRI allows DRR and disaster management practitioners to consider how exposures and vulnerabilities will be impacted by climate change. The two different CRI measures – most impacted countries in a single year and most impacted countries over 20 years – offer analysts an opportunity to tease apart the effects of rare but major events versus frequent, cumulative events.

The major events examined by the CRI are cyclones (typhoons). The key takeaway is that countries with high exposure to such storms – either frequent small ones or rare massive ones – will be preparing for less predictable, potentially less frequent, but probably more powerful typhoons under climate change scenarios. The CRI cites various DRR and CCA efforts in countries exposed to hydrometeorological hazards, and it points to regional risk pool initiatives and financing solutions to bolster early warning and recovery capacity. Germanwatch also points to the CRI findings as a clear reason to improve global climate change financing programs to ensure that the most affected countries – many of which are also categorized by the UN as Least Developed States – do not experience worsening development outcomes because of disaster losses. The CRI cites outcomes from the COVID-19 pandemic as examples of how simultaneous or consecutive disasters can erode resiliency in the absence of international solidarity funding.

In the 2021 CRI, based on single-year (2019) data, Nepal ranks 12th of 180 countries in this index, a rank that indicates a high level of loss in that year. It ranked in the top 10 in terms of fatalities per 100,000 people and in terms of absolute fatalities, although it ranked outside the top 25 countries in terms of losses in millions of U.S. dollars and losses per unit of GDP.[257] During 2019, the country dealt with several windstorms and heavy rain that caused flooding and landslides that, combined, killed more than 150 people.[258] Meanwhile, in the 20-year data table, Nepal ranks 10th of 180 countries; it experienced significant human and material losses in absolute terms across 191 disaster events over the period (2000-2019). These losses earned it ranks of 16 and 18 in the average fatalities per year and average fatalities per 100,000 people, respectively, while its average losses per year in millions of U.S. dollars and per unit GDP over the period earned it ranks of 56 and 40, respectively.[259] The consistently high ranks for human losses versus lower ranks for material loss indicate deadly events even as the economy suffers relatively less damage due either to resilient livelihoods and building (in urban areas) or to the lower inherent value of infrastructure, buildings, or livelihoods lost (in rural areas).

# ORGANIZATIONAL STRUCTURE FOR DISASTER MANAGEMENT

There are disaster management agencies at all levels of Nepal's government – federal, provincial, district, and local. Federal and local authorities partner with international stakeholders for DRR and humanitarian relief. The federal government has experience coordinating large-scale disaster responses that incorporated international and domestic military and civilian responders.

## Lead Government Agencies in Disaster Response

In Nepal, responsibility for disaster risk reduction and management (DRRM) is shared among three tiers of government: local, provincial, and federal. In 2015, Nepal adopted a new Constitution, became a federal republic, and devolved powers to provincial and local governments. Under the 2015 Constitution, local governments have the lead in DRRM within their jurisdiction and hold concurrent authority for disaster management with provincial governments and the federal government.[260]

In 2017, Nepal enacted the Disaster Risk Reduction and Management (DRRM) Act (amended 2019) to clarify the governance structure for DRRM.[261] The DRRM Act created the National Disaster Risk Reduction and Management Authority (NDRRMA), which was established in 2019 as the lead federal agency for DRR and disaster management.[262] The NDRRMA falls under the Ministry of Home Affairs (MoHA) and is headed by a Chief Executive.[263] The NDRRMA is supervised by the National Council for Disaster Risk Reduction and Management ("the National Council"), chaired by the Prime Minister. The NDRRMA is also overseen by the Disaster Risk Reduction and Management Executive Committee ("the DRR Executive Committee"), chaired by the Home Minister.[264] The Chief Executive of the NDRRMA is a member-secretary of both the National Council and the DRR Executive Committee. In addition, given the role of local governments in DRRM, federal agencies such as the Ministry of Federal Affairs and General Administration (MoFAGA) and the National Planning Commission support local governments to strengthen DRRM. Figure 10 displays the relationships for coordination among the major offices, agencies, and authorities.[265]

**National Council for Disaster Risk Reduction and Management**

The National Council for DRRM is the apex disaster management body and is chaired by the Prime Minister. The National Council provides strategic direction, approves DRRM policies, and develops DRRM strategies.

**Disaster Risk Reduction and Management Executive Committee**

Chaired by the Minister of Home Affairs, the DRR Executive Committee is responsible for operational matters related to DRRM. It develops guidelines, plans, and executive decisions, and it supports DRRM implementation. The Committee is also responsible for interagency coordination in the formulation of DRRM policies and strategies.[266]

**National Disaster Risk Reduction and Management Authority**

While the MoHA is the hub for DRR policy, the NDRRMA was established under the DRRM Act 2017 to operationalize DRRM. The NDRRMA coordinates all three levels of government to ensure a whole-of-government approach to DRRM and emergency response.[267] The NDRRMA is secretariat to both the National Council and the DRR Executive Committee. The Chief Executive of the NDRRMA chairs the National Platform for Disaster Risk Reduction

(NPDRR). The NPDRR was established under the MoHA in 2009 to coordinate, facilitate, and implement DRRM-related activities in the country.[268] Secretariat support to the NPDRR is provided by the Disaster Preparedness Network Nepal (DPNet-Nepal), an umbrella organization of national and international agencies. Established in 1996, DPNet-Nepal's objective is coordination, collaboration, learning, and information sharing.[269] The NPDRR has nine thematic groups and brings together multiple stakeholders – government, semi-government, UN and bilateral partners, international NGOs, national and local NGOs, mass media, disaster affected communities, academics, and the private sector.[270]

**Provincial Disaster Management Council**

Pursuant to the DRRM Act 2017, each province will establish a Provincial Disaster Management Council (PDMC), chaired by the Chief Minister of the province. The PDMC is responsible for DRRM policies and plans, providing policy guidance, and directing the provincial disaster management committee. Each provincial government is authorized to make rules for its PDMC and to determine its membership.[271]

**Provincial Disaster Management Executive Committees**

Each province has an established Provincial Disaster Management Executive Committee (PDMEC), which leads DRRM efforts in the province. The PDMEC is chaired by the Minister of Internal Affairs and Law, Minister of Internal Affairs, or Minister of Internal Affairs, Law, and Communication, as appropriate to the province's administrative structure. Members of the committee include chief secretaries of all provincial ministries as well as representatives from Nepal Police and NRCS.[272] Provincial DRRM is guided by the National Strategic Action Plan for Disaster Risk Reduction 2018-2030.[273]

**District Disaster Management Committees**

The DRRM Act 2017 requires the establishment of a District Disaster Management Committee (DDMC) in each of Nepal's 77 districts. Each DDMC is chaired by the chief district officer and includes membership by local government chiefs; the heads of health, security, infrastructure, and social development; NRCS district chapters; and the head of the Nepal NGO Federation district chapter, among others listed in Section 16 of the DRRM Act.

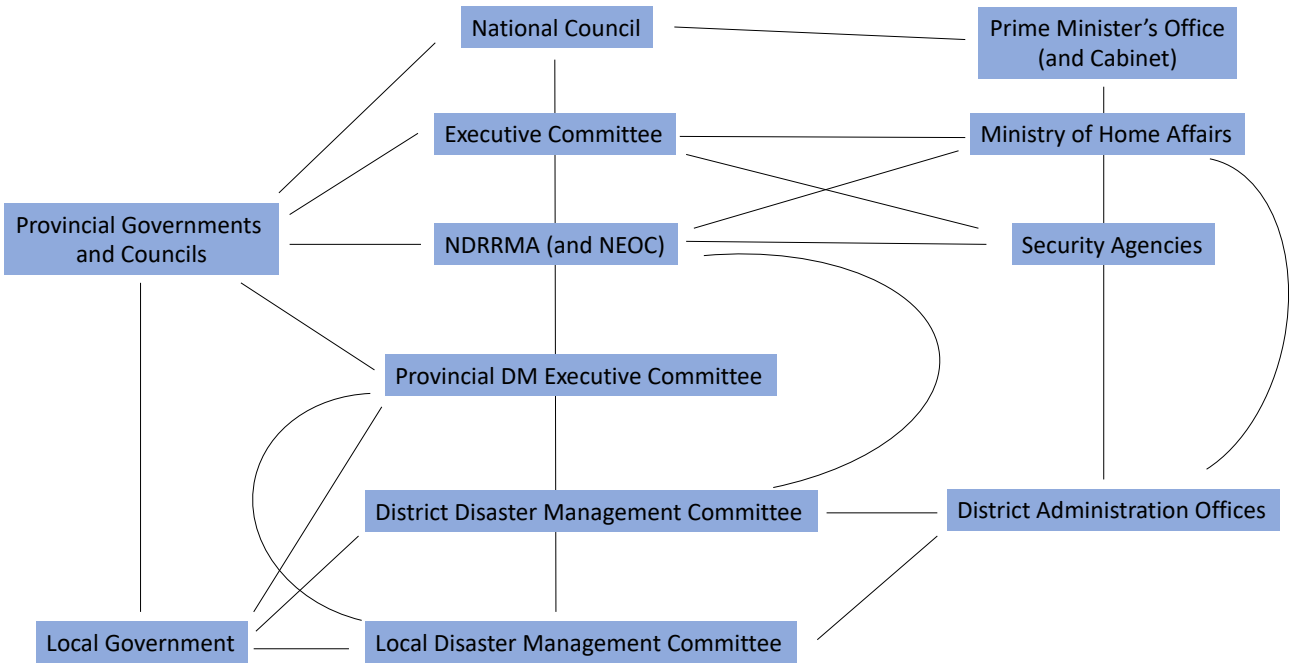



**Figure 10: Nepal Government DRRM Coordination Relationships**

**Local Disaster Management Committees**

Nepal has 753 local governments: six metropolitan cities, 11 sub-metropolitan cities, 276 municipalities, and 460 rural municipalities.[274] These local governments receive strategic guidance, capacity building support, and funds to contextualize and implement DRRM in their locality. Local government DRRM is guided by the National Strategic Action Plan for Disaster Risk Reduction 2018-2030.[275]

**Disaster Management Fund**

The DRRM Act 2017 further prescribed the establishment of a national Disaster Management Fund (DMF) and DMFs in each local government.[276] The PDMEC will be responsible for distributing funds to DDMCs for DRRM activities in each district.[277] In June 2023, the NDRRMA reported Rs 1.81 billion (US$8 million) in the DMF, Rs 513.3 million (US$3.8 million) in the Province Disaster Management Fund, and Rs 592.2 million (US$4.5 million) in the District Disaster Management Fund.[278]

## Disaster Relief and Emergency Response

The National Disaster Response Framework (NDRF) of 2013 (amended 2019) sets out the national disaster response framework for medium and large-scale disasters.[279] The DRRM Act of 2017 (amended 2019) outlines the roles of key institutional actors for DRRM, including in emergency response.

Responsibility for disaster relief and emergency response resides at all three levels of government. In a medium- to large-scale disaster, the NDRRMA is charged with mobilizing and coordinating the private sector, international NGOs, local communities, and other stakeholders for disaster response.[280] The Chief Executive of the NDRRMA is the disaster response controller, pursuant to the DRRM Act.[281] The NDRRMA manages the National Emergency Operations Center (NEOC). At the provincial level, the PDMC is responsible for disaster response, recovery, rehabilitation, reconstruction, and relocation.[282] Likewise, the DDMCs are responsible for disaster response within a district; tasks include developing the disaster response plan of the district, running the district emergency operations center (EOC), and carrying out search and rescue operations.[283]

The Nepal Army plays a critical role in disaster response. In the immediate aftermath of the 2015 earthquakes, citizen responders and the Nepal Army were the first on the scene to provide search and rescue.[284] The role of the Nepal Army in disaster response is discussed in the next section of this handbook.

**Emergency Operations Centers**

Nepal has an established network of EOCs that comprises the NEOC, seven provincial EOCs, and 70 district EOCs. Figure 11 is a map of the locations of EOCs across the country.[285] Additionally, the MoHP has Health EOCs (HEOC) across the country. These HEOCs played a crucial role in addressing the COVID-19 pandemic.[286]

**Humanitarian Staging Areas**

The Government of Nepal (GoN) has established eight Humanitarian Staging Areas (HSA) in major airports and land transit ports in strategic locations, comprising around 33 large CONEX containers. Each container can provide temporary refuge for up to 100 persons at one time during a natural disaster. They can also serve as a triage center for medical first responders as container is equipped with tents, beds, and emergency supplies.[287] HSAs are designed to act as the main hub for airlift and overland humanitarian assistance in the event of emergency.[288]

**Cluster System**

There is a cluster system for disaster relief and emergency response organized at the national and local levels; the system is supported by international partners, including the UN agencies present in Nepal. Table 4 summarizes the national- and local-level cluster system.[289] A

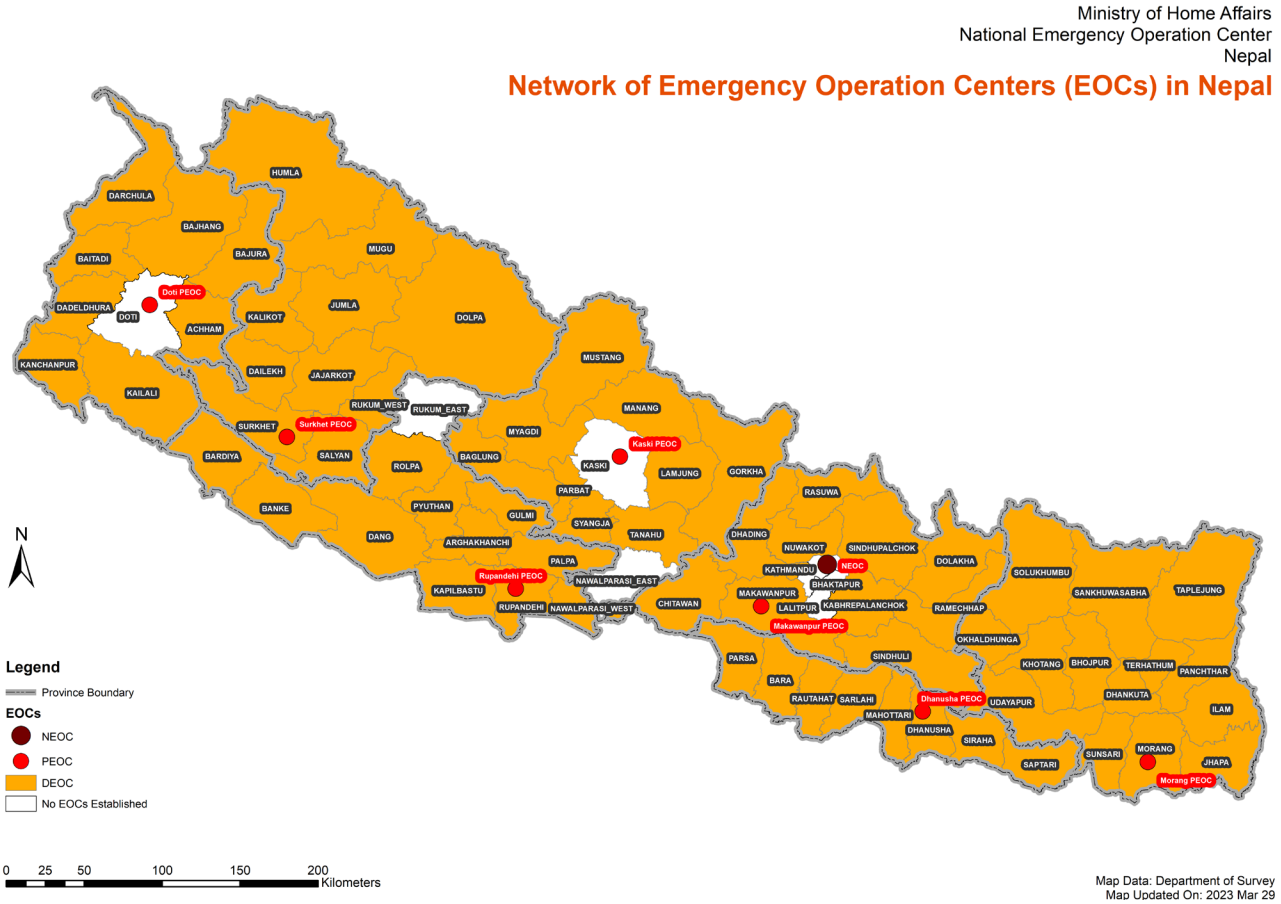



**Figure 11: National, Provincial, and District EOCs in Nepal**

| Name of Clusters | Government Agency | | | Assisting Agency |
|---|---|---|---|---|
| | National Level | Local Level | | |
| | | District | Municipality | |
| Health | Ministry of Health and Population | District Health office<br>District Hospital | Health Office | WHO/IFRC |
| WASH | Ministry of Water Supply and Sewage | Water Supply and Sanitation Division Office | Water Supply Office | UNICEF/IFRC |
| UNICEF/IFRC | Ministry of Urban Development | Division Office of Urban Development and Building Construction | Office of the Mayor | IFRC/UN HABITAT/IFRC |
| Food Security | Ministry of Agriculture and Livestock Development | Agriculture Knowledge Center | Agriculture Office | WFP/FAO/IFRC |
| Nutrition | Ministry of Health and Population | District Public Health Office | Health Office | UNICEF |
| Camp Coordination and Camp management | Ministry of Rural Development | Division of Rural Development and House Construction | Office of the Mayor | I0M |
| Protection | Ministry of Women, Children and Senior Citizen | District Office of Women and Children | Office of Woman Children and Children | UNHCR/UNICEF/ UNFPA |
| Early Recovery | Ministry of Federal Affairs and General Administration | - | - | UNDP |
| Education | Ministry of Education, Science and Technology | District Education Office | Municipality Education Office | UNICEF/SC |
| Logistics | Ministry of Home Affairs | CDO's Office | Office of the Mayor | WFP |
| Emergency Communication | Ministry of Communications and Information Technology | CDO's Office | Office of the Mayor | WFP |
| Search and Rescue | - | CDO's Office | Office of the Mayor | - |

**Table 4: National and Local Clusters for Disaster Relief and Emergency Response**

more detailed description of the cluster system is discussed in a later section of this handbook.

**International Assistance**

When there is a large-scale disaster, Nepal's Council of Ministers may appeal to the UN, friendly nations, the International Red Cross and Red Crescent Movement, the donor community, international NGOs, international professional groups, and non-resident Nepalis for international humanitarian assistance in the form of goods, services, and cash.[290] The Ministry of Foreign Affairs and the Social Welfare Council have responsibility for registering and facilitating international humanitarian action starting within the first 24-48 hours after a disaster declaration.[291] The NDRRMA will, in coordination with the MoHA, carry out the necessary action for disaster response. The GoN may, in coordination with the UN Humanitarian Coordinator, activate one or more of the humanitarian clusters working in Nepal and designate the chief or representative of the cluster as the full-time point of contact for emergency response.[292] Figure 12 depicts the international assistance coordination structure.[293]

In accordance with GoN directives, the Nepal-based UN Humanitarian Coordinator coordinates the members of the UN's International Search and Rescue Advisory Group (INSARAG) and the United Nations Disaster Assessment and Coordination (UNDAC) Team who have or will come to Nepal in response to the GoN's emergency appeal.[294]

According to the NDRF, upon the direction of the Executive Committee, the NDRRMA shall establish a mechanism to coordinate the disaster response among the NEOC, the UNDAC's On-Site Operations Coordination Centre (OSOCC), the Nepalese Army Crisis Management Center (NACRIMAC), and the Multinational Military Coordination Centre (MNMCC). The NDRRMA may invite humanitarian organizations working in Nepal on search, rescue, and assistance for discussions and meetings. The communication between OSOCC and MNMCC shall take place through the EOC operated by the NDRMMA. In coordination with the OSOCC, the Chief Executive of the NDRRMA will facilitate international relief efforts in the disaster-affected region, provide an operation platform for assistance, exchange information, and coordinate among national and international humanitarian assistance provider agencies. The United Nations Humanitarian Coordinator will designate a specific person and agency for the overall coordination of the OSOCC.[295] Figure 13 depicts this coordination mechanism.[296]

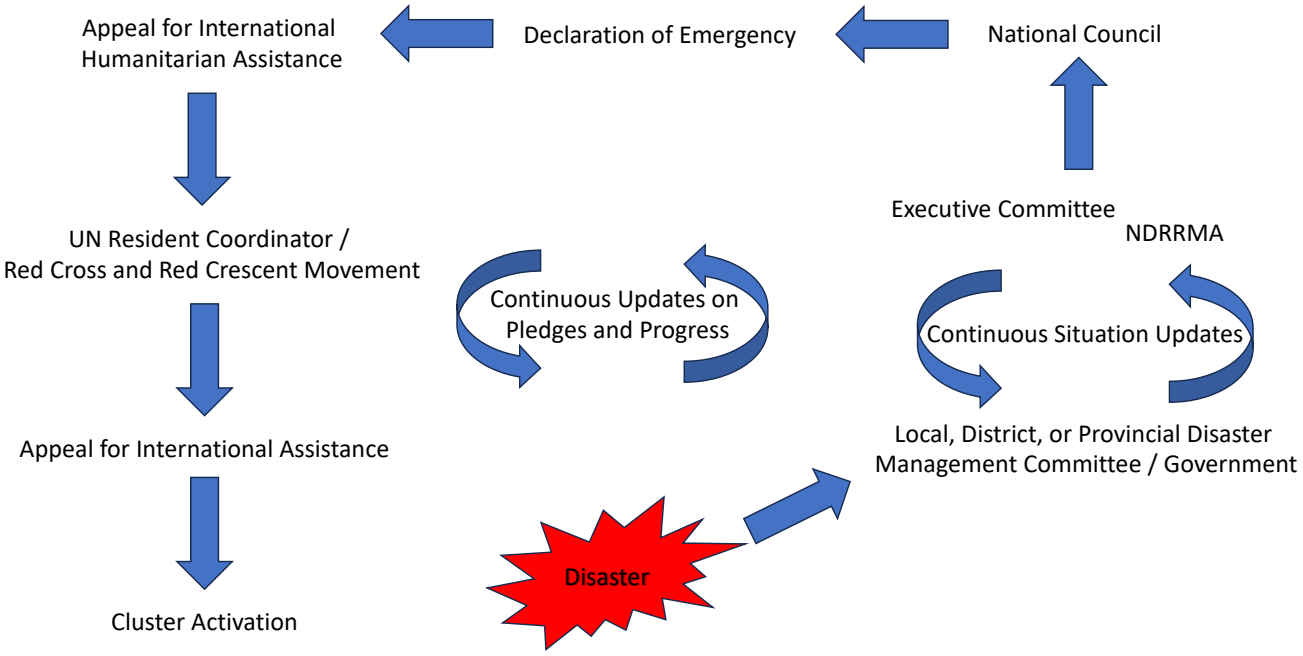



**Figure 12: International Assistance Coordination Structure**

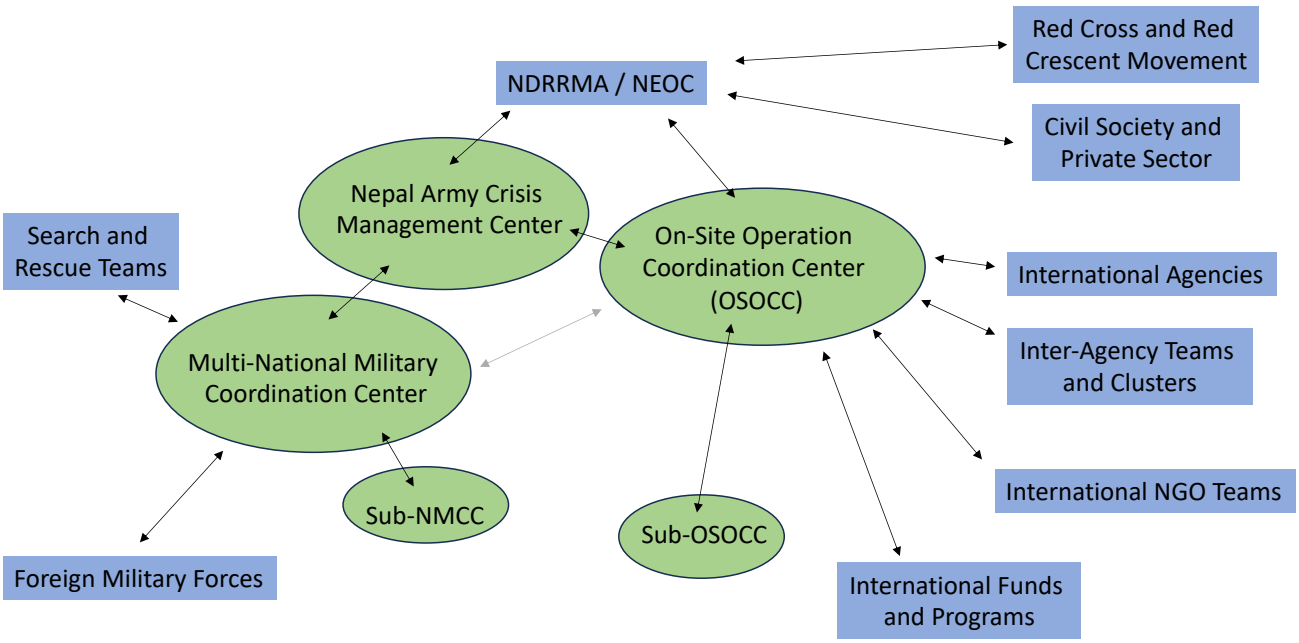



**Figure 13: Coordination Mechanism Linking National and International Actors**

The GoN may negotiate, as necessary, bilateral or multilateral agreements with neighboring and friendly nations during the disaster for search and rescue efforts. In the event that international military assistance is required, that assistance may be requested and managed in accordance with the GoN/Council of Ministers and pursuant to the Guidelines for Accepting International Military Assistance/Military Civil Defense Guidelines. For the purposes of facilitation of military and humanitarian assistance coming to Nepal, arrival and departure desks may be set up at the Tribhuvan International Airport and other areas.[297]

### 2015 Earthquake Response

After the 2015 "Gorkha" earthquake, the GoN's requests for international assistance were met by 70 nations, some of whom contributed financial aid; 34 of the responding nations took physical action, such as deploying search and rescue personnel, medical teams, emergency relief teams, and material support. Eighteen countries also sent military assistance. India's military was the first to arrive, doing so within the first 12 hours. U.S. Special Forces, who were conducting training in the area, also assisted in immediate response efforts. Many other international organizations responded, including UN organizations, smaller NGOs, and private companies. The UN Office for the Coordination of Humanitarian Affairs (OCHA) played a key liaison role between NGOs and responding security forces.

The NEOC under MoHA played a central role in national-level management, while UN OCHA established the OSOCC. However, due to delays in setting up the OSOCC, the Nepali Army's MNMCC at one point stepped in to organize and coordinate foreign military assistance and civilian responders until the OSOCC was operational. UN Humanitarian Civil-Military Coordination (UN-CMCoord) officers established a civil-military coordination cell, the Humanitarian-Military Operations Coordination Center (HuMOCC).[298]

## Armed Forces Role in Disaster Relief

Pursuant to the DRRM Act, the security agencies with a role in disaster response are the Nepal Army (NA), Nepal Police (NP), Armed Police Force (APF), Department of National Intelligence, and Provincial Police.[299] In a disaster, a command post will be established at the NDRRMA-led NEOC to effectively carry out search, rescue, and relief efforts. The Chief Executive of the NDRRMA will lead the command post, and members of the command post will include the joint secretary

of the MoHA, the brigadier general of the NA's Disaster Management Directorate, deputy inspector general of the NP, and the deputy inspector general of the APF.[300] Past disasters have demonstrated that it is citizens and security forces who are the first to respond.[301] Among the security forces, the NP has the most extensive disaster management structure.

**Nepal Police**

Disaster management is a major work area for the NP, and the force has established a dedicated response structure across the country with around 1,322 personnel. The Disaster Management Section was established at NP Headquarters under the Department of Operations in 2011. In 2012, it was relocated to Dillibazar, Charkhal Road, in Kathmandu, and renamed the Central Police Disaster Response Task Force. It was subsequently upgraded to the Disaster Management Division, headed by a Senior Superintendent. The office was devastated by the 2015 earthquake and re-established in Samakhusi, also in Kathmandu. The central Disaster Management Section has about 447 personnel. Figure 14 depicts an organogram of the NP Disaster Management Section.[302]

The NP Disaster Management Section has the following responsibilities:

- Act as the DRRM focal unit for NP, and draft plans, policies, and recommendations in the field of DRRM.
- Collaborate with governmental and non-governmental stakeholders in prevention, mitigation, preparedness, response, and recovery.
- Conduct training and simulation exercises for skills development and capacity enhancement with national and international stakeholders.
- Conduct DRR public awareness programs involving local police units, educational institutions, and communities.
- Procure and manage hazard specific rescue equipment and resources to deploy rescue teams (Collapsed Structure Search and Rescue, Fire Firing, First Aid and dead body management (DBM), Rope Rescue, Water Induced Disaster Rescue).
- Collect and collate semi-annual records of disaster and loss from all districts to anticipate, plan, and prepare for future disasters.
- Sustain a round-the-clock ability to deploy three standby platoons of emergency responders with search and rescue equipment (multi-hazard-specific) along with at least one ready-to-move vehicle.[303]

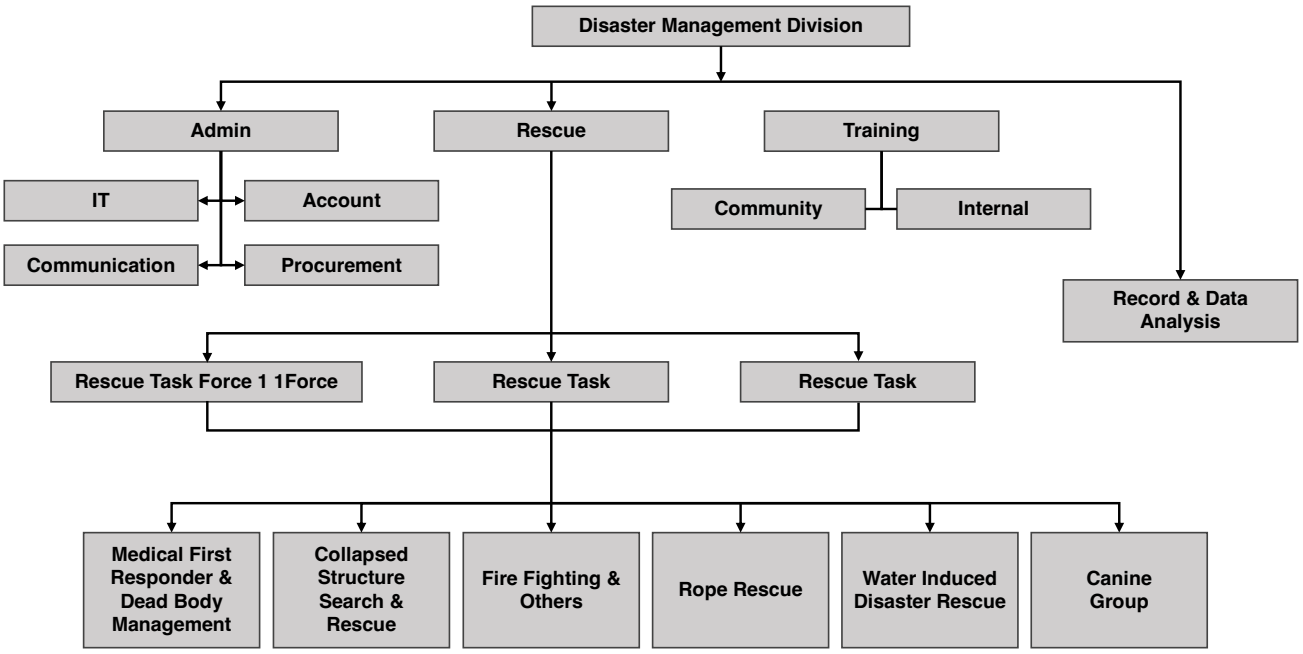



**Figure 14: Organogram of the Nepal Police Disaster Management Division**

The NP has also established disaster management companies with specialized emergency response capabilities in all seven provinces. There are currently eight specialized police units across the provinces, with 875 personnel dedicated to DRRM.[304] Figure 15 depicts an organogram of a State Disaster Management Company.[305]

The central Disaster Management Division and state disaster management companies provide rescue service along with other emergency services, including rescue for fire, collapsed structure, road crash, rope rescue, water induced disasters, and confined space rescue. There are at least three platoons on standby round-the-clock to respond to multi-hazard emergency with a ready-to-move vehicle with basic multi-hazard rescue equipment, prehospital treatment, and communication tools. Table 5 summarizes the hazard-specific deployment capacity of the NP Disaster Management Division.[306]

The NP has played a key role in past disaster responses. In the 2015 earthquake response, approximately 40,000 police were dispatched for search and rescue; many of them were trained by USAID in emergency response.[307] Photo 3 is a photo of NP Disaster Management Squadron personnel during the 2015 earthquake response.[308]




**Photo 3: Nepal Police Disaster Management Squadron**

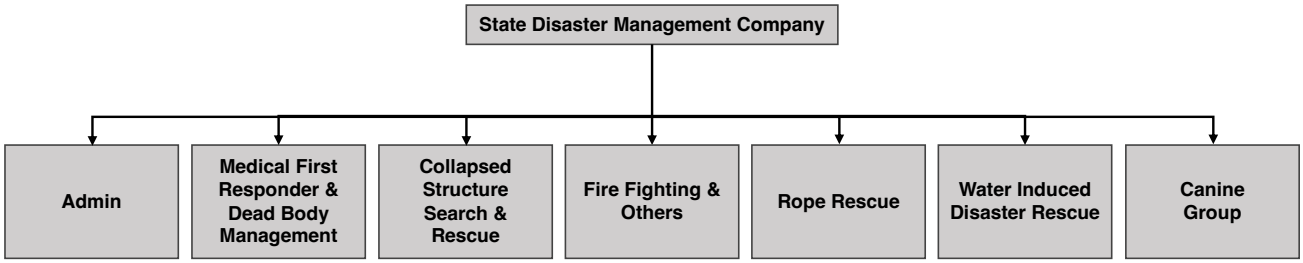



**Figure 15: Organogram of the Nepal Police State Disaster Management Company**

| Hazard | Number of Rescuers per Team | Number of Teams | Equipment Sets |
|---|---|---|---|
| Structural collapse/confined space entrapment | 30 | 10 | 12 |
| Fire | 15 | 4 | 17 |
| Road crash | 30 | 1 | 1 |
| Medical emergency | 10 | 10 | 4 |
| Deep well/sinkhole entrapment | 15 | 2 | 5 |
| Rope rescue | 30 | 5 | 5 |
| Water-induced hazards | 40 | 1 | 1 |

**Table 5: Hazard-Specific Deployment Capacity of Disaster Management Section**

**Nepal Army**

The NA is a predominantly infantry-based organization with an estimated force strength of 95,000.[309] The evolution of the NA as an institution has been a significant part of Nepal's political transition from a centralized constitutional monarchy to a federal republic. The NA has played a role in the country's democratization, for example, helping to secure the 2008 and 2013 Constituent Assembly elections under the supervision of civilian authority.[310] In 2021, the NA restructured under four geographical commands; three commands are situated on the major river systems – Gandaki, Koshi and Karnali – and one additional command is situated in Kathmandu Valley.[311] The 2021 restructuring also included the introduction of corps for logistics, medical services, signals, engineering, and intelligence, among other services.[312]

The NA is responsible for coordinating its search and rescue teams and any foreign military assets with the medical teams coordinated by MoHP. Should the scale of the disaster involve the deployment of foreign military forces, the MNMCC will facilitate coordination between the NA and APF and the assisting foreign military forces to increase the speed of response and to ensure interoperability, mission effectiveness, and unity of effort.[313]

The 2015 earthquake response demonstrated the critical role the NA plays in national disaster relief efforts. Since the Army can respond immediately to a disaster without formal activation, soldiers rapidly responded to the crisis as evacuators and performed immediate lifesaving measures.[314] The NA mobilized 90% of its personnel in affected areas and rescued 1,336 people alive from collapsed buildings. Forty-one percent of all lives saved were in the first 72 hours after the earthquake, before most foreign rescue teams had arrived. The NA provided medical care for 85,954 survivors and distributed 5,707 tons of relief materials.[315]

**Armed Police Force**

The APF is a paramilitary organization tasked with counter-insurgency operations and is dispersed throughout Nepal. The APF has a broad mandate, ranging from responding to armed conflict or armed rebellion to delivering hostage rescue, border security, protecting vital infrastructure, and securing railways, customs, revenue, and industry.[316]

The APF has a mandate to carry out disaster management and relief work pursuant to the DRRM Act 2017 and the Armed Police Force Act of 2011. In 2011, the APF established its Disaster Management Training School (DMTS) in Kurintar, Chitwan District, Bagmati Province. The DMTS provides a basic course in disaster management to APF members; the course includes:

- Medical first responders
- Collapsed structure search and rescue
- DBM
- Water rescue, including outboard motor rescue
- Rappelling and climbing
- Firefighting, and
- Practical emergency logistics training.

In April 2023, U.S. Special Operations forces conducted a Medical First Responder course at the APF DMTS. The course covered, among other topics, CPR, basic lifesaving, burns, and mass casualty triage. It also focused on the use of Massive Hemorrhage, Airway, Respiration, Circulation, and Hypothermia Prevention (M.A.R.C.H), a mnemonic device for remembering priorities while treating casualties.[317] Photo 4 shows participants in this 2023 training.[318]



**Photo 4: U.S. Special Forces Civil Affairs Team Provides Medical First Responder Training to APF**

## Disaster Management Partners

Several multilateral and bilateral partners support DRRM efforts in Nepal, and many more partners have responded to support past disaster response efforts. The following are some international partners who support DRRM efforts and participate in the humanitarian coordination cluster system.

### UN Agencies

There are 21 UN agencies conducting programming in Nepal. The overall framework guiding the work of the UN Country Team is the UN Sustainable Development Cooperation Framework (UNSDCF) 2023-2027, prepared in close collaboration with the GoN. The UNSCDF's four priority areas and their projected outcomes are:

- Area 1: Sustainable, Resilient, and Inclusive Economic Transformation – Outcome: By 2027, more people, especially women, youth, the most marginalized, and poor, increasingly benefit from and contribute to inclusive, resilient, and sustainable socio-economic transformation at federal, provincial, and local levels
- Area 2: Inclusive and Transformative Human Development – Outcome: By 2027, more people, especially women, youth, children, the most marginalized, and poor, increasingly participate in and benefit from equitably improved quality social services at federal, provincial, and local levels
- Area 3: Environmental Sustainability, Climate and Disaster Resilience – Outcome: By 2027, more people, especially women, youth, children, the most marginalized, and poor, increasingly benefit from and contribute to building an inclusive, sustainable, climate-resilient, and green society and to a reduction in the impacts of disasters at federal, provincial, and local levels
- Area 4: Governance, Federalism, Participation, and Inclusion – Outcome: By 2027, more people, especially women, youth, the most marginalized, and poor, increasingly participate in and benefit from coordinated, inclusive, accessible, participatory, transparent, and gender-responsive governance, access to justice, and human rights at federal, provincial, and local levels.[319]

The UN agencies supporting DRR are IOM, World Food Programme (WFP), UNDP, UNICEF, the United Nations Population Fund (UNFPA), UN Women, and WHO, each of which contributes to the cluster system.[320]

### UN Humanitarian Country Team

The Humanitarian Country Team (HCT) works together with the federal, provincial, and local governments to strengthen Nepal's disaster preparedness and management to ensure a swift and coordinated response in cases of emergency. The humanitarian coordination architecture is comprised of 11 clusters plus formal inter-cluster working groups on information management, community engagement (accountability to affected populations), cash, and gender in humanitarian action. Table 6 lists the agencies of the lead and co-leads for the cluster system in Nepal.[321] Under the UN Resident Coordinator, the HCT has established the Provincial Coordination Focal Point Agencies to enable sub-national coordination. Figure 16 shows the UN agencies that act as focal points for sub-national coordination in each province.[322]

In addition to work within the HCT, UN agencies have specific disaster management-related responsibilities and capabilities.

### IOM

IOM supports the GoN in its efforts for DRR and preparedness such as identification, protection, and management of spaces to be used for internally displaced persons (IDP) in the event of a major disaster; capacity building of GoN agencies and national security forces to ensure effective initial emergency response; and developing national plans, procedures, and modalities to be used during emergency and recovery phase of large-scale disasters. IOM assumes the role of Camp Coordination and

| Cluster | Lead | Co-Leads |
|---|---|---|
| Food Security | Ministry of Agriculture and Livestock Development | Food and Agriculture Organization |
| | | WFP |
| Health Cluster | MoHP | WHO |
| Nutrition | MoHP | UNICEF |
| WASH | Ministry of Water Supply | UNICEF |
| Education | Center for Education and Human Resource Development/ Ministry of Education, Science and Technology | UNICEF<br>Save the Children |
| Protection | Ministry of Women, Children, and Senior Citizens | UNICEF<br>UNFPA |
| Shelter/CCCM | Ministry of Urban Development/ Department of Urban Development and Building Construction | NRCS/IFRC<br>IOM |
| Logistics | MoHA | WFP |
| Early Recovery | MoFAGA | UNDP |
| Emergency Telecommunication Cluster (ETC) | Ministry of Information and Communications | WFP |

**Table 6: Leads and Co-Leads for the Cluster System in Nepal**

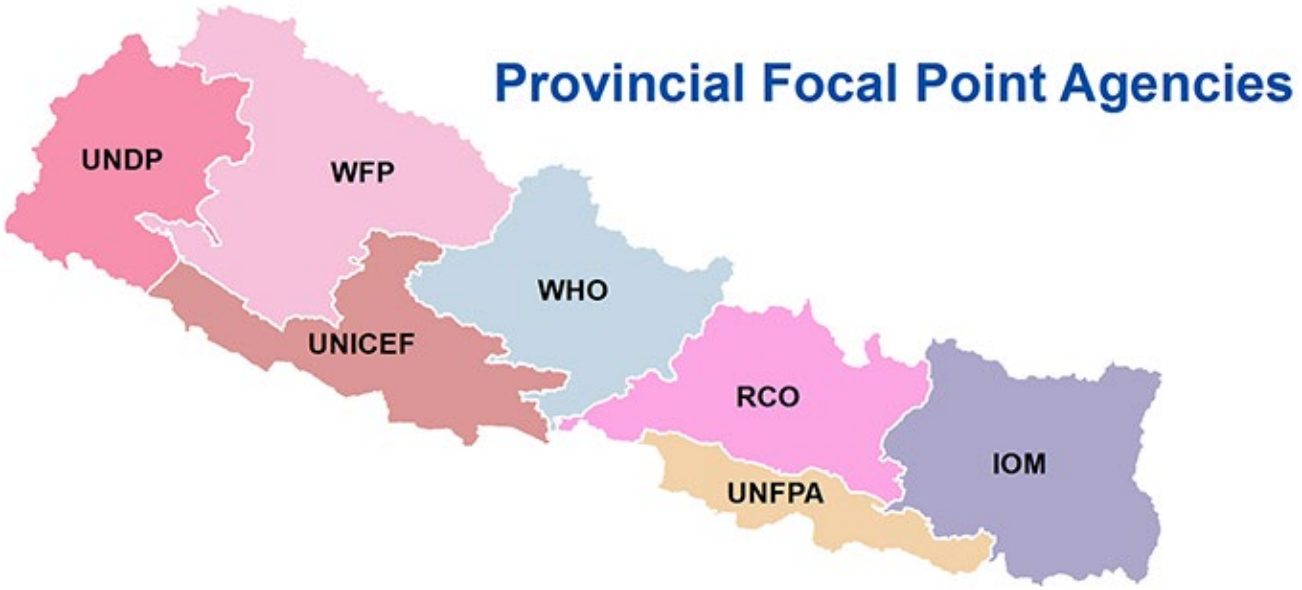



**Figure 16: UN HCT Provincial Focal Point Agencies**

Camp Management (CCCM) global cluster lead. In Nepal, IOM actively co-leads the CCCM Cluster alongside the Department of Urban Development and Building Construction, the government lead agency. The cluster was activated for the second time in Nepal in 2015 soon after the "Gorkha" earthquake.[323]

### WFP

WFP supports the GoN's emergency response efforts during disasters to ensure that those affected have immediate access to adequate food and nutrition. WFP also provides recovery support through food and cash assistance to vulnerable communities as they build assets and restore livelihoods in the aftermath of disasters.[324] The WFP is supporting the GoN to establish HSAs throughout the country with support from international partners. In 2021, the eighth HSA facility was constructed by the WFP in Birgunj, Madhesh Province, with a storage capacity of 2,032 $m^2$ (21,872 square feet).[325]

**UNICEF**

UNICEF supports GoN's strategies through programming that strengthens government systems, advocacy, dialogue, and training. UNICEF has been working in the country since the early 1960s and has adapted its strategies and programs to reflect Nepal's changing context. Most recently, it has been advocating for federal, provincial, and local investments in children and youth along the lines of health, nutrition, protection, education, and WASH. As it has been a support in Nepal's evolving DRR laws, structures, and protocols, it advocates for changing social norms and behaviors to lessen harms to Nepal's children.[326]

**UNFPA**

UNFPA's work in Nepal is focused on the three "zeroes" by 2030 – i.e., no unmet need for family planning, no preventable maternal deaths, and no gender-based violence or harmful practices. Through its programming, it supports the expansion of access to family planning and reproductive health education and care. It helps government ensure that health posts are adequately stocked with family planning methods and that, when an emergency strikes, women and girls receive appropriate material support. Finally, it supports programs that deliver medical care and secure accommodation for survivors of gender-based violence. UNFPA maintains five preposition locations where it stocks various kits – reproductive health, dignity, etc. – for immediate distribution after a disaster event. These kits include essential drugs, equipment, and supplies – e.g., underwear, sanitary napkins, menstrual pads, and flashlights.[327]

**UN Women**

The UN Entity for Gender Equality and the Empowerment of Women (UN Women) in Nepal focuses on ensuring that gender and social inclusion are considered during DRR, prevention, and humanitarian response. In addition to advocating for this focus, UN Women participates in relief program development and services. During the COVID-19 pandemic, UN Women was a key partner of government agencies in ensuring information and financial services reached the most marginalized groups in society. The key tools were cash transfers to female-headed households, in-kind support, and information management training. The agency supported provision of psychosocial and livelihoods support across the country as part of the emergency and long-term resiliency plan.[328] In addition to its role within the HCT, UN Women chairs the multi-stakeholder network of civil society organizations, UN agencies, and government bodies that participate in the Gender in Humanitarian Action Task Team that considers gender equality and social inclusion in humanitarian responses.[329]

**WHO**

In general, WHO provides technical assistance to GoN agencies tasked with addressing health issues and achieving targets and goals. It reaches down to sub-national health agencies to further the goals of universal health coverage, communicable disease prevention and control, health security and disaster preparedness, and partner engagement for improved health outcomes. As part of its health security and disaster preparedness work, WHO helps Nepal's health structures build capacity within hospital networks and with non-hospital partners to coordinate health responses.[330]

**Association of International NGOs in Nepal**

The Association of International NGOs in Nepal (AIN) brings together more than 100 international NGOs working in Nepal. As a network, it operates across 13 working groups and seven provincial chapters that allow collaboration on particular problems and solutions germane to the contexts in which each NGO works.[331] Some two dozen people from approximately 20 organizations participate in AIN's Disaster Management Working Group.[332] The main AIN objectives are to engage and coordinate with all development and humanitarian actors, support members

and partners on self-regulation, accountability, transparency, and diversity, support and provide guidance to members, and to collaborate in areas of common interest, including humanitarian response.[333]

**European Union**

In 2023, the European Union (EU) allocated €2 million (US$2.2 million) to respond to natural hazards and strengthen disaster preparedness in Nepal. This funding brings total EU humanitarian funding support to Nepal to over €118 million since 2001 (US$131 million), of which more than €36 million (US$40 million) supported disaster preparedness and risk reduction activities.[334]

To support Nepal's efforts in fighting the impact of the COVID-19 pandemic, the EU dedicated a large portion of available humanitarian funding towards COVID-19 responses. This aid included providing essential equipment and supplies such as oxygen, home care kits, diagnostics kits, and protective equipment.

EU funding also focuses on supporting initiatives that strengthen the disaster preparedness of local institutions and, more recently, assisting them in program implementation. Key priorities include strengthening the emergency response capacity of rural and urban municipal authorities to manage natural hazards such as floods, landslides, fires, and earthquakes.

## The International Red Cross and Red Crescent Movement

***International Committee of the Red Cross***

The International Committee of the Red Cross (ICRC) is a private, independent humanitarian organization, headquartered in Geneva, Switzerland. The ICRC bases its activities on the provisions of International Humanitarian Law (IHL), and it is neutral in politics, religion, and ideology. The ICRC assists with the protection of civilian victims of armed conflict and internal strife and their direct results. Within these roles, it may take any humanitarian initiative as a neutral and independent intermediary.[335] The ICRC's regional delegation in India covers activity in Nepal. Within Nepal, ICRC works with NRCS to address the needs of Bhutanese refugees in the country, and it supports programming for persons living with disabilities, especially those impacted by conflict or natural disasters. Finally, ICRC advocates Nepal's accession to and application of IHL.[336]

***International Federation of Red Cross and Red Crescent Societies***

The IFRC is a humanitarian organization that provides assistance and promotes humanitarian activities carried out by the National Red Cross and Red Crescent Societies, with a view to preventing and alleviating human suffering. IFRC was founded in 1919 and includes 191 National Societies. The IFRC carries out relief operations to assist victims of disasters and combines this with development work to strengthen the capacities of its member National Societies.[337] The IFRC Country Delegation in Nepal conducts programming for NRCS to development National Society's capacity for DRR and CCA as well as more general health, WASH, migration, and inclusion projects. IFRC has supported NRCS to request emergency funding and implement disaster relief, and IFRC has helped coordinate assistance from other National Societies to NRCS.[338] The IFRC Country Delegation supports NRCS to strengthen coordination, partnership, networking, and policy advocacy through its active engagement in the HCT and humanitarian cluster mechanism. The IFRC is a member of the HCT and the co-lead for the Shelter Cluster and works in collaboration with the government, UN agencies, humanitarian clusters, and other development partners for preparedness and response.[339]

The IFRC is the Secretariat for the Community Based Disaster Risk Management (CBDRM) Platform led by MoFAGA. The CBDRM Platform is a unique arrangement that unites humanitarian and development partners and provides a common dialogue

platform on DRRM policies and practices. The IFRC, together with NRCS, provides support to MoFAGA to host CBDRM Platform partners consultative meetings and facilitates policy dialogue with DRR practitioners, policy makers, academicians, and researchers.[340] The IFRC is also a member of "Sajag Nepal: Preparedness and planning for the mountain hazard and risk chain in Nepal" project, which focuses on the use of local knowledge and new interdisciplinary science to inform better decision making and reduce the impacts of multiple hazards in mountain countries. The IFRC's role in Sajag Nepal is to bring together science, policy, and practice for resilient communities in Nepal, in particular in the face of landslide, earthquake, and floods risks.[341]

***Nepal Red Cross Society***

The NRCS was established in 1963. It was recognized by the ICRC in 1964 and affiliated to the IFRC in the same year. NRCS is the largest humanitarian organization in Nepal, with a network of District Chapters (DC) in each of the 77 districts of the country. DCs receive organizational support from 1,554 Sub-Chapters and more than 153 Co-operation Committees under them. A significant portion of NRCS' activities are also conducted by students and youth volunteers of Nepal Junior and Youth Red Cross Circles organized at schools, campuses, and communities. At present, NRCS oversees 6,538 Junior and Youth Red Cross Circles.[342] Since its establishment, the NRCS has played a crucial role in humanitarian and emergency response as an auxiliary to GoN for disaster risk management and humanitarian services. The NRCS is represented on the Executive Committee for Disaster Risk Management, which is responsible for developing guidelines, plans, and executive decisions, and for providing support for implementation and operationalization of DRRM. In addition to the Shelter Cluster, the NRCS participates in and contributes to other humanitarian clusters and coordination mechanisms at federal, provincial, and local levels.[343]

The NRCS Disaster Management department is focused on the following objectives:

- Scaling up resilience building and DRR interventions in urban and rural communities
- Strengthening organizational capacity to ensure effective DRR programming
- Contextualizing plans, policies, guidelines, systems, and procedures
- Strengthening organizational preparedness and response tools and mechanisms, and
- Ensuring preparedness and effective delivery of emergency response services.[344]

## U.S. Government Agencies in Nepal

Beyond the U.S. Department of State and its foreign officers, the key U.S. Government agencies present at the U.S. Embassy in Nepal include the U.S. Department of Defense, USAID, and the Department of Justice.

USAID's work in Nepal is focused on supporting democratic and federal systems, health, education, natural resources, and disaster management. To counter climate change and natural disaster impacts, USAID promotes socially and environmentally responsible hydropower development, sustainable forest and water management, and wildlife conservation. USAID also works with the GoN to improve disaster preparedness, response, and mitigation capabilities, in part by building a more sustainable natural resource base that drives inclusive economic growth.[345]

USAID funds several efforts to support DRRM. USAID supports the Food and Agriculture Organization (FAO) of the UN to carry out landslide prevention work under the 'Strengthening Livelihoods of the Vulnerable People Through Community-Based Landslide Risk Reduction Interventions in the Earthquake Affected District: 2022-2024' program. The program works directly with poor and vulnerable farming communities to decrease landslide risk and provide alerts when landslides are imminent. This bolsters their ability to prepare for, withstand, and recover from natural hazards.[346]

USAID's Community-Centric Early Warning System for Reducing Risk of

Hydrometeorological Disaster 2022-2025 program is implementing early warning systems and providing local governments assistance to implement DRR measures.[347] Simultaneously, USAID's Tayar Nepal program (2019-2024) focuses on federal and local policies, procedures, and institutions, and it emphasizes partnerships with eight municipalities to design infrastructure that will mitigate hazards along with programs that will provide early recovery support after a disaster event. Tayar Nepal's key strength is that it supports the training and equipment of local first responders and the development of links among local, provincial, and federal EOCs.[348]

USAID's BHAKARI is a multi-year emergency response program; it is implemented by Mercy Corps and focuses on short-term emergency shocks and long-term food security by using a multi-sectoral approach with a strong emphasis on gender and social inclusion. BHAKARI works closely with other USAID partners to support key GoN priorities.[349]

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Twitter: @USEmbassyNepal

## Laws, Policies, and Plans on Disaster Management

Since the 1980s, the GoN has enacted several laws, policies, and plans to support DRRM. They include the Natural Calamity (relief) Act 1982; Local Self Governance Act 1998; Building Act 1998; National Building Code 2004; National Strategy for Disaster Risk Management 2009; Climate Change Policy 2011; Land Use Policy 2012; National Disaster Response Framework 2013; National Reconstruction and Rehabilitation Policy 2015; Basic Guideline related to Settlement Development, Urban Planning, and Building Construction 2016; National Urban Development Strategy 2016; and the Water Induced Disaster Management National Policy for Disaster Risk Reduction 2018.

More recently, the Constitution of Nepal 2015, the Local Government Operation Act 2017, and Disaster Risk Reduction and Management Act 2017 provide the overarching legal framework for DRRM.

**DRRM Act 2017 and Regulations 2019**

The DRRM Act 2017 is a comprehensive, multi-hazard, disaster management law.[350] The Act sets out the formal structures, roles, and responsibilities at the federal, provincial, district, and local levels for DRR, disaster management, and disaster relief and emergency response. At the federal level, the DRRM Act establishes the DRRM National Council, the DRR Executive Committee, and the NDRRMA. A 2019 amendment to the law added a provision for PDMCs (Chapter 6, Clause 13Ka) and further specifies the structure and functions of PDMECs. The Act also outlines the structure and DRRM functions for each local government.[351] The Local Government Operationalization (LGO) Act 2017, discussed below, augmented the DRRM Act toward establishing disaster management structures and functions for each local government and their ward units.[352]

The DRRM Regulations 2019 elaborates on the functions of the Executive Committee, Expert Committee, DDMCs, Public Enterprises, and the District Disaster Management Fund.

**Local Government Operationalization Act 2017**

The LGO Act 2017 sets out the framework for local government in Nepal. The LGO Act assigns specific responsibilities of managing disaster risk reduction and response at local levels to local governments.[353] It is one of the key instruments to support the localization of DRRM in Nepal.

**Local Environment and Natural Resource Protection Act**

This Act covers carbon emissions, adaptation, funding, climate change, climate change management, hazardous substances, mitigation, biological diversity, pollution, initial environmental examination, supplementary impact assessment, wastes, national heritage, environment, environmental study report, and environmental impact assessment.[354]

**National Policy for Disaster Risk Reduction 2018**

The National Policy for Disaster Risk Reduction 2018 has several objectives, including to increase understanding of disaster risk and ensure access to disaster risk information; to strengthen disaster risk governance for DRRM; to mainstream DRR in all development processes by integrating it with CCA activities; to enhance disaster resilience by increasing public and private investment in DRR; to make disaster preparedness and response effective by improving disaster information management systems and developing and expanding multi-hazard early warning systems; and to ensure a "Build Back Better" approach for post-disaster recovery, rehabilitation, and reconstruction.[355]

**National Disaster Risk Reduction Strategic Plan of Action (2018-2030)**

The National Disaster Risk Reduction and Management Strategic Plan of Action (2018-2030) explains the planning framework for all stages of disaster risk management in Nepal. It was endorsed by the National Disaster Risk Reduction and Management Council meeting held on 18 June 2018 and was drafted in line with the DRRM Act 2017.[356] The Plan has several strategic activities aimed at building DRRM capacity at the local government level, activities that have contributed to progress in DRRM at the municipality and provincial levels.[357]

**Local laws, policies, and plans**

The federal government has provided local governments with sample legal documents – including a Local DRM Act, Local Environment and Natural Resources Protection Act, sample Standard Operating Guidelines for EOCs, Guidelines for Local Disaster Management Fund Operation, and guidelines for preparing Local Disaster and Climate Resilience Plans (LDCRP) – to support local governments to prepare and endorse their own context-specific DRRM laws. For example, Banke District in Lumbini Province is developing a LDCRP with support from NGO partners.[358]

# Disaster Management Communications

The scientific, institutional, and practical aspects of DRR require coordination and communication tools and mechanisms. These elements can range from government agencies that detect natural events – e.g., earthquakes, volcanic eruptions, and storm formation – to the telephones that members of the public carry and to which warnings can be sent. In addition, the websites and databases used by local, national, and international partners provide resources for historical comparison, information management, and digital workspaces for responders, donors, and even affected populations.

## Early Warning Systems

**Bipad Portal – Multi-Hazard Monitoring**

The Bipad Portal is a comprehensive and integrated Disaster Information Management System for all three tiers of Nepal's government. The portal provides early warning information about hazards and disaster events, affected populations, and casualties. It enables risk mapping to support emergency response and

operations. The portal integrates data from provincial and municipal governments in a reflection of a bottom-up approach to disaster data partnerships. The data integrated into the platform enhances all phases of the disaster management cycle and facilitates disaster communication and post-disaster coordination. The Bipad Portal is run by the GoN as an independent domain. Figure 17 is a screenshot of the web-based Bipad Portal on 20 July 2023; it shows a flood warning at Parashuram-5 in Dadeldhura District, Sudurpashchim Province, issued on 18 July.[359]

### Earthquake Monitoring

The National Earthquake Monitoring and Research Center (NEMRC) under the Department of Mines and Geology (DMG) is responsible for monitoring earthquakes in Nepal. Seismic monitoring first began in the country in 1978 with one short-period seismometer installed in Phulchoki, Lalitpur District, Bagmati Province. NEMRC now has 42 seismic stations for earthquake monitoring, 50 global positioning system (GPS) stations for crustal deformation monitoring, and 36 accelerometers for strong motion database collection.

NEMRC/DMG collaborates with various institutions like France's Department for Analyses, Surveillance, and Environment, the California institute of Technology in the United States, the Earth Observatory Singapore, the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES) in Thailand, the Japan International Cooperation Agency (JICA), and the China Earthquake Administration (CEA) to conduct research and on technical developments. The University of Tokyo, in collaboration with JICA, established a network of eight seismic and accelerometric stations, a network of 10 GPS stations, mainly outside the Kathmandu Valley, and 10 accelerometers in and around the Kathmandu Valley. CEA has helped to establish a network of 10 seismic stations, 10 accelerometric stations, and 10 GPS stations covering mainly the northern territory of Nepal. RIMES has established a network of two seismic, two accelerometric, and two GPS stations in southern Nepal.[360]

### Meteorological and Hydrological Monitoring

The Department of Hydrology and Meteorology (DHM) under the Ministry of Energy, Water Resources, and Irrigation is responsible for meteorology and hydrological monitoring. The DHM has developed a three-day flood forecasting system and provides

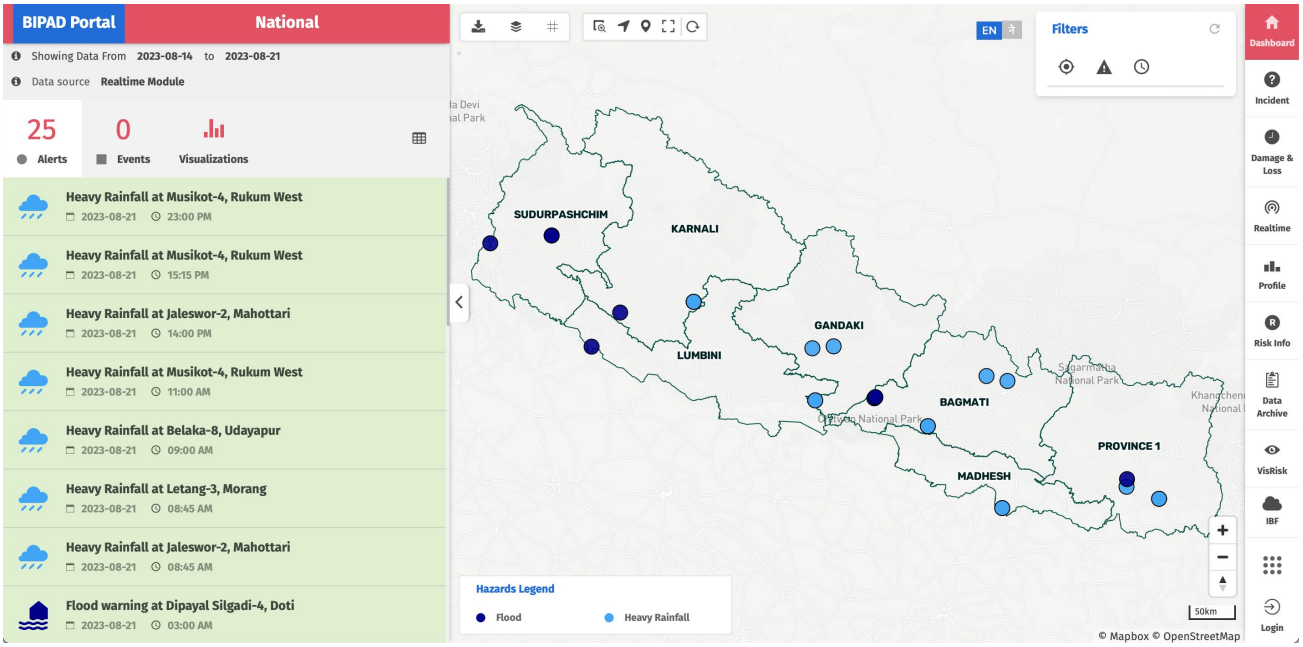



**Figure 17: Nepal BiPAD Portal on 20 July 2023**

weather forecasts and flood early warnings. DHM also provides specialized forecasts for tourism, mountaineering, aviation, fog, and general country forecasts. Figure 18 is a screenshot of the home page of the DHM website featuring weather warnings pertaining to rainfall, wind, snowfall, lightning, landslide, cold weather, avalanche, forest fire, and tornados.[361]

## Information Sharing

Understanding how to overcome the information challenges that civilian and military agencies experience during a typical disaster response mission is important. Sharing information is critical since no single responding entity, NGO, international governmental organization, assisting country government, or the host government can be the source of all the required information.[362] Collaboration, information sharing, and networking have been the backbone of successful disaster preparation and response. Disseminating information not only to those in-country and threatened by disaster, but also to those responding to assist in an emergency has been crucial to timely, efficient, and effective disaster response. There are many resources, stakeholders, and components to consider before, during, and after a natural disaster. This section will discuss country-specific, humanitarian, regional, government, and U.S. DoD information sources.

### Nepal Information Sources

#### National Disaster Risk Reduction and Management Authority (NDRRMA)

NDRRMA's main website hosts real-time warnings, up-to-date publications, and advice for preparedness. It also operates the BIPAD Portal, a disaster information management system to offer national, provincial, and municipal governments a site for disaster data sharing, communication, and coordination before, during, and after an emergency.
Tel: 01-4211194 / 4211197 / 4211195
Email: *info@bipad.gov.np*, *ndrrma@gmail.com*
BIPAD Portal: *https://bipadportal.gov.np/*
DRR Portal: *http://drrportal.gov.np/home*
Facebook: NDRRMA
Twitter: @NDRRMA_Nepal

#### *National Earthquake Monitoring and Research Center*

The Ministry of Industry's DMG oversees the NEMRC, which, on its website, updates earthquake information in real time. It maintains data, mapping, and preparedness sections.
Tel: 01-4510141
Email: *info@seismonepal.gov.np*
Website: *https://seismonepal.gov.np/home*
Facebook: NEMRCNepal
Twitter: @NepalNsc

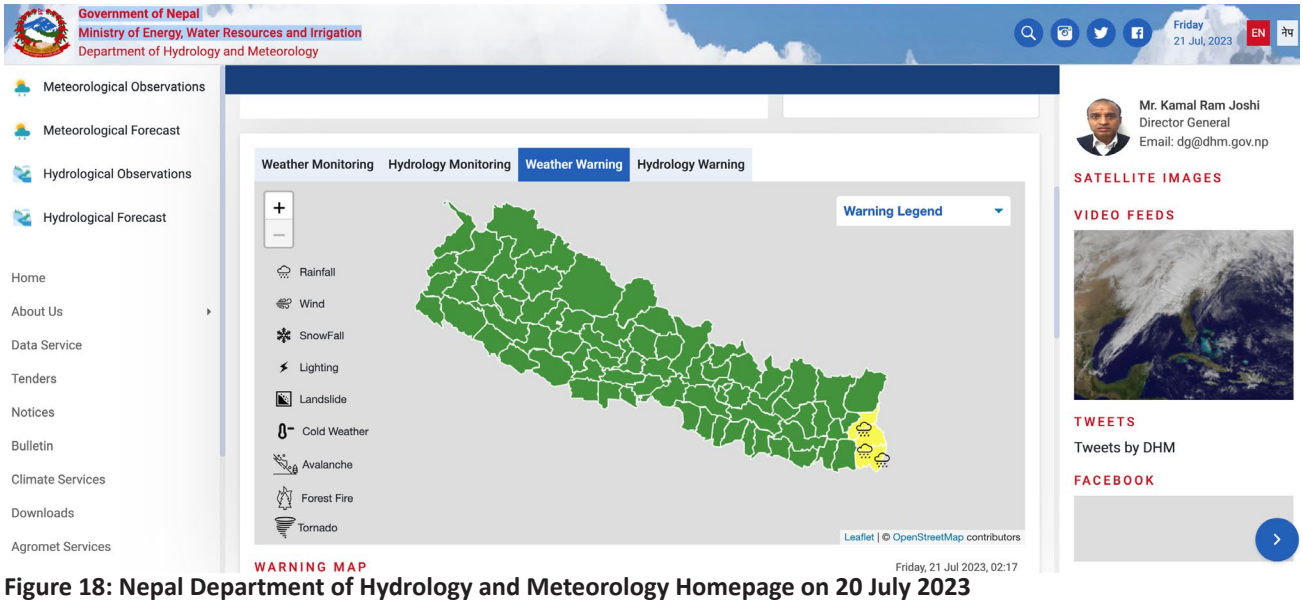



**Figure 18: Nepal Department of Hydrology and Meteorology Homepage on 20 July 2023**

***Health Emergency Operation Center (HEOC)***

The HEOC was established in 2014 and operates as the secretariat of the MoHP during any public health emergencies or disasters. In subsequent emergencies, it has operated as the main coordinating center for the health sector's response. As part of its mandate for preparedness and readiness activities, the HEOC facilitates the establishment and strengthening of hub and satellite hospitals, the formation and orientation of Emergency Medical Deployment Teams, the stockpiling of emergency medical logistics, and the conduct of Emergency Care System Assessments. It maintains lists of updates and resources on its main page.
Tel: 01-4250845
Email: *heocmohp@gmail.com*
Website: *https://heoc.mohp.gov.np/*
Facebook: HEOCMoHP

***Nepal Red Cross Society***

NRCS serves victims of conflict and participates in emergency relief for disaster victims along with other program streams. It maintains news, updates, and publications on its homepage and operational or program updates on social media.
Tel: 977-1-5370650, 977-1-537 2761, 977-1-537 2761
Email: *nrcs@nrcs.org*, *info@nrcs.org*
Website: *https://nrcs.org/*
Facebook: nepalredcross
Twitter: @NepalRedCross

**Disaster Preparedness Network-Nepal (DPNet-Nepal)**

DPNet-Nepal is an umbrella organization of national and international agencies. Established in 1996, its objective is coordination, collaboration, learning and sharing of experiences, and to avoid duplication in emergency response in Nepal.
Website: *https://www.dpnet.org.np/*
Resource Center: *https://www.dpnet.org.np/resource*
Discussion Platform: *https://virtualdrr.dpnet.org.np/*

**Humanitarian Information Sources**

***UN Office for the Coordination of Humanitarian Affairs (OCHA) Regional Office for Asia and the Pacific (ROAP)***

UN OCHA's ROAP seeks to optimize the speed, scale, and quality of humanitarian assistance during crises, and it coordinates emergency preparedness and response throughout the region in support of national governments. ROAP covers 41 countries, including Nepal, with whom it partners for coordinated and effective international responses to emergency situations.
Website: *https://www.unocha.org/roap*
Facebook: UNOCHA
Twitter: @unocha
Instagram: un_ocha
YouTube: ochafilms

***ReliefWeb***

ReliefWeb is a service of UN OCHA that consolidates information and analysis from organizations, countries, and disasters for the humanitarian community.

A subsection of ReliefWeb is ReliefWeb Response (RW Response). It aggregates operational content from other humanitarian action platforms to provide an authoritative source of information. The goal is to ensure that humanitarians can share, find, and re-use critical information quickly and efficiently. Any on-going major responses in Nepal will appear in RW Response's "Asia and the Pacific" page.
Website: *https://reliefweb.int/*
RW Response: *https://response.reliefweb.int/ and https://response.reliefweb.int/asia-and-pacific*

***PreventionWeb***

PreventionWeb is provided by UNDRR to consolidate disaster risk reduction information into an online, easy to understand platform.
Website: *https://www.preventionweb.net/*

***International Federation of Red Cross and Red Crescent Societies (IFRC)***

IFRC is the world's largest humanitarian

organization, comprised of 191 National Societies, including NRCS, a secretariat in Geneva, Switzerland, and over 60 delegations around the world. The IFRC carries out relief operations to assist victims of disasters and combines this with development work to strengthen the capacities of the National Societies. IFRC's work focuses on four core areas: promoting humanitarian values, disaster response, disaster preparedness, and health and community care.[363] In its 2023 network country plan for Nepal, the IFRC Country Delegation in Nepal, commits to helping NRCS continue to build its climate change adaptation capacities, to strengthen and modernize its institutional structure, and to respond to emergencies when they occur.[364]
Website: *https://media.ifrc.org/ifrc and https://go.ifrc.org/*

***International Committee of the Red Cross (ICRC)***

ICRC is an impartial, neutral, and independent organization whose exclusively humanitarian mission is to protect the lives and dignity of victims of armed conflict and other situations of violence and to provide them with assistance. It also works to prevent suffering by promoting and strengthening humanitarian law and universal humanitarian principles.[365] Nepal is covered by the ICRC regional delegation in India. In Nepal, the ICRC continues to address the consequences of the internal conflict that ended in 2006; it helps people affected by unrest, and it promotes international humanitarian law.[366]
Website: *https://www.icrc.org/en*
Facebook: @ICRC
Twitter: @ICRC

***Global Disaster Alert and Coordination System (GDACS)***

GDACS is a cooperation framework among the UN, the European Commission, and disaster managers worldwide to improve alerts, information exchange, and coordination in the first phase after major sudden-onset disasters.
Website: *https://www.gdacs.org/default.aspx*
The latest alerts can be found here: *https://www.gdacs.org/alerts/*
To subscribe: *https://www.gdacs.org/About/contactus.aspx*

***Virtual OSOCC***

The Virtual OSOCC is a real-time online coordination tool for disaster response professionals from urban search and rescue teams, national authorities, and regional and international organizations.
Website: *https://vosocc.unocha.org/*

***ThinkHazard!***

ThinkHazard! is a website that provides detailed information on hazards that should be considered for project design and implementation to promote disaster and climate resilience in communities. Information is provided on Nepal regarding hazards, country assessments, projects, early warning systems, and other resources.
Website: *https://thinkhazard.org*

***Humanitarian Country Teams (HCT)***

The HCT, along with the Executive Committee on Humanitarian Affairs, assists the UN Emergency Relief Coordinator with strategic coordination and consultation mechanisms. It is an inter-agency forum for coordination, policy development, and decision-making and involves key humanitarian partners. The Nepal HCT was established in April 2006. Members are UN agencies and international NGOs, as well as the NRCS and International Red Cross / Red Crescent Movement. The Nepal HCT meets monthly or whenever the situation requires.
Nepal HCT: *https://www.un.org.np/hct-and-cluster-coordination-nepal*
Most HCT SitReps can be found through ReliefWeb: *https://reliefweb.int/*

***Humanitarian Data Exchange (HDX)***

HDX is an open platform for sharing data across crises and organizations. Launched in 2014 with the goal of centralizing humanitarian data for easy access and analysis, HDX is managed by

OCHA's Center for Humanitarian Data in The Hague.
Website: *https://data.humdata.org/*

**Regional Information Sources**

***Changi Regional HADR Coordination Centre (RHCC)***

Changi Regional Humanitarian Assistance and Disaster Relief (HADR) Coordination Centre was launched in September 2014 to support the military of a disaster affected state in coordinating assistance with assisting foreign militaries. It aims to provide open, inclusive, and flexible platforms that allow both regional and extra-regional militaries to work together effectively in a multinational disaster response. Changi RHCC manages the OPERA CIS web portal to broadcast the updated situation status of multinational military disaster responses to minimize duplication and gaps in the provision of foreign military assistance. Although Nepal is beyond Singapore's immediate neighborhood, in 2015, Changi RHCC provided assistance to Nepal authorities and military with their efforts to coordinate the relief efforts after the Gorkha earthquake. As a body of Singapore's armed forces, Changi RHCC supported the deployment of two Republic of Singapore Air Force C-130 aircraft with an advance team of six personnel, a search and rescue team from the Singapore Civil Defence Force and a contingent from the Singapore Police Force.[367] During April and May 2015, Changi RHCC's OPERA CIS provided various foreign military relief teams access to the common operational picture and supported daily MNMCC briefings.[368]
Website: *https://www.changirhcc.org/*
Weekly and Spot Reports: *https://www.changirhcc.org/elpisweb/app_pages/Main/ReportsNAssessments.cshtml*
OPERA CIS 2.0 login: *https://www.changirhcc.org/my.policy*

**U.S. Government Sources**

***U.S. Agency for International Development (USAID)***

USAID is committed to responding to crises around the world to help people and places most in need. They aim to:

- Promote Global Health
- Support Global Stability
- Provide Humanitarian Assistance
- Catalyze Innovation and Partnership
- Empower Women and Girls

USAID produces a monthly "USAID Newsletter," available digitally: *https://www.usaid.gov/news-information/newsletter*. More information and updates from USAID are available on Facebook (@USAID), Instagram (@uasid), Twitter (@usaid), and YouTube (USaidVideo).
Website: *https://www.usaid.gov/*

***USAID's Bureau for Humanitarian Assistance (BHA)***

USAID/BHA is responsible for leading and coordinating the U.S. Government response to disasters overseas. BHA works with the international population to help countries prepare for, respond to, and recover from humanitarian crises. BHA responds to an average of 75 disasters in 70 countries every year. BHA fulfils its mandate of saving lives, alleviating human suffering, and reducing the social and economic impact of disasters worldwide in partnership with USAID functional and regional bureaus and other U.S. government agencies. The U.S. DoD only responds to international disasters when requested, in support of USAID.

USAID/BHA products include situation reports and maps, which are available via email mailing lists as well as ReliefWeb. Information products (Updates/Fact Sheets, etc.) are also available on USAID.gov (*https://www.usaid.gov/humanitarian-assistance*)

***Pacific Disaster Center (PDC)***

PDC has trademarked an early warning and decision support system called DisasterAWARE®. DisasterAWARE® is primarily designed for disaster management practitioners and senior decision makers. It supports DRR and best practices in all phases of disaster management from early warning to multi-hazard monitoring. It has a collection of scientifically verified, geospatial, data and modeling tools to assess hazard risks and impacts. A restricted version of DisasterAWARE is the EMOPS (Emergency Operations) system, which is specifically designed for the disaster management community, including government agencies and humanitarian assistance organizations serving at local, state, federal, and regional levels.[369]

PDC also provides a public version, Disaster Alert, which offers open access to a world map documenting 18 hazard types.[370] Disaster Alert also includes a free, early-warning app to receive customizable, maps-based, visual alerts regarding active hazards. The app offers a global notification system covering natural and human-made hazards. It is available on both iPhone and Android.[371]

Website: *https://www.pdc.org/ and https://www.pdc.org/disasteraware/*

Emergency Operations (EMOPS) system (request account): *https://disasteraware.pdc.org*

***All Partners Access Network (APAN)***

APAN is the Unclassified Information Sharing Service for the U.S. DoD. APAN provides the DoD and mission partners community space and collaboration tools to leverage information to effectively plan, train, and respond to meet their business requirements and mission objectives. APAN's technology team has been supporting HADR operations for over 15 years.[372] APAN has played an integral role in the success of disaster responses, such as the 2015 California Wildfire Response and the 2013 Typhoon Haiyan Response in which they provided organizations and militaries a centralized location to share information, increase situational awareness, decrease response time, and avoid duplicated efforts for best practices in HADR services.[373]

Website: *https://www.apan.org/*

***Daniel K. Inouye Asia-Pacific Center for Security Studies (DKI-APCSS)***

DKI-APCSS is a U.S. DoD institute that addresses regional and global security issues by inviting military and civilian representatives of the U.S. and Asia-Pacific nations to its program of executive education and workshops.

Website: *https://dkiapcss.edu/*

***The Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM)***

The CFE-DM is a U.S. DoD organization established by the U.S. Congress in 1994 and is a direct reporting unit to USINDOPACOM. CFE-DM provides training and education to help U.S. and foreign military personnel navigate complex issues in disaster management and humanitarian assistance. They produce country focused disaster management reference handbooks, after action reports, best practices, and lessons learned for advancement in response coordination. CFE-DM also works to improve cross-coordination, reduce duplication of efforts, and promote U.S. involvement in civil-military consultations and dialogues with relevant humanitarian and disaster response parties such as UN OCHA and the Changi RHCC. CFE-DM provides resources and updates at its website, as well as via their Facebook (cfedmha) and Twitter (@cfedmha) accounts.

Website: *https://www.cfe-dmha.org/*

Disaster Management Reference Handbooks are available for download at: *https://www.cfe-dmha.org/Publications/Disaster-Management-Reference-Handbooks*

Civil-Military Coordination in Foreign Disaster Relief Missions: Best Practices for Information Sharing is available here: *https://www.cfe-dmha.org/Publications/Best-Practices-Pamphlets*

# INFRASTRUCTURE

The GoN has historically used five-year plans to lay out overarching goals for the country's development. The 15th Periodic Plan (2019/2020–2024/2025) outlines key strategies for Nepal to achieve middle-income country status.[374] The Plan includes targets for the expansion of the entire transport network and for improvements in transport safety. It foresees extension of the electric power grid and an overall increase of available electricity alongside promotion of energy efficiency.[375] The Plan also envisages 99% access to basic water supply, 40% access to safely managed drinking water, and maintaining "open defecation free" status, while progressively achieving "Total Sanitation."[376] In terms of education, the Plan includes the objective of building and staffing early childhood education centers and ensuring that schools damaged during disasters are rebuilt with disaster resiliency and disability accessibility in mind. Such an expansion in educational opportunity is expected to come alongside expansion in information and communications technology (ICT) infrastructure and investments to ensure young people entering the job market have skills appropriate to the economy. In addition to digitizing the entire national communications network, the 15th Plan targets the launch of a dedicated Nepali orbiting satellite to ensure that even remote communities can be reached with information and education.[377]

## Transport

The Ministry of Physical Infrastructure and Transport (MoPIT) is the main policy hub for transportation infrastructure and services. It is responsible for plans and programs to ensure that transport infrastructure is appropriate for economic and development priorities.[378] MoPIT is responsible for road, rail, and water transport[379] and the Ministry of Culture, Tourism, and Civil Aviation is responsible for air transport infrastructure, safety, and services via the Civil Aviation Authority of Nepal (CAAN).[380] MoPIT is also the hub for managing the involvement of international partners and the private sector in Nepal's transportation sector.[381]

Road transport has long dominated Nepal's passenger and cargo transport sector; it handles 90% of all traffic.[382] However, given the mountainous terrain and prevalence of remote settlements, a flourishing private airline industry has emerged and lowered the costs of air travel. Thus, the share of domestic passenger transport and international cargo traffic moving by air has increased in recent years. Nepal's gateway to sea-borne trade is India's port of Kolkata, more than 1,000 km (620 miles) from the nearest Nepal-India border crossing.

Both major transport means – road and air – suffer disruptions during the monsoon season (June-September). Moreover, airports can be at very high altitudes, and specialized advice is required to make deliveries of relief personnel or goods. Nepal's border with India has 22 border crossing points, mostly served by road but with two rail links. Meanwhile, the only road link between China and Nepal is the Araniko Highway, part of the Asian Highway (AH42). Although the bilateral Transit Transport Agreement grants Nepal access to four Chinese seaports – Tianjin, Shenzhen, Lianyungang, and Zhanjiang – and three dry ports – Lanzhou, Lhasa, and Xigatse – the closest Chinese port is 4,250 km (2,640 miles) overland from Kathmandu and does not, under normal circumstances, provide an alternative to importing cargo via Kolkata, India.

### Airports

The CAAN, under the Ministry of Culture, Tourism, and Civil Aviation, is in charge of air safety oversight and service provision. Based on CAAN's Procedure Manual,[383] operators engaging in rescue and relief flights including ambulance flights, search and rescue, or other humanitarian flights must submit an application

for rescue and relief flight permission in the format prescribed by the CAAN. Due to urgency and the humanitarian aspect, CAAN purports that permission shall be issued after the submission of the application as soon as possible. In case of an acute emergency during which it is impossible to submit a written application, a verbal request together with flight details for flight permission shall be accepted.[384]

Nepal has 34 airports. Upwards of 20 small, domestic airlines serve the country. Most airports are congested due to their small size and the country's major tourism industry; thus, many airports lack the ability to enforce safety standards.[385] The lynchpin of the air transport system is Tribhuvan International Airport, Nepal's only international airport. Domestic airports serve tourist and remote areas inaccessible by road. In 2020, after a 10-year US$80 million upgrade supported by Asian Development Bank, Nepal had shored up the safety of four airports – Tribhuvan, Tenzing-Hillary (Lukla), Rara, and Simikot.[386] Both Gautam Buddha Airport and Pokhara Airport have been undergoing development and policy changes to allow them to operate as international airports; as of the writing of this handbook, neither had begun operating as such.[387] Given the topography of the country, many airports are limited to short runways that, in turn, limit the size of aircraft that can serve them.[388] Figure 19 shows the country's airports,[389] and Table 7 provides details of some of the major hubs.[390]

Keeping in mind the slowdown in tourism in Nepal during the COVID-19 pandemic, 2021 flight movement data shows that Tribhuvan managed over 92,000 aircraft movements, hosted nearly 5 million passengers, and handled nearly 30 million kilograms (33,000 tons) of cargo. After Tribhuvan, the next four major airports – Nepalgunj, Pokhara, Gautam Buddha, and Biratnagar – together managed 47,000 aircraft movements, hosted approximately 2.2 million passengers, and handled approximately 3 million kilograms (3,300 tons) of cargo in 2021. Outside of Tribhuvan's domestic terminal, only Tenzing-Hillary (Lukla) airport sees more than 20,000 aircraft movements annually. Moreover, outside

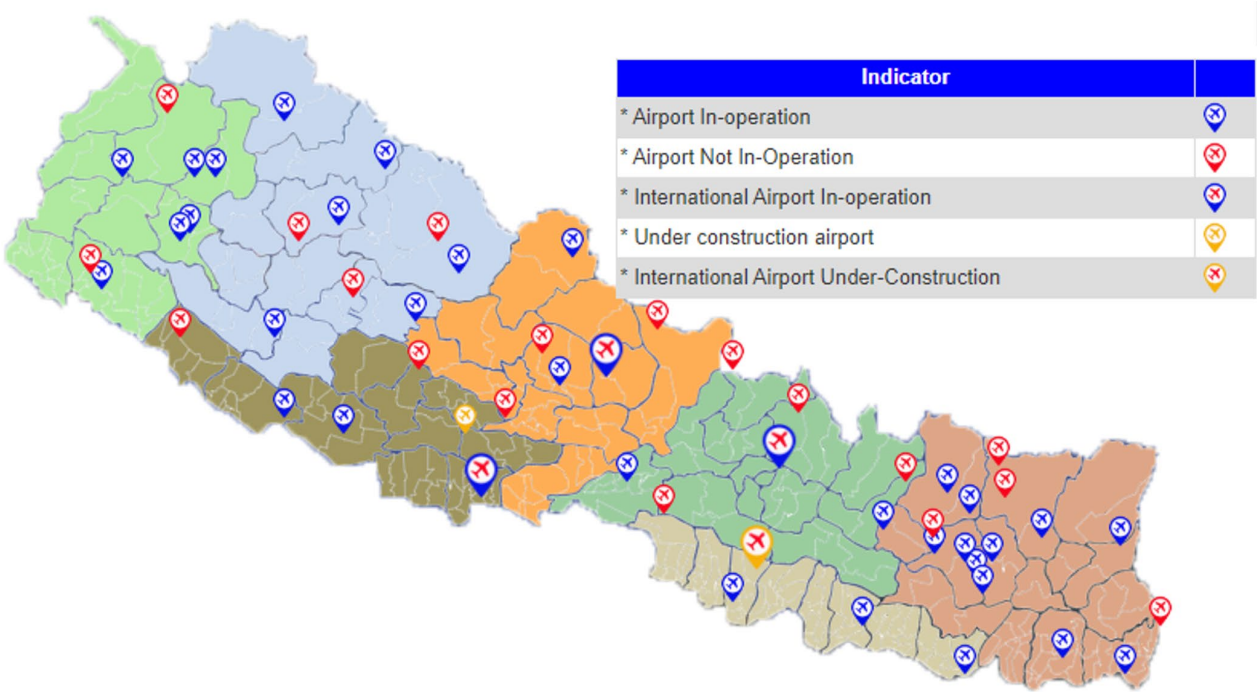



**Figure 19: Airports of Nepal**

| Airport | Location / City Served | IATA/ICAO Code | Elevation | Runway Length | Runway Surface |
|---|---|---|---|---|---|
| **International (Active or Planned)** | | | | | |
| Tribhuvan International Airport | Kathmandu | KTM / VNKT | 1,339 m /4,394 feet | 3,350 × 45 m (10,990 × 150 feet) | Bituminous Paved (Asphalt Concrete) |
| Gautam Buddha International Airport | Siddhartha Nagar (Lumbini Province) | BWA / VNBW | 105 m / 344 feet | 1,500 × 30 m (4,900 × 100 feet; upgrading to 3,000 × 45 m [9,800 × 150 feet]) | Bituminous Paved (Asphalt Concrete) |
| Pokhara International Airport | Pokhara | PKR / VNPK | 822 m /2,696 feet | 1,447 × 30 m (4,750 × 100 feet) | Bituminous Paved (Asphalt Concrete) |
| **Domestic** | | | | | |
| Baitadi Airport | Patan | BIT / VNBT | 1,258 m / 4,127 feet | 590 × 20 m (1,935 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Bajhang Airport | Rithapata | BJH / VNBG | 1,224 m / 4,015 feet | 630 × 20 m (2,066 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Bajura Airport | Kolti | BJU / VNBR | 1,404 m / 4,606 feet | 520 × 20 m (1,706 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Bharatpur Airport | Bharatpur | BHR / VNBP | 207 m / 679 feet | 1,200 × 30 m (3,940 × 100 feet) | Bituminous Paved (Asphalt Concrete) |
| Bhojpur Airport | Bhojpur | BHP / VNBJ | 1,208 m / 3,962 feet | 540 × 20 m (1,770 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Biratnagar Airport | Biratnagar | BIR / VNVT | 74 m /245 feet | 1,500 × 30 m (4,900 × 100 feet) | Bituminous Paved (Asphalt Concrete) |
| Chandragadhi Airport | Bhadrapur | BDP / VNCG | 95 m / 312 feet | 1,500 × 30 m (4,900 × 100 feet) | Bituminous Paved (Asphalt Concrete) |
| Dang Airport | Tulsipur | DNP / VNDG | 634 m / 2,080 feet | 750 × 30 m (2,460 × 100 feet) | Bituminous Paved (Asphalt Concrete) |
| Dhangadhi Airport | Dhangadhi | DHI / VNDH | 189 m / 621 feet | 1,800 × 30 m (5,905 × 100 feet) | Bituminous Paved (Asphalt Concrete) |
| Dolpa (Juphal) Airport | Juphal | DOP / VNDP | 2,503 m / 8,212 feet | 560 × 20 m (1,840 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Doti Airport | Dipayal | SIH / VNDT | 577 m / 1,893 feet | 490 × 20 m (1,607 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Falgunanda Airport | Sukilumba | n/a / VNFN | 853 m / 2,800 feet | 670 × 20 m (2,190 × 65 feet) | Earth |
| Janakpur Airport | Janakpurdham | JKR / VNJP | 71 m / 233 feet | 1,306 × 30 m (4,285 × 100 feet) | Bituminous Paved (Asphalt Concrete) |
| Jomsom Airport | Gharpajhong | JMO / VNJS | 2,736 m / 8,976 feet | 810 × 20 m (2,657 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Jumla Airport | Chandannath | JUM / VNJL | 2,375 m / 7,792 feet | 675 × 20 m (2,215 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Manamaya Rai Khanidanda Airport | Khotang | KDN / VNKD | 1,352 m / 4,435 feet | 580 × 25 m (1,903 × 82 feet) | Bituminous Paved (Asphalt Concrete) |
| Nepalgunj Airport | Nepalgunj | KEP / VNNG | 158 m / 518 feet | 1,505 × 30 m (4,938 × 100 feet) | Bituminous Paved (Asphalt Concrete) |
| Phaplu Airport | Solu Dudhkund | PPL / VNPL | 2,468 m / 8,097 feet | 680 × 20 m (2,230 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Rajbiraj Airport | Bisangapur | RJB / VNRB | 80 m / 262 feet | 1,500 × 30 m (4,900 × 100 feet) | Bituminous Paved (Asphalt Concrete) |
| Ramechhap Airport | Manthali | RHP / VNRC | 494 m / 1,620 feet | 530 × 20 m (1,739 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Rara Airport | Chayanath Rara | THL / VNRR | 2,720 m / 8,924 feet | 570 × 20 m (1,870 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Salle Airport | Musikot | RUK / VNSL | 1,580 m / 5,184 feet | 580 × 20 m (1,903 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Sanfebagar Airport | Sanfebagar | FEB / VNSR | 597 m / 1,959 feet | 550 × 20 m (1,805 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Simara Airport | Jitpur Simara | SIF / VNSI | 136 m / 445 feet | 1,192 × 30 m (3,910 × 100 feet) | Bituminous Paved (Asphalt Concrete) |
| Simikot Airport | Simikot | IMK / VNST | 2,971 m / 9,747 feet | 650 × 20 m (2,133 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Surkhet Airport | Birendranagar | SKH / VNSK | 2,254 m / 7,395 feet | 1,255 × 30 m (4,117 × 100 feet) | Bituminous Paved (Asphalt Concrete) |

**Table 7: Details for Nepal's Airports**

| Airport | Location / City Served | IATA/ICAO Code | Elevation | Runway Length | Runway Surface |
|---|---|---|---|---|---|
| Taplejung Airport | Phungling | TPJ / VNTJ | 2,419 m / 7,936 feet | 700 × 20 m (2,297 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Tenzing-Hillary (Lukla) Airport | Khumbu Pasang Lamhu | LUA / VNLK | 2,846 m / 9,337 feet | 527 × 20 m (1,729 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Thamkharka Airport | Badka Diyale | TMK / VNTH | 1,601 m / 5,252 feet | 620 × 20 m (2,034 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Tumlingtar Airport | Khandabar | TMI / VNTR | 401 m / 1,316 feet | 1,295 × 30 m (4,250 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| **Not in Operation (as of 28 June 2023)** | | | | | |
| Baglung Airport | Narayanthan | BGL / VNBL | 990 m / 3,248 feet | 608 × 30 m (1,995 × 100 feet) | Earth |
| Chaurjahari Airport | Bijeshwori | HRJ / VNCJ | 741 m / 2,431 feet | 600 × 20 m (1,969 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Darchula Airport | Gokuleswor | DAP / VNDL | 676 m / 2,218 feet | 590 × 30 m (1,935 × 100 feet) | Earth |
| Dhorpatan Airport | Bobang | n/a / VNDR | 2,728 m / 8,950 feet | 365 × 30 m (1,197 × 100 feet) | Earth |
| Gorkha Airport | Palungtar | GKH / VNGK | 445 m / 1,460 feet | 1,067 × 46 m (3,500 × 150 feet) | Earth |
| Gulmi (Resunga) Airport | Simichaur | n/a / VNRG | 1,529 m / 5,015 feet | 520 × 20 m (1,706 × 65 feet) | Earth |
| Jiri Airport | Linkon | JIR / VNJI | 1,848 m / 6,063 feet | 365 × 18 m (1,197 × 60 feet) | Earth |
| Kangeldanda Airport | Solukhumbu | KGN / VNKL | 2,097 m / 6,880 feet | 520 × 26 m (1,706 × 85 feet) | Earth |
| Khiji Chandeshwori Airport | Okhaldhunga | n/a / VNKC | 2,070 m / 6,789 feet | 580 × 20 m (1,903 × 65 feet) | Gravel |
| Lamidanda Airport | Rawabesi | LDN / VNLD | 1,227 m / 4,026 feet | 520 × 20 m (1,706 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Langtang Airport | Langtang | LTG / VNLT | 3,658 m / 11,998 feet | 420 × 30 m (1,378 × 100 feet) | Earth |
| Mahendranagar Airport | Mahendranagar | XMG / VNMN | 216 m / 709 feet | 884 × 30 m (2,900 × 100 feet) | Earth |
| Manang Airport | Manang | NGX / VNMA | 3,381 m / 11,093 feet | 900 × 20 m (2,953 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Masinechaur Airport | Pahada | n/a / VNMC | 2,804 m / 9,200 feet | 600 × 30 m (1,969 × 100 feet) | Gravel |
| Meghauli Airport | Bharatpur | MEY / VNMG | 152 m / 499 feet | 1,067 × 30 m (3,500 × 100 feet) | Earth |
| Rolpa Airport | Bodachaur | RPA / VNRP | 1,250 m / 4,100 feet | 457 × 30 m (1,499 × 100 feet) | Earth |
| Rumjatar Airport | Siddhi Charan | RUM / VNRT | 1,371 m / 4,498 feet | 581 × 20 m (1,906 × 65 feet) | Bituminous Paved (Asphalt Concrete) |
| Syangboche Airport | Kumjung | SYH / VNSB | 3,748 m / 12,293 feet | 405 × 30 m (1,329 × 100 feet) | Earth |
| Tikapur Airport | Tikapur | TPU / VNTP | 157 m / 515 feet | 573 × 30 m (1,880 × 100 feet) | Gravel |

**Table 7: Details for Nepal's Airports (cont.)**

Tribhuvan and Nepalgunj, few airports handle more than 1 million kilograms (1,100 tons) of cargo annually.[391]

## Seaports

Nepal is landlocked. Sea-borne trade, mostly containerized cargo, is generally moved via India's Kolkata port, which is served by road and rail networks. Cargo heading for Nepal from Kolkata enters Nepal via one of six Inland Clearance Depots (ICD) or dry ports – Bhairahawa, Biratnagar, Birgunj, Kakarbhitta, Nepalgunj, and Tatopani. Three more ICDs are planned at Rasuwa, Kathmandu, and Dodhara Chandani. The ICDs are connected by road or rail to a seaport or other international dry port and operate as centers for transshipment to interior destinations in Nepal. Birgunj is the only ICD connected by rail to India's Kolkata port via Raxaul, India. The Nepal Intermodal Transport Development Board oversees the ICDs.

**Bhairahawa**
Latitude: 27.476633
Longitude: 83.467592

Bhairahawa ICD is located at Siddharthanagar, Rupandehi District, Lumbini Province, 5 km (3 miles) north of Nepal's border with India's Uttar Pradesh state, and it is connected to Kolkata by road. TransNepal Freight Services Pvt Ltd has operated the ICD since 2002. Bhairahawa handles the second most cargo of all Nepali border crossings after Birgunj. Major goods imported through Bhairahawa are petroleum products, new vehicles, mild steel billets, rice, vegetables, marble, tiles, and fly ash coal. During the rainy season, the ICD can be especially congested, and there is a shortage of parking spaces and truck berths. There is no cold storage. There are forklifts and pallet trolleys on site. There is one covered warehouse of 1,375 $m^2$ (14,800 square feet) with a 1.2-m (4-foot) high platform to store containers.[392]

**Biratnagar**
Latitude: 26.40333
Longitude: 87.26666

Biratnagar, Morang District, Koshi Province, is 7 km (4 miles) north of Nepal's border with India's Bihar state. The ICD ranks third among the country's ICDs for trade volume. Major imported goods are petroleum products, crude soybean oil, motorcycles, betel nuts, mild steel billets, iron structures, coal, and glazed tiles. Major exported goods are betel nuts, cardamom, woven fabrics, jute sacks, wire, dyed yarn, jute hessian fabric, brass strips, and corrugated galvanized iron sheets. The ICD is connected to Kolkata, 600 km (373 miles) away, by road or rail up to Jogbani, Bihar. The ICD has mobile cranes, forklifts, and pallet trolleys on site for cargo handling. There are slots for 50 × 20-foot containers and 50 × 40-foot containers but only one reefer point. The ICD also has two covered warehouses of 1,375 $m^2$ (14,800 square feet), one of which has a 11.2-m (4-foot) high platform, and a vacant area that can accommodate either 3,900 $m^2$ (42,000 square feet) of warehousing or a parking area for holding 150 twenty-foot equivalent units (TEU) of containers.[393]

**Birgunj**
Latitude: 27°01'12.1"N
Longitude: 84°50'59.6"E

Since 2004, Himalayan Terminal Pvt Ltd has had the contract with the GoN to operate and manage Birgunj ICD in Sirsiya, Parsa District, Madhesh Province. The ICD has six full-rake railway sidings and handles more than 20,000 TEUs annually. It can store up to 1,568 TEUs on its 38 hectares (94 acres) of land. The ICD maintains mobile cranes, reach stackers, and forklifts on site. There are two warehouses; one warehouse is 7,000 $m^2$ (75,000 square feet) and the other is 10,000 $m^2$ (107,000 square feet).[394]

**Kakarbhitta**
Latitude: 26.64555
Longitude: 88.15750

Kakarbhitta is in Mechinagar, Jhapa District, Koshi Province, and is the main entry point from India on Nepal's eastern border. The ICD was built to boost Nepal's exports to Bangladesh and is a 15-hour drive from Kolkata. It handles clinker and gypsum. There is no handling equipment, and, during the rainy season, there is a high probability that goods left at the ICD will be damaged. There is a cemented space for 100 trucks to park and a warehousing space of 1,395 $m^2$ (15,000 square feet). Some 80-90 trucks can be handled every day by manual offloading.[395]

**Nepalgunj**
Latitude: 28°01'36.5"N
Longitude: 81°36'16.6"E

Nepalgunj, Lumbini Province, is the major border crossing linking eastern Nepal with New Delhi. There is a four-lane highway on both sides of the border, and the ICD is linked by road to dry ports in India. The main goods that move through this border point are petroleum products, automobiles and parts, sugar, rice, coal, cloths, aluminum scrap, copper scrap, and processed plastics. The main goods exported are herbal medicines and buffalo meat. The customs shed comprises two warehouses with

2,500 $m^2$ (26,900 square feet) area each, two yards of 1,000 $m^2$ (10,700 square foot) area each, and open space covering 7,587.9 $m^2$ (81,600 square feet). There is one small mobile crane for cargo handling. The ICD can handle 500-600 container-carrying trucks each day. Nepalgunj floods during the rainy season, and flooding may block roads in July and August.[396]

**Tatopani**
Latitude: 27.98722
Longitude: 85.96111

Tatopani is in Sindhupalchok, Bagmati Province, and is on the border with China. Given its location, the ICD can often be closed because the Araniko Highway that connects Kathmandu to the border can be blocked by landslides. Major goods imported via the ICD are medicines, fruits, electronic appliances, ready-made garments, and shoes. Without mechanized handling equipment, the ICD can handle 70-80 trucks per day.[397]

## Roads

Roads are nominally classified as federal, provincial, or rural with responsibility for their design, construction, and upkeep held by the respective level of government. However, clear distinctions have not always been made, and various levels of government may be involved in work on or related to the same roads. For DRR-related road development, federal agencies have the authority to acquire land, clear forests, and classify roads, while local governments have responsibility for determining right of way and clearing construction in and around road areas.[398]

The country has a total road network of 80,078 km (49,759 miles), comprised of 26,935 km (16,737 miles) that are constructed and maintained by MoPIT's Department of Roads and 53,143 km (33,022 miles) that are constructed by local governments. There has generally only been one reliable Kathmandu-India link, and the government has promoted building and maintaining more kilometers and more reliably usable roads to both neighbors, India and China. The Strategic Road Network (SRN) is the backbone of the road system under the Department of Roads. The SRN includes the national highways and feeder roads that total 26,935 km (16,737 miles), of which 11,349 km (7,052 miles) are paved, 6,192 km (3,848 miles) are gravel, and 9,394 km (5,837 miles) are earthen or fair-weather roads. Thus, approximately one-half of the SRN is made up of two-lane, unpaved roads that can slow travel considerably. The Department of Local Infrastructure Development and Agricultural Roads alongside Local District Development Committees are responsible for Local Road Network, which consists of district roads, urban roads, and rural roads including village access roads and trails.

Various improvement and expansion projects are underway or planned. The North South Corridor Road will improve mobility among the Tarai, the hills, and the Himalaya and will connect India and China via Nepal, a connection expected to facilitate movement of goods and people. Under this Corridor, eight different trade and transit routes are built, planned, or being developed to complement the already-operating Birgunj-Naubise-Kathmandu-Tatopani-Nyalam (393 km; 244 miles) central region road and the Birgunj-Galchi-Rasua-Syafrubesi (340 km; 211 miles) road. Other projects are the Koshi Corridor (Eastern) to connect Khandbari with Kimathanka over 195 km (121 miles), the Kali-Gandaki Corridor (Western) army-built section to connect Gaindakot to Baglung over 225 km (140 miles) and Baglung to Korala over 190 km (118 miles), the Karnali Corridor (Mid-Western) in two parts to connect Khulalu to Simikot and Hilsa to Simikot for a total of 288 km (179 miles).[399]

There is one existing East-West Highway (National Highway [NH] 01) that runs 1,028 km (639 miles) through all provinces except Karnali.[400] Two east-west roads have been added to ensure an east-west link that includes all districts of the country.[401] The Mid-Hill / Pushpalal Highway (NH03) runs 1,787 km (1,110 miles) through Bagmati, Gandaki, Karnali, Koshi, Lumbini, and Sudurpashchim Provinces;[402] it connects Chiyabhanjyang,

Panchathar District (eastern terminus), to Jhulaghat, Baitadi District (western terminus) and runs through 24 districts and 225 villages, thereby serving 7 million people.[403] The Hulaki Marga / Postal Highway (NH05) covers 1,016 km (631 miles) near the Indian border and parallels NH01, likewise running through all provinces save Karnali.[404] The Postal Highway has over 100 bridges.[405] Figure 20 provides a map of the National Highway network.[406]

A constant challenge for Nepal's policymakers, government administrators, law enforcement, and health care system are the numbers of fatalities and injuries related to the road network. The country has one of the highest rates of road deaths in South Asia; in 2019 alone, there were some 13,000 road accidents with more than 2,700 deaths and 10,000 serious injuries. What is more, road crash deaths and injuries have been on an upward trajectory since the early 2000s and show no sign of abating. Behind this toll are the very infrastructural and economic improvements that the government has promoted to improve livelihoods and quality of live for Nepalis. Increased road connectivity and more prevalent vehicle ownership are, in fact, killing Nepalis, and the losses knock an estimated 1.5% off of GDP every year even though 70% of the victims of road accidents are people with the least means – i.e., not owners of vehicles but, rather, pedestrians, bicyclists, and motorcyclists.[407]

Given the country's terrain and weather, transport in some of the more remote areas is difficult, especially after a disaster event that may cause landslides, rupture tarmac, wash away roads or bridges, or lead to high rates of people fleeing on foot along roads meant for vehicle use.

## Railways

The federal government, via MoPIT's Department of Railways, has responsibility for railway infrastructure.[408] There is currently one network of only 57 km (35 miles) of lines, 53 km (33 miles) of which are owned by Nepal Railway Company (NRC). This railway line is divided into a 32-km (20-mile) section from Janakpur in




**Figure 20: Nepal's National Highway Network**

Nepal to Jainagar in India, and a 21-km (13-mile) section from Janakpur to Kurtha. There is a 5-km (3-mile) line operating at the Birgunj ICD; it acts as a connector to Indian Railways.[409] Figure 21 shows the Nepal Railways network with planned expansion included.[410]

Since 2010, Nepal has been building a railway line that runs the entire length (east-west) of the country. It was designed to connect the already operational Jainagar-Janakpur-Bardibas section. When completed, there will be connections to India at six different locations through the EW Electric Railway (113 km; 70 miles).[411] However, by latter 2022, only 51 km (31 miles) of the key 70-km (43-mile) Bardibas-Nijgadh section and five railway bridges in that section had been completed. It had originally been expected to be complete by mid-2023.[412]

Both India and China are investing in rail projects that not only further integrate Nepal into their respective orbits but that also build trade and travel links between themselves. Although Nepal is keen to expand the rail network to serve both domestic commuters and international trade, it confronts a key issue at the outset. Most of China's trunk rail routes are standard gauge 1,435 mm (4 feet 8.5 inches) whereas trunk lines in India and Bangladesh are broad gauge 1,676 mm (5 feet 6 inches). The existing Janakpur area routes are broad gauge.[413] China has proposed a 170-km (105-mile) line under the Belt and Road Initiative that will link China's Kerung (Tibet) with Kathmandu. Although still only in the feasibility study stage, the project confronts financing, engineering, and risk challenges given the seismic activity of the region overall.[414] Meanwhile, in early 2023, India's Konkan Railways completed its feasibility study for the proposed 141-km (87-mile) Kathmandu-Raxaul (India) route. On its way from Raxaul, the route would pass through Jitpur, Nijgadh, Sikharpur, Sisneri, and Sathikhel before connecting Chobar and Kathmandu, and there will be a 40-km (25-mile) section with a tunnel as well as some 40 bridges.[415]

Birgunj ICD at Sirsiya, 924 km (miles) from Kolkata port, is the destination of most containerized cargo that arrives in Nepal via India. It is a 2-3-day trip on Indian Railways, which must wait until a full train of 90 container wagons is collected before dispatch.[416]

## Waterways

There is minimal water transport on the country's rivers and lakes.

# Schools

Nepal has more than 35,000 elementary and secondary schools, and there are 10 universities




**Figure 21: Nepal Railways Network (with Planned Expansions)**

with more than 1,400 colleges and campuses throughout the country. The Ministry of Education's School Sector Development Plan (SSDP) 2017-2022 supports the Government's 15th Periodic Plan objective of Nepal graduating from the ranks of least developed countries, and the SSDP emphasizes strengthening access to and quality of education. The Ministry of Education is responsible for developing overall education policies and directives. The Ministry's Council for Technical Education and Vocational Training (CTEVT) oversees technical and vocational schools; it sets curricula, testing requirements, and skills standards in various occupations.[417] Reforms to the federal government system in 2017 were supposed to devolve responsibility for education to local governments, but without enabling legislation or adequate resources, the transition was incomplete as of latter 2022.[418]

Education reforms in 2016 established a new system of compulsory basic education intended to be accessible to every child, free of charge, at public schools. The academic year runs from April to April. The primary language of instruction is Nepali with many private schools also using English. The SSDP does stipulate that minority languages may be used in primary instruction in the first three years of education. Compulsory basic education lasts eight years (grades 1-8). Secondary education covers four years; it is not compulsory, but it is nominally free although families must pay school fees and cover expenses for books, teaching materials, and uniforms. Admission into secondary education is based on passing the final district-level examination at the end of grade 8. Students can choose a general or vocational-technical secondary school track. The general curriculum includes languages, science, mathematics, social sciences, a vocational subject, and one elective subject. The vocational stream focuses on applied subject areas – e.g., agriculture, medicine, forestry, or engineering. Secondary education concludes with either an external national examination or with a university-preparatory program credential, the latter of which gives access to tertiary education. CTEVT directly operates 31 technical schools and polytechnics and has accredited hundreds of affiliated private providers. Tribhuvan University is the largest university in Nepal and enrolls nearly 80% of all Nepali students.[419]

Although some estimates put 2022 net enrollment at 95.1% for basic education (grades 1-8), 75% for grades 9–10, and 31% for grades 11–12,[420] an estimated 18% of boys and more than 34% of girls have never attended school. The gender gap in enrollment is particularly wide for families in poverty; as poverty increases, a woman's chance of going to school decreases. Girls are also overrepresented in child labor with 17% of girls and 14% of boys ages 5-17 years likely to be involved in work. As 57% of women and 75% of men are literate,[421] access to tertiary education is difficult, and enrollment stands at approximately 15%. The most common reason for leaving school early is poverty – as children are required to work to help support the community – and the second is distance from school. Lower caste communities and other underprivileged groups are underrepresented in the education system with caste and first language figuring among the obstacles for some children accessing education.[422]

## Disaster Risk Reduction in the Education Sector

Nepal's schools close frequently after disaster events that damage school and transport infrastructure. In addition to directly impacting learning through school closures, the seismic and hydrometeorological hazards that Nepal confronts impede learning as they undermine teachers' and children's ability to focus. Moreover, regular disaster events cause the loss of student records and data, increase the numbers of students who leave education early, and undermine the resilience of local communities. Between 2013 and 2023, climate-related disasters such as floods resulted in severe damage to more than 5,000 schools and impacted thousands of students. The COVID-19 pandemic also resulted in long school closures, which affected student well-being, education, and learning.[423] As climate

change influences the hazards hanging over the country, challenges such as extreme heat stress and air pollution could worsen Nepal's overall educational outcomes.[424]

Despite the country's exposure to seismic hazards, it was only after the destruction and death caused by the 1988 Udayapur earthquake, that there was an intentional move toward an organized approach to earthquake risk management via several innovative initiatives on disaster risk management. Among those initiatives was the School Earthquake Safety Program (SESP), which from 1997, has consisted of three sub-components: 1) training of technicians, 2) training of teachers, parents, and students on earthquake preparedness and planning, and 3) seismic retrofitting or earthquake-resistant reconstruction of public school buildings. The second of these components required participation of government institutions – i.e., the Ministry of Education, District Education Officers, and District and Village Development Committees – as well as school management committees, NGOs, parents, and students. The Government provides funds and policy guidance, school management committees are charged with construction, and central-, district-, and school-level advisory committees ensure local buy-in and ownership. A major program was focused on providing training to students and teachers on earthquake preparedness. It oriented participants to existing earthquake vulnerability, reduction measures, personal and collective safety, earthquake drill procedures, and a mock drill.[425]

Key threats to educational infrastructure include earthquakes and building codes that are either flouted or insufficient to ensure that school buildings survive major seismic events. Since 1997, USAID has supported the National Society for Earthquake Technology (NSET) to implement the SESP, which strengthens school buildings and raises earthquake safety awareness among teachers, students, and parents. Prior to the April 2015 earthquakes, NSET had retrofitted 115 schools, primarily in the Kathmandu Valley, to withstand earthquake shaking. During the earthquake, none of the retrofitted schools collapsed. Damage assessments nationally revealed that more than 27,000 public school classrooms were destroyed during the earthquake, while an additional 26,000 classrooms sustained substantial damage. In many earthquake-affected communities, retrofitted schools were among the few structures that did not sustain significant damage. Thus, in the aftermath of the earthquake, the retrofitted and standing schools served as emergency shelters and humanitarian distribution points. Since 2017, NSET has provided technical support to education authorities for planning, budgeting, and implementing SESP across 260 public schools in the Kathmandu Valley. NSET also provides training to educate students and teachers about ways to safely respond. Students then carry their knowledge and skills home to share with their families.[426]

In 2017, the Ministry of Education developed the Comprehensive School Safety Master Plan aimed at ensuring every child could access quality education in safe learning environments by improving the resilience of the education system to disasters and hazards. The Plan reinvigorated the SESP and built on the existing school safety framework. It strengthens soft components of school safety (e.g., curriculum integration, teacher training, communication, school drills, DRR in School Improvement Plans, and need-based maintenance and retrofitting). In 2018, Nepal also introduced a Comprehensive School Safety Minimum Package, which is a guide for creating the minimum level of acceptable safety in all schools, public and private, from pre-school through to secondary. It focuses on Safe Learning Facilities, School Disaster Management, and Risk Reduction and Resilience Education.[427]

The result of the educational component of the SESP had, by 2020, resulted in greater community awareness of earthquake disaster risks and risk reduction. Surveys conducted regularly found that, before their school implemented the program, 7% of students believed that earthquakes were caused by

a moving fish carrying the Earth (a Hindu belief and myth) while 64% chose the correct scientific answer of plate tectonics, and in 2020, the majority of students, 84%, still chose plate tectonics while the percentage of responses relating to cultural or religious reasons dropped to 2%. Regarding the probability of a future earthquake greater than the 2015 quake, in 2020, more students knew that such an earthquake in their region was quite likely after the education program, and there was a clear drop in the number of responses for very unlikely (17% in 2018 to 5% in 2020) and a slight drop in the percentage of students answering that a future great earthquake is impossible.

In addition to understanding the causes of earthquakes and the potential for them to happen, 75% of students in 2020 responded that their family knew what to do and where to go during an earthquake, an increase of 55 percentage points from 2018. Only 37% of students in 2020 believed that their home could withstand a large earthquake. In 2018, 62% of respondents did not know that they should not call others after an earthquake to leave the phone lines available for rescue operations, but in 2020, nearly 80% of students knew this practical point. Generally, students who have gone through the SESP have more confidence that they know what to do. And the proportion of students who regularly discuss earthquake-related topics within their families increased by 18% between 2018 and 2020, when that number reached 91%.[428]

In terms of student learning and promotion of the science of climate change, an updated curriculum for secondary education has enhanced the information about climate change used in science and other courses. The curriculum focuses on three key elements: 1) enhanced explanation of the concepts of weather, climate, climate variability, and climate change, as well as descriptions of greenhouse gases and their effect on global warming; 2) definitions of climate change adaptation and mitigation, supported with examples from Nepal; and 3) introduction of key global and national initiatives on climate change. The expectation is that students both understand and take an interest in areas of climate change that are grounded in fact. An additional component focuses on delivering pro-poor scholarships to girls in Grades 11 and 12 to ensure that they remain in school since surveys in Nepal continue to show that adolescent girls are more likely to engage in day labor after a disaster or in situations of chronic environmental degradation even when schools remain open. Research suggests that educating girls and women is an important vehicle to improve adaptive capacity in communities and reduce vulnerability to extreme weather events.[429]

Beyond primary and secondary school, the Department of Geology at Tribhuvan University offers graduate degrees in geology and engineering geology, and it has partnered with the Pacific Disaster Center. This partnership has included research and applied projects as well as a hazard mapping exercise for "Nepal AWARE,"[430] a customized, national version of the Center's DisasterAWARE platform that integrates data and mapping for disaster management professionals.[431] Ten major universities in Nepal have incorporated preparedness, response, recovery, and mitigation-related academic curricula in their undergraduate and graduate academic programs. Also at Tribhuvan University, curricula in Environmental Health in Disaster, and Public Health and Disaster Engineering are available.[432]

## Communications

Digitization of the telecommunications sector has promoted an expansion in the number of private-sector players in the ICT sub-sector, particularly in application development, consulting, and services, and this private investment has fueled an expansion of network coverage. The government has sought to complement private-sector ferment via enabling policies, especially the Digital Nepal Framework (DNF), launched in 2019. Sustained investment in infrastructure will be required to ensure that all parts of the country can benefit rather than

seeing marginalized groups further isolated if they lack access to e-government services, mobile banking, or educational opportunities that rely on digital access.

***Telephones***

Fixed land-line subscriptions: 730,000 (2021)
Mobile subscriptions: 38 million (2021)

The fixed telephone system is underdeveloped and vastly outstripped by the mobile cellular market. The mobile market is focused on LTE service with spectrum available up to 5G,[433] although no commercial 5G service is yet available.[434] Of mobile subscribers, in late 2022, 10 million were still on 3G and 17.99 million were on 4G with evidence of accelerating shifts by customers toward 4G. With total broadband penetration at 126% of the market, 97.42% is mobile broadband.[435] Nepal's mobile phone handsets are dominated by Android devices (90%); less than 10% of the market uses an Apple device.[436]

The Nepal Telecommunications Authority is the central licensing body for private entities' participation in the telecoms sector, setting standards of service, and resolving disputes.[437] There are three telephone service providers (across fixed-line and mobile): Nepal Telecom (NT; fixed-line monopoly), Ncell, and Smart Telecom. NT retains more than one-half of the market share with Ncell taking up nearly 40%. State-owned NT has a presence in 184 locations across the country with base transceiver station (BTS) towers in the following areas:

- Sudurpashchim Province - 314 BTS covering 8 districts
- Karnali Province - 122 BTS covering 8 districts (except Humla and Dolpa)
- Bagmati and Madhesh - 708 BTS covering all of Bagmati and part of Madhesh
- Koshi and Madhesh - 720 BTS covering Koshi and part of Madhesh
- Gandaki and Lumbini - 734 BTS covering Gandaki and part of Lumbini
- Kathmandu - 579 BTS covering Kathmandu, Lalitpur, and Bhaktapur districts of Bagmati

Optical fiber covers cities and connects them to neighboring areas. BTS towers transmit and receive signals via radio link in and out of rural districts. Commercial service via very small aperture terminal (VSAT) earth stations for satellite networks is offered in remote and mountainous areas. The total coverage of the existing telecom companies indicates less network availability in Karnali Province compared to other provinces, and there is a heavy concentration in Bagmati Province and the Tarai areas.[438] Reports indicate that outside of the Kathmandu and Pokhara Valleys, service can be spotty and slow.[439]

***Internet Access***

As of 2023, there were varying estimates of Nepal's internet users; they ranged from 11 million to more than 21.9 million, or between one-third and three-quarters of the population.[440] Per the Nepal Telecommunications Authority, the total broadband penetration topped 126% (97.42% mobile broadband and 29.30% fixed broadband) in February 2022. Over 1.97 million households in Nepal have internet subscriptions.[441] Speed tests by international researchers find that median connection speeds in the country are 13.49 megabits per second (Mbps) for mobile connections and 48.45 Mbps for fixed connections. By far, mobile devices are the most common means for Nepal's internet users to access the web with some 73% of traffic; laptops or desktops account for nearly all of the remining traffic. Indicators show that Nepal's internet users primarily are online for news, weather, sports, and other entertainment. Less than 20% of Nepalis have made a digital payment, and less than 10% have a mobile money account or use the internet for purchases.[442]

The major stumbling block to greater fixed broadband penetration remains the slow extension of the fiber-optic cable network into remote areas. The telecommunication authority launched the Optical Fiber Backbone Network Expansion Project to build out the fiber backbone infrastructure and provide broadband to schools and community centers nationally, but

actual laying of lines is proceeding slowly with NT reporting in latter 2021 that it had laid about 50% of its assigned sections for a total of just more than 1,000 km (620 miles) of fiber in three provinces (Bagmati, Koshi, and Madhesh).[443]

Based on the DNF, the Ministry of Communications and Information Technology (MoCIT) has joined the World Bank in investments and business loans for funding internet expansion in rural areas and for financial incentives for Internet Service Providers to develop weather-resistant high-speed broadband connectivity.[444]

***Mass Media***

The 2015 Constitution guarantees freedom of expression and limits restraints on press freedom. Nonetheless, these rules can be suspended in a national emergency, and future press restraints for national security reasons are allowed.[445] Nepal's 2018 penal code contains several provisions related to press freedom; it criminalized criticizing the president or members of parliament.[446] Moreover, journalists are occasionally subject to harassment and hostility that escalates to physical and verbal attacks for publishing some political news.[447]

The mass media sector is lively and diverse. There are thousands of print outlets that comprise both news and non-news periodicals. There are hundreds of radio and television stations, and online media – news and non-news – is a growing sector. Although the government does own print and broadcast outlets, private ownership is the norm with various conglomerates owning outlets across the sector.[448] Hundreds of the country's radio stations are local and broadcast in the language of the community they serve, and this aspect makes radio the most consumed media in the country. However, this does not mean that radio outlets are the most trusted or most influential media. Rather, the print outlets concentrated in the Kathmandu Valley are largely considered the most politically influential because of the combination of higher literacy rates in the cities of the Valley and the concentration of economic and political activity in this area. Meanwhile, television news bulletins are, based on surveys, the most trusted news outlets by the broadest swath of Nepali society because of the reach of television and the news focus of many stations. Internet news outlets are the most recent entrant into news media, and they are believed to be gaining traction in terms of both representing and reaching under-represented groups.[449]

Social media statistics for Nepal are muddy, but Meta (the owner of Facebook) reports 11.85 million users in Nepal as of 2023; Facebook has at least five times the number of Nepal-based users than any other social media platform.[450] There are reports of authorities occasionally cracking down on individuals who criticize the government on social media.[451]

***Post***

Under MoCIT's Postal Services Department, Nepal Post is the country's general postal service. It handles all standard, domestic and international postal activities and offers postal banking.[452] Nepal postal operations are divided into four Postal Directorates (Biratnagar, Pokhara, Surkhet, and Dipayal); there are 70 District Post Offices, 842 Area Post Offices, and 3,074 additional Post Offices operating throughout the country.[453] International shippers – FedEx, UPS, and DHL – do handle international parcel and document deliveries to/from Nepal.

## Utilities

The Ministry for Energy, Water Resources, and Irrigation has jurisdiction over the electric power sector,[454] and its Minister heads up the Board of Directors of the Nepal Electricity Authority, which is the main authority for planning, constructing, operating, and maintaining all assets for electricity generation, transmission, and distribution.[455] Federal and provincial authorities share responsibility for physical infrastructure for water and sanitation. The federal government retains authority over forming boards and corporations to regulate and

operate drinking water-related projects.[456]

## Power

While Nepal has achieved rapid electrification, most people are still dependent on traditional and fossil fuels such as biomass, liquified petroleum gas (LPG), and gasoline to meet their everyday needs, especially cooking. The 2021 National Population and Housing Census found that 51% of households use wood and 44% use LPG for many basic household needs.[457] Nonetheless, the proportion of Nepal's population with access to electricity rose from 53% in 2010 to 93% in 2021. Between 2007 and 2017, the country experienced extended power outages that caused up to 14 hours of daily load shedding and cost an estimated 7% of GDP annually. Since that period, Nepal has enjoyed near continuous supply throughout the year, in great part due to private investment in hydropower generation. Power supply also increased due to extension of the countrywide distribution system that now reaches remote areas.[458]

The Nepal Electricity Authority's Generation Directorate is responsible for building, maintaining, and operating the country's 20 hydropower stations and two thermal power plants.[459] The installed capacity of electricity stood at 2.18 Gigawatts (GW) in 2021/2022; this total consists of 2 GW of hydro, 54.8 MW of solar, 6 MW of cogeneration (combined heat and power), and 53.4 MW of thermal.[460] In 2022, peak electricity demand was 1.96 GW, and Nepal imported of 180 MW from India during the dry season and exported 364 MW during the wet season. The same year, 68% of primary energy supply came from traditional fuels such as biomass and waste residues. The country imports LPG for household cooking, gasoline for cars, and coal for industrial uses. Fossil fuels account for 28% of the energy balance and the second largest share of energy supply.

Nepal has among the world's largest hydroelectric power resources, with over 42 GW of economically feasible potential. Some 90% of Nepal's electricity generation is sourced from hydropower. Hydropower potential is predominantly run-of-river, but numerous storage sites, such as the proposed Dud Koshi hydropower plant, are being studied. This resource is not, however, free of technical challenges, which include: 1) high seasonality of supply with excess generation in the summer season due to monsoon rains and low generation in the winter season; 2) geological uncertainties; 3) high levels of sedimentation due to the underlying geology; and 4) lack of transmission and road infrastructure.

While Nepal has significant solar power potential (28 GW), few areas use solar generation. Progress has been fastest in solar irrigation pumps, photovoltaic cells at public institutions, and solar home systems. The private sector has installed 40 MW of operational solar assets, and more than 1,000 MW of survey licenses have been granted.[461]

The Nepal Electricity Authority's Transmission Directorate oversees operation and development of the grid with a dedicated department to manage the 220 kilovolt (kV) and 400 kV lines.[462] The Distribution and Consumer Services Directorate is responsible for operating and maintaining distribution and substations up to 33kV. It handles customer connections, billing, grievances, and other services.[463] There are upwards of 4,100 km (2,550 miles) of 132-kV transmission lines, one 78-km (48-mile) 400-kV transmission line, and more than 1,400 km (843 miles) of 220-kV lines.[464]

## Water and Sanitation

Nepal's water sector faces challenges in quantity, quality, and reliability. Although the country has made significant progress in extending infrastructure and service to most communities, available water is often unsafe as arsenic levels in groundwater exceed international benchmarks in parts of the country. Forests have been degraded and wetlands drained, and both of these losses hinder natural filtration. Finally, although Nepal was declared free of open defecation in September 2019, groundwater contamination continues as fecal

sludge spills directly into water bodies, forests, and flood-prone areas.[465]

The Department of Water Supply and Sewerage Management (DWSSM) under the Ministry of Water Supply (MoWS) is responsible for planning, implementation, operation, repair, and maintenance of the country's water supply and sanitation systems. DWSSM is the lead implementing agency whereas MoWS is the lead executive agency. There are additional boards, water supply corporations, committees, project directorates, and water tariff commissions that function in regulatory and delivery sub-sectors.[466] Responsibility for managing water supply and sanitation services falls to municipality-owned water boards in the Kathmandu Valley and the cities of Bharatpur, Hetauda, Khavre, Dharan, and Butwawhile; 21 other large municipalities are under the Nepal Water Supply Corporation. Finally, 69 small towns and municipalities fall under Water User and Sanitation Committees (WUSC). Under the WUSC investment and management system, the government owns the systems, and WUSCs are the operators. WUSCs function as the executive boards of water user associations and municipalities to ensure design, procurement, and tariff structures are appropriate for the community to be served. Each WUSC is required to have a minimum of three women members or at least 33% of the committee, and a woman must occupy at least one of the key posts (Chair, Vice-Chair, Secretary, or Treasurer). In addition, the nine elected members of the WUSCs are required reflect the community, with each gender, caste, and disadvantaged ethnic group represented.[467]

The 2021 census reported that tap or piped water (both inside and outside household premises) is the main source of drinking water with more than 6.6 million (57% of) households reporting this access. Other main sources of drinking water for households are wells with a hand pump (20%), and more than 20% of households rely on jarred or bottled water, spouts, uncovered or covered wells, and rivers or streams. Results from the 2021 census showed a 10% increase in access to a tap or piped drinking water over the 2011 count.

In the 2021 census, 95.5% of households reported using an improved type of toilet facility, while 4.5% did not have access to any toilet facility, and this proportion represents a significant improvement over 2011 when 38% of households did not have access to any toilet facility.[468] The massive improvement in elimination of open defecation since 2011 reflects recognition of the threat the practice posed for environmental contamination and public health. A 2012 survey from the Department of Health Services found that approximately 3,500 children died of water-borne diseases every year in the country, and having an unprotected water source and poor sanitation were the major contributing factors for risk of acquiring diarrheal disease.[469]

As 80% of Nepal's population is at risk from natural hazards, climate change-influenced hydrometeorological disasters, like floods and droughts, are likely to cause significant loss of lives, livelihoods, and property. Increasing temperatures due to climate change have already caused glaciers to melt rapidly and caused more floods in the Tarai. Along with other losses, these floods have damaged water supply pipes, intakes, reservoirs, and sanitation facilities. The knock-on effects include excessive runoff, landslides, and degraded water quality that, together, promote water- and vector-borne disease spread. Up to 2021, in response to the decrease in precipitation and drying up of water sources, local communities have had limited adaptation options and have depended on initiatives such as water tank construction, water diversion from other sources, digging deeper wells, and traveling for activities like laundry and fetching drinking water. A more centralized approach was launched by DWSSM in all districts since 2008, and since then, Water Safety Plans have been developed to address DRR and CCA strategies, along with capacity building at the local level.[470]

# HEALTH

Nepal has made significant progress in reducing infant, child, and maternal mortality in the last several decades, in part due to its community-based approach to primary health care. The maternal mortality ratio declined from 850 deaths per 100,000 live births in 1990 to 190 deaths per 100,000 live births in 2011. Nepal is one of a few South Asian countries to achieve the Millennium Development Goal (MDG) 4 target to reduce child mortality by two-thirds, and the country is close to achieving the MDG 5 target to reduce maternal mortality by 75%.[471] However, health care challenges remain. While urban areas have higher concentrations of health workers, rural areas often lack adequate health services. Additionally, the rise of noncommunicable diseases adds new burdens, even as Nepal has made inroads fighting some communicable diseases.

Figure 22 shows the top 10 causes of total number of deaths in 2009 and 2019 and the percent change between those years for all ages combined.[472]

## Health Care System Structure

Prioritizing primary health care (PHC) and its principles of universal accessibility, community involvement, inter-sectoral coordination, and appropriate technology has been central to national health care policies since 1978 when Nepal signed the Alma Ata Declaration, which declared the need for urgent action to protect and promote the health of all people. During the 1970s, the government focused on the establishment of district health services and shifted emphasis from curative health care towards family planning, maternal and child health services, and drinkable water. The delivery of PHC in Nepal is based on networks of district- and sub-district-level health care facilities, such as Sub Health Posts. The government has also been successful in mobilizing more than 50,000 Female Community Health Volunteers for basic health care services, such as distribution of contraceptives, folic acid, Vitamin A, and oral

## What causes the most deaths?

Communicable, maternal, neonatal, and nutritional diseases
Non-communicable diseases

| Cause | 2009 rank | 2019 rank | Change in deaths per 100k, 2009–2019 |
|---|---|---|---|
| COPD | 1 | 1 | ↑ +22.1 |
| Ischemic heart disease | 2 | 2 | ↑ +18.4 |
| Stroke | 5 | 3 | ↑ +10.2 |
| Lower respiratory infect | 4 | 4 | ↓ −19.6 |
| Neonatal disorders | 3 | 5 | ↓ −26.0 |
| Cirrhosis liver | 8 | 6 | ↑ +2.8 |
| Tuberculosis | 6 | 7 | ↓ −6.6 |
| Asthma | 9 | 8 | ↑ +1.8 |
| Diarrheal diseases | 7 | 9 | ↓ −11.5 |
| Chronic kidney disease | 13 | 10 | ↑ +5.8 |

**Figure 22: Top 10 Causes of Death and % Change, 2009-2019**

rehydration packets. Nepal's PHC-focused health system is comprised of 205 PHC Centers, 1,311 Health Posts, and 2,511 Sub Health Posts.[473] The infant mortality rate declined dramatically from 78 deaths per 1,000 live births in 1990 to 32 deaths per 1,000 live births in 2016, and the pregnancy-related mortality rate similarly declined from 543 deaths per 100,000 live births during the period 1989–1996 to 259 deaths per 100,000 live births during the period 2009–2016.[474] Nepal has approximately one doctor for every 1,430 people.[475] However, most of the country's health workers are based in the Kathmandu area. The Kathmandu Valley has one doctor for every 850 people, but in some rural areas the number is reportedly one doctor for every 150,000 people. The doctor-population density in Kathmandu is estimated to be about 40 times that in rural Nepal.[476]

The Ministry of Health and Population (MoHP) is responsible for overall policy formulation, planning, organization, and coordination of the health sector at the national, provincial, district, and community levels. MoHP's mission is to improve the health status of all people living in the country through effective and efficient policy formulation, resource mobilization, and monitoring and regulation of health services delivered by various health institutions.[477] MoHP divisions include the Policy, Planning, and Monitoring Division; Quality Standard and Regulation Division; Population Management Division; Health Coordination Division; and Administration Division, as well as a Health Emergency and Disaster Management Unit (HEDMU).

The NEOC was established in 2010 as a coordination point for disaster information across Nepal, including government agencies and other response and recovery stakeholders such as UN agencies and international and national NGOs. In 2014, the HEOC was physically established at the MoHP premises and instituted as an approach for managing emergencies. The HEOC functions as a high-level operational command center for the MoHP. In 2018, HEOC standard operating procedures were revised to incorporate the HEDMU functioning within the premises of the HEOC. During health emergencies and disasters, the HEDMU works as a secretariat of the MoHP; works with the national disaster management center under the MoHA and other related bodies as a health sector center point; coordinates with the National Disease Control Center for rapid response; works with provincial and local levels as a central communication body; and coordinates affiliated international bodies and NGOs.

The HEOC plays the following roles:

- Pre-Disaster: planning; resource mapping; networking; capacity assessment; roster management; e-library establishment; disaster response / medical countermeasures planning; web portal; capacity mapping
- During Disaster: command center for health response; coordination with NEOC and other stakeholders; situation analysis; early deployment; resource mobilization; situation update; press releases and public awareness; capacity mapping
- Post-Disaster: restoration of health care services; coordination for infrastructure development; recording and reporting; coordination for long-term health needs; Build Back Better; study, analysis, and recommendation

The MoHP is the cluster lead of both the Health and Nutrition clusters, with WHO co-leading the Health cluster and UNICEF co-leading the Nutrition cluster. Health cluster partners include WHO, UNICEF, Birat Nepal Medical Trust, Fairmed Nepal, Family Planning Association of Nepal, Deutsche Gesellschaft für Internationale Zusammenarbeit, Handicap International (Humanity and Inclusion), IsraAid, Medecins du Monde France, ADRA Nepal, Nepal Health Sector Support Programme, NRCS, Terre des hommes Foundation, UNFPA, Singh Health, WaterAid Nepal, and World Vision International Nepal.

The HEOC is entitled to act as secretariat of MoHP during activation of the health and nutrition clusters during emergencies. After a

cluster is activated, the HEOC helps in inclusion of key humanitarian partners, establishing and maintaining appropriate humanitarian coordination mechanisms, coordinating with national and local authorities and other stakeholders, and practicing participatory and community-based approaches.

Provincial HEOCs have also been established in all seven provinces to act as provincial government command centers during emergencies. A PHEOC acts as a provincial information repository, coordinates with the hub and satellite hospital network and relevant partners, and oversees preparedness and response readiness at the sub-national level.[478]

## Health Strategies and Surveillance

Disease surveillance helps authorities assess the health of populations to identify what diseases are affecting communities and the prevalence of specific diseases for elimination efforts.[479] Surveillance of communicable diseases is a process of collecting information and analyzing data on cases of infectious diseases in order to provide relevant information to decision-makers for public health priorities and resource allocation.

One of the MoHP's programs is the Epidemic and Outbreak Surveillance Programme, with activities operated through the Epidemiology and Disease Control Division (EDCD). The Early Warning and Reporting System (EWARS) is a hospital-based sentinel surveillance system present in 82 hospitals covering all districts of Nepal.[480] EWARS is designed to complement the Health Management Information System (HMIS) by providing timely reporting for early detection of selected vector-borne, waterborne, and foodborne diseases with outbreak potential. EWARS focuses on weekly reporting of cases of and deaths caused by six priority diseases—malaria, kala-azar, dengue, acute gastroenteritis, cholera, and Severe Acute Respiratory Infection, as well as other diseases with epidemic potential.

A weekly EWARS bulletin is shared with medical recorders, EWARS focal persons, rapid response team members, District Health Offices, Regional Health Directorates, Department of Health Services divisions and centers, the MoHP Secretary, and other stakeholders.[481]

## Communicable Diseases

Up until two decades ago, infectious diseases were the major cause of morbidity and mortality. However, various preventive measures have resulted in an impressive declining trend, particularly with the significant decrease in infections by intestinal helminths, a type of parasitic worm. Although the overall burden of infectious diseases is decreasing, several emerging infectious diseases pose a longer-term public health problem; they include dengue, scrub fever, and influenzas.[482] The country continues to battle malaria and leishmaniasis. Moreover, along with the rest of the world, Nepal was significantly affected by the COVID-19 pandemic.

While dengue has emerged as an increasingly significant public health problem in recent years, Nepal is in the last mile of efforts to eliminate malaria, lymphatic filariasis, and kala-azar. Along with national experts, external consultants, and WHO staff, Nepal conducted a joint review of malaria, kala-azar, and lymphatic filariasis elimination programs, and dengue control programs; the review team visited 17 districts across the country in May 2023. Recommendations to combat vector-borne diseases were as follows:

- Strengthen the surveillance system by improving case detection and reporting
- Enhance skills and capacities of health care workers, especially at sub-national levels, to implement effective vector control measures
- Strengthen governance and program management to ensure efficient coordination, resource allocation, and accountability
- Improve diagnostic and treatment services, ensure availability of necessary supplies, and engage the private sector and implementing partners

- Enhance advocacy, risk communication, and community engagement; and
- Strengthen cross-border collaboration and implement robust documentation practices.[483]

***COVID-19***

For the week of 10-16 July 2023, Nepal reported one new COVID-19 case; the country had seen 1,003,370 cumulative confirmed cases, or 34,115 cases per million people over the course of the pandemic. The country has reported 12,031 total COVID-19 deaths or 409 deaths per million people.[484]

Nepal's first COVID-19 case was recorded on 23 January 2020 after a 32-year-old Nepali man, who was a student at Wuhan University of Technology in China, returned to Nepal on 13 January 2020 and presented to Kathmandu's Sukraraj Tropical and Infectious Disease Hospital with a cough.[485] However, local COVID-19 transmission first spiked from August to October 2020 before subsiding toward the end of the year. A second spike started in April 2021 and peaked on 13 May 2021 with 8,944.43 daily new confirmed COVID-19 cases based on a 7-day rolling average before subsiding considerably in the next couple months. A third spike began in January 2022 and rose to an average of 8,523.57 daily new confirmed cases on 25 January 2022 before significantly decreasing by the end of February. Figure 23 shows the history of new COVID-19 cases in Nepal from 1 March 2020 to 20 June 2023.[486]

Approximately 83% of the population received at least one dose of a COVID-19 vaccination and 71.3% were fully vaccinated by 14 July 2022.[487] India and China donated COVID-19 vaccines to Nepal, and the GoN also procured doses from WHO's COVAX program.[488]

The network of HEOCs played a critical role in Nepal's containment efforts during the COVID-19 pandemic. Besides general coordination and information management roles, the HEOC played a crucial role in strengthening the health system through tools and products as a part of the COVID-19 response. This response included the addition of health institutions along with infrastructure upgrades up to the municipal level; the Information Management Unit's dedicated app for information management; the Hamro Swasthya platform for interactive information dissemination; the testing of the German government-funded OSCAR platform for capturing legacy information; use of a call center to provide information to and counsel health workers; initiation of Emergency Medical Deployment Teams; rolling out of the national telemedicine network; and linkage of community, pre-hospital, hospital, and post-hospital care. Figure 24 illustrates the roles the HEOC played during the COVID-19 response.[489]

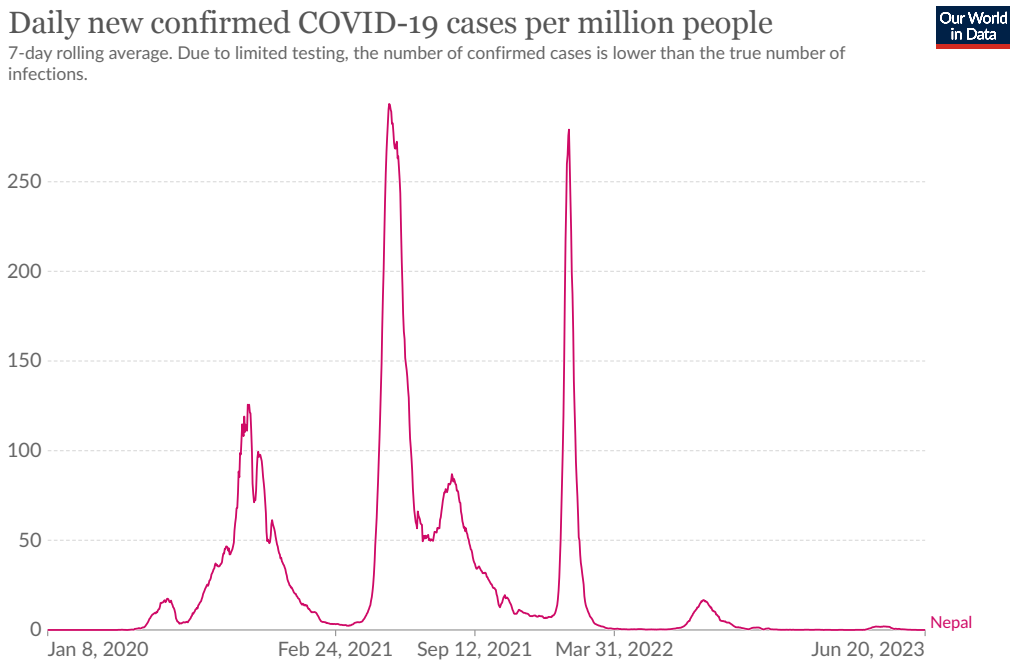



**Figure 23: Daily New Confirmed COVID-19 Cases in Nepal, 1 March 2020 - 20 June 2023**

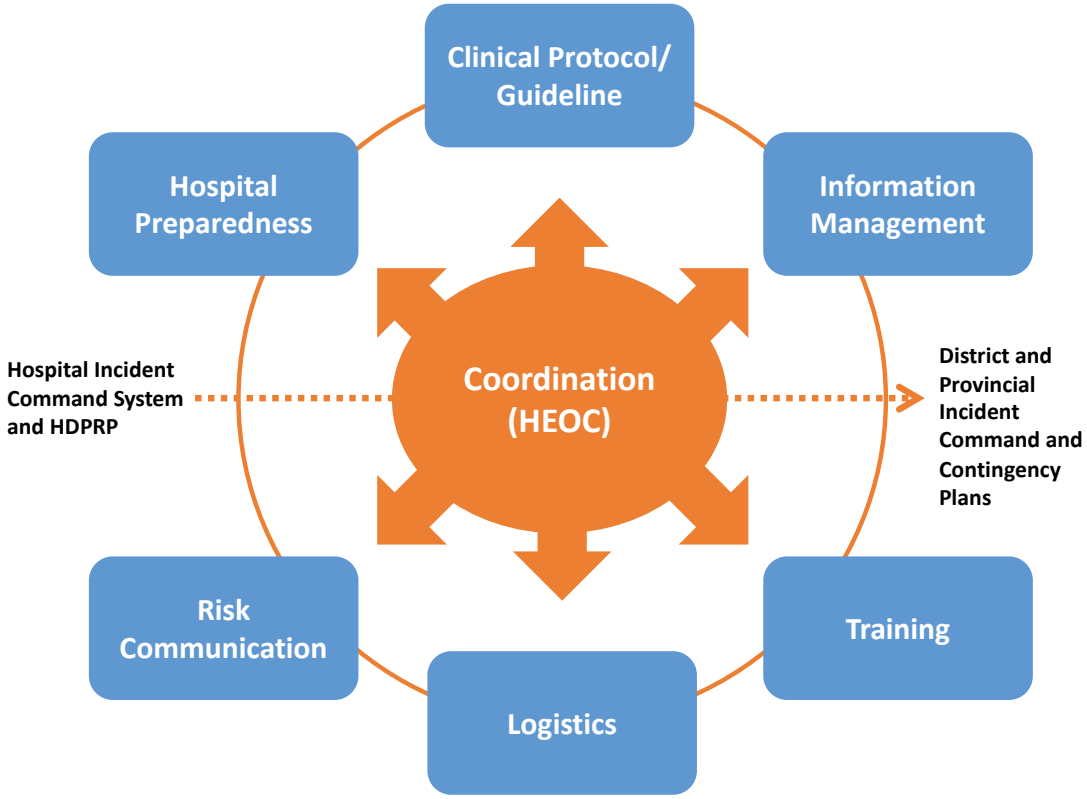



**Figure 24: HEOC Roles during COVID-19**

The GoN responded to COVID-19 following three general strategies:

1. Focused on 10 pillars of response to COVID-19
   - Case investigation, contact tracing, testing, and case management
   - Casualty management – the Nepal Army was largely responsible for managing the bodies of coronavirus victims across the nation
   - Information management - development of a uniform reporting template when cases surged and development of the Information Management Unit, which was established at the HEOC under the Incident Command System (ICS)
   - Response to a novel disease – massively ramping up testing capacity, facilitated by collaborations with the WHO and the private sector
   - Health services management and clinical management – formation of the Emergency Procurement Supply Team to oversee, project, and manage supply issues
   - From person to community – developing and disseminating education and communication materials
   - Maintaining essential services – promoting telehealth services and prioritizing the pre-existing national immunization program that provided vaccines against 12 diseases free to children under five years of age
   - Research and development
   - Working with the three-tier government – across the federal, provincial, and local levels
   - Health system financing[490]
2. Adopted cluster approach to respond to COVID-19 with the support from the UN Country Team. All the clusters for humanitarian response were activated to the level they needed. The health cluster had an additional nine sub-clusters.
3. Responded through budgetary mechanism. The government increased budgetary allocation to the health sector from 5.11% in FY 2019/2020 to 7.8% in FY 2020/2021.

The total budget, however, was reduced by 3.8% in FY 2020/2021. The government also coordinated internationally to access international financial and technical support.

Nepal's GDP growth fell to -2.12% in FY 2019/2020 due to the pandemic, and this contraction surpassed the fall in GDP growth rate between 2014 (6%) and 2015 (2%) following the "Gorkha" earthquake. Migrant workers, often among society's more vulnerable and poorer populations, were disproportionately blamed for spreading the virus that causes COVID-19. The pandemic also revealed how service-based livelihoods, which were thought of as relatively resilient, are also vulnerable to disasters. One innovative response during the COVID-19 pandemic was the introduction of insurance policy schemes, an outgrowth of Nepal previously adopting risk transfer models and insurance mechanisms for risk financing, including more than three dozen micro-insurance policies covering disaster losses in health, agriculture, livestock, and other sectors.[491] Often overlooked is that women's rights organizations played a leading role in the COVID-19 response in their communities, directly supported the economic recovery of women, and advocated for gender-sensitive policies to support equitable recovery.[492]

***Dengue***

In 2022, the country experienced a dengue outbreak with a total of 55,000 cases and 88 fatalities. Dengue infections in 2022 spread to all 77 districts in Nepal. In 2023, from January to June, a reported 946 cases of dengue infection were found in 47 districts, including in all three districts of Kathmandu Valley—Kathmandu, Lalitpur, and Bhaktapur.[493] The 2023 outbreak was notable for having started during the winter season, as dengue cases usually increase during the summer monsoon season, between June and September. Dengue is endemic in Nepal. The disease is caused by four related viruses: dengue viruses 1, 2, 3, and 4. All four serotypes exist in Nepal, with DENV 1 and 2 contributing to the highest burden.[494]

Dengue is relatively new in Nepal, with the earliest cases detected in 2005. While most initially reported cases were related to travel to neighboring India, dengue has now been locally transmitted for years.[495]

Dengue viruses are spread to people through the bite of an infected Aedes aegypti or Ae. albopictus mosquito. The most common symptom of dengue is fever with any of the following: nausea, vomiting, rash, and aches and pains, particularly pain behind the eyes or muscle, joint, or bone pain. Symptoms usually last 2-7 days. About 1 in 20 people who get sick with dengue will develop severe dengue, which can include belly pain, vomiting at least three times in 24 hours, bleeding from the nose or gums, and blood in vomit or in the stool. Severe dengue requires immediate medical treatment as it can result in shock, internal bleeding, and even death. A person can be infected with dengue multiple times in their life.[496]

***Malaria***

Malaria is present throughout the country at altitudes lower than 2,000 m (6,562 feet), although not in Kathmandu. The primary strain of malaria in Nepal is Plasmodium vivax. Less than 10% of malaria in Nepal is P. falciparum, though it is chloroquine resistant.[497] Nepal first initiated a malaria control project in 1954 with support from the U.S. Operations Mission, USAID's predecessor. The national malaria eradication program was launched in 1958, with the objective of eradicating malaria from the country, but it reverted to a control program in 1978. Following WHO's call to revamp malaria control programs in 1998, Nepal launched the Roll Back Malaria initiative to control malaria transmission in forests, foothills, the inner Tarai, and hill river valleys. During the last three decades, Nepal has improved the coverage and quality of indoor residual spraying, long-lasting insecticide-treated nets, rapid malaria diagnosis, and artemisinin-based combination therapy. Nepal achieved the MDG target on halting and beginning to reverse the incidence

of malaria, and it now aims for elimination. The government is implementing the Nepal Malaria Strategic Plan 2014–2025 with a goal to eliminate the disease by 2025. The country's malaria control program works to empower health staff and communities at risk of malaria to achieve the vision of a malaria-free Nepal.[498] The strategic plan focuses on improving quality of and access to early diagnosis and effective treatment of malaria and strengthening programmatic, technical, and managerial capacities towards malaria elimination.[499]

### *Kala-azar or Leishmaniasis*

Leishmaniasis, also known as kala-azar (black fever in Hindi), is endemic in Nepal. Per 2021 data, 240 cases of visceral leishmaniasis (VL) were reported in Nepal; this total included two imported cases.[500] Figure 25 shows the annual number of cases, incidence rate, and number of deaths due to VL in Nepal from 1980 to 2019.[501] The incidence rate in 1980, when the first VL cases were reported, was 1.5/100,000. The highest number of VL cases and incidence rate was reported in 2003, with 2,229 cases for an incidence rate of 53.6/100,000. Years reflecting the higher incidence rates roughly overlap with the country's civil war, which occurred between 1996 and 2006. In 2005, Nepal formulated a national program for the elimination of VL. Since the elimination program began, the number of VL cases has steadily decreased.

The key components of the VL elimination program are early diagnosis, enhanced surveillance, integrated vector management, social mobilization, research, and treatment. Expansion of VL towards the hilly and mountain regions of Nepal has posed challenges to the elimination program. VL is primarily caused by Leishmania donovani and L. infantum (or L. chagasi) that is transmitted by sandflies,[502] Phlebotomusargentipes. The disease is characterized by fever for more than two weeks with splenomegaly, anemia, progressive weight loss, and sometimes darkening of the skin. In the endemic areas, children and young adults are the principal victims of VL. The disease is fatal if it is not treated in a timely manner. The GoN has committed to the regional strategy to eliminate kala-azar and is a signatory, along with India and Bangladesh, of the memorandum of understanding that was formalized during the World Health Assembly 2005 on kala-azar elimination.[503]

### *Scrub Typhus*

Scrub typhus, also known as bush typhus, is an understudied tropical disease that is emerging in Nepal. In the first five months of 2022, more than 260 people were reportedly

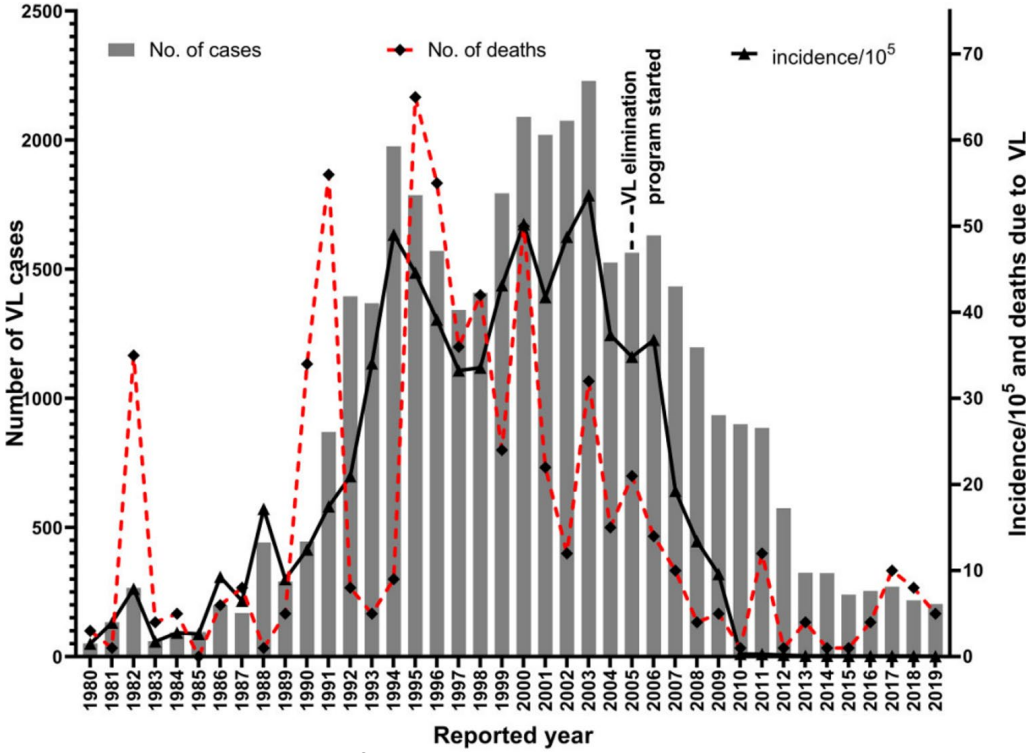



**Figure 25: Annual Distribution of Visceral Leishmaniasis Cases and Deaths in Nepal, 1980–2019**

infected with the disease. Nepal saw a surge in scrub typhus cases after the 2015 earthquakes, following which the presence of scrub typhus was officially confirmed in Nepal. Three months after the "Gorkha" earthquakes, the BP Koirala Institute of Health Sciences alerted the EDCD regarding six children with unusual fever and severe respiratory problems. Tests confirmed a scrub typhus outbreak. By the end of 2015, 101 cases were confirmed in 16 districts and eight people had died, including four of the first six children who fell ill. The outbreak escalated in 2016, when 831 cases of scrub typhus were reported in 47 districts and 14 people died. In 2017, there were 307 cases. The case fatality rate was 5.7% in 2015 but declined to 1.1% in 2017. A nationwide outbreak of scrub typhus was declared during this period as cases were detected in the majority of Nepal's districts.[504] In 2020, there were 1,026 cases, and in 2021 there were 1,999 cases. Cases were observed as peaking during August and September. Typhus symptoms are common to other diseases, and doctors have trouble accurately diagnosing the disease early on. Moreover, many health facilities lack reagents to carry out tests for scrub typhus. "We have just developed guidelines for prevention, control and management of scrub typhus," Dr. Gokarna Dahal, chief of the EDCD's Vector-borne Disease Control Section, was reported in May 2022 as stating. "We have been planning to disseminate the guidelines to all health workers serving throughout the country and organize a training on the diagnosis procedure."[505] Scrub typhus is caused by Orientia tsutsugamushi, a mite-borne bacterium. It spreads in humans who are bitten by infected chiggers (larval mites) found in mice. The mites primarily feed on rodents and small mammals, with humans considered accidental hosts. There is no human-to-human transmission, and the disease does not transmit through the bite of an infected rodent.[506] Symptoms include high fever, headache, abdominal pain, backache, joint and muscle pain, red rash, nausea, and vomiting. Severe illness may include bleeding, which could lead to organ failure. The infection can lead to respiratory distress, inflammation of the brain, kidney failure, and then multi-organ failure. If left untreated, it can be fatal.

## Non-Communicable Diseases

More than 70% of deaths in Nepal are attributed to noncommunicable diseases (NCD). The burden of NCDs among younger adults, 18-30 years of age, has also been continuously rising. In 2019, NCDs accounted for six of the top 10 causes of deaths, including the top three – chronic obstructive pulmonary disease (a group of lung diseases), heart disease, and stroke.[507]

The last NCD Risk Factors STEP Survey for Nepal in 2019 found that behaviors constituting NCD risk factors remained common among Nepali people.[508] Among the survey's findings: nearly 50% of men (aged 15-69 years) used tobacco; exposure to second hand smoke affected one-third of the population at home and two-fifths of the population in the workplace; 97% of people ate less than the WHO-recommended five servings of fruits and vegetables daily; average consumption of salt was nearly double the WHO-recommended amount of 5 grams per day maximum; and one-quarter of the population suffered from hypertension, a major risk factor for heart diseases and stroke.[509]

In response to these findings, Nepal's NCD plan includes reduction of NCD risk factors among its aims. The MoHP's Multi-sectoral Action Plan for Prevention and Control of Non-Communicable Diseases 2021-2025 has the following objectives:

- To reduce the risk factors of non-communicable diseases and address the existing social determinants.
- To strengthen the "people-friendly health system" for effective prevention and control of non-communicable diseases.
- To establish a surveillance, monitoring, and evaluation system for evidence-based policies and programs.[510]

A 2022 study on Nepal's health sector

readiness for NCD prevention and control found several challenges: existing services were focused on curative rather than preventive interventions; the limited budget dedicated to NCDs is allocated to curative services; poor retention of health workers; inadequate quantity and quality of health commodities for NCDs; monitoring and reporting for NCDs and their risk factors was inadequate; program decisions on NCDs were not based on available evidence; and non-health sectors were not substantively engaged on NCD prevention and control.[511]

In 2022, the MoHP implemented a program aimed at strengthening NCD service delivery through capacity building of health workers, including Auxiliary Health Workers, health assistants, community and staff nurses, family physicians, and medical doctors. Through the program, hundreds of health workers have been trained in delivery of basic NCD services, such as blood pressure and sugar screening, identifying risks for cardiovascular diseases, proper recording and reporting methods and tools, techniques to quit alcohol and smoking, and advocacy on healthy lifestyles.[512] The program is an initiative supported by the WHO and the Norwegian Agency for Development Cooperation.[513]

## Training for Health Professionals

Nepal's oldest and largest university, Tribhuvan University, started the country's first medical degree program in 1978 to help meet the demand for doctors. The number of medical colleges in Nepal rapidly increased in the 2000s, but in those early days of expanding medical education, many new institutions appeared more driven by financial profit than quality education. Reform of the medical education system was subsequently spurred partially by medical education activist and orthopedic surgeon, Dr. Govinda KC, who held the first of his now 20 hunger strikes to wrest education reforms from the government. The Medical Education Commission was established in 2017 and tasked with improving the quality and consistency of medical education and introducing professionalism and institutional accountability in medical schools. While some medical schools still struggle with sufficient resources for advanced technologies, infrastructure, and well-trained educators, significant progress has been made with the overall medical education system. In 2020, Nepal had 23 medical schools (including 17 private) as well as independent medical colleges, which altogether produced more than 1,500 medical graduates annually.[514] Medical and dental colleges listed by the Nepal Medical Council as of June 2023 include:

- B.P. Koirala Institute of Health Sciences
- Birat Medical College
- Chitwan Medical College
- College of Medical Sciences (COMS)
- Devdaha Medical College
- Gandaki Medical College
- Janaki Medical College
- Kantipur Dental College
- Karnali Academy of Health Sciences (KAHS)
- Kathmandu Medical College
- Kathmandu University, School of Medical Sciences
- KIST Medical College
- Lumbini Medical College
- M.B. Kedia Dental College
- Maharajgunj Medical Campus
- Manipal College of Medical Sciences
- National Academy of Medical Sciences (NAMS)
- National Medical College
- Nepal Medical College
- Nepalese Army Institute of Health Sciences (NAIHS)
- Nepalgunj Medical College
- Nobel Medical College
- Patan Academy of Health Sciences (PAHS)
- People's Dental College
- Pokhara Academy of Health Sciences (PAHS)
- Universal College of Medical Sciences[515]

The National Health Training Center (NHTC) is under the MoHP and is responsible for overseeing all health training activities at

the federal, provincial, and local levels. The NHTC's goal is to develop the technical and managerial capacity of health service providers at all levels to deliver quality health care services to help the population attain optimum health levels. Established in 1993, the center conducts training needs assessments, delivers training, and conducts monitoring, evaluation, and post-training follow-up research. It caters to the training needs of all the MoHP's departments, divisions, and centers. It plans and conducts training activities in line with the National Health Training Strategy (2004) and contributes to meeting targets in the National Health Policy (2019), National Health Sector Strategy (2015-2020), and Sustainable Development Goals (2030).

NHTC objectives include:

- Standardize the training learning resource packages (i.e., Trainer's Guide, Participant's Handbook, and Reference Manual)
- Organize and conduct trainings to address the country's needs and to support the quality of care by enhancing the service provider's competency
- Ensure the quality of training activities by different mechanisms in adherence to national standards and to enhance the capacity of different training sites
- Adopt and promote innovative training approaches
- Strengthen mechanisms and capacity for post-training follow up and support

Activities of the NHTC include:

- Assess training requirements of health workers
- Plan, implement, and train health workers as needed by programs
- Design, develop, and refine teaching and learning materials to support implementation of training programs
- Develop and improve capacity of trainers to deliver quality training at central, regional, and district levels
- Support regions and districts in organizing, implementing, and evaluating the training programs[516]
- Coordinate with all national and international governmental and non-governmental organizations to avoid duplication of training and improve quality of training
- Orient new health workers toward health programs
- Supervise, monitor, follow-up, and evaluate training programs
- Conduct operational studies to improve training efficiency and effectiveness
- Organize international training as needed
- Establish the Training Information Management System for quality recording and reporting systems of all training programs at central, regional, district, and community levels.[517]

The NHTC sometimes partners with UN or other organizations to coordinate training. After the COVID-19 pandemic reached Nepal, the NHTC and MoHP coordinated with the WHO and Nepal Medical Association to conduct the Critical Care Training for Health Care Workers: COVID-19 Program, which delivered virtual training to more than 11,000 medical professionals from 27 May to 5 June 2021.[518]

# WOMEN, PEACE, AND SECURITY

The Women, Peace, and Security (WPS) agenda encompasses efforts to increase women's meaningful participation in the promotion of peace and security through conflict prevention and resolution, peace negotiation, peacebuilding, peacekeeping, humanitarian response, relief aid, and economic recovery and development. The WPS agenda gained global visibility with United Nations Security Council Resolution (UNSCR) 1325, which was adopted in October 2000 and affirmed the important role women play in many aspects of promoting and maintaining peace and security. The WPS agenda has since expanded with the adoption of additional related UNSCRs: 1820 (2009); 1888 (2009); 1889 (2010); 1960 (2011); 2106 (2013); 2122 (2013); 2242 (2015), 2467 (2019), and 2493 (2019). These resolutions together address various issues of gender and security, including the need to stop gender-based violence and to promote women's roles in conflict resolution, recovery, and peacebuilding. The WPS agenda has also broadened to include applying a gendered perspective to humanitarian assistance, disaster management, DRR, and climate security for more equitable participation to address humanitarian needs and benefit the entirety of a society over the longer term.

In 2011, Nepal adopted a National Action Plan (NAP) on WPS;[519] it aimed to improve the participation of women in decision making and in the peace process, protect and promote the rights of women and girls, and mobilize resources for implementation of the WPS agenda. Nepal now has more women in the legislature relative to many other countries, thanks to a constitutional provision that sets aside 33% of seats for women in all state mechanisms, from the federal to the local level. However, women's progress in leadership and other significant decision-making positions continues to be hindered.[520] Areas needing improvement as identified by women government officials included accountability for violations of women's rights and ensuring property rights, education, and personal freedoms.[521] While significant advancements were made based on Nepal's NAP on WPS, research suggests a challenge is that implementation has been top-down and elite centered, and largely neglected issues faced by low-caste, indigenous, ex-combatant, and Madhesi women.[522]

The WPS Index assesses women's status by quantifying 11 indicators across three dimensions – women's inclusion (economic, social, political); justice (formal laws and informal discrimination); and security (at the individual, community, and societal levels). The 2021 WPS Index scored 170 countries on a scale of 0 to 1 (where 1 is best) and arrived at a global index average of 0.721. Nepal scored 0.714, ranking 95 out of 170 countries. Nepal scored far above the global average on women's parliamentary representation at 33.6% versus 25.5% for the world, and on the absence of legal discrimination at 80.6% versus 74.5% for the world. Among the key indicators is that Nepal reported no deaths from organized violence. Nepal also fared better than the global average on discriminatory norms at 18% versus 20.3% for the world, with a lower score being better on this indicator. Figure 26 shows Nepal's scores across all 11 indicators of the 2021 WPS Index.[523]

| | | | INCLUSION | | | | | JUSTICE | | | SECURITY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WPS Index rank | Country and group | WPS Index score | Education (years) | Financial inclusion (%) | Employment (%) | Cellphone use[a] (%) | Parliamentary representation (%) | Absence of legal discrimination (aggregate score) | Son bias (male to female ratio at birth) | Discriminatory norms (%) | Intimate partner violence (%) | Perception of community safety[a] (%) | Organized violence (battle deaths per 100,000 people) |
| 95 | Nepal | .714 | 4.3 | 41.6 | 73.7 | 81.8[c] | 33.6 | 80.6 | 1.07 | 18 | 11 | 52.1[c] | 0.0 |

**Figure 26: Nepal's Scores across 11 Indicators in the 2021 WPS Index**

People who experienced sexual and gender-based violence during Nepal's 10-year-long civil war still face major obstacles to justice. In a consultation organized by the International Commission of Jurists (ICJ), participants from around the country expressed concern at the lack of attention to gender issues in the transitional justice process and urged that gender considerations be mainstreamed into the process. Shrijana Shrestha, Chairperson of the Conflict Victim Women National Network, emphasized the lack of government data on victims of conflict-related sexual violence and criticized the hurdles victims face in seeking justice due to social taboos and the statute of limitations to register complaints of sexual violence. Mandira Sharma, ICJ Senior Legal Adviser, expressed concern about the lack of political will since the beginning of the peace process to address the needs of women victims, especially victims of conflict-related sexual violence.[524]

Nepal is a significant contributor of troops and other personnel to UN peacekeeping missions. As of mid-2023, the country was contributing more than 6,000 uniformed personnel to UN missions,[525] and the majority of peacekeeping personnel from Nepal are troops, of whom 9% were women as of 30 April 2023. In 2022, Nepal surpassed a UN peacekeeping gender parity target by deploying women as 20% of UN Military Experts on Mission and Staff Officers in UN missions.[526]

From October to December 2020, USAID and IOM supported consultation workshops conducted with 179 elected women representatives from across the country's seven provinces. The consultations aimed to build upon the GoN's efforts in implementing the DRRM Act that was passed in 2017 and amended in 2019. The objectives were to inform the representatives of DRRM gaps, discuss their roles in raising DRRM concerns including gender equality and social inclusion, and providing a platform to discuss DRRM issues including land use policies, multi-hazard risk mapping, relocation of settlements in risk zones, and analyzing needs. Discussions focused on the need to increase the role of women leaders, establish a platform for discussion on gender-sensitive risk reduction practices in policies and programs, allocate funding to empower women and increase their coping capacity, and organize grassroots DRRM knowledge-sharing campaigns with gender-inclusive participation.[527]

Women's organizations play an important role in advocating for improving the status of and conditions for women. Women's Foundation Nepal has fostered community programs that provide safe shelter and psychological and legal help to women and children who have been victims of violence and abuse, as well as provide skills training to women and educational access to children.[528] Womankind Worldwide supports local partners in Nepal including Women for Human Rights; Voices of Women Media; Tewa; Sankalpa – Women's Alliance for Peace, Justice, and Democracy; Saathi; Nepal Disabled Women's Association; National Indigenous Women's Federation; Mitini Nepal; Feminist Dalit Organization; and LOOM Nepal.[529] These organizations advocate for a wide range of women's issues, ranging from land ownership (as only an estimated 20% of women have land on their own),[530] to violence and discrimination.

Women's rights organizations also played a leading role in response to and recovery from COVID-19 in their communities – often despite limited support from other humanitarian actors and donors. Women's organizations directly supported the economic recovery of women and advocated for gender-sensitive policies to support equitable recovery. However, women's organizations participated primarily in response and recovery planning through forums explicitly focusing on gender, with uneven representation in more general disaster response and recovery forums, including limited access to humanitarian cluster meetings. Opportunities for local women's organizations to participate and lead is often stymied by lack of sustainable funding for long-term recovery, partially due to international organizations with funding lacking the flexibility to adapt to local contexts.[531]

# CONCLUSION

Nepal is one of the most disaster-prone countries in South Asia, partially due to topography and climate. Causes of disasters have included earthquakes, storms, landslides, floods, fires, and GLOFs. More than 80% of Nepal's population is at risk from natural hazards.[532] Multiple disasters occur annually, particularly floods and landslides during the monsoon season.[533] Climactic disaster frequency and mortality increased in Nepal from 1992 to 2021.[534] Disaster risk has intensified due to a combination of factors, including unplanned urbanization, environmental degradation, and climate change.

Nepal was devastated by two powerful earthquakes in April and May 2015; they killed approximately 9,000 people, injured more than 22,000, displaced hundreds of thousands of people, and caused billions of dollars in damages. Two years later, Nepal was also significantly impacted by severe monsoon flooding. In the wake of these disasters, Nepal established its pivotal Disaster Risk Reduction and Management Act in 2017 and amended it in 2019. The 2017 act clarified roles of government agencies, civil society, the private sector, and civil-military coordination in disaster response, and established the Disaster Management Fund.[535] The 2019 amendment established the NDRRMA under the MoHA.

Nepal has been recognized for its bottom-up approach to disaster risk governance, which was connected to its shift toward decentralization following the promulgation of the 2015 constitution, which mandated political decentralization through federalism. Nepal transformed its structural approach to disaster risk governance, resulting in the decentralization of authority to the lowest levels of government to build resilience from the ground up. This framework aligns with DRR generally being most effective when the people who are most impacted by disasters have a voice in policy priorities, a prioritization that facilitates local buy-in and informs plans by realities on the ground. Community consultations have informed plans at the municipality and province levels as enabled by overarching guidance from the federal level, particularly the National Policy and Strategic Action Plan for Disaster Risk Reduction and Management 2018-2030, which was developed in response to the 2017 DRRM Act.[536]

Challenges remain. As with many countries, the COVID-19 pandemic caused national economic setbacks but disproportionately affected women, people living in poverty, and other vulnerable groups. Climate change is already a concern, as glaciers are melting and extreme precipitation events are increasing in frequency. South Asia has been among regions of the world impacted by record-breaking heatwaves in 2023, and Nepal experienced temperatures as high as 44°C (111°F) in June alone.[537] Of 185 countries measured, Nepal ranked the 125th most vulnerable to climate change impacts in the 2021 Notre Dame Global Adaptation Initiative Index, which summarizes a country's vulnerability to climate change and other global challenges in combination with its readiness to improve resilience, with a lower score indicating greater vulnerability.[538] Natural hazards such as drought, heatwave, river flooding, and GLOFs are all projected to intensify, exacerbating disaster risk this century. By 2030, climate change could more than double the number of people annually affected by river flooding and triple its economic impact.[539] As Nepal faces future climate change risks, an important challenge will be the disproportionate impact on its most vulnerable communities – particularly those living in poverty or in remote areas, and those reliant on subsistence agriculture – who may have the least access to adaptation approaches. Supporting and involving the most vulnerable in decision-making processes will be important to mitigate widening social inequalities and adverse disaster impacts.

# APPENDICES

## DoD DMHA Engagements in the Past Six Years (FY 2017-2023)

The list below describes the DMHA Engagements that the U.S. has had with Nepal in the last six years.

***South Asia Regional Disaster Response Exercise and Exchange, July 2023***

The inaugural South Asia Regional Disaster Response Exercise and Exchange (DREE) was a landmark event sponsored by U.S. Army Pacific (USARPAC) and hosted by the Guam National Guard. It was a collaborative exercise, gathering South Asian and international allies to strengthen disaster response capabilities and foster resilient humanitarian partnerships. The exercise occurred over 10 days with more than a dozen participant and observer nations, including Nepal alongside Bangladesh, Japan, the Republic of Korea, Sri Lanka, the United Kingdom, and Vietnam.[540] The exercise included workshop panels on disaster and recovery with members of military and civilian agencies at the Guam Army National Guard Readiness Center.[541] Topics covered during the DREE included urban search and rescue[542] and WPS.[543] On 17 July, Tulsi Prasad Dahal, Under Secretary of Nepal's Disaster and Conflict Management Division, gave a presentation on Nepal's national disaster response framework.[544] The DREE aimed to enhance regional cooperation and camaraderie, strengthen disaster response capabilities, and improve overall strategies, mechanisms, and coordination efforts.[545]

***Indo-Pacific Intelligence Chiefs Conference, September 2022***

The 15th annual Indo-Pacific Intelligence Chiefs Conference (IPICC) concluded 1 September 2022. Co-hosted by the U.S. Indo-Pacific Command (USINDOPACOM) and the Maldives National Defense Force, the IPICC brought together directors of military intelligence from 20 countries across the Indo-Pacific, including Nepal, to discuss challenges and concerns, including climate change, which is exacerbating disasters and humanitarian crises. "We can't act on climate change alone, we can't address maritime security alone, we can't combat violent extremists alone, we can't address strategic competition alone, we can't maintain a rules-based international order alone," said Lt. Gen. Scott Berrier, Director of the U.S. Defense Intelligence Agency. "In short, we can't pretend we live in different worlds. What happens in Asia matters to the United States."[546]

***Indo-Pacific Intelligence Chiefs Conference, September 2021***

The 14th annual IPICC began 5 September 2021 in the Maldives. It brought together military intelligence chiefs from across the region to discuss security challenges, including climate change. Topics for the 14th IPICC included the effects of climate change on regional stability and military capabilities, terrorism and the threat of returning foreign fighters, maritime security challenges, grey zone challenges, and strategic competition. In addition to the co-hosts, Nepal was among the participants, as well as Canada, France, India, Indonesia, Japan, Mongolia, New Zealand, Republic of Korea, Singapore, Sri Lanka, the United Kingdom, and Vietnam. The conference was co-hosted by the Maldives National Defense Force Director General for Defence Intelligence and the USINDOPACOM Director for Intelligence. IPICC is an annual executive-level forum, co-hosted by USINDOPACOM and a rotating partner nation, for directors of military intelligence across the Indo-Pacific to develop shared understanding of and multilateral cooperation on regional security issues.[547]

***Nepal Pacific Resilience 2019 Disaster Response Exercise and Exchange, May 2019***

The Nepal Pacific Resilience 2019 DREE was conducted 19-26 May 2019 in Pokhara, Nepal. The DREE, conducted with the theme "Unity of Effort," was a multilateral and multinational coordination, communication, and cooperation exercise among USARPAC, the Nepal Army, emergency responders, and approximately 15 nations to respond to natural and man-made disasters.[548] This iteration of the exercise was the first held at the provincial level in Nepal and was composed of a Table-Top Exercise (TTX), Field-Training Exercise (FTX), subject matter expert exchanges, multilateral demonstrations, technical training, and a cultural day. This marked the fifth iteration of the HADR engagement between USARPAC and the Nepal Army. Previous iterations occurred in 2011, 2013, 2016, and 2018 and focused on earthquake response. A planned 2015 exercise was canceled because of the 2015 earthquakes in Nepal. The 2016 event featured a TTX and FTX focused on an earthquake impacting Kathmandu.[549]

***Nepal Pacific Resilience Disaster Response Exercise and Exchange, September 2018***

The Nepal Pacific Resilience DREE was held 25-28 September 2018 in Kathmandu. The civil-military disaster preparedness and response initiative was co-hosted by the Nepal Army, Nepal's MoHA, and USARPAC. More than 300 civilian and military disaster response professionals from 14 countries addressed a mega earthquake disaster scenario that was developed to examine Nepal's legal and regulatory framework, policies, procedures, organizational setup, tactics, and response techniques. Working together strengthened relationships between the U.S. and Nepal Army, and other disaster response stakeholders in the region. The exercise focused on mass casualty simulations, search and rescue operations, camp management, engineer planning, communication planning, and disaster response. The theme for this DREE was "Unity of Effort IV," as it was the fourth iteration of the exercise. The Nepal DREE is one of many conducted under the Pacific Resilience program, which is USARPAC's main platform to engage and prepare with various partners in a whole-of-government approach that uses both the military and civilians to plan and execute events.[550]

***Pacific Endeavor, August 2018***

Exercise Pacific Endeavor 2018 started in Kathmandu on 6 August 2018. Pacific Endeavor is a communication exercise under the Multinational Communications Interoperability Program (MCIP), which is a USINDOPACOM-sponsored HADR information-sharing operation. The 12-day exercise aimed to develop common communications operating procedures to enable various military forces in the Indo-Pacific to collectively work in the wake of a disaster. Around 270 personnel from 20 countries participated in the exercise, which was jointly organized by the Nepal Army and USINDOPACOM. Nepal's Director General of Military Operations, Major General Prabhuram Sharma, who inaugurated the exercise, commented that it would contribute to sustainable reduction of disaster risk and loss of life, and also promote timely and effective deployment of multinational military forces and international humanitarian agencies during disasters. Pacific Endeavor began in 2005 and focuses on establishing rapid and effective interoperable communication systems among multinational militaries to jointly act in large-scale, international disaster relief operations.[551]

***Pacific Angel, August 2017***

The Nepal Army and U.S. forces worked together to conduct humanitarian assistance engagements 13-20 August 2017 in Nepal, in the third of four humanitarian assistance engagements across the Indo-Pacific that comprised Pacific Angel (PACANGEL) 2017. Approximately 65 U.S. military members, in partnership with Nepal military forces and local NGOs, trained together by providing medical, dental, optometric, and engineering assistance, and conducted subject matter expert exchanges in Gorkha and Kathmandu. One such event

was an aviation medicine subject matter expert exchange at the Shree Birendra Hospital in Kathmandu that focused on moving patients using rotary and fixed wing platforms as well as medical and casualty evacuation procedures.[552] Throughout the 8-day engagement, Nepal and U.S. forces also partnered with local schools and health clinics to repair and update infrastructure. U.S. and Nepal service members increased interoperability by learning best medical practices from one another, while giving back to the community as friends, partners, and allies. Since 2007, PACANGEL has been a U.S. Air Force program that conducts joint and combined humanitarian assistance engagements to prepare the region's militaries to work together to address humanitarian crises.[553]

## International/Foreign Relations

Nepal has bilateral relations with 181 countries and the EU.[554] As a small nation surrounded by two larger ones, Nepal strives to prioritize good relations with China and India. In its 2020-2021 Foreign Affairs Report, Nepal noted India's and China's "generous support during the pandemic" for vaccines, medical items, equipment, and supplies, and noted that the U.S. provided Nepal with 1.5 million vaccine doses as "major humanitarian support."[555] Nepal's top five export-destination countries are India, the U.S., Germany, the United Kingdom, and Turkey. Its top five source countries of imports are India, China, Argentina, the United Arab Emirates, and the U.S. Nepal's top five bilateral development partners are the U.S., United Kingdom, China, India, and Japan. Among key drivers of Nepal's foreign policy engagements is the need to balance two development and infrastructure projects—China's Belt and Road Initiative (BRI) and the U.S.' Millenium Challenge Corporation (MCC).

Nepal actively participates in several multilateral organizations. In addition, Nepal is a major troop- and police-contributing country for United Nations peacekeeping missions. It is also active on the UN Human Rights Council, to which it was re-elected in October 2020 to serve through 2023.[556] Regional cooperation frameworks that Nepal participates in include the South Asian Association for Regional Cooperation (SAARC), Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), Asia Cooperation Dialogue (ACD), and Shanghai Cooperation Organisation (SCO). Achieving SDGs and graduating from the Least Developed Country category are key desired outcomes of Nepal's multilateral diplomacy.

### *China*

Bilateral relations between Nepal and China have grown over decades through efforts to increase trade and connectivity along with high-level meetings and visits. President Xi Jinping visited Nepal in October 2019, the first time in more than two decades that a Chinese head of state had made the trip. During the COVID-19 pandemic, Nepal received significant support from China in the form of more than 3 million doses of COVID-19 vaccines[557] and other critical medical logistics and equipment.[558] Nepal joined China's BRI in 2017 to improve regional connectivity infrastructure. As of July 2023, no BRI projects had started in Nepal, a situation attributed to several constraints including finalization of the project implementation agreement.[559] In March 2022, Nepal and China signed nine agreements pertaining to a range of issues, including vaccines, railways, economic and technical cooperation, and a technical assistance scheme for a feasibility study of China-Nepal cross-border projects.[560] None of the agreements were BRI loans, which China had pitched after Nepal signed an MCC compact with the U.S. in February 2022. In fact, the nine agreements followed Nepal clarifying that it wanted grant projects not loans from China and insisting that if they had to take any loan it should be a soft or concessional loan with an interest rate not exceeding 2%.[561] Under the BRI framework, in July 2023, China did launch the Silk Roadster, a new platform for

practical cooperation and people-to-people exchanges. It aims to "carry out technical skills training, services for the people, overseas study projects, short-term exchanges, cooperation between enterprises and cultural exhibitions and exchanges events with Southeast and South Asian countries," according to the concept paper. The BRI was initially perceived by Nepal as focused on big infrastructure projects; thus, whether it now encompasses micro-sized projects and whether it will have an impact on Nepal remain to be seen.[562] In a first official claim from Nepal of Chinese interference on its territory, a GoN report commissioned in September 2021 accused China of encroaching into Nepal over their shared border, an allegation China denied. The report was not published by the GoN but leaked to the media in 2022.[563]

***India***

Nepal and India have historically had a close relationship, including connections of culture, tradition, and religion. India wielded significant influence in Nepal's post-civil war peace process, having cultivated links with several of the warring parties for years. Relations are usually strong and maintained with frequent reciprocal high-level visits by leaders.[564] Nepal has a degree of economic dependence upon India, as the Nepali rupee is pegged to India's (the exchange rate between the two does not change), Nepal relies on Indian ports for trade, and millions of Nepalis work in India. India has been an important development partner, providing economic assistance to Nepal with several large projects, including the B.P. Koirala Institute of Health Sciences, the Emergency and Trauma Centre at Bir Hospital, and Manmohan Memorial Polytechnic. In 2014, the two countries signed a Power Trade Agreement that allowed developers from India and Nepal to trade electricity across the border without restrictions. Cooperation over water resources has long been a prominent bilateral issue, and both governments have set up multiple mechanisms. The Joint Ministerial Commission for Water Resources, Joint Committee on Water Resources, and Joint Standing Technical Committee implement agreements and address flooding and inundations. The Joint Committee on Inundation and Flood Management deals explicitly with inundation, embankments, and flood forecasting.[565] There is a border dispute between the two countries; it was spotlighted in 2015, when Nepal protested an agreement between India and China to develop transit and trade in Lipulekh, which Nepal claims. In November 2019, India issued a new political map that included the disputed territories within India's borders.[566] In 2020, Nepal amended its constitution to include the disputed territories of Kalapani, Lipulekh, and Limpiyadhura within Nepal's borders. There have not been serious diplomatic efforts to resolve the issue, but it does have the potential to stoke anti-Indian nationalism in Nepal. The disputed territory is under de facto Indian control.[567]

***United States***

Nepal and the U.S. have a strong relationship. The U.S.'s approach to Nepal has centered around helping it develop into a prosperous and stable democracy, particularly since the end of its civil war in 2006 as Nepal has successfully transitioned into a constitutional federal republic. U.S. policy objectives include strengthening good governance, democratic values, and security and stability; supporting inclusive, equitable economic growth and a clean, resilient energy future; and helping Nepal become more independent as it confronts global challenges. In 2016, Nepal became one of just a few countries with a single-country trade preference program with the U.S. The main U.S. exports to Nepal include agricultural products, aircraft parts, and optical and medical instruments and machinery. In 2021, U.S. exports also included vaccines, face masks, and coal. Nepal exports to the U.S. include carpets, felt products, dog food, handicrafts, jewelry, and apparel. Total bilateral trade is worth approximately US$300 million annually, placing the U.S. among Nepal's top half-dozen trade partners.[568]

In 2017, the same year Nepal signed onto

China's BRI, the GoN also signed onto the MCC as that organization's first compact in South Asia. Along with the US$500 million MCC compact agreement between the U.S. and Nepal Governments, the GoN committed to contribute an additional US$130 million of its own funding.[569] However, Nepal's Parliament did not ratify the MCC compact until February 2022, with opposition parties insisting on an interpretive declaration.[570] The month following the ratification, Chinese Foreign Minister Wang Yi visited Nepal and warned of "external interference" that threatened the core interests of Nepal and China.[571] The MCC-Nepal Compact will address two major aspects holding back Nepal's economy - energy and transportation. The Electricity Transmission Project will provide sustainable, reliable electricity for Nepali businesses and homes through the construction of more than 300 km (186 miles) of high voltage transmission lines. The Road Maintenance Project will lower transportation costs by introducing a new government-run road maintenance program to better build and maintain Nepal's roads. According to Sanjay Poudyal, the Deputy Director of MCC's Nepal Team, the program "focuses on the areas identified by Nepal, is designed by Nepal, and will be led by Nepal."[572]

## Participation in International Organizations

Nepal is a member of, participates in, or cooperates with the following international organizations and agreement frameworks either as a government or via a national NGO or other entity:

Asian Development Bank (ADB), Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), Conference on Disarmament (CD), Colombo Plan (CP), Food and Agriculture Organization of the United Nations (FAO), Group of 77 (G-77), Institute of Catastrophe Risk Management (ICRM), Inter-Parliamentary Union (IPU), International Atomic Energy Agency (IAEA), International Bank for Reconstruction and Development (IBRD), International Chamber of Conference (ICC-NGOs), International Civil Aviation Organization (ICAO), International Criminal Police Organisation (INTERPOL), International Development Association (IDA), International Federation of Red Cross and Red Crescent Societies (IFRC), International Finance Corporation (IFC), International Fund for Agricultural Development (IFAD), International Labour Organization (ILO), International Maritime Organization (IMO), International Monetary Fund (IMF), International Olympic Committee (IOC), International Organization for Migration (IOM of the UN), International Organization for Standardization (ISO), International Telecommunications Satellite Organization (ITSO), International Telecommunications Union (ITU), International Trade Union Confederation (ITUC-NGOs), Multilateral Investment Guarantee Agency (MIGA), Non-Aligned Movement (NAM), Organisation for the Prohibition of Chemical Weapons (OPCW), South Asian Association for Regional Cooperation (SAARC), South Asia Cooperative Environment Programme (SACEP), United Nations (UN), United Nations Conference on Trade and Development (UNCTAD), UN Educational, Scientific, and Cultural Organization (UNESCO), Human Rights Council (UNHRC), UN Industrial Development Organization (UNIDO), UN World Tourism Organization (UNWTO), Universal Postal Union (UPU), World Customs Organization(WCO), The World Federation of Trade Unions (WFTU NGOs), World Health Organization (WHO), World Intellectual Property Organization (WIPO), World Meteorological Organization (WMO), World Trade Organization (WTO).

UN peacekeeping missions that Nepal is contributing personnel to as of March 2023:[573]

- United Nations Mission for the Referendum in Western Sahara (MINURSO) – 5 experts on mission
- United Nations Multidimensional Integrated

Stabilization Mission in the Central African Republic (MINUSCA) – 4 experts, 18 staff officers, 1,219 troops
- United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA) – 25 staff officers, 156 troops
- United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO) – 12 experts, 7 individual police, 15 staff officers, 1,121 troops
- United Nations Assistance Mission for Iraq (UNAMI) – 77 troops
- United Nations Disengagement Observer Force in the Golan Heights (UNDOF) – 14 staff officers, 401 troops
- United Nations Peacekeeping Force in Cyprus (UNFICYP) – 3 individual police
- United Nations Interim Force in Lebanon (UNIFIL) – 16 staff officers, 857 troops
- United Nations Interim Security Force for Abyei (UNISFA) – 2 experts, 3 individual police, 6 staff officers, 97 troops
- United Nations Integrated Transition Assistance Mission in Sudan (UNITAMS) – 1 expert, 3 individual police
- United Nations Mission to support the Hudaydah Agreement (UNMHA) – 2 experts on mission
- United Nations Interim Administration Mission in Kosovo (UNMIK) – 1 police officer
- United Nations Mission in South Sudan (UNMISS) – 14 experts, 180 formed police units, 23 individual police, 45 staff officers, 1,700 troops
- United Nations Support Mission in Libya (UNSMIL) – 1 expert, 233 troops
- United Nations Truce Supervision Organization in the Middle East (UNTSO) – 3 experts on mission

# Force Protection/Pre-Deployment Information

The following information is provided for pre-deployment planning and preparations. Visit www.travel.state.gov prior to deployments for further up-to-date information.[574] DoD personnel must review the Foreign Clearance Guide (FCG) for travel to Nepal (www.fcg.pentagon.mil). All official travel and personal travel for active-duty personnel must be submitted through an APACS request. Contact information for the Defense Attaché Office can be found in the FCG if you have additional questions.

## Passport/Visa

The Nepal Department of Immigration may issue orders regarding country-specific travel limitations, especially related to pandemic diseases. All travelers can receive on-arrival visas at the port of entry. Amendments to existing orders and new orders may be promulgated with little notice.

Requirements for Entry:
- Passport must have six months or more validity remaining at the time of entry
- One blank visa page available in passport for visa (not endorsements page)
- Nepali authorities generally allow entrance on an emergency passport printed overseas
- Visa appropriate for purpose of travel

International travelers arriving and departing Nepal via international airport(s) are permitted no more than one of the following personal items:
- Binoculars
- Electronic tablet/laptop, video camera, and camera
- Portable music system
- Perambulator or tricycle
- Bicycle
- Watch
- Cellular mobile phone
- Worked gold / jewelry up to 50 grams and worked silver/ jewelry up to 100 grams
- Items for professional use, including drones (check in advance with the Nepal Department of Customs)

Travelers are strictly prohibited from carrying

pure/raw/unworked gold and silver through ports of entry.

Regular Tourist Visas: Travelers arriving by air may either apply for a tourist visa at a Nepalese embassy or consulate before traveling or purchase a tourist visa upon arrival at Tribhuvan International Airport in Kathmandu. Pre-arrival visas are subject to availability. For online visa applications, see *https://online.nepalimmigration.gov.np/tourist-visa*. Note that obtaining a visa on arrival may take several hours.

Travelers arriving by land are responsible both for obtaining a visa and going through the necessary immigration formalities. U.S. citizens may not be stopped by border officials in either direction to process immigration and visa documentation. Consequences for non-compliance are severe and have included lengthy prison sentences and large fines. When crossing by land into Nepal, U.S. citizens should carry U.S dollar bills to pay their Nepali visa fee. U.S. citizens travelling by land from India to Nepal should be aware that Nepali visa fees must be paid in cash in U.S. dollars. Credit cards or other currencies will not be accepted. All U.S. bills must be new (no older than 2003) and in good condition (no tears, excessive wear, creases, visible repairs, etc.). Individuals crossing the border by foot are provided 24-hour service.

Travelers who do not have a visa and do not receive an entry stamp from an immigration officer will not be allowed to depart Nepal and may face additional consequences.

U.S. citizens can purchase an on-arrival tourist visa at the following land border points of entry:

- Kakarvitta, Jhapa District (Eastern Nepal; closed as of 21 June 2023)
- Pashupatinagar, Mahottari District (Eastern Nepal; closed as of 21 June 2023)
- Biratnagar, Morang District (Southeastern Nepal, only arrival; no departure)
- Birgunj, Parsa District (Central Nepal)
- Kodari, Sindhupalchok District (Northern Border– for group tourists only; closed as of 21 June 2023)
- Belahia, Bhairahawa (Rupandehi District, Western Nepal)
- Jamunaha, Nepalgunj (Banke District, Mid-Western Nepal; closed as of 21 June 2023)
- Mohana, Dhangadhi (Kailali District, Far Western Nepal; closed as of 21 June 2023)
- Gadda Chauki, Mahendranagar (Kanchanpur District, Far Western Nepal)

Tourists obtaining visas provided on-arrival by the Nepali Department of Immigration may stay no more than 150 days in any given calendar year. Visas are only given in 15-, 30-, or 90-day increments but may be extended at the Department of Immigration office in Kathmandu. Tourists may request the following visa at the time of arrival at TIA and checkpoints:

- 15 days multiple-entry tourist visa (approximately US$30)
- 30 days multiple-entry tourist visa (approximately US$50)
- 90 days multiple-entry tourist visa (approximately US$125)

Visa fees are payable in U.S. dollars. While money-changing and ATM services are available at the airport, credit card payment is not a reliable option, and ATM machines occasionally malfunction.

Other Visa Categories: As of January 2023, all foreign travelers must arrive in Nepal on a tourist visa and can only convert their visa to a different category after arrival. Purpose of travel will dictate what category of visa is needed. Persons who intend to apply for a study or work visa from Nepal should start the visa conversion process with the institution/employer and the concerned government authorities at least two months prior to expiration of tourist visa. Non-tourist visa issuance has been known to take months to process, and stays beyond 150 days on a tourist visa will lead to deportation with overstay fines and penalties.

The Department of Immigration headquarters in the Kalikasthan neighborhood of Kathmandu is the only office that can extend tourist and non-tourist visas. The Immigration Offices in Kakarbhitta, Birgunj, and Belahia can extend relationship visas (marriage) and

Non-Residential Nepali (NRN) visas. The Immigration Office in Pokhara can extend tourist, relationship (marriage), and NRN visas. Visitors should apply to extend their visas before the expiration date; failure to do so will result in penalty and late fees. Long overstays beyond the expiration date can result in heavy fines, arrest, and detention pending formal deportation proceedings, followed by a ban on re-entry. Payment at the Department of Immigration can be made only in cash in Nepali rupees or U.S. dollars.

Requirements for Exit: Travelers must have a valid visa in a valid passport to be allowed to depart Nepal. If a visa has expired, the traveler must extend it before being allowed to depart. The Immigration Office at Tribhuvan International Airport is not authorized to extend visas. Travelers who try to extend their visa at the airport will be sent to the Immigration Office in Kathmandu to pay the extension fee and, as a result, travelers may miss flights. Travelers who renew or replace their passports at the U.S. Embassy in Kathmandu must go to the Department of Immigration to transfer their Nepali visas by pasting a new visa into the new passport. Transferring a visa from one passport into another on one's own is a serious crime, with punishments of up to nine years in prison and significant fines.

## Safety and Security

U.S. government employees on official travel to Nepal must seek approval before traveling outside of Kathmandu Valley.

The potential for isolated politics-related violence remains a real risk. There are occasionally small-scale improvised explosive device incidents in various parts of Nepal, particularly during periods of heightened political tension. Reported incidents have not been directed toward Westerners or Western interests but have caused injury and damage to nearby individuals and property. The U.S. Embassy is aware of extortion attempts and threats of violence by a local group against private businesses and aid organizations, including local and international schools within the Kathmandu Valley. Historically, violent political activity has been more prevalent in the Tarai – the southern plains region bordering India – than elsewhere in Nepal. Demonstrations have on occasion turned violent, although these activities generally have not been directed at U.S. citizens.

Bandhs (general strikes) were formerly a common form of political agitation in Nepal but have occurred only infrequently in recent years. Bandhs are unpredictable, may include violent incidents, and can occur with little notice. They can cause schools and businesses to close and can stop traffic, including bus services to and from major airports. Individuals not complying with bandhs may be harassed, and in extreme cases assaulted, by supporters. Do not attend or approach political demonstrations or checkpoints established during bandhs. Avoid all unnecessary travel where bandhs are occurring.

Although relatively low, crime rates in Kathmandu and throughout the country have risen in some categories, including financial crimes and theft. Pickpocketing and bag-snatching may occur at major tourist sites, including the Thamel area of Kathmandu. Store valuables, including passports and cash, in the hotel safety deposit box; do not carry them. The Nepal Tourist Police recommend that you carry a photocopy of your passport when going out. Exchange money only at banks, hotels, and government authorized money exchangers. Criminals use sophisticated scams, such as ATM skimming, particularly in Kathmandu. Avoid walking alone after dark, carrying large sums of cash, and wearing expensive jewelry.

Travel in groups, especially at night. While not common, sexual assaults against foreigners have been reported, including in popular tourist areas of Kathmandu and Pokhara, and in remote mountainous areas. Foreigners have occasionally had sedative drugs added to their food or drink by individuals who seek to rob or otherwise take advantage of them. Solo travelers should take extra precautions to ensure their personal safety.

Nepali police forces may have limited

resources to deter and investigate crimes. Many criminal cases reported to the police remain unresolved.

Report crimes to the local police by dialing "100" as soon as incident occurs. This number is staffed all day every day by the local police. When calling the emergency number, speak slowly and clearly so that your message gets across to the official without misunderstanding. Tourist Police, who can be reached by dialing "1144," have good English language capabilities and stand ready to assist in popular tourism areas. Remember that local authorities are responsible for investigating and prosecuting crimes. U.S. citizen victims of crime in Nepal may always contact the U.S. Embassy in Kathmandu for assistance. Sexual assault victims might be more comfortable contacting the Embassy before reporting the crime to local authorities. In the event of a crime, the U.S. Embassy can:

- Help find appropriate medical care
- Assist in reporting a crime to the police
- Contact relatives or friends with written consent
- Provide a list of local attorneys
- Provide information on victim's compensation programs in the United States
- Provide an emergency loan for repatriation to the United States and/or limited medical support in cases of destitution
- Help find accommodation and arrange flights home
- Replace a stolen or lost passport

No formal tourism industry infrastructure is in place. Tourists are considered to be participating in activities at their own risk. Emergency response and subsequent appropriate medical treatment is not available in-country. U.S. citizens are encouraged to purchase medical evacuation insurance and be aware of potential insurance fraud.

Local authorities are generally the best first responder in emergency situations. Many local resources are available by phone, although it may become necessary to flag down an officer or visit a local police or government office. In the event of an emergency, dial 100 to contact the police in Nepal; the police toll free number is 16600141916. Tourist Police have good English language skills and are often a better point of contact for foreigners than the regular police. They generally stand ready to assist in popular tourism areas. Dial 1144 for the tourist police hotline. The Tourist Police Office is located at Bhrikuti Mandap, Kathmandu, Tourist Service Center Building.

## Emergency Contact Information

In the event of an emergency, dial 100 to contact the police as soon as an incident occurs. Additional emergency numbers are 101 for fire or 102 for ambulance service.

U.S. Embassy Kathmandu
Maharajgunj
Kathmandu, Nepal
Tel: +977-1-423-4000 or 400-7200
Emergency: +977-1-423-4000
Fax: +977-1-400-7272
Email: *consktm@state.gov*

## Currency Information

Nepalese Rupee (Rs or NPR)
NPR 1.00 = US$0.0076 or NPR 131.25 = US$1.00 (as of 20 June 2023)

## Travel Health Information

The CDC provides guidance that all travelers to Nepal should be up-to-date on routine vaccinations. The following are additional recommendations for travel to Nepal. The information in Tables 8 and 9 is taken directly from the CDC website under the Travelers Health Section (*https://wwwnc.cdc.gov/travel/destinations/list/*).[575]

Health Alerts for Nepal: At the time of writing this handbook (21 June 2023), there are no health risk alerts.

| | |
|---|---|
| Routine Vaccinations | All travelers should be up-to-date on all routine vaccines before every trip. Some of these vaccines include:<br>• Chickenpox (Varicella)<br>• COVID-19<br>• Diphtheria-Tetanus-Pertussis<br>• Flu (influenza)<br>• Measles-Mumps-Rubella (MMR)<br>• Polio<br>• Shingles |
| Cholera | Areas of active cholera transmission in Nepal are localized to the region of Bagmati. Cholera is rare in travelers. Certain factors may increase the risk of getting cholera or having severe disease. Avoiding unsafe food and water and hand washing can help prevent cholera. Vaccination may be considered for children and adults who are traveling to areas of active cholera transmission. |
| Hepatitis A | Recommended for unvaccinated travelers one year old or older going to Nepal. Infants 6-11 months old should also be vaccinated; the dose does not count toward the routine 2-dose series. Travelers allergic to a vaccine component or who are younger than 6 months should receive a single dose of immune globulin, which provides effective protection for up to 2 months depending on dosage given. Unvaccinated travelers who are over 40 years old, immunocompromised, or have chronic medical conditions and who are planning to depart to a risk area in less than 2 weeks' time should get the initial dose of vaccine and at the same receive immune globulin. |
| Hepatitis B | Recommended for unvaccinated travelers younger than 60 years old traveling to Nepal. Unvaccinated travelers 60 years and older may want to get vaccinated before traveling to Nepal. |
| Japanese Encephalitis | Recommended for travelers who:<br>• are moving to an area with Japanese encephalitis to live<br>• spend long periods of time, such as a month or more, in areas with Japanese encephalitis<br>• frequently travel to areas with Japanese encephalitis<br><br>Consider for the following groups:<br>• spending less than a month in areas with Japanese encephalitis but will be doing activities that increase risk of infection, such as visiting rural areas, hiking or camping, or staying in places without air conditioning, screens, or bed nets<br>• going to areas with Japanese encephalitis who are uncertain of their activities or how long they will be there.<br><br>Not recommended for travelers planning short-term travel to urban areas or travel to areas with no clear Japanese encephalitis season. |
| Malaria | CDC recommends that travelers going to certain areas of Nepal take prescription medicine to prevent malaria. Depending on the medicine, the traveler may be required to start taking this medicine multiple days before departure, during and after the trip. Malaria transmission occurs throughout the country in areas below 2,000 m (6,500 ft) in elevation. There is no malaria transmission in Kathmandu or on typical Himalayan treks. |
| Measles | Infants 6-11 months old traveling internationally should get 1 dose of MMR vaccine before travel. This dose does not count as part of the routine childhood vaccination series. |
| Rabies | Rabid dogs are commonly found in Nepal. Persons who are bitten or scratched by a dog or other mammal while in Nepal may find that rabies treatment is limited or not available. Travelers should consider rabies vaccination before traveling if activities mean being around dogs or wildlife. Travelers who are more likely to encounter rabid animals include:<br>• campers, adventure travelers, or cave explorers (spelunkers)<br>• veterinarians, animal handlers, field biologists, or laboratory workers handling animal specimens<br>• visitors to rural areas<br><br>Since children are more likely to be bitten or scratched by a dog or other animals, consider rabies vaccination for children traveling to Nepal. |
| Typhoid | Recommended for most travelers, especially those staying with friends or relatives or visiting smaller cities or rural areas. |

**Table 8: CDC Information for Vaccine- or Prophylaxis-Preventable Diseases in Nepal**

| | |
|---|---|
| Avian Influenza | Bird flu may be contracted by being around, touching, or working with infected poultry, such as visiting poultry farms or live-animal markets. To avoid exposure, avoid domestic and wild poultry. |
| Dengue | Dengue is spread by the bite of an infected mosquito. To avoid exposure, take precautions to avoid bug bites. |
| Hanta Virus | Hanta virus spreads when a person breathes in air or accidentally eats food contaminated with the urine, droppings, or saliva of infected rodents. It may also be spread by the bite of an infected rodent or, less commonly, by being around someone sick with hantavirus. To avoid exposure, avoid rodents and areas where they live, and avoid sick people. |
| Leishmaniasis | Leishmaniasis is spread by the bite of an infected sand fly. To avoid exposure, take precautions to avoid bug bites. |
| Japanese Encephalitis | Leptospirosis is contracted by touching urine or other body fluids from an animal infected with leptospirosis, by swimming or wading in urine-contaminated fresh water, by contact with urine-contaminated mud, or by drinking water or eating food contaminated with animal urine. To avoid exposure, avoid contaminated water and soil. |
| Tuberculosis (TB) | TB spreads when someone breathes in TB bacteria that is in the air from an infected and contagious person coughing, speaking, or singing. To avoid exposure, avoid sick people. |

**Table 9: CDC Information for Non-Vaccine-Preventable Diseases in Nepal**

The following actions you can take to stay healthy and safe on your trip include:

***Eat and Drink Safely***

Unclean food and water can cause travelers' diarrhea and other diseases. Reduce your risk by sticking to safe food and water habits.

***Eat***

- Food that is cooked and served hot
- Hard-cooked eggs
- Fruits and vegetables, you have washed in clean water or peeled yourself
- Pasteurized dairy products

***Don't Eat***

- Food served at room temperature
- Food from street vendors
- Raw or soft-cooked (runny) eggs
- Raw or undercooked (rare) meat or fish
- Unwashed or unpeeled raw fruits and vegetables
- Unpasteurized dairy products
- "Bushmeat" (monkeys, bats, or other wild game)

***Drink***

- Bottled water that is sealed
- Water that has been disinfected
- Ice made with bottled or disinfected water
- Carbonated drinks
- Hot coffee or tea
- Pasteurized milk

***Don't Drink***

- Tap or well water
- Ice made with tap or well water
- Drinks made with tap or well water (such as reconstituted juice)
- Unpasteurized milk

***Take Medicine***

Talk with your doctor about taking prescription or over-the-counter drugs with you on your trip in case you get sick. If you are going to a high-risk area, fill your malaria prescription before you leave, and take enough with you for the entire length of your trip. Follow your doctor's instructions for taking the pills; some need to be started before you leave.

***Prevent Bug Bites***

Bugs (like mosquitoes, ticks, and fleas) can spread a number of diseases in Nepal. Many of these diseases cannot be prevented with a vaccine or medicine. You can reduce your risk by taking steps to prevent bug bites.

***To prevent bug bites:***

- Cover exposed skin by wearing long-sleeved shirts, long pants, and hats.
- Use an appropriate insect repellent (see below).
- Use permethrin-treated clothing and gear (such as boots, pants, socks, and tents). Do not use permethrin directly on skin.

- Stay and sleep in air-conditioned or screened rooms.
- Use a bed net if the area where you are sleeping is exposed to the outdoors.

***For protection against ticks and mosquitoes:***

Use a repellent that contains 20 percent or more DEET for protection that lasts up to several hours.

***For protection against mosquitoes only:***

Products with one of the following active ingredients can also help prevent mosquito bites. Higher percentages of active ingredient provide longer protection.

- DEET
- Picaridin (also known as KBR 3023, Bayrepel, and Icaridin)
- Oil of lemon eucalyptus (OLE) or para-Menthane-3,8-diol (PMD)
- IR3535
- 2-undecanone

***If you are bitten by bugs:***

- Avoid scratching bug bites and apply hydrocortisone cream or calamine lotion to reduce the itching.
- Check your entire body for ticks after outdoor activity. Be sure to remove ticks properly.

***Safety and Security***

Note that conditions can change rapidly in a country at any time. To receive updated Travel Advisories and Alerts for the countries you choose, sign up at step.state.gov.

# Sendai Framework

The Sendai Framework for Disaster Risk Reduction 2015-2030 is the global blueprint and 15-year plan to build the world's resilience to natural disasters.[576] The Sendai Framework is the successor instrument to the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters.[577] Adopted at the Third United Nations World Conference on Disaster Risk Reduction in Sendai, Japan, in 2015, the Framework aims to achieve the substantial reduction of disaster risk and of losses in lives, livelihoods, and health and in the economic, physical, social, cultural, and environmental assets of persons, businesses, communities, and countries by 2030.[578]

The Framework outlines seven targets and four priorities for action to prevent new and reduce existing disaster risks.

***The Seven Global Targets include:***

- Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality rates in the decade 2020-2030 compared to the period 2005-2015.
- Substantially reduce the number of affected people globally by 2030, aiming to lower average global figure per 100,000 in the decade 2020 -2030 compared to the period 2005-2015.
- Reduce direct disaster economic loss in relation to global GDP by 2030.
- Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.
- Substantially increase the number of countries with national and local DRR strategies by 2020.
- Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this Framework by 2030.
- Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030.[579]

The Four Priorities of Action include:

- Understanding disaster risk
- Strengthening disaster risk governance to manage disaster risk
- Investing in disaster reduction for resilience; and
- Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation, and reconstruction.

Figure 27 shows the Sendai DRR Framework.[580]

The following points regarding Nepal's progress toward the Sendai Framework targets come from its Voluntary Mid-Term Review.[581]

<u>Priority 1: Understanding Disaster Risk</u>

Nepal has aligned DRR-related legal instruments with the Sendai Framework. The government has emphasized the following: promoting policy coherence among DRR and development; making DRR a development practice to achieve resilient public investment and the Sustainable Development Goals (SDG); encouraging private sector engagement towards risk sensitive investments; and building capacity and leadership to implement the Sendai Framework at the federal, provincial, and local levels. These areas were supported by providing resources at the local level, by sharing knowledge and information from the scientific and academic communities, and by delivering practical guidance and tools.

The Executive Committee has formulated plans and policies, working procedures, and standards for risk-sensitive development and land use plans, hazard modelling, and made provisions for emergency treatment to disaster victims through adequate infrastructure and services in public and private health institutions. NDRRMA, along with various development partners and UN agencies, has developed the Building Information Platform Against Disaster (BIPAD) portal as an integrated national

# Chart of the Sendai Framework for Disaster Risk Reduction
## 2015-2030

**Scope and Purpose**

The present framework will apply to the risk of small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters, caused by natural or manmade hazards as well as related environmental, technological, and biological hazards and risks. It aims to guide the multi-hazard management of disaster risk in development at all levels as well as within and across all sectors

**Expected Outcome**

The 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

**Goal**

Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political, and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience

**Targets**

| | | | | | | |
|---|---|---|---|---|---|---|
| Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality during 2020-2030 compared to 2005-2015 | Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 during 2020-2030 compared to 2005-2015 | Reduce direct disaster economic loss in relation to global GDP by 2030 | Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030 | Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020 | Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030 | Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030 |

**Priorities for Action**

There is a need for focused action within and across sectors by States at local, national, regional, and global levels in the following four priority areas.

| Priority 1 | Priority 2 | Priority 3 | Priority 4 |
|---|---|---|---|
| Understanding disaster risk | Strengthening disaster risk governance to manage disaster risk | Investing in disaster risk reduction for resilience | Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation, and reconstruction |
| Disaster risk management needs to be based on an understanding of disaster risk in all its dimensions of vulnerability, capacity, exposure of persons and assets, hazard characteristics, and the environment | Disaster risk governance at the national, regional, and global levels is vital to the management of disaster risk reduction in all sectors and ensuring the coherence of national and local frameworks of laws, regulations, and public policies that, by defining roles and responsibilities, guide, encourage, and incentivize the public and private sectors to take action and address disaster risk | Public and private investment in disaster risk prevention and reduction through structural is non-structural measures are essential to enhance the economic, social, health, and cultural resilience of persons, communities, countries, and their assets, as well as the environment.<br><br>These can be drivers of innovation, growth, and job creation. Such measures are cost-effective and instrumental to save lives, prevent and reduce losses, and ensure effective recovery and rehabilitation | Experience indicates that disaster preparedness needs to be strengthened for more effective response and to ensure capacities are in place for effective recovery. Disasters have also demonstrated that the recovery, rehabilitation, and reconstruction phase, which needs to be prepared ahead of the disaster, is an opportunity to "Build Back Better" through integrating disaster risk reduction measures. Women and persons with disabilities should publicly lead and promote gender-equitable and universally accessible approaches during the response and reconstruction phases |

**Figure 27: UN Sendai Framework for Disaster Risk Reduction 2015-2030**

digital platform for disaster risk information, and is working to localize it by training local governments to use the portal, including inputting data. To further develop and share disaster information, Nepal has established systems for tracking, monitoring, analyzing, and sharing disaster information to people. Real-time hazard risk monitoring systems are being developed; they include seismic stations, hydrometeorological stations, and lightning detection centers. Learning, sharing, and knowledge management programs are regularly organized at the federal, provincial, and local levels. Key messages about DRRM, dialogue on contextual issues through information education and communication materials, documentary and media partnership have helped sensitize a wider range of stakeholders and promoted a common understanding of DRRM.

Various initiatives have been implemented to raise public awareness on hazard preparedness and response through informative videos, public service announcements, jingles, songs, and social media outreach in both national and local ethnic languages to reach wider audiences. The celebration of national and international days, such as National Earthquake Safety Day and International Day for Disaster Reduction are observed at the national and local levels to further raise awareness, knowledge, and develop a common understanding on DRRM.

The government recognizes the importance of effectively integrating DRR into national policies, strategies, and plans and emphasizes the need for the convergence of DRR, CCA, and sustainable development to achieve community resilience. It also emphasizes the need for a strong urban risk management program combined with an urban growth plan that includes all development programs funded through the national budget as well as multilateral and bilateral cooperation and donor-supported projects. However, effective implementation requires strengthening of institutional capacity and adequate resource allocation, an important step to ensure that development projects or program outcomes are disaster-resilient and do not increase or add any new risks to communities.

Priority 2: Strengthening Disaster Risk Governance at Federal, Provincial, and Local Levels

Nepal's whole-of-society approach to reduce risk and build resilience is apparent in the constitution, which defines roles and responsibilities for the three tiers of government – federal, provincial, and local. The DRRM Act is considered more progressive than the previous Natural Calamity Relief Act of 1982 in its more comprehensive approach to disasters that recognizes both risk reduction and management as integral parts of DRRM. The Act proposes a clear multi-tier institutional structure. Plans and policies are prepared based on improved local risk assessment and capacity to monitor hazards, exposure, and vulnerabilities. Strengthening leadership and capacity of local authorities, communities, civil society, volunteers, and community-based organizations has been achieved through peer learning and cooperation between provincial and local governments.

Federal government agencies, such as the MoFAGA, National Planning Commission (NPC), and NDRRMA, support local governments by providing guidelines and model policy frameworks. Documents, such as local DRR Strategic Action Plan Guidelines (2021) and Guidelines for Local Level Planning (2021) inform local plans and actions. All local governments have prepared legal policy frameworks and are implementing them; they include local DRRM Acts, local DRRM Strategic Plans, local Disaster Preparedness and Response Plans, Local Emergency Operation Guidelines, Local Disaster and Climate Resilient Plans, and Local Environment and Natural Resource Protection Acts.

Nepal established NDRRMA in December 2019 to coordinate, facilitate, operate, and manage the country's DRRM activities. The DRRM National Council, the apex disaster risk management body, is chaired by the Prime Minister and provides strategic direction and approves disaster related policies and formulates

strategies. The disaster body's Executive Committee looks after operational affairs, including guidelines, plans, and executive decisions related to DRRM. The Home Minister chairs the Executive Committee, which then coordinates with line ministries to formulate DRRM policies and strategies. NDRRMA is the secretariat to both the National Council and the Executive Committee. Provincial and local government have their own DRRM authorities to handle disasters and carry out disaster preparedness related activities at respective levels.

The Executive Committee has endorsed more than two dozen guidelines to date. NDRRMA has developed various e-learning platforms to enhance knowledge and skills on disaster risk understanding and to strengthen governance, disaster preparedness, response, recovery, and Gender Equality, Disability, and Social Inclusion in coordination with NDRRMA and concerned sectoral agencies. The DMG leads the preparation of nationwide earthquake hazard maps and supports the preparation of a landslide inventory and landslide susceptibility maps.

To mainstream risk reduction, a coordination mechanism among concerned government agencies was established to support unified action. A key action towards this goal includes the development of DRR focal points in line ministries and provincial agencies responsible for coordinating the implementation of plans and supporting the mainstreaming of DRRM into sectoral interventions, a significant step towards achieving the whole-of-society integration of DRRM as envisaged under the Sendai Framework. These initiatives not only provide cross-agency support, but also an opportunity to identify synergies among sectoral interventions through collaboration of relevant authorities.

To coordinate disaster preparedness and response activities, the Government and respective agencies have built a network of EOCs, including a national EOC and district EOCs in all 77 districts. The provincial governments have provincial EOCs and operate in coordination with national and district EOCs. Some municipalities have also established their local EOCs, but these EOCs need to be equipped with human resources and equipment. The MoHP has HEOCs across the country; they played a crucial role containing the COVID-19 pandemic. The Government has also established 11 HSAs in major air and land ports, and four humanitarian support base stations in strategic locations with plans to expand these facilities across the country.

In addition, the National Environment Protection and Climate Change Management Council has been operationalized to provide strategic leadership and guidance on integrating national targets at all levels of government. This high-level council, chaired by the Prime Minister, provides increased political support to integrate climate change risks into the disaster risk management agenda and to operationalize it at the provincial and local levels.

Nepal's 15th Periodic Plan (2019-2024) recognized the need for multi-hazard risk information and integration and mainstreaming of DRRM across all sectors at the federal, provincial, and local levels. The Land Use Policy (2015) was implemented with a key objective to reduce and manage disaster risks that arise due to unplanned land use practices. The Government is in the process of developing a framework for risk-sensitive land use planning as a guiding document for local governments to develop and deliver risk-sensitive municipal development plans. The National DRR Policy and Strategic Action Plan also stresses risk-informed development.

NDRRMA has been working with various ministries and departments to collate information on multiple hazards, exposure, and vulnerability. The BIPAD portal consolidates information from multi-hazard risk assessments, such as landslide and flood hazard mapping, while the identification of exposed vulnerable settlements and social groups for relocation remains ongoing. Sectoral assessments, including Gender Equality, Disability, and Social Inclusion, and a vulnerability and risk assessment framework for climate change were developed that provide guidance to practitioners

to manage risks due to climate-induced hazards. The Government has made use of advanced technology, such as satellite imagery, remote sensing, and geographic information systems data in risk assessment.

DRR and other initiatives to build resilient communities are only successful when plans and actions are owned by local communities. Nepal has adopted an inclusive and bottom-up approach through policy, structures, and capacity building measures. The constitution has delineated local governments with the sole responsibility to implement DRRM and lays out shared roles and responsibilities between federal, provincial, and local levels. The participation of vulnerable groups, including children, persons with disabilities, elderly, and women to help identify and mitigate disaster risks will further ensure community resilience. These groups, especially children, young people, and women have served as agents of change to better prepare communities to address disaster and climate risks.

The MoHA has been initiating a policy process to bring clarity in the delineation of roles, responsibilities, and accountabilities between the three levels of government, along with coordination between them for DRR, response, and reconstruction. The NPC has issued guidelines to integrate DRRM into local governments' annual development plans and MoFAGA has prepared Local DRR Strategic Action Planning Guidelines (2021) to localize the Sendai Framework provisions. The Government has been working with UN organizations, NGOs, and DRR experts to help local governments rapidly take up their roles and mandates provided by the constitution and Local Government Operations Act (2017). MoFAGA has been supporting local governments with model policy documents, which have helped them prepare their own policies.

As of 2022, all 753 local governments have their own local laws and policies on DRRM; all local governments have been administering Disaster Management Funds for disaster preparedness, response, reconstruction, and resettlement; local EOCs are being operated by 116 local governments; 319 local governments have prepared LDCRPs; and the humanitarian cluster approach is in the process of localization through appropriate guidelines and institutional structures.

Governments and civil society actors, including private sector and international organizations, have worked together in the planning and execution of DRR actions through formal committees, humanitarian clusters, and task groups. The emphasis is placed on showcasing how local and indigenous knowledge in DRRM planning can improve outcomes and build inclusive resilience. MoFAGA has also introduced the web-based Local Government Institutional Capacity Self-Assessment (LISA) system as an innovative tool to track the performance of local governments. As LISA evolves, it is intended to improve local governance by creating opportunities for local governments to self-assess their work and recognize gaps that they can address for better service delivery. The "LISA Guideline 2020" envisages a continuous assessment mechanism to improve the overall performance of local governments. Among 100 indicators from 10 thematic areas, disaster management was mainstreamed in the local governance system to help increase disaster-related knowledge and awareness for locally elected representatives and administrative staff. Although the function of DRRM was incorporated in the organizational structure of local governments, the assessment of LISA indicators for disaster management requires institutional readiness and capacity building, a crucial component to internalize disaster management into local governance. Local EOCs are yet to be made functional for improved disaster risk governance at the local level, even though most local governments have allocated budget for disaster management, developed DRR plans, initiated emergency preparedness measures, and completed multi-hazard risk assessments.

Nepal aims to establish a pool of well-trained and motivated practitioners at all levels. The

country is currently focusing on capacity development of federal, provincial, and local governments that includes the formulation of relevant policy and legal documents and integrating DRRM into development plans and programs. Innovative approaches, like e-learning platforms, are also being promoted. Some specific training and capacity building activities include climate change risk assessments, protection against lightning, initiatives such as Community Action for Disaster Response (CADRE) and hospital preparedness for emergencies (HOPE), training of rescue divers, drills, and simulation training to district EOCs and local EOCs, as well as impact-based multi-hazard early warning systems (EWS).

The Government initiated several actions to strengthen the capacity of stakeholders. They include:

- Technology for multi-hazard risk mapping, monitoring, early warning, and disaster response
- Building local government capacity on DRRM
- Building the capacity of women, youth and adolescents, the elderly, persons with disabilities, and local communities to plan, prepare, and respond to disasters, including climate change and unforeseen pandemics, like COVID-19
- Strengthening the national DRRM database and including DRRM in different levels of school curricula
- Mock drills and simulation exercises for hazard-induced disaster response
- Development of SAR teams, as per the INSARAG standard
- Fire brigades with advanced technologies, including robotic fire-fighting tools
- Development of Community Emergency Response Team volunteers
- Emergency logistics capacity, including infrastructure, technology, equipment, and human resources
- Sensitization on Core Humanitarian Standard, and rights-based and inclusive DRRM
- Awareness on protection against lightning and electrical fire safety
- Training and planning as per HOPE
- CADRE training
- Disaster risk financing, including effective and efficient risk sharing and risk transfer with innovative schemes, such as index-based insurance
- Strengthening indicator-based disaster resilience measurement tools, such as Flood Resilience Measurement for Communities

A multi-sectoral NPDRR was established with operational guidelines to enhance coordination among all DRRM stakeholders. The Chief Executive of NDRRMA chairs the National Platform, which has nine thematic groups involving various stakeholders from government, semi-government, UN and bilateral partners, international NGOs, national and local NGOs, media, disaster-affected communities, academia, and the private sector. The initiation of NPDRR brought together relevant public, private, and civil society groups and ensured the representation of various groups. It provided an opportunity for stakeholders to work together, enforced through the implementation of the Disaster Risk Reduction and Management Rules (2019). Civil society organizations are also working with local level bodies to strengthen the multi-sectoral DRR platform. NGOs are playing a key role to mobilize local level Disaster Management Committees, comprised of stakeholders from agriculture, education, fisheries, forests, and health-related government entities. These committees have a strong relationship with government ministries and departments.

The humanitarian coordination architecture is led via 11 clusters as well as formal inter-cluster working groups on information management, community engagement, and gender in humanitarian action. The thematic cluster-based approach has enabled the integration of DRR into other policy areas overseen by government ministries, facilitating collaboration with internal and external bodies at all levels. Collaboration

and partnership exist between state and non-state actors, such as donors, development partners, bilateral and multilateral agencies, UN agencies, Association of International Non-Governmental Organizations in Nepal, community-based organizations, and NGOs.

As the leading policy instrument on disaster risk reduction, the National Disaster Risk Reduction and Management Strategic Plan of Action (2018-2030) and its supporting documents promote an understanding of gender-specific vulnerabilities and opportunities in the disaster context. The action plan references different modalities in which women experience disasters and highlights the existence of increased female vulnerability in specific disaster contexts. One of the key messages to emerge from the implementation of the Sendai Framework in Nepal is the importance for women and girls to understand disaster impacts, and their inclusion and leadership in decision-making around risk reduction.

Realizing the significance of the private sector's role in implementing the Sendai Framework, collaboration with this group was enhanced to integrate DRRM goals into their activities and to support disaster risk management business practices. The cooperative sector is one of the three pillars of economy (public, private, and cooperative), and, as such, the Government has been collaborating with them to build resilience and reduce disaster losses and damage. Civil society is another important partner. The Government encourages their commitment and contributions to promote and achieve DRR commitments. The Government has conducted regular stakeholder consultations and analyses to understand the overall disaster risk management process with the aim of reviewing and analyzing the institutional setup, specific mandates in disaster risk management, and future engagement with key stakeholders. These consultations have maximized the accessibility, inclusion, and meaningful engagement of diverse groups relevant to addressing risks and building resilience.

The DPNet-Nepal has been working with government agencies and relevant stakeholders in the field of disaster management focusing on knowledge management, capacity building, policy advocacy, coordination, and networking. DPNet-Nepal also serves as secretariat of the NPDRR and coordinates regional and international events. The National Disaster Management Network of Nepal (DiMaNN) is a non-governmental national network of Nepali NGOs working in DRRM. DiMaNN is contributing to DRRM to establish a safer and more resilient community. The National Disaster Resilient Network, a national network of local humanitarian organizations, has been functional at the local level coordinating with provincial and local governments, private sector, and self-help groups on humanitarian issues. Moreover, academia and research institutions, such as Tribhuvan University, Kathmandu University, Pokhara University, Institute of Forestry, Institute of Engineering, Nepal Academy of Science and Technology, and the International Centre for Integrated Mountain Development have been promoting, prioritizing, and advancing research on natural, social, engineering, and technological aspects of disaster risks. These research institutes have promoted the adoption of hazard, vulnerability, and risk profiles into disaster-resilient development and sectoral planning.

Nepal's existing disaster risk management framework was designed in accordance with the post-2015 development agenda that identifies mechanisms to prioritize and synchronize DRRM efforts vis-à-vis ongoing projects, available funding, risks, and vulnerabilities to utilize the highest potential for holistic disaster risk management. The Government has built synergies between DRR, CCA, and the SDGs by incorporating environmental and sustainability concerns into DRRM. Authorities' solid understanding of these complexities is well illustrated in National Disaster Risk Reduction and Management Strategic Plan of Action, wherein disaster risk management encompassed an understanding of risks to enhance disaster preparedness in recovery, rehabilitation, and

reconstruction. The National Policy for DRR (2018) aims to build a safer, more adaptive, and resilient nation by reducing the existing risks and preventing new and potential risks. The policy considers the national needs as well as international agreements and obligations, which is more focused on achieving the targets and commitments made in the Sendai Framework, SDGs, and the Paris Agreement. The Climate Change Policy (2019) has eight sectoral focuses and four cross-cutting focuses, of which DRRM is one. The National Adaptation Plan (NAP) was formulated in line with the policy to help integrate CCA and DRRM in practice. At the action level, NAP promotes shock responsive practices, multi-hazards EWS, development of federal and provincial strategies and action plans on mitigation of climate induced disasters, development of regulatory framework for domestic and industrial fire control and mitigation and promote culture of safety and build climate resilience through risk-sensitive land use planning. One of the priorities of the adaptation component of Nepal's NDCs 2020 is to establish multi-hazard monitoring and EWS covering all provinces by 2030.

At the local level, local governments prepare integrated DRRM and climate change plans by using the Local DRR and Climate Resilience Planning Guideline. Their subsequent LDPRP address the issue of climate change in DRRM. Application of climate change risk assessment tools, methodologies, and guidelines informs the climate risk to development programs from the local to federal levels.

SDG 5 is focused on gender equality. Nepal's SDG targets for climate action are gender sensitive and focus on climate smart villages, climate smart farming, climate change education, and GHG mitigation. It intends to integrate climate change measures into policies, strategies, and planning to strengthen the resilience and adaptive capacity of people and stakeholders to natural and climate-related disasters. Nepal's SDG target for poverty reduction witnessed significant achievement, but was then challenged by disasters, such as COVID-19 and the 2015 earthquake. The federal government has prepared a resource book to localize SDGs, that helps local governments assess the potential while they deliver SDG targets.

Priority 3: Promoting Comprehensive Risk-Informed Public and Private Investments in DRR for Resilience

Long-term planning and preparedness for DRR is part of Nepal's process for development planning. Such plans are grounded in science and technology inputs through forecasting and warning systems, disaster resistant construction technologies, and appropriate cropping systems. Over the years, Nepal has developed, upgraded, and modernized monitoring, forecasting, and multi-hazard warning systems to deal with various disasters. The country uses VHF/HF wireless communication system for data collection with micro-computers at the forecasting centers. Hydrological models are increasingly used for inflow and flood forecasting; the forecasts are then communicated to the administrative and engineering departments for dissemination.

In terms of social security, the Government has been implementing a national social protection framework, which defines social protection and identifies the government's priority areas for the next ten years. The framework defines social protection as a set of benefits available to targeted vulnerable groups and aimed at reducing multi-dimensional deprivations and providing people with basic minimum livelihoods. A task force was formed, comprised of ministries and departments, to draft the national guideline for Shock Responsive Social Protection.

Open spaces have been identified and mapped within Kathmandu Valley and elsewhere as safe places for displaced populations in post-disaster scenarios, assuring them available basic facilities required in the aftermath of disasters. These open spaces have been mapped in the BIPAD portal and can be updated by municipal governments. Disaster management funds have been allocated to all tiers of government for effective and

immediate response and relief after any major events. Support from the private sector, especially from the Federation of Nepali Chambers of Commerce and Industry, Confederation of Nepali Industries, and Non-Nepali Residents has been increasing during the country's response and recovery phases. MoHA has initiated discussions with wider stakeholders to establish risk transfer mechanisms. The Government is facilitating a way to integrate the risk transfer mechanism from the existing insurance system, such as health and livestock insurance, into other social security provisions. The government has been providing cash support as immediate relief to enable vulnerable shock-affected households to meet their basic needs while improving their living standards.

The establishment of EWS has contributed to the reduction in deaths from disasters over the last decade. The DHM has the mandate to issue flood forecasts and flood warnings to the general public and relevant agencies. DHM is responsible for a range of manual and automated rain and stream gauges across the country, and for the production of national and sub-national forecasts (including probabilistic forecasts) and for incorporating regional and global forecasts (e.g., the Global Flood Awareness System). DHM has prepared Standard Operating Procedures (SOP) for flood EWS with defined roles and responsibilities of major stakeholders, from national to local authorities and affected communities. The SOP provides simplified procedures that are applicable in Nepal's flood-prone areas with the least amount of intervention required from involved parties. Monitoring stations in each river basin have predetermined warning and danger levels for 'watch,' 'warning,' and 'evacuation' (or 'normal', 'alert,' and 'danger'), based on flood hazard mapping in that location. When the water level exceeds a certain mark, alerts are sent to DHM. During monsoon season, DHM monitors the alert system 24-hours-per-day, and bulletins are constantly displayed. An alarm signals the office if the water level reaches "warning" and "danger" levels. At the district level, the District EOC is responsible to monitor the flood situation based on DHM's water level, rainfall, and discharge information. The EOC plays a pivotal role in communicating early warnings at the local level. EWS linkages were made to newly established Local EOCs as well. Nepal's two major telecommunication companies, Nepal Telecom and Ncell, are providing hydrometeorological warning messages for free. They have been supporting DHM to disseminate the alerts and warnings of hydrometeorological hazards to subscribers in specified geographic areas when there is a high risk of disaster.

Nepal has successfully practiced community-based landslide EWS through real-time monitoring and sediment sampling that can help reduce the exposure and impacts of hazards. The country has also established hydrometeorological stations above 3,000 m (9,850 feet) to better understand the effects of climate change with more accuracy. The government has initiated multi-hazard risk assessments and zoning through GIS, which has enhanced the decision-making process with better illustrations and mapping capabilities to facilitate the development of hazard maps. These outputs can help the country take effective action to reduce disaster and environmental risks.

The NDRF has assigned responsibilities to 10 ministries with 11 clusters to guide more effective and coordinated national response in case of a large-scale disaster. The formation of a cluster approach is led by respective line ministries and co-led by relevant development partner(s). Clusters are mobilized in disaster preparedness and activated during response and recovery phases. Similarly, the HCT, along with the Executive Committee on Humanitarian Affairs, assists with strategic coordination and consultation among key humanitarian actors. It is a unique interagency forum for coordination, policy development, and decision-making involving key UN and non-UN humanitarian partners.

The 15th National Development Plan (2019/20-2023/24) has provisions for creating a budget line for DRRM. In accordance with the

15th Plan, a National Strategy for Management of Disaster Risk Financing 2078 (2021) was produced that aims at mobilizing funds for overall DRRM based on 15 strategic areas and actions. The National Policy for Disaster Risk Reduction (2018) allocates a certain percentage of annual budgets of federal, provincial, and local governments to DRRM. It also lays the foundation for establishing disaster management funds at all three tiers of government. In line with the DRR Policy, the federal government has established a Disaster Management Fund of Rs 1 billion (US$8 million). Nepal has introduced and adopted risk transfer mechanisms, such as risk financing. More than three dozen micro-insurance policies exist in the sectors of agriculture, livestock, and health, which cover losses from disasters.

Nepal has put efforts towards enhancing science and technology, and towards harnessing indigenous knowledge. DRR was included in school and university curricula, and in the last decade, university graduates and researchers have contributed to risk-informed DRRM planning across sectors, including CCA.

The Government has started using the latest technologies and devices, such as Unmanned Aerial Vehicles (UAV) for multi-hazard risk assessments, communication, and response. The use of UAVs (or 'drones') and computer-aided technologies are being introduced in hazard risk mapping, analysis, modeling, and database management. There is an increased understanding on the use of satellite images to map and analyze hazards, such as landslides, floods, earthquakes, and fires, but such initiatives need to expand to all parts of the country and demand technical competencies and resources. Similarly, there is now increased access to weather forecasting technologies through regional and international cooperation. DHM and NDRRMA have jointly implemented Impact Based Forecasting in selected pilot municipalities with plans to expand its coverage.

Priority 4: Enhancing Disaster Preparedness for Effective Response and "Build Back Better" in Recovery, Rehabilitation, and Reconstruction

In Nepal, the imperative to "Build Back Better" has received widespread attention, including in the context of the 2015 earthquake and COVID-19 pandemic. The government promotes integrated action and alignment between recovery priorities, long-term resilience, and development plans aimed at providing opportunities to catalyze co-benefits. Nepal has also formulated and implemented disaster preparedness programs to reduce the impact of disasters and to reduce people's socioeconomic vulnerabilities. The post-2015 earthquake reconstruction programs were aimed at building disaster resistant structures to withstand the impact of natural hazards in the future.

The Nepali Army, Nepal Police, and Armed Police Force have improved their response capabilities with enhanced SAR technologies, equipment, and training. Nepal's security agencies provide a 10-week-long training course on disaster management focusing on Medical First Responder, Collapse Structure Search and Rescue, Dead Body Management after disasters, water and fire-fighting rescue, and Practice in Emergency Logistic Training, through simulation exercises to acquire experience and to become familiar with techniques required at a real disaster scene. Focus is given to preparing for persisting hazards, such as earthquakes, floods, landslides, and accidents as well as pandemics.

Tribhuvan University and other private educational institutes run graduate degree programs in disaster risk management, while public and private educational institutes provide education and research grants to Disaster Management postgraduate students.

The Government has prioritized its support to build the capacity of provincial and local governments for DRR and emergency response through budget allocation in the government's annual plans to ensure future sustainability.

It has been establishing and strengthening systems at all levels for effective emergency response and management through disaster preparedness at the community and municipal levels for effective emergency response and risk reduction. NDRRMA has been carrying out multi-hazard geological risk assessments by undertaking detailed landslide cum watershed surveys to identify the suitability of land for safe reconstruction. Assessments for sites impacted by disasters and for those proposed for resettlement has been undertaken in accordance with NDRRMA's MultiHazard Risk Assessment methodology to guide the development of risk sensitive land use maps and to ensure a consistent approach.

Initiatives, such as the construction of embankment improvements, machans (small local bridge/tent), culverts, drainage, dikes, embankments, bridges, shelters, public water supply taps, irrigation facilities, and toilets in the communities, have created a better living environment along with reduced underlying risks due to floods, drought, wildlife intrusion, water induced epidemics, and health related hazards, including the impacts of climate change.

Response measures are coordinated by the DDMC at the local level, with support from security forces, communities, and other local partners. The NRCS and NGOs have provided training, drills, and awareness-raising events, developed preparedness plans, and identified evacuation routes across the country. Community Disaster Management Committees and taskforce committees carry out first aid, early warnings, and SAR operations in communities where NGOs and/or NRCS projects have been implemented. At the local level, women's groups across seven provinces have been creating innovative solutions that address climate and disaster risks, thereby demonstrating resilient practices to local authorities, while also building partnerships to strengthen and scale their local actions by gaining access to formal resources. These interventions have supported grassroots-led actions to enhance food and income security through climate-smart agricultural practices, diversifying and enhancing livelihoods, building community infrastructure, adopting nature-based solutions, and ensuring environment protection as well as helping to secure land ownership for enhanced access, control, and use of assets.

From smaller to larger development projects, Initial Environmental Examinations and Environmental Impact Assessments have been made mandatory. Several studies on seismic risk, CCA, and its impacts on the environment are being undertaken as a regular program to ensure disaster resilient infrastructure. A similar integrated approach as environmental management, disaster risk management, has been instrumental in helping to improve and secure livelihoods for vulnerable people. To further promote such approaches, many government officials and planners from different ministries received orientations on environmentally friendly local governance, disaster risk management, and climate change.

Social institutions are functional in Nepal as the safety nets facilitating livelihood issues and promoting DRR, climate change, and environmental management. Micro-financing is practiced at the community level through cooperatives, cultural organizations, and rural development banks. The government, in collaboration with NGOs, is imparting training on agriculture and distributing seeds to flood affected communities.

While response to mega and wider disasters is led by the federal and provincial governments, local governments have the role and responsibility of first responders and as a single-door mechanism to channel post-disaster response, recovery, and reconstruction mechanisms. Nepal has initiated preparedness efforts in airports for disasters. Regular simulations based on the plan are carried out at Tribhuvan International Airport by CAAN. Domestic airports have also developed contingency plans, and regular simulations have been carried out jointly with the engagement of both civil, security agencies and the public. For emergency response, emergency items

are stockpiled in strategic locations. An HSA operates at Tribhuvan International Airport and HSA are being constructed at the provincial level. SAR items are being upgraded and expanded to cover more areas, with the intention of reaching the community level. Regular updates of heavy equipment located in strategic locations are ready for deployment in emergencies, while the capacity and resources of trauma centers are being regularly enhanced.

The Nepali Army has been implementing the Disaster Management Guideline (2077 BS) and Search and Rescue Working Procedure (2079 BS). The Directorate of Disaster Management was established, which constitutes two disaster management battalions and one National Disaster Management Training School. The Nepal Army has developed a robust mechanism to institute a culture of safety to assess disaster resilience and contributed toward the disaster resilience of the communities by training more than 25,000 community members for disaster preparedness and SAR operations.

The BIPAD portal, which provides real-time information about hazards and disaster events, affected populations, and casualties, has set an excellent example of how an integrated disaster data repository can help guide informed decision-making at the federal, provincial, and local level. Similarly, a centralized web-based Monitor for Disaster Strategic Action plans mechanism is in place to log and monitor projects being implemented in Nepal that deliver against the National Disaster Risk Reduction Strategic Action Plan (2018-2030). The Monitor for Disaster Strategic Action is linked with the BIPAD system for cross-linking information on disasters. The BIPAD portal has developed a disaster data/information management system by pooling credible digital and spatial data available within different government bodies, NGOs, academic institutions, and research organizations into a single platform. The portal aims to provide crucial information on capacity and resources, such as health institutions, financial institutions, schools, banks, stockpiles, road network, inventories, NGOs, and government agencies, in relation to incidents.

Various sectoral nodal agencies have operated sector-specific database systems, such as Integrated Health Information Management System and Integrated Education Management Information System, which integrate sector-specific data and disaster management information. These data management systems support all three tiers of government and stakeholders in sharing early warning information, risk mapping, response, and emergency operations that help agencies coordinate and carry out timely disaster management actions.

Nepal is promoting an impact-based Multi-Hazard Early Warning System (MHEWS) to cover all hazards and to simplify risk communication to all media and stakeholders. The country is preparing to adopt Common Alert Protocol aimed at increasing lead-time for MHEWS. The EWS is supported by enforcement of real-time hazard monitoring mechanism through seismic stations, hydrometeorological stations, lightning detection centers, and regular monitoring of all the major glacier lakes. The EOCs play vital roles in disseminating emergency information for rescue and response during the time of disaster events.

Nepal is developing a risk communication strategy that integrates the BIPAD portal to further enhance the country's disaster management communication system. The expanded mass media outreach, especially radio, television, and online news portals have contributed to produce and disseminate DRR content. The media's attention and investment is increasing to produce content on DRR while paying attention to diversity and inclusion considerations. A recent study indicates that there are 8,953 mass media outlets in Nepal, of which, 4,789 are print media outlets, 3,120 are online portals, 880 are FM radio stations, and 164 are television channels. This shows that there is a huge opportunity to increase the media's role to produce and disseminate quality and comprehensive DRRM information. NDRRMA implements enhanced risk communication

through the BIPAD portal, through social media and regular television programs, and by facilitating interactions among stakeholders on a regular basis.

Nepal implemented an earthquake reconstruction program by following "Build Back Better" principles. The program adopted a people-centered and owner-driven approach led by the National Reconstruction Authority (NRA). Based on learning from the 2015 earthquake damage reconstruction and recovery program, Nepal produced frameworks, manuals, and guidelines, including guidelines for multiple hazards, for the reconstruction of private houses. Nepal shared its experiences and learning on earthquake reconstruction and rehabilitation by organizing the "International Conference on Nepal's Reconstruction" in December 2021; this event concluded with a declaration to strengthen local governments, conserve heritage monuments and sites, strengthen vertical linkages among all tiers of governments, and adopt earthquake-resilient technology. The institutional set-up of NRA enabled partnerships, collaboration, and coordination mechanisms which contributed to the success of the 2015 earthquake reconstruction and realization of the outcomes and goal of the Sendai Framework.

Urbanization must ensure that risk reduction and resilience is paid due consideration, but seeing this in practice remains challenging. The Government has planned to set up 10 model cities across the country to increase resilient settlements. The Ministry of Urban Development (MoUD) has taken several initiatives that include the preparation of a National Plan of Action for Safer Buildings, Guidelines and Procedures for Safe Settlements and Integrated Settlements, following learnings from the reconstruction program. MoUD developed 185 Integrated Urban Development Plans to address multi-hazard risks and prepared the National Urban Development Strategy (2017), Safer Building Code and Guidelines along with necessary modifications in line with "Build Back Better" principles. The Safer Settlement Implementation Procedure (2019) was implemented in 73 out of 77 districts; among other actions, it replaced 170,000 thatched roof houses. The National Building Code (Seismic Design NBC 105:2020) was revised after the 2015 Gorkha Earthquake.

Given the growing importance and consequential nature of urbanization and its inevitable intersection with cascading risks and hazards, several multi-stakeholder initiatives addressing these issues have emerged. While the Nepal National Building Code was revised in 2020, strict compliance has been enforced in seismic design of new buildings to reduce risks against future earthquake damages in Nepal. The new National Building Code aims to ensure that cities become inclusive, safe, resilient, and sustainable by 2030, contributing directly to the achievement of SDG 11.

A key lesson from the COVID-19 pandemic is that development that is not risk-informed is neither inclusive nor sustainable. COVID-19 demonstrated how the effects of shocks in one area can be transmitted throughout value chains, across geographies and communities, and throughout the wider macro-economic system. What started as a global public health concern created economic and social shocks in the country. The Government strategically responded to COVID-19, maintaining three key strategies:

- Focus on the 10 pillars of response to COVID-19
- Adopt a cluster approach to respond to COVID-19 with support from the UN; while all the clusters for humanitarian response were activated to the level needed, the health cluster had additional nine sub-clusters; and
- Respond through a budgetary mechanism.

The following are Nepal's key lessons from the COVID-19 pandemic:

- The country's health sector preparedness was lacking for a pandemic; Disaster Preparedness and Response Plans prepared at the national and sub-national levels focused primarily on recurrent health problems; the capacity to anticipate a pandemic was inadequate; it is imperative to build a

sustainable health emergency preparedness system to deal with future pandemics.

- The current investment for health facilities and capacity was inadequate to respond to the pandemic, which had more severe financial impacts than the initial investments would have been; it is essential to invest in national health and research systems to enhance laboratory capacity and boost workforce morale.
- Joining hands with the private sector is vital for their potential roles in finance, technology, and supplies, among others.
- The use of uniform and integrated data and reporting systems played crucial roles; management and sharing of real-time and correct risk information to the right people through the use of advanced technology was of the utmost importance to earn community confidence.
- Strong coordination among three tiers of government and community engagements are important and essential; despite the existence of institutions at all levels, there is a need to develop a clear coordination mechanism; local governments played crucial roles to manage their holding centers and isolation camps to respond to COVID-19.
- International support for skills, technology, and funding is vital; social participation and collaborative approaches helped the country tackle the pandemic.
- Changes in personal behavior, such as hand washing, wearing face masks, isolation, and sanitization helped stem the tide of infections.
- Initially, Nepal considered COVID-19 as a common health issue; as a result, Nepal missed an opportunity to address the pandemic with a comprehensive disaster response approach right from the beginning.

MoHA recognizes that the federal government has the primary responsibility to reduce disaster risk, but it also recognizes the shared responsibility of other stakeholders. The Government has increasingly engaged a range of stakeholders, including, inter alia, the UN system, governments, multilateral and inter-governmental organizations, civil society, private sector, the scientific community, academic and research institutions, grassroots groups, local communities, including women and youth, and key population/social groups at all levels. A wide range of development partners, especially USAID, AusAid, Britain's Foreign, Commonwealth and Development Office, JICA, UN agencies, NGOs, World Bank, Asian Development Bank, Red Cross, as well as many others, including the private sectors, have joined together on Government initiatives for DRR, humanitarian assistance, recovery, and resilience. In building partnerships, the government is helping communities respond to disasters and build resilience to recurrent shocks by engaging marginalized and vulnerable people in all stages of project design and management, while also ensuring inclusive development and investing to improve disaster management capacities and systems. However, government agencies, the private sector, and civil society needs well-established structures for cooperation and clear mandates for effective command during crises. This work will strengthen risk governance and risk understanding across all levels.

# Country Profile

The information in the Country Profile section is sourced directly from the CIA World Factbook entry for Nepal. Additional numbers on country comparison to the world can be found by going directly to the CIA website (*https:/www.cia.gov/the-world-factbook/*). It discusses topics including geography, people and society, government, economy, energy, communications, military and security, transportation, terrorism, and transnational issues.[582]

**Background**

During the late 18th-early 19th centuries, the principality of Gorkha united many of the other principalities and states of the sub-Himalayan region into a Nepali Kingdom. Nepal retained its independence following the Anglo-Nepalese War of 1814-16 and the subsequent peace treaty laid the foundations for two centuries of amicable relations between Britain and Nepal. (The Brigade of Gurkhas continues to serve in the British Army to the present day.) In 1951, the Nepali monarch ended the century-old system of rule by hereditary premiers and instituted a cabinet system that brought political parties into the government. That arrangement lasted until 1960, when political parties were again banned, but was reinstated in 1990 with the establishment of a multiparty democracy within the framework of a constitutional monarchy.

An insurgency led by Maoists broke out in 1996. During the ensuing 10-year civil war between Maoist and government forces, the monarchy dissolved the cabinet and parliament and re-assumed absolute power in 2002, after the crown prince massacred the royal family in 2001. A peace accord in 2006 led to the promulgation of an interim constitution in 2007. Following a nationwide Constituent Assembly (CA) election in 2008, the newly formed CA declared Nepal a federal democratic republic, abolished the monarchy, and elected the country's first president. After the CA failed to draft a constitution by a 2012 deadline set by the Supreme Court, then-Prime Minister Baburam BHATTARAI dissolved the CA. Months of negotiations ensued until 2013 when the major political parties agreed to create an interim government headed by then-Chief Justice Khil Raj REGMI with a mandate to hold elections for a new CA. Elections were held in 2013, in which the Nepali Congress (NC) won the largest share of seats in the CA and in 2014 formed a coalition government with the second-place Communist Party of Nepal-Unified Marxist-Leninist (UML) with NC President Sushil KOIRALA serving as prime minister. Nepal's new constitution came into effect in 2015, at which point the CA became the Parliament. Khagda Prasad Sharma OLI served as the first post-constitution prime minister from 2015 to 2016. OLI resigned ahead of a no-confidence motion against him, and Parliament elected Communist Party of Nepal-Maoist (CPN-M) leader Pushpa Kamal DAHAL (aka "Prachanda") prime minister. The constitution provided for a transitional period during which three sets of elections – local, provincial, and national – needed to take place. The first local elections in 20 years occurred in three phases between May and September 2017, and state and federal elections proceeded in two phases in November and December 2017. The parties headed by OLI and DAHAL ran in coalition and swept the parliamentary elections, and OLI, who led the larger of the two parties, was sworn in as prime minister in February 2018. In May 2018, OLI and DAHAL announced the merger of their parties - the UML and CPN-M - to establish the Nepal Communist Party (NCP), which headed the government for roughly two years before infighting led the party to split. OLI from late 2020 sought to dissolve parliament and hold elections. The supreme court in July 2021 declared OLI's efforts unconstitutional and called for an appointment of the opposition-supported NC leader Sher Bahadur DEUBA as prime minister. DEUBA led Nepal with the support of his party and DAHAL's Communist Party of Nepal-Maoist Centre (CPN-MC) until December 2022. The NC won a majority of seats in the parliamentary elections on November 2022, but in late December 2022, DAHAL broke with

the ruling coalition and sought a partnership with OLI and the CPN-UML to become prime minister. DAHAL's first post-election cabinet lasted approximately two months, until disagreements over ministerial assignments across the coalition caused OLI to withdraw his support. In March 2023, DAHAL survived a vote of confidence and formed a coalition with the NC to remain prime minister.

**Geography**

Location
Southern Asia, between China and India

Geographic coordinates
28 00 N, 84 00 E

Area
total: 147,181 sq km
land: 143,351 sq km
water: 3,830 sq km
country comparison to the world: 95

Area - comparative
slightly larger than New York state

Land boundaries
total: 3,159 km
border countries (2): China 1,389 km; India 1,770 km

Coastline
0 km (landlocked)

Maritime claims
none (landlocked)

Climate
varies from cool summers and severe winters in north to subtropical summers and mild winters in south

Terrain
Tarai or flat river plain of the Ganges in south; central hill region with rugged Himalayas in north

Elevation
highest point: Mount Everest (highest peak in Asia and highest point on earth above sea level) 8,849 m
lowest point: Kanchan Kalan 70 m
mean elevation: 2,565 m

Natural resources
quartz, water, timber, hydropower, scenic beauty, small deposits of lignite, copper, cobalt, iron ore

Land use
agricultural land: 28.8% (2018 est.)
arable land: 15.1% (2018 est.)
permanent crops: 1.2% (2018 est.)
permanent pasture: 12.5% (2018 est.)
forest: 25.4% (2018 est.)
other: 45.8% (2018 est.)

Irrigated land
13,320 sq km (2012)

Major watersheds (area sq km)
Indian Ocean drainage: Brahmaputra (651,335 sq km), Ganges (1,016,124 sq km), Indus (1,081,718 sq km)

Major aquifers
Indus-Ganges-Brahmaputra Basin

Population distribution
most of the population is divided nearly equally between a concentration in the southern-most plains of the Tarai region and the central hilly region; overall density is quite low

Natural hazards
severe thunderstorms; flooding; landslides; drought and famine depending on the timing, intensity, and duration of the summer monsoons

Geography - note
landlocked; strategic location between China and India; contains eight of world's 10 highest peaks, including Mount Everest and Kanchenjunga - the world's tallest and third tallest mountains - on the borders with China and India respectively

**People and Society**

Population
30,899,443 (2023 est.)
country comparison to the world: 49

Nationality
noun: Nepali (singular and plural)
adjective: Nepali

Ethnic groups
Chhettri 16.6%, Brahman-Hill 12.2%, Magar 7.1%, Tharu 6.6%, Tamang 5.8%, Newar 5%, Kami 4.8%, Muslim 4.4%, Yadav 4%, Rai 2.3%, Gurung 2%, Damai/Dholii 1.8%, Thakuri 1.6%, Limbu 1.5%, Sarki 1.4%, Teli 1.4%, Chamar/Harijan/Ram 1.3%, Koiri/Kushwaha 1.2%, other 19% (2011 est.)
note: 125 caste/ethnic groups were reported in the 2011 national census

Languages
Nepali (official) 44.6%, Maithali 11.7%, Bhojpuri 6%, Tharu 5.8%, Tamang 5.1%, Newar 3.2%, Bajjika 3%, Magar 3%, Doteli 3%, Urdu 2.6%, Avadhi 1.9%, Limbu 1.3%, Gurung 1.2%, Baitadeli 1%, other 6.4%, unspecified 0.2%; note - 123 languages reported as mother tongue in 2011 national census; many in government and business also speak English (2011 est.)

major-language sample(s): वशि्व तथ्य पुस्तक,आधारभूत जानकारीको लागि अपरहिार्य स्रोत (Nepali)

Religions
Hindu 81.3%, Buddhist 9%, Muslim 4.4%, Kirant 3.1%, Christian 1.4%, other 0.5%, unspecified 0.2% (2011 est.)

Age structure
0-14 years: 26.32% (male 4,175,742/female 3,956,153)
15-64 years: 67.52% (male 10,016,748/female 10,846,101)
65 years and over: 6.16% (2023 est.) (male 930,510/female 974,189)

Figure 28 is the 2023 population pyramid for Nepal. A population pyramid illustrates the age and sex ratios of the country's population.[583]

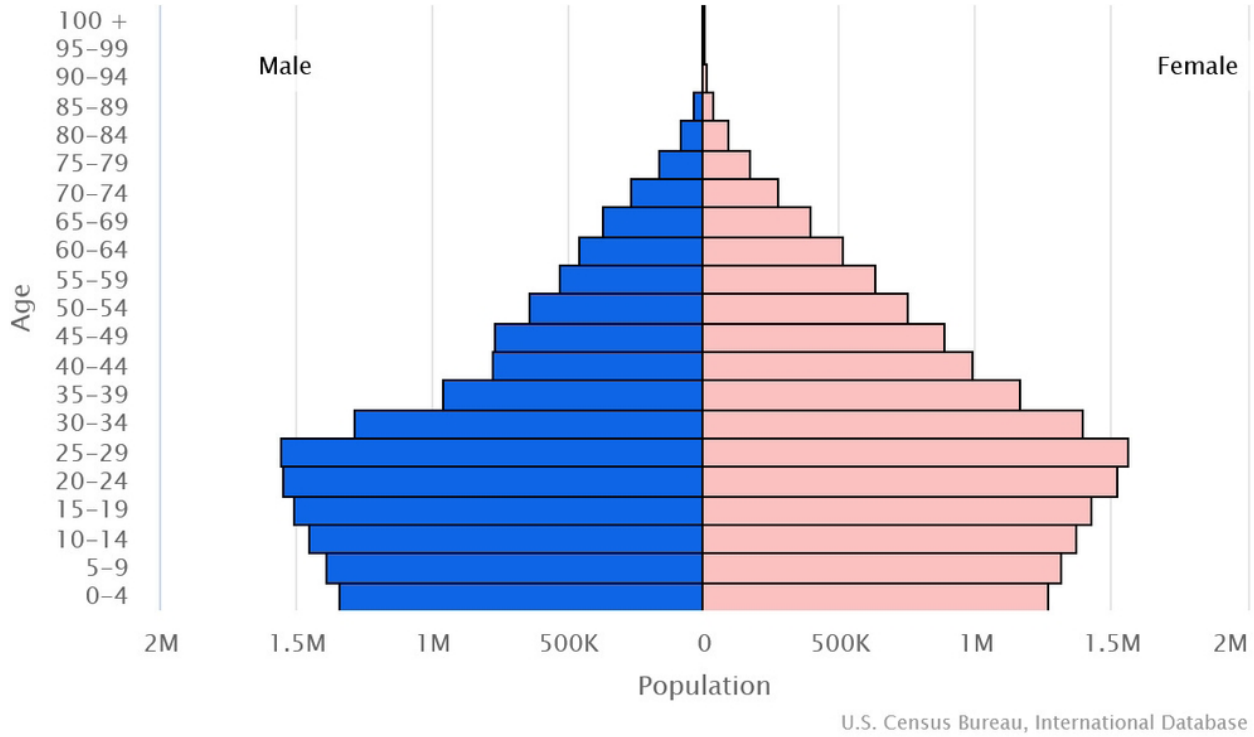



**Figure 28: Population Pyramid, Nepal (2023)**

Dependency ratios
total dependency ratio: 54.9
youth dependency ratio: 45.5
elderly dependency ratio: 9.4
potential support ratio: 10.7 (2021 est.)

Median age
total: 25.3 years
male: 23.9 years
female: 26.9 years (2020 est.)
country comparison to the world: 161

Population growth rate
0.74% (2023 est.)
country comparison to the world: 121

Birth rate
17.26 births/1,000 population (2023 est.)
country comparison to the world: 88

Death rate
5.59 deaths/1,000 population (2023 est.)
country comparison to the world: 178

Net migration rate
-4.29 migrant(s)/1,000 population (2023 est.)
country comparison to the world: 195

Population distribution
most of the population is divided nearly equally between a concentration in the southern-most plains of the Tarai region and the central hilly region; overall density is quite low

Urbanization
urban population: 21.9% of total population (2023)
rate of urbanization: 3.09% annual rate of change (2020-25 est.)
total population growth rate v. urban population growth rate, 2000-2030

Major urban areas - population
1.571 million KATHMANDU (capital) (2023)

Sex ratio
at birth: 1.06 male(s)/female
0-14 years: 1.06 male(s)/female
15-64 years: 0.92 male(s)/female
65 years and over: 0.96 male(s)/female
total population: 0.96 male(s)/female (2023 est.)

Mother's mean age at first birth
20.4 years (2016 est.)
note: data represents median age at first birth among women 25-49

Maternal mortality ratio
174 deaths/100,000 live births (2020 est.)
country comparison to the world: 51

Infant mortality rate
total: 24.55 deaths/1,000 live births
male: 25.84 deaths/1,000 live births
female: 23.18 deaths/1,000 live births (2023 est.)
country comparison to the world: 67

Life expectancy at birth
total population: 72.67 years
male: 71.95 years
female: 73.44 years (2023 est.)
country comparison to the world: 158

Total fertility rate
1.88 children born/woman (2023 est.)
country comparison to the world: 132

Gross reproduction rate
0.91 (2023 est.)

Contraceptive prevalence rate
46.7% (2019)

Drinking water source
improved: urban: 92.7% of population
rural: 94.4% of population
total: 94.1% of population
unimproved: urban: 7.3% of population
rural: 5.6% of population
total: 5.9% of population (2020 est.)

Current health expenditure
5.2% of GDP (2020)

Physicians density
0.85 physicians/1,000 population (2020)

Hospital bed density
0.3 beds/1,000 population (2012)

Sanitation facility access
improved: urban: 95.1% of population
rural: 85.7% of population
total: 87.7% of population
unimproved: urban: 4.9% of population
rural: 14.3% of population
total: 12.3% of population (2020 est.)

Major infectious diseases
degree of risk: high (2023)
food or waterborne diseases: bacterial diarrhea, hepatitis A and E, and typhoid fever
vectorborne diseases: Japanese encephalitis, malaria, and dengue fever

Obesity - adult prevalence rate
4.1% (2016)
country comparison to the world: 187

Alcohol consumption per capita
total: 0.36 liters of pure alcohol (2019 est.)
beer: 0.22 liters of pure alcohol (2019 est.)
wine: 0 liters of pure alcohol (2019 est.)
spirits: 0.13 liters of pure alcohol (2019 est.)
other alcohols: 0 liters of pure alcohol (2019 est.)
country comparison to the world: 167

Tobacco use
total: 30.4% (2020 est.)
male: 47.9% (2020 est.)
female: 12.8% (2020 est.)
country comparison to the world: 31

Children under the age of 5 years underweight
24.4% (2019)
country comparison to the world: 11

Currently married women (ages 15-49)
74.6% (2023 est.)

Child marriage
women married by age 15: 7.9%
women married by age 18: 32.8%
men married by age 18: 9% (2019 est.)

Education expenditures
4.2% of GDP (2020 est.)
country comparison to the world: 109

Literacy
definition: age 15 and over can read and write
total population: 71.2%
male: 81%
female: 63.3% (2021)

School life expectancy (primary to tertiary education)
total: 13 years
male: 13 years
female: 13 years (2020)

Youth unemployment rate (ages 15-24)
total: 9.5%
male: 10.6%
female: 8.6% (2021 est.)

**Environment**

Environment - current issues
deforestation (overuse of wood for fuel and lack of alternatives); forest degradation; soil erosion; contaminated water (with human and animal wastes, agricultural runoff, and industrial effluents); unmanaged solid waste; wildlife conservation; vehicular emissions

Environment - international agreements
party to: Biodiversity, Climate Change, Climate Change-Kyoto Protocol, Climate Change-Paris Agreement, Desertification, Endangered Species, Hazardous Wastes, Law of the Sea, Nuclear Test Ban, Ozone Layer Protection, Wetlands
signed, but not ratified: Comprehensive Nuclear Test Ban, Marine Life Conservation

Climate
varies from cool summers and severe winters in north to subtropical summers and mild winters in south

Land use
agricultural land: 28.8% (2018 est.)
arable land: 15.1% (2018 est.)
permanent crops: 1.2% (2018 est.)
permanent pasture: 12.5% (2018 est.)
forest: 25.4% (2018 est.)
other: 45.8% (2018 est.)

Urbanization
urban population: 21.9% of total population (2023)
rate of urbanization: 3.09% annual rate of change (2020-25 est.)
total population growth rate v. urban population growth rate, 2000-2030

Revenue from forest resources
0.45% of GDP (2018 est.)
country comparison to the world: 69

Revenue from coal
0% of GDP (2018 est.)
country comparison to the world: 142

Air pollutants
particulate matter emissions: 94.33 micrograms per cubic meter (2016 est.)
carbon dioxide emissions: 9.11 megatons (2016 est.)
methane emissions: 41.15 megatons (2020 est.)

Waste and recycling
municipal solid waste generated annually: 1,768,977 tons (2016 est.)

Major watersheds (area sq km)
Indian Ocean drainage: Brahmaputra (651,335 sq km), Ganges (1,016,124 sq km), Indus (1,081,718 sq km)

Major aquifers
Indus-Ganges-Brahmaputra Basin

Total water withdrawal
municipal: 150 million cubic meters (2020 est.)
industrial: 30 million cubic meters (2020 est.)
agricultural: 9.32 billion cubic meters (2020 est.)

Total renewable water resources
210.2 billion cubic meters (2020 est.)

**Government**

Country name
conventional long form: none
conventional short form: Nepal
local long form: none
local short form: Nepal
etymology: the Newar people of the Kathmandu Valley and surrounding areas apparently gave their name to the country; the terms "Nepal," "Newar," "Nepar," and "Newal" are phonetically different forms of the same word

Government type
federal parliamentary republic

Capital
name: Kathmandu
geographic coordinates: 27 43 N, 85 19 E
time difference: UTC+5.75 (10.75 hours ahead of Washington, DC, during Standard Time)
etymology: name derives from the Kasthamandap temple that stood in Durbar Square; in Sanskrit, kastha means "wood" and mandapa means "pavilion"; the three-story structure was made entirely of wood, without iron nails or supports, and dated to the late 16th century; it collapsed during a 2015 earthquake

Administrative divisions
7 provinces (pradesh, singular - pradesh); Bagmati, Gandaki, Karnali, Koshi, Lumbini, Madhesh, Sudurpashchim

Independence
1768 (unified by Prithvi Narayan SHAH)

National holiday
Constitution Day, 20 September (2015); note - marks the promulgation of Nepal's constitution in 2015 and replaces the previous 28 May Republic Day as the official national day in Nepal; the Gregorian day fluctuates based on Nepal's Hindu calendar

Constitution
history: several previous; latest approved by the Second Constituent Assembly 16 September 2015, signed by the president and effective 20 September 2015

amendments: proposed as a bill by either house of the Federal Parliament; bills affecting a state border or powers delegated to a state must be submitted to the affected state assembly; passage of such bills requires a majority vote of that state assembly membership; bills not requiring state assembly consent require at least two-thirds majority vote by the membership of both houses of the Federal Parliament; parts of the constitution on the sovereignty, territorial integrity, independence, and sovereignty vested in the people cannot be amended; amended 2016, 2020

Legal system
English common law and Hindu legal concepts; note - new criminal and civil codes came into effect on 17 August 2018

International law organization participation
has not submitted an ICJ jurisdiction declaration; non-party state to the ICCt

Citizenship
citizenship by birth: yes
citizenship by descent only: yes
dual citizenship recognized: no
residency requirement for naturalization: 15 years

Suffrage
18 years of age; universal

Executive branch
chief of state: President Ram Chandra POUDEL (since 13 March 2023); Vice President Ram Sahaya Prasad YADAV (since 31 March 2023)

head of government: Prime Minister Pushpa Kamal DAHAL (since 26 December 2022); deputy prime ministers Narayan Kaji SHRESTHA (since 26 December 2022), Purna Bahadur KHADKA (since 31 March 2023) (an)

cabinet: Council of Ministers appointed by the prime minister; cabinet split between Nepali Congress, Communist Party of Nepal-Maoist Centre, and various coalition partners

elections/appointments: president indirectly elected by an electoral college of the Federal Parliament and of the state assemblies for a 5-year term (eligible for a second term); election last held on 9 March 2023 (next to be held in 2028); prime minister indirectly elected by the Federal Parliament

election results: Ram Chandra POUDEL elected president; electoral vote - Ram Chandra POUDEL (NC) 33,802, Subash Chandra NEMBANG (CPN-UML) 15,518

Legislative branch
description: bicameral Federal Parliament consists of:
National Assembly (59 seats; 56 members, including at least 3 women, 1 Dalit, 1 member with disabilities, or 1 minority indirectly elected by an electoral college of state and municipal government leaders, and 3 members, including 1 woman, nominated by the president of Nepal on the recommendation of the government; members serve 6-year terms with renewal of one-third of the membership every 2 years)

House of Representatives (275 seats; 165 members directly elected in single-seat constituencies by simple majority vote and 110 members directly elected in a single nationwide constituency by closed-list proportional representation vote, with a threshold of 3% overall valid vote to be allocated a seat; members serve 5-year terms); note - the House of Representatives was dissolved on 22 May 2021, but on 13 July, the Supreme Court directed its reinstatement

elections:
National Assembly - last held on 26 January 2022 (next to be held in 2024)
House of Representatives - last held on 20 November 2022 (next to be held in November 2027)

election results:
National Assembly - percent of vote by party - NA; seats by party - CPN-UML 42, NC 13, FSFN 2, RJPN 2; composition - men 37, women 22,

percent of women 37.3%

House of Representatives - percent of vote by party - NA; seats by party - NC 89, CPN-UML 78, CPN-MC 32, RSP 20, RPP 14, PSP-N 12, CPN (Unified Socialist) 10, Janamat Party 6, Loktantrik Samajwadi Party 4,

other 10; composition - men 184, women 91, percent of women 33.1%

Judicial branch
highest court(s): Supreme Court (consists of the chief justice and up to 20 judges)

judge selection and term of office: Supreme Court chief justice appointed by the president upon the recommendation of the Constitutional Council, a 5-member, high-level advisory body headed by the prime minister; other judges appointed by the president upon the recommendation of the Judicial Council, a 5-member advisory body headed by the chief justice; the chief justice serves a 6-year term; judges serve until age 65

subordinate courts: High Court; district courts

Political parties and leaders
Federal Socialist Forum, Nepal or FSFN [Upendra YADAV]
Communist Party of Nepal (Maoist Centre) or CPN-MC [Pushpa Kamal DAHAL]
Communist Party of Nepal (Unified Marxist-Leninist) or CPN-UML [Khadga Prasad OLI]
Communist Party of Nepal (Unified Socialist) or CPN-US [Madhav Kumar NEPAL]
Janamat Party [Chandra Kant RAUT]
Loktantrik Samajwadi Party [Mahantha THAKUR]
Naya Shakti Party, Nepal [Baburam BHATTARAI]
Nepali Congress or NC [Sher Bahadur DEUBA]
Nepal Mazdoor Kisan Party (Nepal Workers' and Peasants' Party) or NWPP [Narayan Man BIJUKCHHE]
People's Socialist Party [Upendra YAKAV]
Rastriya Janamorcha (National People's Front) [Chitra Bahadur K.C.]
Rastriya Janata Party (National People's Party, Nepal) or RJPN [Mahanta THAKUR]
Rastriya Prajatantra Party (National Democratic Party) or RPP [Rajendra Prasad LINGDEN]
Rastriya Swatantra Party or RSP [Rabi LAMICHHANE]

International organization participation
ADB, BIMSTEC, CD, CP, FAO, G-77, IAEA, IBRD, ICAO, ICC (NGOs), ICRM, IDA, IFAD, IFC, IFRCS, ILO, IMF, IMO, Interpol, IOC, IOM, IPU, ISO, ITSO, ITU, ITUC (NGOs), MIGA, MINURSO, MINUSMA, MINUSTAH, MONUSCO, NAM, OPCW, SAARC, SACEP, UN, UNAMID, UNCTAD, UNDOF, UNESCO, UNHRC, UNIDO, UNIFIL, UNISFA, UNMIL, UNMISS, UNOCI, UNSOM, UNTSO, UNWTO, UPU, WCO, WFTU (NGOs), WHO, WIPO, WMO, WTO

Diplomatic representation in the US
chief of mission: Ambassador Sridhar KHATRI (since 19 April 2022)
chancery: 2730 34th Place NW, Washington, DC 20007
Tel: +1-202-667-4550
Fax: +1-202-667-5534
Email: *info@nepalembassyusa.org*
Website: *https://us.nepalembassy.gov.np/*
Consulate(s) general: Chicago, New York

Diplomatic representation from the US
chief of mission: Ambassador Randy BERRY (since 25 October 2018)
embassy: Maharajgunj, Kathmandu
mailing address: 6190 Kathmandu Place, Washington DC 20521-6190
Tel: 977-1-423-4000
Fax: 977-1-400-7272
Email: *usembktm@state.gov*
Website: *https://np.usembassy.gov/*

Flag description
crimson red with a blue border around the unique shape of two overlapping right triangles; the smaller, upper triangle bears a white stylized moon and the larger, lower triangle displays a white 12-pointed sun; the color red represents the rhododendron (Nepal's national flower) and is a sign of victory and bravery,

the blue border signifies peace and harmony; the two right triangles are a combination of two single pennons (pennants) that originally symbolized the Himalaya Mountains while their charges represented the families of the king (upper) and the prime minister, but today they are understood to denote Hinduism and Buddhism, the country's two main religions; the moon represents the serenity of the Nepalese people and the shade and cool weather in the Himalayas, while the sun depicts the heat and higher temperatures of the lower parts of Nepal; the moon and the sun are also said to express the hope that the nation will endure as long as these heavenly bodies
note: Nepal is the only country in the world whose flag is not rectangular or square

National symbol(s)
rhododendron blossom; national color: red

National anthem
name: "Sayaun Thunga Phool Ka" (Hundreds of Flowers)
lyrics/music: Pradeep Kumar RAI/Ambar GURUNG
note: adopted 2007; after the abolition of the monarchy in 2006, a new anthem was required because of the previous anthem's praise for the king

National heritage
total World Heritage Sites: 4 (2 cultural, 2 natural)
selected World Heritage Site locales: Kathmandu Valley (c); Sagarmatha National Park (n); Chitwan National Park (n); Lumbini, Buddha Birthplace (c)

**Economy**

Economic overview
low-income South Asian economy; post-conflict fiscal federalism increasing stability; COVID-19 hurt trade and tourism; widening current account deficits; environmentally fragile economy from earthquakes; growing Chinese relations and investments

Real GDP (purchasing power parity)
$115.093 billion (2021 est.)
$110.404 billion (2020 est.)
$113.083 billion (2019 est.)
note: data are in 2017 dollars
country comparison to the world: 86

Real GDP growth rate
4.25% (2021 est.)
-2.37% (2020 est.)
6.66% (2019 est.)
country comparison to the world: 113

Real GDP per capita
$3,800 (2021 est.)
$3,800 (2020 est.)
$3,900 (2019 est.)
note: data are in 2017 dollars
country comparison to the world: 186

GDP (official exchange rate)
$24.88 billion (2017 est.)

Inflation rate (consumer prices)
4.09% (2021 est.)
5.05% (2020 est.)
5.57% (2019 est.)
country comparison to the world: 138

GDP - composition, by sector of origin
agriculture: 27% (2017 est.)
industry: 13.5% (2017 est.)
services: 59.5% (2017 est.)

GDP - composition, by end use
household consumption: 78% (2017 est.)
government consumption: 11.7% (2017 est.)
investment in fixed capital: 33.8% (2017 est.)
investment in inventories: 8.7% (2017 est.)
exports of goods and services: 9.8% (2017 est.)
imports of goods and services: -42% (2017 est.)

Agricultural products
rice, vegetables, sugar cane, potatoes, maize, wheat, buffalo milk, milk, fruit, mangoes/guavas

Industries
tourism, carpets, textiles; small rice, jute, sugar, and oilseed mills; cigarettes, cement and brick production

Industrial production growth rate
4.51% (2021 est.)
country comparison to the world: 98

Labor force
16.884 million (2021 est.)
country comparison to the world: 38

Labor force - by occupation
agriculture: 69%
industry: 12%
services: 19% (2015 est.)

Unemployment rate
5.05% (2021 est.)
4.72% (2020 est.)
3.1% (2019 est.)
country comparison to the world: 79

Youth unemployment rate (ages 15-24)
total: 9.5%
male: 10.6%
female: 8.6% (2021 est.)
country comparison to the world: 160

Population below poverty line
25.2% (2011 est.)

Gini Index coefficient - distribution of family income
32.8 (2010 est.)
country comparison to the world: 127

Household income or consumption by percentage share
lowest 10%: 3.2%
highest 10%: 29.5% (2011)

Budget
revenues: $7.305 billion (2020 est.)
expenditures: $9.008 billion (2020 est.)

Budget surplus (+) or deficit (-)
-0.1% (of GDP) (2017 est.)
country comparison to the world: 48

Public debt
39.05% of GDP (2020 est.)
31.78% of GDP (2019 est.)
country comparison to the world: 139

Taxes and other revenues
15.77% (of GDP) (2020 est.)
country comparison to the world: 139

Fiscal year
16 July - 15 July

Current account balance
-$5.363 billion (2021 est.)
-$84.137 million (2020 est.)
-$1.754 billion (2019 est.)
country comparison to the world: 190

Exports
$2.52 billion (2021 est.)
$1.771 billion (2020 est.)
$2.726 billion (2019 est.)
note: data are in current year dollars
country comparison to the world: 151

Exports - partners
India 68%, United States 10% (2019)

Exports - commodities
soybean oil, palm oil, clothing and apparel, carpets, nutmeg (2021)

Imports
$16.993 billion (2021 est.)
$10.694 billion (2020 est.)
$13.836 billion (2019 est.)
note: data are in current year dollars
country comparison to the world: 96

Imports - partners
India 70%, China 15% (2019)

Imports - commodities
refined petroleum, iron, broadcasting equipment, natural gas, rice (2019)

Reserves of foreign exchange and gold
$9.661 billion (31 December 2021 est.)
$11.468 billion (31 December 2020 est.)
$8.713 billion (31 December 2019 est.)
country comparison to the world: 81

Debt - external
$5.849 billion (31 December 2017 est.)
$4.321 billion (31 December 2016 est.)
country comparison to the world: 128

Exchange rates
Nepalese rupees (NPR) per US dollar -
118.134 (2021 est.)
118.345 (2020 est.)
112.609 (2019 est.)
108.93 (2018 est.)
104.512 (2017 est.)

**Energy**

Electricity access
electrification - total population: 93% (2019)
electrification - urban areas: 94% (2019)
electrification - rural areas: 93% (2019)

Electricity
installed generating capacity: 1.392 million kW (2020 est.)
consumption: 4.676 billion kWh (2019 est.)
exports: 107 million kWh (2019 est.)
imports: 1.729 billion kWh (2019 est.)
transmission/distribution losses: 1.183 billion kWh (2019 est.)

Electricity generation sources
fossil fuels: 0% of total installed capacity (2020 est.)
nuclear: 0% of total installed capacity (2020 est.)
solar: 2.6% of total installed capacity (2020 est.)
wind: 0.2% of total installed capacity (2020 est.)
hydroelectricity: 97.2% of total installed capacity (2020 est.)
tide and wave: 0% of total installed capacity (2020 est.)
geothermal: 0% of total installed capacity (2020 est.)
biomass and waste: 0% of total installed capacity (2020 est.)

Coal
production: 28,000 metric tons (2020 est.)
consumption: 839,000 metric tons (2020 est.)
exports: 0 metric tons (2020 est.)
imports: 811,000 metric tons (2020 est.)
proven reserves: 1 million metric tons (2019 est.)

Petroleum
total petroleum production: 0 bbl/day (2021 est.)
refined petroleum consumption: 49,400 bbl/day (2019 est.)
crude oil and lease condensate exports: 0 bbl/day (2018 est.)
crude oil and lease condensate imports: 0 bbl/day (2018 est.)
crude oil estimated reserves: 0 barrels (2021 est.)

Refined petroleum products - production
0 bbl/day (2015 est.)
country comparison to the world: 184

Refined petroleum products - exports
0 bbl/day (2015 est.)
country comparison to the world: 187

Refined petroleum products - imports
26,120 bbl/day (2015 est.)
country comparison to the world: 106

Natural gas
production: 0 cubic meters (2021 est.)
consumption: 0 cubic meters (2021 est.)
exports: 0 cubic meters (2021 est.)
imports: 0 cubic meters (2021 est.)
proven reserves: 0 cubic meters (2021 est.)

Carbon dioxide emissions
7.708 million metric tonnes of CO2 (2019 est.)
from coal and metallurgical coke: 1.051 million metric tonnes of CO2 (2019 est.)
from petroleum and other liquids: 6.657 million metric tonnes of CO2 (2019 est.)
from consumed natural gas: 0 metric tonnes of CO2 (2019 est.)
country comparison to the world: 120

Energy consumption per capita
5.219 million Btu/person (2019 est.)
country comparison to the world: 171

**Communications**

Telephones - fixed lines
total subscriptions: 730,000 (2021 est.)
subscriptions per 100 inhabitants: 2 (2021 est.)
country comparison to the world: 79

Telephones - mobile cellular
total subscriptions: 38 million (2021 est.)
subscriptions per 100 inhabitants: 130 (2021 est.)
country comparison to the world: 41

Telecommunication systems
general assessment: in relation to its telecom sector, Nepal has several topographical and economic constraints which have impeded efforts to expand network infrastructure and improve the quality of service for end-users; the fixed line market remains underdeveloped, and as a result most traffic is channeled via mobile networks; fixed broadband penetration remains very low, though to address this the government has initiated several programs as part of the Digital Nepal Framework and the wider Optical Fiber Backbone Network Expansion Project, started in 2012; supported by the Rural Telecommunications Development Fund, the programs include building out fiber backbone infrastructure and using this to provide broadband to schools and community centers nationally; telcos have also invested in fiber networks, and competition in the market is intensifying; cheap fiber-based services launched in mid-2021 prompted responses from other ISPs to provide faster and more competitively priced offers; Nepal's mobile market is relatively developed, with a focus on LTE; in 2021, the regulator considered a range of spectrum bands which could be used for 5G (2021)

domestic: fixed-line is 2 per 100 persons and mobile-cellular nearly 130 per 100 persons (2021)

international: country code - 977; Nepal, China and Tibet connected across borders with underground and all-dielectric self-supporting (ADSS) fiber-optic cables; radiotelephone communications; microwave and fiber landlines to India; satellite earth station - 1 Intelsat (Indian Ocean) (2019)

Broadcast media
state operates 3 TV stations, as well as national and regional radio stations; 117 television channels are licensed, among those 71 are cable television channels, three are distributed through Direct-To-Home (DTH) system, and four are digital terrestrial; 736 FM radio stations are licensed and at least 314 of those radio stations are community radio stations (2019)

Internet country code
.np

Internet users
total: 15.6 million (2021 est.)
percent of population: 52% (2021 est.)
country comparison to the world: 48

Broadband - fixed subscriptions
total: 1.27 million (2020 est.)
subscriptions per 100 inhabitants: 4 (2020 est.)
country comparison to the world: 69

Transportation
National air transport system
number of registered air carriers: 6 (2020)
inventory of registered aircraft operated by air carriers: 39
annual passenger traffic on registered air carriers: 3,296,953 (2018)
annual freight traffic on registered air carriers: 4.66 million (2018) mt-km

Civil aircraft registration country code prefix
9N

Airports
47 (2021)
country comparison to the world: 92

Airports - with paved runways
11
note: paved runways have a concrete or asphalt surface but not all have facilities for refueling, maintenance, or air traffic control; the length of a runway required for aircraft to safely operate depends on a number of factors including the

type of aircraft, the takeoff weight (including passengers, cargo, and fuel), engine types, flap settings, landing speed, elevation of the airport, and average maximum daily air temperature; paved runways can reach a length of 5,000 m (16,000 ft.), but the "typical" length of a commercial airline runway is between 2,500-4,000 m (8,000-13,000 ft.)

Airports - with unpaved runways
36
note: unpaved runways have a surface composition such as grass or packed earth and are most suited to the operation of light aircraft; unpaved runways are usually short, often less than 1,000 m (3,280 ft.) in length; airports with unpaved runways often lack facilities for refueling, maintenance, or air traffic control

Railways
total: 59 km (2018)
narrow gauge: 59 km (2018) 0.762-m gauge
country comparison to the world: 132

Roadways
total: 27,990 km (2016)
paved: 11,890 km (2016)
unpaved: 16,100 km (2016)
country comparison to the world: 99

Military and Security
Military and security forces
Ministry of Defense: Nepali Army (includes Air Wing); Ministry of Home Affairs: Nepal Police, Nepal Armed Police Force (2023)

note: the Nepal Police are responsible for enforcing law and order across the country; the Armed Police Force is responsible for combating terrorism, providing security during riots and public disturbances, assisting in natural disasters, and protecting vital infrastructure, public officials, and the borders; it also conducts counterinsurgency and counterterrorism operations and would assist the Army in the event of an external invasion

Military expenditures
1.1% of GDP (2022 est.)
1.3% of GDP (2021 est.)
1.3% of GDP (2020 est.)
2.1% of GDP (2019)
2.3% of GDP (2018)
country comparison to the world: 124

Military and security service personnel strengths
approximately 95,000 active troops (including a small air wing of about 500 personnel) (2022)

Military equipment inventories and acquisitions
the Army's inventory includes a mix of mostly older equipment largely of British, Chinese, Indian, Russian, and South African origin; in recent years, Nepal has received limited amounts of newer hardware from several countries, including China, Italy, and Russia (2022)

Military service age and obligation
18 years of age for voluntary military service (including women); no conscription (2022)
note: as of 2020, women comprised about 5% of the active duty military

Military deployments
790 Central African Republic (MINUSCA); 1,150 Democratic Republic of the Congo (MONUSCO); 400 Golan Heights (UNDOF); 870 Lebanon (UNIFIL); 235 Liberia (UNSMIL); 175 Mali (MINUSMA); 1,750 (plus about 220 police) South Sudan (UNMISS) (May 2022)

Military - note
the Nepali Army is a lightly equipped and professional force responsible for territorial defense, although it has some domestic duties such as disaster relief/humanitarian assistance and nature conservation efforts; during the 10-year civil war that ended in 2006, it conducted extensive counterinsurgency operations against Maoist guerrillas; the Army also has a long and distinguished history of supporting UN missions, having sent its first UN observers to Lebanon in 1958 and its first troop contingent to Egypt in 1974; as of 2023, nearly 150,000 Nepali military personnel had deployed on over 40 UN missions; the Army conducts training with

foreign partners, including China, India, and the US; it has 8 geographically-based divisions, each comprised of light infantry brigades and support units; the Army also has independent special forces and security force (palace guard) brigades; the Air Wing has a small number of multi-role and transport helicopters

the British began to recruit Nepalese citizens (Gurkhas) into the East India Company Army during the Anglo-Nepalese War (1814-1816); the Gurkhas subsequently were brought into the British Indian Army and by 1914, there were 10 Gurkha regiments, collectively known as the Gurkha Brigade; following the partition of India in 1947, an agreement between Nepal, India, and Great Britain allowed for the transfer of the 10 regiments from the British Indian Army to the separate British and Indian armies; four regiments were transferred to the British Army, where they have since served continuously as the Brigade of Gurkhas; six Gurkha (aka Gorkha in India) regiments went to the new Indian Army; a seventh regiment was later added; Gurkhas are also recruited into the Singaporean Police and a special guard in the Sultanate of Brunei known as the Gurkha Reserve Unit (2023)

**Terrorism**

Terrorist group(s)
Indian Mujahedeen

**Transnational Issues**

Disputes - international
Nepal-China: China may have constructed 11 buildings in Nepal's Humla region in 2021

Nepal-India: joint border commission continues to work on contested sections of boundary with India, including the 400 sq km dispute over the source of the Kalapani River; the Kalapani issue resurfaced in November 2019 when India issued a new map showing the contested area within India's borders and then built a new road in the region through Lipulekh pass, an area controlled by India but claimed by Nepal; Nepal countered by amending its constitution and issuing its own map showing the disputed area within its borders; the countries prime ministers briefly discussed the border dispute in April 2022; India has instituted a stricter border regime to restrict transit of illegal cross-border activities

Refugees and internally displaced persons
refugees (country of origin): 12,540 (Tibet/ China), 6,365 (Bhutan) (mid-year 2022)
stateless persons: undetermined (mid-year 2021)

Illicit drugs
illicit producer of cannabis and hashish for the domestic and international drug markets; transit point for opiates from Southeast Asia to the West

# Acronyms and Abbreviations

| | |
|---|---|
| ° | Degree(s) – of temperature or latitude and longitude |
| $ | U.S. Dollar |
| € | Euro (currency) |
| ACD | Asia Cooperation Dialogue |
| ADRA | Adventist Development and Relief Agency |
| AIN | Association of International NGOs in Nepal |
| APAN | All Partners Access Network |
| APF | Armed Police Force |
| BCE / CE | Before Common Era / Common Era (formerly BC and AD) |
| BHA | Bureau for Humanitarian Assistance (of USAID) |
| BIMSTEC | Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation |
| BIPAD | Building Information Platform Against Disaster |
| BRI | Belt and Road Initiative |
| BTS | base transceiver station |
| CAAN | Civil Aviation Authority of Nepal |
| CADRE | Community Action for Disaster Response |
| CBDRM | Community Based Disaster Risk Management |
| CCA | climate change adaptation |
| CCCM | Camp Coordination and Camp Management |
| CCMC | COVID-19 Crisis Management Centre |
| CEA | China Earthquake Administration |
| CEHRD | Center for Education and Human Resource Development |
| CFE-DM | Center for Excellence in Disaster Management & Humanitarian Assistance |
| cm | centimeter(s) |
| CNDRC | Central Natural Disaster Relief Committee |
| COVID-19 | Coronavirus Disease 2019 |
| CPA | Comprehensive Peace Agreement |
| CPN(M) | Communist Party of Nepal (Maoist) |
| CPN(UML) | Communist Party of Nepal (Unified Marxist-Leninist) |
| CPR | Cardio-Pulmonary Resuscitation |
| CRI | Climate Risk Index |
| CTEVT | Council for Technical Education and Vocational Training |
| DBM | Dead Body Management |
| DC | District Chapter (of NRCS) |
| DDMC | District Disaster Management Committee |
| DHM | Department of Hydrology and Meteorology |
| DiMaNN | National Disaster Management Network of Nepal |
| DMF | Disaster Management Fund |

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| DMG | Department of Mines and Geology |
| DMHA | Disaster Management and Humanitarian Assistance |
| DMTS | Disaster Management Training School |
| DNF | Digital Nepal Framework |
| DoD | Department of Defense (of the U.S.) |
| DPNet-Nepal | Disaster Preparedness Network Nepal |
| DREE | Disaster Response Exercise and Exchange |
| DRR | disaster risk reduction |
| DRRM | disaster risk reduction and management |
| DUBC | Department of Urban Development and Building |
| DWSSM | Department of Water Supply and Sewerage Management |
| EDCD | Epidemiology and Disease Control Division |
| EOC | emergency operation center |
| EU | European Union |
| EWARS | Early Warning and Reporting System |
| EWS | early warning system |
| FAO | Food and Agriculture Organization (of the UN) |
| FTX | Field-Training Exercise |
| FY | Fiscal Year |
| GDP | gross domestic product |
| GHG | global greenhouse gas |
| GLOF | glacial lake outburst flood |
| GoN | Government of Nepal |
| GW | Gigawatt |
| HADR | humanitarian assistance and disaster relief |
| HCT | Humanitarian Country Team |
| HEDMU | Health Emergency and Disaster Management Unit |
| HEOC | Health Emergency Operation Center |
| HMIS | Health Management Information System |
| HLCC | High-Level Coordination Committee |
| HOPE | hospital preparedness for emergencies |
| HSA | Humanitarian Staging Area |
| HuMOCC | Humanitarian-Military Operations Coordination Center |
| ICD | Inland Clearance Depot |
| ICJ | Commission of Jurists |
| ICRC | International Committee of the Red Cross |
| ICS | Incident Command System |
| ICT | information and communications technology |
| IDP | internally displaced person |
| IFRC | International Federal of Red Cross and Red Crescent Societies |

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| IMCCCC | Interministerial Climate Change Coordination Committee |
| INSARAG | International Search and Rescue Advisory Group (of the UN) |
| IOM | International Organization for Migration (of the UN) |
| IPICC | Indo-Pacific Intelligence Chiefs Conference |
| JICA | Japan International Cooperation Agency |
| km / $km^2$ | kilometer(s) / square kilometer(s) |
| kV | kilovolt(s) |
| LDCRP | Local Disaster and Climate Resilience Plan |
| LGBTQI+ | lesbian, gay, bisexual, transgender, queer, intersex, and other gender expression |
| LGO | Local Government Operations |
| LISA | Local Government Institutional Capacity Self-Assessment |
| LPG | liquified petroleum gas |
| m / $m^2$ | meter(s) / square meter(s) |
| M.A.R.C.H. | Massive Hemorrhage, Airway, Respiration, Circulation, and Hypothermia Prevention |
| Mbps | megabits per second |
| MCC | Millenium Challenge Corporation |
| MCIP | Multinational Communications Interoperability Program |
| MDG | Millennium Development Goal |
| MHEWS | Multi-Hazard Early Warning System |
| MHT | Main Himalayan Thrust |
| mm | millimeter(s) |
| MNMCC | Multinational Military Coordination Centre |
| MoCIT | Ministry of Information and Communications |
| MoFAGA | Ministry of Federal Affairs and General Administration |
| MoFE | Ministry of Forests and Environment |
| MoHA | Ministry of Home Affairs |
| MoHP | Ministry of Health and Population |
| MoITFE | Ministry of Industry, Tourism, Forests, and Environment |
| MoPIT | Ministry of Physical Infrastructure and Transport |
| MoUD | Ministry of Urban Development |
| MoWS | Ministry of Water Supply |
| MW | Megawatt |
| NA | Nepal Army |
| NACRIMAC | Nepalese Army Crisis Management Center |
| NAP | National Adaptation Plan or National Action Plan |
| NCD | noncommunicable disease |
| NCP | Nepal Communist Party |
| NCRC | National Child Rights Council |
| NDC | Nationally-Determined Contributions |
| NDRF | National Disaster Response Framework |

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| NDRRMA | National Disaster Risk Reduction and Management Authority |
| NEMRC | National Earthquake Monitoring and Research Center |
| NEOC | National Emergency Operations Center |
| NFDN | National Federation of the Disabled Nepal |
| NGO | non-governmental organization |
| NH | National Highway |
| NHTC | National Health Training Center |
| NP | Nepal Police |
| NPC | National Planning Commission |
| NPDRR | National Platform for Disaster Risk Reduction |
| NRA | National Reconstruction Authority |
| NRC | Nepal Railway Company |
| NRCS | Nepal Red Cross Society |
| NSET | National Society for Earthquake Technology |
| NT | Nepal Telecom |
| OCHA | Office for the Coordination of Humanitarian Affairs (of the UN) |
| OSOCC | On-Site Operations Coordination Centre |
| PACANGEL | Pacific Angel |
| PC4 | Provincial Climate Change Coordination Committee |
| PDC | Pacific Disaster Center |
| PDMC | Provincial Disaster Management Council |
| PDMEC | Provincial Disaster Management Executive Committee |
| PHC | primary health care |
| PHEOC | Provincial Health Emergency Operations Centers |
| RCP | Representative Concentration Pathway |
| RHCC | Changi Regional Humanitarian Assistance and Disaster Relief Coordination Centre |
| RIMES | Regional Integrated Multi-Hazard Early Warning System for Africa and Asia |
| ROAP | Regional Office for Asia and the Pacific (of UN OCHA) |
| Rs | Nepal Rupee |
| SAARC | South Asian Association for Regional Cooperation |
| SAR | search and rescue |
| SCO | Shanghai Cooperation Organisation |
| SDG | Sustainable Development Goal |
| SESP | School Earthquake Safety Program |
| SOP | Standard Operating Procedure |
| SRN | Strategic Road Network |
| SSDP | School Sector Development Plan |
| TEU | twenty-foot equivalent unit |
| TTX | Table-Top Exercise |
| U.S. | United States |

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|---|---|
| UAV | Unmanned Aerial Vehicle |
| UN | United Nations |
| UN-CMCoord | United Nations Humanitarian Civil-Military Coordination |
| UNDAC | United Nations Disaster Assessment and Coordination |
| UNDP | United Nations Development Programme |
| UNDRR | United Nations Office for Disaster Risk Reduction |
| UNFPA | United Nations Population Fund |
| UNICEF | United Nations Children's Fund |
| UNOCHA | United Nations Office for the Coordination of Humanitarian Affairs |
| UNSCR | United Nations Security Council Resolution |
| UNSDCF | United Nations Sustainable Development Cooperation Framework |
| USAID | United States Agency for International Development |
| USARPAC | U.S. Army Pacific |
| USINDOPACOM | U.S. Indo-Pacific Command |
| VL | visceral leishmaniasis |
| VSAT | very small aperture terminal |
| $W/m^2$ | watts per meter squared |
| WASH | water, sanitation, and hygiene |
| WFDM | Women Friendly Disaster Management |
| WFP | World Food Programme |
| WHDRRP | Women Humanitarian and Disaster Risk Reduction Platform |
| WHO | World Health Organization |
| WPS | Women, Peace, and Security |
| WUSC | Water User and Sanitation Committees |
| WWF | World Wildlife Federation |

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