



Government of Nepal
Ministry of Home Affairs

Nepal Disaster Report 2019

June 2019



Government for Nepal
Ministry of Home Affairs

NEPAL DISASTER REPORT 2019

June, 2019



GOVERNMENT OF NEPAL
MINISTRY OF HOME AFFAIRS



Singh Durbar
Kathmandu, Nepal.

Ref No.:

Date: June 26, 2019

MESSAGE

It is indeed my great pleasure that Ministry of Home Affairs is publishing the Nepal Disaster Report, 2019. This report is the sixth version of its kind and has captured the major events, activities, its impact to life and property as well as rescue, relief and recovery initiatives with the major highlights of the activities undertaken by all government agencies, the clusters partners and the support of humanitarian actors during the year 2017 and 2018.

MoHA has been preparing Nepal Disaster Report since 2009 biennially to inform all stakeholders ranging from policies to practices, impacts to responses and recovery to other Disaster Risk Reduction and Management initiatives taken place in Nepal. MoHA has been taking lead in preparing the disaster report with the support of all stakeholders. I am really delighted to share that this report is prepared by MoHA led by Disaster and Conflict Management Division team for the first time with its own resources.

I would like to express my sincere thanks to agencies of the Government of Nepal, departments, UN agencies, development partners, NGOs and INGOs and others including private sectors for providing the information to prepare this report. I would like to commend Ms. Indu Ghimire leading the drafting and publishing the Nepal Disaster Report. I would also like to commend the work of Under Secretaries Mr. Bamshi Kumar Acharya and Mr. Bed Nidhi Khanal and Section Officer Mr. Sushil Kumar Bhandari for their enormous effort and time for this report preparation. I would like to appreciate the notable role of Section Officer Mr. Tulsi Prasad Dahal's in collecting information, write up and publication of this report.

I am confident that this Nepal Disaster Report, 2019 will be useful for all government agencies, non government and humanitarian partners, academia, students and others stakeholders and individuals interested in DRRM. This report will be informative to all organizations and individuals active in disaster risk management sector and the general public the integrated information on disaster events and initiatives during this period. This report also will serve as DRM resource material for the policy makers to be better prepared and better response in the future.


Prem Kumar Rai
Secretary



GOVERNMENT OF NEPAL
MINISTRY OF HOME AFFAIRS

Singh Durbar
Kathmandu, Nepal.

Ref No.:

Date: ...June 26, 2019

ACKNOWLEDGEMENT

Nepal, exposed to multitude of hazards is among the most vulnerable countries in the world for disaster. The country is at risk of number of geological, hydro-meteorological and other human induced hazards. Nepal's geographical location, unplanned settlements development and rising urbanization have resulted into disasters suffering the loss of lives and properties.

MoHA has been leading the initiation in preparing the Nepal Disaster Report biennially since 2009. Earlier, the reports were published with the support of UN agencies and other different humanitarian partners. I am very delighted to share that MoHA has initiated to prepare this report of our own, with our human and financial resource.

I would like to express my sincere thanks all GoN agencies, departments, development partners, NGO/INGOs, humanitarian partners including private sectors for their contribution to provide information to prepare this report. I would like to commend the enormous effort and time of Under Secretaries Mr. Bamshi Kumar Acharya, Mr. Bed Nidhi Khanal and Section Officer Mr. Sushil Kumar Bhandari in the preparation of this report. I would like to appreciate Section Officer, Mr. Tulsi Prasad Dahal for his remarkable contribution in collecting information, write up and publication of this report.

This report will largely support the stakeholders as an information bank of disaster data and DRR initiatives made in the year 2017 and 2018. I am confident that report will be beneficial for all government agencies, non government and humanitarian partners, academia, students and other concern stakeholders and individuals. This report also will be a supportive document for the policy makers, humanitarian partners, non government and private sectors to be better prepared and support better response in the days to come.

Indu Ghimire

Joint Secretary

ACCRONYMS

APF	Armed Police Force
CAAN	Civil Aviation Authority of Nepal
CBS	Central Bureau of Statistics
CCA	Climate Change Adaptation
CCCM	Camp Coordination and Camp Management
CEO	Chief Executive Officer
CNDRC	Central Natural Disaster Relief Committee
CPSW	Community Psycho-Social Workers
DEOC	District Emergency Operation Center
DHM	Department of Hydrology and Meteorology
DHS	Department of Health Services
DIMS	Disaster Information Management System
DMG	Department of Mines and Geology
DOHS	Department of Health Services
DRR	Disaster Risk Reduction
DRM	Disaster Risk Management
DRRM	Disaster Risk Reduction and Management
DTM	Displacement Tracking Matrix
EOC	Emergency Operation Center
EC	Executive Committee
GDP	Gross Domestic Product
GLOF	Glacial Lake Outburst Floods
GoN	Government of Nepal
GPDRR	Global Platform on Disaster Risk Reduction
HEOC	Health Emergency Operation Centre
HSA	Humanitarian Staging Area
INSARAG	International Search and Rescue Advisory Group
IRA	Initial Rapid Assessment
LAPA	Local Adaptation Plan of Action

MoAD	Ministry of Agriculture Development
MOCIT	Ministry of Communication and Information Technology
MOCTCA	Ministry of Culture, Tourism and Civil Aviation
MoEST	Ministry of Education, Science and Technology
MoFAGA	Ministry of Federal Affairs and General Administration
MOFE	Ministry of Forest and Environment
MoHA	Ministry of Home Affairs
MoHP	Ministry of Health and Population
MOPIT	Ministry of Physical Infrastructure and Transport
MOUD	Ministry of Urban Development
MOWS	Ministry of Water Supply
MOWCSC	Ministry of Women, Children and Senior Citizen
NA	Nepal Army
NAP	National Adaptation Plan
NAPA	National Adaptation Plan of Action
NEOC	National Emergency Operation Center
NP	Nepal Police
NPC	National Planning Commission
NPR	Nepali Rupees
NRA	Nepal Reconstruction Authority
PDNA	Post Disaster Needs Assessment
PDRF	Post Disaster Response Framework
PFRNA	Post Flood Recovery Need Assessment
RTA	Road Traffic Accidents
SFDRR	Sendai Framework for Disaster Risk Reduction
SOP	Standard operation procedure
TYP	Three Years Plan
UN	United Nations
WASH	Water Sanitation and Hygiene
WSP	Water Safety Plan

TABLE OF CONTENTS

Chapter I INTRODUCTION	1
Background	1
CHAPTER II Disaster Impacts and Responses	3
2.1. Disaster Loss and Damages	4
2.1.1. Summary of Disaster Incidents in 2017 and 2018	4
2.1.2 Major disaster incidents in 2017 and 2018	4
2.1.3 Seismic events recorded in 2017 and 2018	6
2.2. Post Disaster Recovery Status: Nepal Earthquake 2015	7
CHAPTER III : Disaster Risk Management Initiatives	9
3.1 DRM Legislations and Policy Development	9
3.1.1. The Paradigm Shift in DRM	9
3.1.1.1. Previous Context	9
3.1.1.2. DRM in Federal Context	10
3.1.1.3. Constitution of Nepal	11
3.1.1.4. Disaster Risk Reduction and Management Act, 2017	12
3.1.1.5. Local Government Operation Act, 2017	13
3.1.1.6. Public Health Act, 2018	13
3.1.1.7. National Policy for Disaster Risk Reduction, 2018	13
3.1.1.8. National DRR Strategic Plan of Action (2018-2030)	14
3.1.1.9. 14th periodic plan (2016- 2018)	14
3.1.1.10. National Disaster Risk Reduction and Management Authority (NDRRMA)	15
3.2. Disaster Response, Sectoral Impacts and Key Results Achieved in 2017 and 2018	15
3.2.1. Health	15
3.2.2. Nutrition	16
3.2.3. Food and Agriculture	16
3.2.4. Water Sanitation and Hygiene (WASH)	16
3.2.5. Logistics	17
3.2.6. Protection	18

3.2.7. Camp Coordination and Camp Management (CCCM)	18
3.2.8. Emergency Shelter (ES)	19
3.2.9. Education	19
3.2.10. Emergency Telecommunication	20
3.2.11. Security Forces	20
3.3. Preparedness: Resources and Capacity	21
3.3.1. Emergency Operation Centers	21
3.3.2. Warehouses	22
3.3.3. Early Warning System	22
3.3.4. The DRR Portal and use of Social Media	23
3.4. Localization of DRR	23
3.4.1. Instruments (Law, policy and structures/institutions)	23
3.4.2. Leadership	24
3.4.3. Capacity	25
3.4.4. Resource	25
3.5. Messengers (International to local)	25
3.5.1. International Participations	26
3.5.1.1. GPDRR 22-26 May, 2017 Cancun, Mexico	26
3.5.1.2. AMCDRR 2018, Ulaanbaatar, Mongolia	26
3.5.1.3. RCG meeting, 2017	27
3.5.2. Engagement at national level	27
3.5.2.1. RCC Meeting, 2018	27
3.5.2.2. National Council on Disaster Risk Reduction and Management Meeting	27
3.5.2.3. Executive Committee Meeting	28
3.5.2.4. National DRR Platform Meeting	28
3.5.2.5. National Climate Change Conference, Sindhupalchowk	28
3.5.2.6. National Earthquake Safety Day	29
3.5.2.7. International DRR Day	29
3.5.2.8. Province and Local Level Meetings/Consultations	29

Chapter IV : International Commitments: Nepal's Roadmap and Achievements 31

4.1. International Commitments: Nepal's Roadmap and Achievement	31
4.2. Regional Context	31

4.3. Global Context	33
4.4. Disaster Risk Reduction National Strategic Plan of Action 2018- 2030	34
4.4.1 Priority Area 1: Understanding Disaster Risk	35
4.4.2 Priority Area 2: Strengthening Disaster Risk Governance at Federal, Provincial and Local Level	35
4.4.3 Priority Area 3: Promoting Comprehensive Risk-Informed Private and Public Investments in Disaster Risk Reduction for Resilience	37
4.4.4 Priority Area 4: Enhancing Disaster Preparedness for Effective Response and to “Build Back Better” in Recovery, Rehabilitation and Reconstruction	37

Chapter V : Paving the way Ahead **40**

5.1 Conclusion	40
5.2 Way forward	41
References	43
Annex I : Multi-hazard scenario of Nepal by its socio-economic loss, 1971-2018	45
Annex II : Aircraft and Helicopter Accident data 2017 and 2018	46
Annex III : Road Traffic Accidents (RTA)	46
Annex IV : Disbursement from Central Disaster Management Fund to DDM Fund, 2017 and 2018	47
Annex V : Case Stories	48
Some Case Stories of Monsoon 2018	48
Children as agent of change in DRR	52

Figures

Figure-1 : Disaster Incidents Reported in Nepal in 2017 and 2018	4
Figure-2 : Numbers of disasters per type 1998-2017	33
Figure-3 : Number of disasters by major category per year 1998-2017	34

Tables

Table - 1 : Damage and losses of disaster incidents	5
Table - 2 : Seismic events recorded in 2017 and 2018	7
Table - 3 : Post Disaster Recovery Status: Nepal Earthquake 2015	8

EXECUTIVE SUMMARY

Nepal is exposed to the multiple hazards, which creates multitude of disasters throughout the country. These disastrous incidents claim large number of lives and causes significant economic loss every year. The geography, geological position, and the impact of climate change are the primary causes of disasters. The rapid and unplanned urbanization, environmental degradation, variations in nature and type of disaster and inadequate understanding of disaster risk management have further intensified the disaster risk in Nepal.

The Nepal Disaster Report, 2019 tries to comprehensively map the events, activities and programs carried out by the government, non government sectors and other humanitarian partner during the years, 2017 and 2018. This report presents a brief background on different risk of hazards along with the impact. It has briefly highlighted the damage and loss and its trend due to these disasters. Out of a total 6,381 disaster incidents as per National Emergency Operation Center (NEOC) records, have claimed the lives of 968 people and 3,639 left with injuries. The estimated property loss of these disasters accounted approximately NPR 6.84 billion, where fire incidents claimed the most of it standing around 94 percent of the total loss. Hydro-meteorological disaster events have impacted with the significant damage and losses, typically during monsoon. Fire incidents followed by lightening events are in the rising trend to claim the lives and loss of properties.

The Disaster Risk Management (DRM) initiative during the period was remarkable with the enactment of Disaster Risk Reduction Management Act in 2017. During this period, Nepal has made significant achievements in terms of legal framework, policy instruments, and institutional arrangements for disaster risk management. The constitutional provisions regarding shared responsibility of all tiers of government have provided legal backup for institutionalizing DRM at national and sub national levels. This is a paradigm shift from response centric to risk reduction and management approach. In 2018, National DRR Policy was introduced and Nepal's commitment to Sendai Framework Disaster Risk

Reduction (SFDRR) was localized with the endorsement of DRR Strategic Plan of Action 2018-2030. The cohesion on DRR policies and practices is being strengthened and further fostered through DRM initiatives at global, national and sub national level.

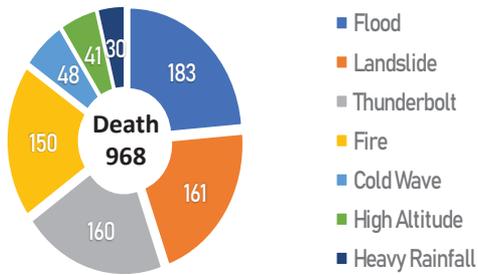
Furthermore, this report tries to cover the sectoral DRM initiatives. It also reflects Nepal's participation in global and international forums. Nepal has hosted DRR Regional Consultative Meeting in Nepal hosting the delegates of 18 countries successfully. The national and international events as a key messenger for DRR cohesion, promotion and adaptation have been identified and detailed in the report, with their key messages and themes. This report also includes the engagement in national and international arena on DRR for the partnerships, international commitments and brought its essence to the notice of different organization and people of different walk of life.

This report elaborates the initiations of the government, covering sectoral and non-government DRR initiatives during these periods. In terms of Nepal's roadmap and achievements made so far, this report has recognizes the major outcomes on the achievements on DRR Strategic Plan of Action 2018-2030. The major outcomes related to four priority actions and eighteen priority activities have been further elaborated as of the progress made so far with the initiatives Nepal has undertaken.

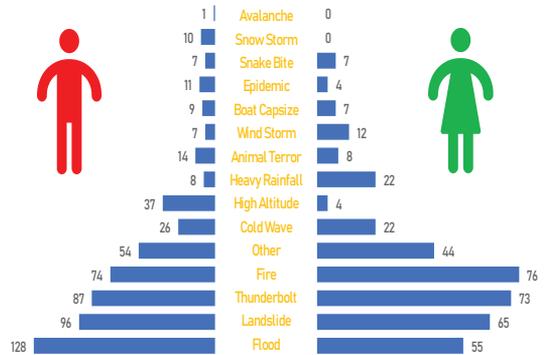
Finally, this report put forth some way forwards out of the lessons from the disaster impact and DRR initiatives during this period, for all tiers of government and stakeholders. Nepal's priority actions on DRR are identified as the guidance towards localization of DRR policies and activities contributing towards building resilient nation.

Disaster Summary (2017-2018)

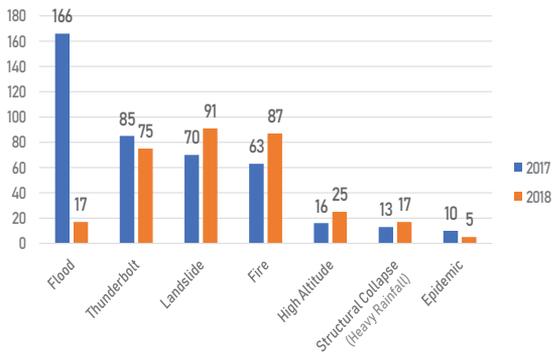
Death by Major Disasters



Gender Disaggregation of Death by Disasters



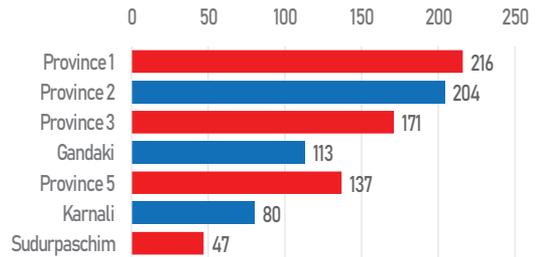
Comparative death chart by Year and Major Disasters



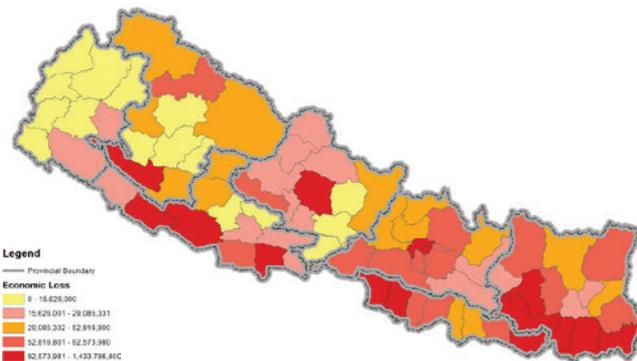
No. of Dead



Death Count by Province

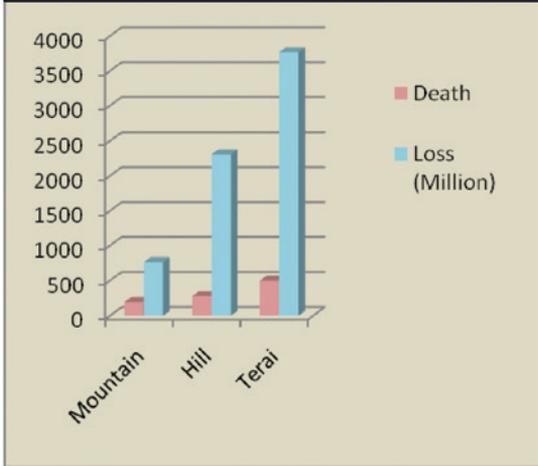


Economic Loss (NPR)

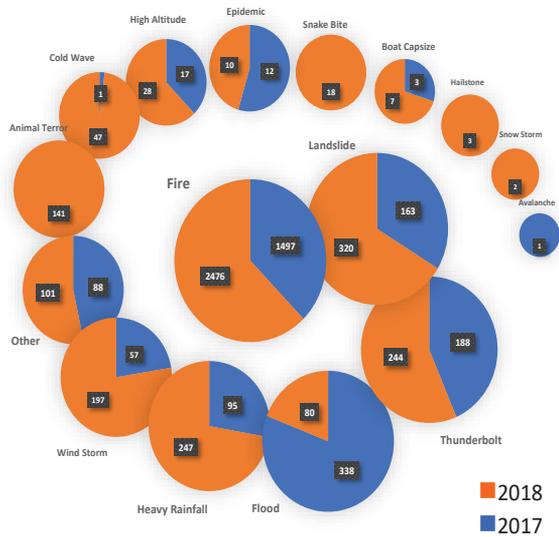


District (with high economic impact)	Economic Loss (NPR in Lakhs)
Bara	14,338
Bhaktapur	7,710
Kathmandu	5,019
Sunsari	3,678
Rupandehi	2,890
Jhapa	1,500
Parsa	1,476
Udayapur	1,439
Khotang	1,437
Morang	1,426

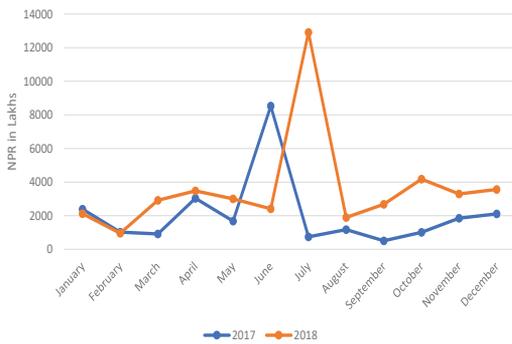
Loss of Lives and Properties (Geographical)



Frequency of Disasters (Recorded)



Economic Loss by Month



Estimated Economic Loss by Disasters

NPR 6,83,88,23,320

Hazard	Loss Percentage
Fire	93.91
Landslide	2.80
Heavy Rainfall	1.31
Flood	0.89
Wind storm	0.75

Major Legislations

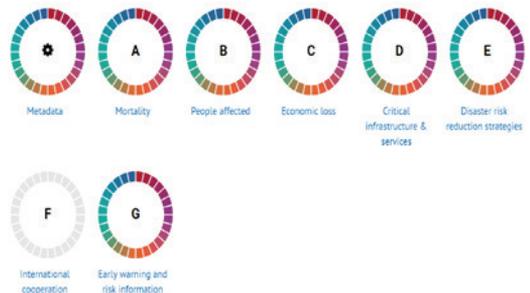
- DRRM Act
- National DRRM Policy
- NDRR Strategic Action Plan 2018-2030
- Provincial DRRM Act
- Provincial DRRM Policy
- Local Level DRRM Act
- Local Level DRRM Policy

SFDRR Monitoring and Reporting Progress

GLOBAL TARGETS

Reporting year: 2018

PROGRESS OF GLOBAL TARGETS



Source: NEOC, MOHA, 2018

Chapter I

INTRODUCTION

Background

The Nepal Disaster Report, 2019 aims to map the events, activities and programs undertaken by government agencies, non government sectors, humanitarian partners and other stakeholders at all tiers of government (federal, provincial and local level) during 2017 and 2018. In order to analyze and draw a lesson to enhance preparedness for future responses, it is very important that the record of response and preparedness measures of disaster events and areas affected by disasters are well documented. A robust databank of disaster risk management is fundamental to all capacity building initiatives for efficient disaster risk management. Since 2009, Ministry of Home Affairs (MoHA) has been publishing the Nepal Disaster Report, biennially. Now, the National Policy on Disaster Risk Reduction, 2018, has made a provision to publish the Nepal Disaster Report annually. This Nepal Disaster Report, 2019, the sixth series of its kind has visualized all the activities of disaster risk management that took place in the years 2017 and 2018. This report intends to document the overall disaster situation during this period as well as highlight the major progress in the policy and institutional mechanism on DRM. This document also provides information on DRM initiatives and practices in Nepal. This report will serve as an important reference to the policy makers, national international DRM practitioners, researchers, academicians, students etc.

Nepal has been experiencing a number of disasters, resulting in the loss of lives and huge financial losses, time and again. There has been a lot of change in perception about disaster and significant progress towards responses to reduce and mitigate disaster risk. However, there is still much to understand and learn the process to lessen the impact of disaster to life and property.

The Disaster Risk Reduction and Management (DRRM) Act, 2017 came into action during this period, replacing the response and relief centric law, the Natural Calamity

Relief Act, 1982. The new Act provides a comprehensive outlook to capture different dimensions of disaster risk management (DRM). The DRRM Act is more progressive in encouraging a proactive approach in reducing and managing disaster by introducing the ‘whole of society approach’ in disaster risk management and ensuring ownership and accountability. It not only aspires to have a more proactive response during the disaster, but also insists upon continuity in risk reduction, response, recovery and rehabilitation. The Act has also classified and defined disasters in two broad categories: natural and non-natural (human induced), which cover a number of hazards and risks that exist in Nepal. With the endorsement of the DRRM Act, Nepal has transitioned from a reactive mode of intervention to a more institutionalized and proactive intervention supporting the overarching goals for creating a disaster resilient state.

This report visualizes various dimensions of disaster risk management initiatives in Nepal by using both qualitative and quantitative measures of data collection to review and analyze the information available. The available literatures, published and unpublished articles, case studies, national and international reports were reviewed and analyzed to draw the essence of disaster risk reduction from this period. It has covered a wide range of information in terms of humanitarian support capturing the efforts undertaken by the newly formed institutions of provincial and local levels for disaster risk reduction and its localization. A participative approach was adopted to collect and analyze the information on DRM with respect to sectoral concerns and feedback. Interviews with key informants, including the expert opinions and their inputs are found to be constructive to this report. It has tried to capture the disaster risk reduction activities of line agencies in the government, national and international humanitarian actors and other stakeholders including the corporate sectors.

This report summarizes the disasters and the impacts, initiations and progresses achieved during 2017 and 2018. The way forward of the report reinforces the need for sustainable development through mainstreaming of disaster risk reduction in all developmental activities. Localization of policies, institutions, resources, capacities and leadership should be the priority for future endeavors.

This report provides a brief overview of the localization of DRM in the context of Nepal bringing in the learning from the regional and global context. It also presents key information on the loss and damage by various disasters during this period. Finally, it aims to support localization and displays the achievements of DRM in Nepal.

CHAPTER II

Disaster Impacts and Responses

Nepal occupies an area of 147,181 square kilometers including both the high Himalayas to the north and plain lands to the south. Within this geography, Nepal is highly prone to multiple hazards, which exist primarily because of its diverse topography and climatic conditions, geological position, rugged mountains and steep landscape. Nepal, not only has relatively young mountains and geology, but also encompasses around one third of the world's total 2,400 kilometers of the Himalayas. The variation of altitude from 59 meters to 8,848 meters within less than 200 kilometers distance has led to the prevalence of natural disaster.

Nepal's steep slopes and the still growing Himalayan range coupled with heavy monsoon rainfall patterns lead to a wide range of geological and hydro-meteorological hazards across the country including landslides, debris flows, floods and glacial lake outburst floods (GLOFs), epidemics, droughts etc. Environmental degradation and climate change both interact with and exacerbate the occurrence and impact of natural hazard events. The frequent disasters caused by these hazards have shown an uprising trend.

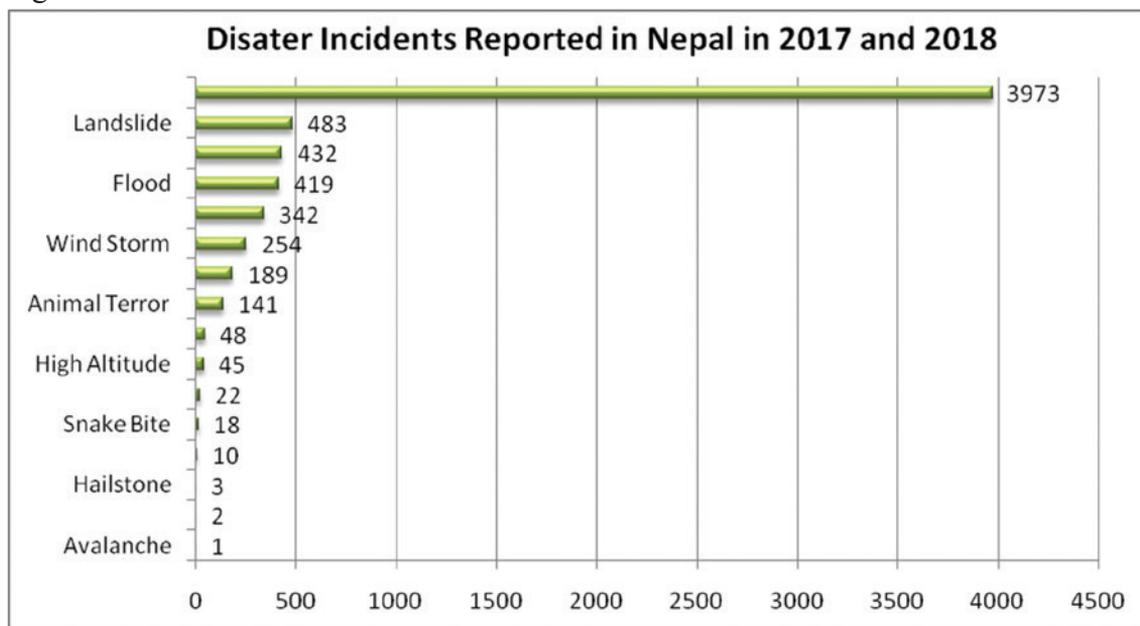
Nepal is equally at risk due to its seismic activity. The subduction of the Indian tectonic plate into the Eurasian (Tibetan) plate has been continually thrusting the Himalayas upwards since its formation millions of years ago, making it geographically unstable. On top of geophysical and hydro meteorological conditions, socio-economic conditions of the people, frail human development index, scattered settlements in the rural vicinity, unplanned rapid settlements in the urban cities, environmental pollution, inadequate coping abilities of communities and challenges to mainstream DRR in development and its localization are some of the pertinent issues which further elevate the risk of disaster.

2.1 Disaster Loss and Damages

2.1.1. Summary of Disaster Incidents in 2017 and 2018

A total of 6,381 - small and large disaster incidents were reported in 2017 and 2018 as per the NEOC records. These disaster incidents claimed the lives of 968 people, with an additional 3,639 injury cases. A sum of 27,256 families were affected by these events. About 4,434 houses in the disaster affected areas were completely damaged while 16,308 houses were partially damaged. Losses of 8,455 livestock were recorded including the damage of 1,198 animal sheds. In terms of economic loss, it accounted for a total of around 6.84 billion Nepali rupees. Recurrent disasters like fire, landslides, thunderbolt, flood, heavy rainfall and windstorms were recorded. Fire is the leading disaster incident in terms of number of occurrences, but thunderbolts, landslides and floods claimed more lives, comparatively.

Figure-1



Source: NEOC, MoHA 2017 and 2018.

2.1.2 Major disaster incidents in 2017 and 2018

Nepal faced a number of disaster events including: floods, landslides, lightning, fire, cold wave, high altitude sickness, heavy rainfall, animal terror, wind storm, boat capsized,

epidemic, snakebite, snow storm, avalanche, hailstone among others. These incidents resulted in the loss of hundreds of lives and billions of Nepalese rupees. Monsoon related disasters like floods and landslides claimed most of the lives. Couples of dry landslides were also witnessed during these two years. A number of lightning events also posed threats to life and damage to property, which is in increasing trend. In addition, fire incidents seemed to be in an incremental trend as loss of property from these incidents is on the top of the list. Urban fire incidents are on the rise because of unplanned settlements, irrational use of plastic materials, increasing incidence of electrocution, human negligence and so on. The nature and trends of different new hazards are aiding the increased incidents. Thus, the risk reduction program should be more focused on mitigation and prevention of these incidents to reduce the impact and enhance the resilience of local communities.

Table - 1:

Damage and losses of disaster incidents										
S.No.	Incident	No. of Incidents	Dead *			Injured	Affected Family	Houses Destroyed		Estimated Losses (NPR)
			Male	Female	Total			Partial	Complete	
1	Flood	418	128	55	183	61	16196	14424	286	60,944,400
2	Landslide	483	96	65	161	182	1083	149	328	191,662,000
3	Lightning	432	87	72	160	551	618	23	14	14,687,000
4	Fire	3973	74	76	150	557	6027	549	3234	6,422,638,013
5	Cold Wave	48	26	22	48	0	48	0	0	-
6	High Altitude	45	37	4	41	6	46	0	0	-
7	Heavy Rainfall	342	8	22	30	84	538	193	252	89,415,160
8	Animal Terror	141	14	8	22	69	280	136	8	4,390,150
9	Wind storm	254	7	12	19	84	1527	763	301	51,447,998
10	Boat Capsize	10	9	7	16	9	27	0	0	-
11	Epidemic	22	11	4	15	1881	420	0	0	-
12	Snake Bite	18	7	7	14	5	18	0	0	-
13	Snow Storm	2	10	0	10	0	10	0	0	-
14	Avalanche	1	1	0	1	0	1	0	0	-
15	Hailstone	3	0	0	0	0	127	2	0	457,000
16	Other	189	54	45	99	150	289	69	10	3,181,599
		6381	569	399	968	3639	27255	16308	4433	6,838,823,320

Source: NEOC, MoHA 2017 and 2018

The NEOC records exhibits that plain lands of Terai are the most affected areas in terms of death toll due to disasters, whereas mountainous areas are less affected. The losses of properties in the Hills are on the top in comparison to that of Terai and Mountain region. Whereas, the number of affected families is very high in Terai region with around 14 times more affected than Mountain region and 4 times more affected than Hilly region.

The disaster incidents records of NEOC explains that Province No. 1 was affected the most with highest number of loss of lives, while Province No. 2 faced the highest amount of financial loss. Province No. 1 and Province No. 2 witnessed more than 200 lives claimed by disasters. Province No. 3, Gandaki Province and Province No. 5 bear the loss of more than 100 lives during this period, whereas 80 and 47 people lost their lives to disaster in Karnali and Sudurpaschim Provinces. Around 9,000 people of Province No. 1 were affected with around 7,500 houses damaged. Province No. 1, Province No. 2 and Province No. 3 bears the financial loss of more than 1 Billion Nepalese Rupees, while the Sudurpaschim Province suffers with the less financial impact comparatively. At the same time, the death to affected family ratio is very high in Sudurpaschim Province.

On top of these recorded disaster incidents, a total of 62 people died in aircraft accidents while Road Traffic Accidents claimed 5,557 lives, leaving number of major and minor injuries with some permanent disabilities. Details are presented in the annexes.

2.1.3 Seismic events recorded in 2017 and 2018

Nepal is located in a seismically active zone, as a result of which makes it very vulnerable to earthquakes. Nepal has experienced many big earthquakes in the recent past, including one in 2015 that claimed around 9,000 lives and an economic loss that amounted to around one third of the GDP. Even four years after the 2015 earthquake, Nepal is still experiencing the series of aftershocks of that earthquake on frequent intervals. The table below explains that more than 16,000 seismic events were recorded in 2017 and 2018, out of which 55 events were above the magnitude of 4.0.

Table - 2

Year	Seismic Events Recorded	Number of events(>or 4.0 ML)
2017	10,850	27
2018	5,369	28
Total	16,219	55

Source: DMG, 2017 and 2018

2.2. Post Disaster Recovery Status: Nepal Earthquake 2015

The Nepal Reconstruction Authority (NRA) was formed to lead the recovery and reconstruction process following the 2015 earthquake. The NRA was established with a clear plan to maximize the use of local labor, resources and means, international support and provide leadership for reconstruction and resettlement. The NRA is guided by a legal framework and the Post Disaster Recovery Framework (2016 – 2020). The work of NRA is undertaking its activities with the principle of build back better and has been promoting earthquake resilient reconstruction.

The NRA is taking care of the earthquake affected population to help them reconstruct their houses and rehabilitate them in safer places. Despite the challenges ranging from human resource availability to other resource constraints, the NRA has been able to provide momentum to its initiatives for reconstruction and rehabilitation activities of the people affected.

The table below shows that efforts made by the NRA in past two years have accelerated reconstruction works. Reconstruction progress below 20 percent in 2016/17 has leapt to around 44 percent by 2018. Reconstruction works of government buildings, school buildings and health facilities are quite satisfactory compared to others, while the reconstruction of historic monuments and security forces' infrastructure remained around 30 percent. Reconstruction of private houses is around 43 percent, which compelled many affected people to remain in temporary housing, facing a number of public health, safety and protection issues.

Table - 3

Activities	Total Reconstruction Needed	Upto 2016/17		Upto 2017/18		Upto Dec. 2018	
		Number	Progress	Number	Progress	Number	Progress
Reconstruction of Government buildings	483	182	37.68	248	51.35	248	51.35
Reconstruction of school buildings	7553	2,456	32.52	3,816	50.52	4,172	55.24
Reconstruction of health facilities	1197	379	31.66	643	53.72	643	53.72
Reconstruction of historic monuments	753	56	7.44	185	24.57	212	28.15
Reconstruction of security forces buildings	383	18	4.70	93	24.28	118	30.81
Number of private houses constructed	811,154	44,927	5.54	249,093	30.71	347,817	42.88
Average progress			19.92		39.19		43.69

Source: NRA, 2018

CHAPTER III

Disaster Risk Management Initiatives

This chapter highlights the key initiatives on disaster management in Nepal. It covers the legal and policy framework for DRM in Nepal, including the institutional arrangements and mechanism for emergency responses and disaster preparedness. Further, it touches upon the process and progress on localization of policy, resources, and capacities for effective disaster risk reduction and emergency management.

3.1 DRM Legislations and Policy Development

The Constitution of Nepal has identified disaster management as one of the key priorities of all tiers of government (federal, provincial and local) in the list of the concurrent powers of the federal, provincial and local levels. To meet the vision of the Constitution, a comprehensive DRRM Act, 2017 was endorsed by the Government.

Later in 2018, the National Policy on Disaster Risk Reduction, 2018 and the Disaster Risk Reduction National Strategic Plan of Action (2018-2030) were endorsed, to further strengthen the government's initiatives on DRM. The Act and Strategy will be pivotal in providing strategic direction for mainstreaming disaster risk reduction into the development process and enhancing resilience in Nepal.

3.1.1. The Paradigm Shift in DRM

3.1.1.1. Previous Context

With the enforcement of the Natural Calamity Relief Act in 1982, Nepal was the first country – a pioneer country – with a disaster specific act in the South Asia region. The Act provided the room for the establishment of National, Sub-national, District and Local Level Natural Disaster Relief Committees, as well a system for allocating relief funds. The Act also delineated clear organizational responsibilities, naming the Ministry of Home Affairs as a nodal Ministry responsible to oversee the disaster relief and rescue operation

including the formulation of policies and their implementation. In 1996, the Government of Nepal (GoN) produced the National Action Plan for Disaster Management followed by an Act as per Nepal's commitment to the International Decade of Natural Disaster Reduction. The Action Plan remained the foundational basis for the inclusion of the disaster management component in the Local Self Governance Act, that was developed in 1999.

Disaster risk reduction began to receive more attention since the 10th Five-Year Development Plan (2002-2007) and the subsequent periodic plans. The institutional framework for disaster risk management was strengthened considerably since 2009 with the adoption of the National Strategy for Disaster Risk Management (NSDRM) in alignment with Nepal's commitment to the Hyogo Framework for Action (HFA). This strategy, which outlines 29 priority activities for risk reduction and mitigation, heralded a paradigm shift from a response focused approach to a more comprehensive risk management framework, encompassing prevention, mitigation, preparedness, response and recovery. Recently, with the constitutional provision on DRM followed by DRRM Act and Strategic Plan of Action, Nepal has now prepared a stronger legal foundation to initiate DRR activities and programs.

3.1.1.2. DRM in Federal Context

In 2015, the Constitution of Nepal officially institutionalized Nepal as a Federal Democratic Republic with three tiers of governments based on the principles of coexistence, collaboration and coordination. In addition to the Federal Government, 7 provincial and 753 local level governments were formed with several exclusive and concurrent powers and duties of governments (including mandates for disaster risk management). Nepal's new federal structure of the state and system of governance will provide opportunities to institutionalize a much more decentralized system of disaster risk management in Nepal. The Nepal Government (Work Division) Regulation, 2017 has identified the roles and jurisdiction of all federal ministries, where MoHA has been identified as the nodal Ministry for the coordination of disaster management activities throughout the country, with a disaster risk reduction mandate.

The ongoing transition to federalism has provided a unique opportunity for the government and stakeholders to build on past progress and limit the current and future threats by prioritizing stronger disaster risk management by all sectors at all levels. The

administrative and governance system may play a significant role in enhancing resilience against disaster risk in Nepal. It vows to ensure the decentralized planning with the participation of local people in the local/community level process that is informed by and instrumental to achieve effective disaster risk reduction, but it needs to be carefully planned, implemented and followed up on.

With a strong civil society, a significant proportion of youth among the country's population and strong partnerships with development partners all backed up by a new legal framework that will greatly reinforce existing institutional arrangements, Nepal is now well positioned to address the challenges that an uncertain climate and its fragile geological setting impose. If, through this framework, all sections of society are able to work together and build on each other's efforts by creating synergy, the targets set under the Sendai Framework adopted in Nepal's Disaster Risk Reduction National Strategic Plan of Action are indeed achievable.

3.1.1.3. Constitution of Nepal

For the very first time, disaster management is identified in the Constitution. It underscores the ownership and priority of the state in managing disasters with an emphasis on early warning, disaster preparedness, rescue, relief and rehabilitation for preventing water-induced disasters, developing sustainable and reliable irrigation through river management and minimizing the risks from disasters. Schedule 7 of the Constitution has listed natural and human induced disaster preparedness, rescue, relief and rehabilitation activities in the concurrent powers of Federal and Provincial governments. Similarly, Schedule 8 has listed disaster management as sole responsibility of the local government and Schedule 9 has included it in the concurrent powers of all tiers of governments. Disaster risk management is identified as one of the key responsibilities of all tiers of government.

The years 2017 and 2018 remained remarkable in terms of introducing milestone legal and policy instruments for disaster risk reduction. Principally guided by the Constitution, the Government has been prioritizing the development of more dynamic and modern policies, legal provisions and supporting guidance for effective and efficient disaster risk management. There has been much appreciated support from all stakeholders ranging from non government, private sector and humanitarian actors working in the arena of disaster risk management. Some of the key legal instruments and policies on DRR

endorsed during this period are:

1. Disaster Risk Reduction and Management Act, 2017
2. Local Government Operational Act, 2017
3. Nepal Government (Work Division) Regulations, 2017
4. National Policy on Disaster Risk Reduction, 2018
5. Public Health Act, 2018
6. Disaster Risk Reduction National Strategic Plan of Action (2018-2030)
7. Private Housing Rebuilding Grant for the Flood and Landslide Victims 2017
8. Public Housing Program Implementation Sample Guidelines, 2018
9. Guidelines for the Relocation and Rehabilitation of High Risked Settlements, 2018

3.1.1.4. Disaster Risk Reduction and Management Act, 2017

The Disaster Risk Reduction and Management (DRRM) Act was enacted in 2017 replaces the 1982 Natural Calamity (Relief) Act. Under this law, disaster management committees will be formed at the Provincial, District and Municipal levels. The act reinforces the government's efforts to bring disaster risk management initiatives to a new height. It puts emphasis on risk reduction over response; the legislation creates the DRRM Council as the highest policy making body in the country; the Council is chaired by the Prime Minister at the federal level and by the Chief Minister at Province; the mayor or chairperson of local levels lead the local disaster management committees; the Council has the authority to endorse the DRRM policies to its implementation at all levels are the prime features of the DRRM Act. It also recognizes a separate entity - the National Disaster Risk Reduction and Management Authority to take charge of disaster risk management. There are specialist committees to provide technical expertise on matters related to DRM planning, response and recovery. All tiers of government should have disaster management funds that they manage. There is a need to report DRRM activities on an annual basis and make it public for transparency and reflect the efforts made in DRRM.

3.1.1.5. Local Government Operation Act, 2017

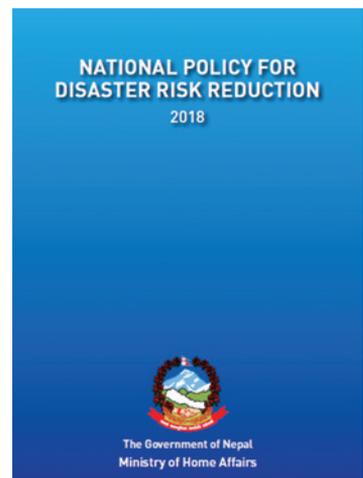
Guided by the Constitution, the Local Government Operation Act, 2017 has replaced the Local Governance Act of 1999. The 2017 Act identified the functions for all aspects of disaster risk reduction under the duty, responsibility and rights of rural and urban municipalities. It also included the activities related to grant permission of building construction, monitoring and evaluation as per the National Building Code and Standard including the policy, planning, program formulation, implementation, monitoring, regulation and evaluation etc. regarding DRR to develop safer communities.

3.1.1.6. Public Health Act, 2018

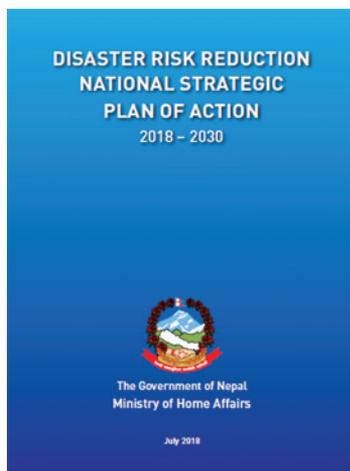
Public Health Act is the pioneer Act for ensuring effective, regular, quality, and easy access to health care and free basic and emergency health services to all. It requires all health facilities to provide emergency health care services mandatorily and follow referral mechanisms. It has envisioned on reducing the impact on public health by food, pollution, hygiene and waste management, industries and urbanization, public health friendly public infrastructure and safety. It also ensures the emergency medical service and management through ready-to-deploy health teams. It includes a mandatory provision for all tiers of governments to have emergency medical response plans. It also has a provision for local levels to declare a public health emergency in their jurisdiction and recommend the Government of Nepal to control and reduce its impact according to the scale of public health emergency.

3.1.1.7. National Policy for Disaster Risk Reduction, 2018

The National Policy for DRR 2018 has been prepared and endorsed to build a safer, adaptive and resilient nation by reducing the existing risks and prevention of 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 for Disaster Risk Reduction, the Sustainable Development Goals, and the Paris Convention on Climate Change. It has identified 59 activities to cover all sectors and designated roles and responsibilities to sector ministries to carry out sectoral activities.



3.1.1.8. National DRR Strategic Plan of Action (2018-2030)



The National DRR Strategic Plan of Action (2018-2030), inspired by the Sendai Framework for Disaster Risk Reduction 2015-2030 has adopted a holistic approach to uphold sustainable development by mainstreaming disaster risk reduction in the development process. Based on SFDRR's guiding principle, this action plan has identified four priority areas and 18 priority actions. Under each priority action, the strategic activities are identified for 2018 to 2020 as short-term interventions, 2018 to 2025 as mid-term interventions, 2018 to 2030 as long-term interventions and continuous actions.

This Strategic Plan of Action has set the targets for reducing disaster loss considering the targets set by the Sustainable Development Goals 2030 in terms of substantially reducing the impact of disasters nationally. It aims to reduce the disaster mortality rate, reduce the number of disaster affected people, reduce the direct economic loss in GDP from disasters, reduce the damage to critical infrastructure and disruption of basic services enhancing resilience, developing DRM strategies and action plans at the provincial and local levels. And substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments. The substantial reduction of disaster risk and loss of lives, the economic, physical, social, cultural and environmental assets of persons, businesses, and communities of the country are key targets focused on reducing the impact of disaster.

3.1.1.9. 14th periodic plan (2016- 2018)

The current fourteenth Three Year Plan (TYP) emphasizes disaster risk management as an inherited character of sustainable development and has given priority to disaster risk reduction accordingly. The Government of Nepal through the TYP aims to reduce human and physical loss caused by disaster by integrating disaster management in all phases and dimensions of development. The existing periodic plan has adopted the policy to carry out a special program on capacity building for emergency search, rescue, treatment and immediate relief. The approach paper of 15th periodic plan (2019-2023) has focused on reducing disaster-induced losses to contribute to the goal of a safe and resilient Nepal.

3.1.1.10. National Disaster Risk Reduction and Management Authority (NDRRMA)

Need for a separate and dedicated entity (authority) for DRRM was realized for the first time by NSDRM in 2009. This was legislated by the DRRM Act in 2017, with the establishment of the National Disaster Risk Reduction and Management Authority. The authority will be established after the DRRM regulation further specifies its structure, scope and functions. The primary role of this authority is to operationalise the disaster risk and management functions, making necessary arrangements for regular coordination with stakeholders, carry out response operations, search and rescue, relief, early recovery, recovery plan and implement disaster related programs. This authority will be responsible to regulate risk reduction related activities and will have an incident commander in emergencies.

3.2. Disaster Response, Sectoral Impacts and Key Results Achieved in 2017 and 2018

3.2.1. Health

MoHP in close coordination with health sector partners continued its recovery interventions especially rebuilding health facilities damaged by the Nepal Earthquake 2015. For the 2017 flood incidents, the health response was coordinated by the Deputy Director General, DOHS in close coordination with health cluster partners, other line ministries and the activation of HEOC. A total of five health facilities were fully damaged, and 94 health facilities were partially damaged, with an estimated cost for the recovery of health facilities of NPR.620 million (PFRNA report, NPC). Rapid Response Teams, medical personnel and health workers of public and private hospitals were mobilized for preventive and curative services. A total of 2,940 health workers (1,932 governments, 857 private and 151 agencies) were mobilized in flood and landslide-affected districts. Health cluster partners' support for flood response operations came to a total of NPR. 108,343,640.68, while MoHP spent NPR. 6,697,129.70 in addition to the resource provided by Regional Health Directorate Offices, Regional Medical Store District Health Offices and the facilities themselves.

3.2.2. Nutrition

MoHP also led the nutrition cluster and reached 1,400,772 children aged 6-59 months and 160,950 pregnant and lactating women in 18 flood affected districts during the 2017 Flood response. In these districts, support provided included: Vitamin A supplemented to 1,400,772 children aged 6-59 months, counseling of breast feeding and complementary feeding to 297,281 caretakers of 0-23 months children, screening of 630,976 children aged 6-59 months, treatment of 15,201 Severe Acute Malnutrition, deworming for children 12-59 months to 1,209,568 children, iron and folic acid tablets to 160,950 pregnant and lactating women. Similarly, 190,379 children aged 6-59 months and 52,902 pregnant and lactating women reached with blanket supplementary feeding; and 23,392 children aged 6-59 months with Moderate Acute Malnutrition and 6,617 women with acute malnutrition were reached through the Targeted Supplementary Feeding Program. The Saptakoshi flood incident of August 2018 that entered Hanumannagar Kankalini Municipality and Tilathi Koiladi Rural Municipality inundating about 540 households were also responded.

3.2.3. Food and Agriculture

This sector has been severely affected as is evident from damages and losses suffered in the poultry, cattle and fishery sectors. The total monetary value of damages and losses due to the flooding alone is estimated to be NPR 10,671.4 million. The poultry farming (30 percent) and pen & cow sheds (22 percent) were severely impacted by the disasters. Likewise, in 2018, the total losses due to the flooding are estimated at NPR 56.03 million. More serious damages were caused to cattle sheds (52 percent of the damage cost) and poultry farming (26 percent of the damage). MoALD has been supporting to revive the livelihoods of the affected population. Both cash and technical support were provided as per the need and availability of the budget. Risk reduction in agriculture and livestock has been encouraged with the adoption of disaster resilient and climate adaptive measures. Further, the introduction and expansion of crop and livestock insurance is being carried out with additional engagement of the private sector.

3.2.4. Water Sanitation and Hygiene (WASH)

The Ministry of Water Sanitation (MoWS) is in the process of preparing DRM and CCA guidelines on water supply sanitation and hygiene with the aim of mainstream DRM and Climate Change Adaptation in Water Supply, Sanitation and Hygiene (WASH)

sector. The Disaster Risk Management Guideline for the WASH sector is in its final stage. The MoWS together with humanitarian partners implemented a comprehensive program on cholera and waterborne disease prevention in the Kathmandu Valley in 2017 and 2018 combining lessons learned from post-2015 earthquake and cholera outbreaks. WASH cluster reconstruction activities are ongoing in the 2015 earthquake affected districts where 286 reconstruction activities have been completed and 200 are ongoing for 1,01,155 beneficiaries. The WASH cluster responded to various small-scale localized disasters, reaching more than 180,000 people in 20 affected districts and conducting life-saving WASH interventions in 2017 to more than 30,000 people in seven districts during 2018. Flood response and recovery works were carried out by providing technical and financial support for repair and reconstruction of damaged WASH services including hygiene promotion, reaching 141,647 vulnerable people of five highly affected districts. The construction of water supply schemes with access to safe water supply through construction/rehabilitation with water safety plans (WSP) benefited more than 100,000 people.

3.2.5. Logistics

MoHA is leading the logistic cluster and managing the logistics required for response including the response capacity. MoHA coordinates with other clusters to maintain the specific logistic requirements of the respective sectors as a component of preparedness for response. Emergency logistics are maintained and managed in strategic locations, which were very useful to respond to the 2017 floods. After the flood incidents an assessment was conducted in 18 severely affected districts. And to support the flood affected, the MoHA led Logistics Cluster was activated and operated from Humanitarian Staging Area at TIA Kathmandu to support overall coordination of the logistics cluster operation. There were no major gaps and constraint in storage, transportation and fuel supply. The private sector capacity of storage, transportation and fuel was sufficient. In addition, forward logistic bases are in the process of being established at the province level, at Nepalgunj of Province No. 5 and Dhangadi of Sudurpaschim Province are in the process of establishment. MoHA takes stock of regular updates on heavy equipment and emergency item stockpiles in strategic locations to enhance readiness for response.

3.2.6. Protection

In 2017, the protection cluster lead by MoWCSC, identified needs based on an Initial Rapid Assessment (IRA) carried out in response to the flood. Post rape treatment kits were distributed to One Stop Crisis Management Centers established in district hospitals, in 5 affected districts (Sunsari, Saptari, Sarlahi, Rautahat and Bardiya). A total of 5,000 dignity kits were distributed, accompanied by GBV prevention and response information in 10 other districts. The sum of 13,950 vulnerable women from four affected districts accessed female friendly services, including psychosocial counseling, awareness raising, case management, referral and shelter support. Similarly, 30,000 pocket cards with protection information, with specific warnings about trafficking, etc., were distributed to affected populations. Likewise a sum of 240 health service providers received an orientation on GBV case management. And 808 cases were provided counseling services by counselors and community psycho-social workers (CPSWs) from Banke, Bardiya, Dhanusha, Mahottari, and Rautahat districts. Further, 453 individuals and 43 CPSWs received psychosocial first aid and 1,000 individuals and 7,496 frontline workers oriented on psychosocial first aid.

3.2.7. Camp Coordination and Camp Management (CCCM)

In response to the 2017 floods, the CCCM cluster, led by Ministry of Urban Development (MoUD), used the Displacement Tracking Matrix (DTM) which was designed to regularly capture, process, and disseminate information to provide a better understanding of the evolving needs of displaced populations. The DTM is an information management tool, rolled out in the immediate aftermath of the 2017 flood by the CCCM cluster to gather baseline information on the nature of displacement, population mobility, needs, and gaps. During the flood response, 18 sites were identified and assessed in six severely affected districts; Morang, Sunsari, Saptari, Siraha, Banke, and Bardiya. A Project Steering Committee (PSC), formed along with members from key ministries and humanitarian partners are working to co-ordinate for the people-to-people support for building community resilience through recovery and reconstruction in Nepal and other technical support to GoN on emergency camp coordination. MoUD has planned to use the GoN identified open spaces of Kathmandu Valley for emergency camp facility management, where. deep boring has been done in two big areas with other settlement plan.

3.2.8. Emergency Shelter (ES)

Lead by Department of Urban Development and Building Construction (DUDBC), the shelter cluster was active in facilitating monsoon and winter response in the year 2017/18. During the 2017 flood response, the reach was around 100,000 flood affected people in 23 different districts through active partners. The primary intervention was the disbursement of immediate life saving support, such as tarpaulins, Non Food Item (NFI) sets, and temporary ES. Similarly, more than 17,000 households were supported with tarpaulins and blankets during the winter response. The shelter cluster emergency stockpile and resources mapping for emergency response was prepared under the leadership of DUDBC with the support of humanitarian partners. A shelter cluster Technical Working Group (TWG) was formed with 7 shelter partners serving as TWG members to formulate the shelter cluster preparedness plan. Different activities such as simulations, workshops, and discussion programs were being organized at national and district levels.

3.2.9. Education

Ministry of Education, Science and Technology (MoEST) has addressed education needs through the Comprehensive School Safety Master Plan to ensure that all children in Nepal are educated in safe schools. The range of capacity building programs in the education sector that were conducted ranged from first aid training to DRR focused on school safety. Focal points and head teacher targeted DRR trainings, training and awareness on psychosocial support, and lifesaving messages were considered the most useful ones. More than 3,000 teacher and students benefitted from these DRR related trainings. Tarpaulins, kitchen kits, blankets, school kits, and buckets are kept in some schools. Emergency preparedness has been strengthened and institutionalized by the MoEST by allocating emergency funds (USD 700,000) for all seven provinces.

The education sector witnessed 2017 flood with a total damage of 1,945 schools in 37 districts, severely impacted 18 districts with 1,866 schools, where 238,900 students were affected. The damage to the sector was assessed at USD 11.5 million, including the damage to school buildings, classrooms, walls, teaching learning, materials, text books, toilet and drinking water facilities.

In particular, education cluster responded to 11,44,409 affected students, 1080 teachers, and 41 schools during the 2017 flood. In response to the 2018 floods and landslides, the

education clusters provided ECD, school kits, student kits, educational kits, stationary and WASH facilities to 86,836 students. 165 transitional learning centers (TLC) were constructed for the continuity of education to affected children. As part of the recovery initiative, the education cluster developed a standard type design for school construction, of 3, 4, 6, and 8 rooms, to ensure school safety, and retrofitted 51 school blocks in 2017, and an additional 136 blocks in 2018 to reduce disaster impacts on schools.

3.2.10. Emergency Telecommunication

Emergency Telecommunication Cluster (ETC) lead by Ministry of Communication and Information Technology (MoCIT) has prepositioned emergency logistics equipment, basic ETC equipment in the Humanitarian Staging Area (HSA) and will be prepositioned in the Forward Logistics Bases at the province level. This includes ETC rapid response flyaway kits, which can be deployed quickly when needed. The HSA is equipped with a wireless connection, EPABX system, and backup power, which are operational in normal situations. The facility can be scaled up during emergencies. A VSAT connection is installed in standby state and can be activated during humanitarian response operations. Besides, Emergency Telecommunication Plan has been formulated by MOCIT for the telecom operators to be followed. A set of Rapid Communication is with Nepal Police ready to be deployed for any type of disaster. At the same time about 900 FM radio stations and Amateur Radio operators are big resource of ETC Pairs of radio frequency both in UHF & VHF band has been made available for the deployment of a Common frequency network.

3.2.11. Security Forces

Constitution of Nepal has mandated Nepal Army to mobilize and respond to any disaster situation. The Nepal Army COAS Command Guidance, 2018, has provisioned to enhance the disaster response capacity of its units, and to manage the logistical requirements for response. Nepal Police and APF are also mandated by law to respond to any disaster situation, primarily and most importantly for search and rescue in the first critical hours. All three security forces managed to save the lives of many affected people during the 2017 floods and other small and big disaster incidents that occurred throughout the country. Security forces have rescued more than 1,380 disaster victims during these two years. The search and rescue efforts of security forces are always commendable as they are always in ready to deploy position ranging from chopper (Nepal Army) to the water boat along with

other heavy equipments and logistics. Despite of resource constraint, all security forces are fully committed to act in response to save life and property. The capacity in terms of logistics and skills are improving than before, now they have started to produce trained HR in security forces for disaster response from own Disaster Management Training Schools. Security forces now have separate units having disaster trained force.

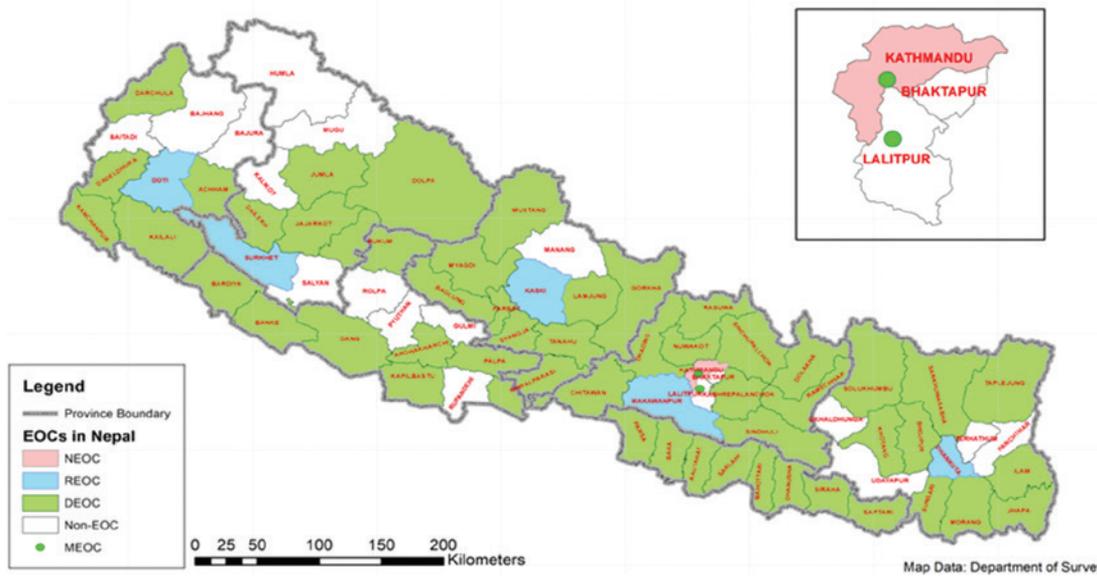
3.3. Preparedness: Resources and Capacity

There are number of ongoing initiatives to ensure preparedness for effective and timely response and the GoN has accelerated institutional capacity development, as well as the maintenance of resources focused on response and disaster risk reduction after the 2015 earthquake. However, there is a need to further standardize institutional capacity development and resource management at all levels. Following the provision of DRRM Act, the provincial governments and local levels have started allocating funds for DRM activities and are in the preliminary stages of standardizing institutional capacity.

3.3.1. Emergency Operation Centers

An Emergency Operations Center (EOC) is a central command and control facility responsible for carrying out the principles of emergency preparedness and emergency management. EOC facilities can also carry out disaster management functions at different level during an emergency and ensure the continuity of operations at respective levels. An EOC is responsible for strategic direction and operational decisions. The common function of EOCs is to collect, gather and analyze data; disaster response planning and implementation; lead the response coordination; mobilize and coordinate SAR teams; coordinates relief distribution; logistics management and operation; maintain continuity of the organization, within the scope of applicable laws; facilitate cluster activation and mobilization; make decisions that protect life and property and disseminate those decisions to all concerned agencies and individuals. In 2010, a national EOC was established and since then, 57 EOCs have been established. One national, five regional, and 51 district level EOCs are continuously monitoring the situation, and ready to coordinate response operations. Regional EOCs are being handed over to the provincial governments. In addition to this, there are other sectoral emergency operation centers such as Health EOCs in operation. Other EOCs like Health EOC are also expanding to provincial levels, some local levels also have started operating EOCs and Nepal Red Cross is also operating EOCs.

Network of Emergency Operation Centers (EOCs) in Nepal



Source: DRR Portal, MoHA 2018

3.3.2 Warehouses

MoHA has established five warehouses (Inaruwa, Province No. 1, Makawanpur, Province No. 3, Pokhara, Gandaki Province, Karnali Province and Doti, Sudurpaschim Province) with prepositioned stocks of relief items, as well as the equipment and other supplies, required to respond to disaster. These warehouses has been managed by the regional administration offices, but it's management will eventually be handed over to the provincial governments. In these warehouses, response related equipment and food and nonfood items for relief purpose are maintained. These items are collectively stored in collaboration with government, private sectors, Red Cross, other humanitarian partners and security forces. Humanitarian partners have also been managing and maintaining warehouses across the country for prepositioning of non-food relief items to support the efforts of the government to reach affected families within the first critical hours, in case of a disaster.

3.3.3. Early Warning System

The Department of Hydrology and Meteorology (DHM) is a mandated GoN entity

responsible for monitoring hydrological and meteorological activity in Nepal. Its scope includes the monitoring of river hydrology, climate, agro-meteorology, sediment, air quality, water quality, limnology, snow hydrology, glaciology, wind and solar energy. General, as well as aviation weather forecasts are the regular services provided by DHM. There are 51 hydrological stations and 282 meteorological stations maintained by DHM throughout the country, which includes the forecasting of hydro meteorological events and possible impacts in advance. There are 27 flood forecasting stations and number of other community level where upstream communities supply precautionary information to downstream communities, such as the rise in river water levels of the rivers. Mass alert system is generally operated in partnership with NTC and NCell telecom service provider of the affected areas.

Department of Health Services (DoHS) is monitoring possible epidemics and outbreaks of diseases on a regular basis for early response and prevention through an Early Warning and Reporting System and Integrated Disease Surveillance System, using information from more than 80 sentinel sites.

3.3.4. The DRR Portal and use of Social Media

The DRR portal maintained by MoHA has been significant in ensuring access to information and updates on DRM activity in Nepal. It is a depositary station and a data bank of DRM legal frameworks, policies and plans, as well as information on disaster events and response initiatives, including other DRM activities. It not only maintains early warning information and updates, but also disseminates it through social media. The use of social media is found to be very effective as we receive constructive feedback and information through our social media channels, where the numbers of follower are on the rise.

3.4. Localization of DRR

3.4.1. Instruments (*Law, policy and structures/institutions*)

As per the existing legal provisions on DRR, the provincial governments have taken charge of managing disasters as a primary task. Some of the provincial governments (Province No. 1, 2, and 3) have developed their own disaster management act, while others are still under consultation and progressing towards finalization. Provincial governments in

coordination with District Disaster Management Committees (DDMC) are coordinating, facilitating and guiding the local levels in risk reduction initiatives, and the mainstreaming the development efforts by applying mitigating and preventive measures.

As envisioned by the Constitution, the local governments assumed their responsibilities following the election in 2017 in the federal set up. The federal and provincial governments came into effect in the beginning of 2018. The critical concerns of local governments are to meet the expectations of people on the priority issues, development initiatives and effective governance, where DRM could be a crucial issue for sustainable development.

In a very short period (less than a year), the provincial governments and local level initiatives on DRRM remained inspiring. The local level governments have prioritized DRRM in their respective jurisdictions. Three out of seven provincial governments and around 83 out of the 753 local levels have developed local disaster management committees, 77 of which has established disaster management funds, 45 each have formed disaster management acts and policies, and only 19 comes up with local disaster risk reduction strategic action plan out of the 91 communications received by MoFAGA. Other remaining local levels are in the process of formulating other supportive policies, guidelines, standards and other guidance regarding response, relief and recovery, fund mobilization, assessment and monitoring, recovery and rehabilitation, among others. They have also responded to a number of disaster events and provided relief to the affected families and the responses from the elected representatives have found to be more effective than before. The provincial and local governments have demonstrated their ownership and responsiveness to disaster risk reduction and management as a core business in less than one year of its institutional set up.

3.4.2. Leadership

Localization demands a leader to advocate for DRM knowledge, skills and learning to help institutions and people come together to work towards reducing the impact of disaster. The leader can be any institution or individual. Federal ministries or NDRRMA could lead at the federal level. The Chief Minister or Internal Affairs and Justice Minister at the provincial level and local authorities or an individual at the local level are taking the charge of DRM. While, the Mayor/Chairperson leads the Local Disaster Management Committees, the ward and community level committees are headed by the community

representatives. The local level response, relief and assistance to affected people in any disaster events seem more effective after the elected representatives are in charge. The accountability towards people who they represent is found to be more effective from the elected representatives.

3.4.3. Capacity

The existing capacity that any state holds at national, sub national and local levels is the proof of its preparedness to respond the disasters. The ability of the government and other stakeholders to come together to initiate disaster risk management is of utmost significance. It not only speaks about the individual capacity but also the capacity of the institutions that are responsible for mitigating disaster risks and thus helps in reducing the impact. Capacity building has been ongoing in a number of government and non-government agencies in different sectors. It has made a significant impact on understanding disaster risk and enhanced level of awareness of government, non-government actors and of people at the community level, to some extent. But still there are gaps in the application of this capacity and knowledge on the ground.

3.4.4. Resource

Beginning with preparedness activities, there are a number of legal and policy frameworks to develop the plans, to guide in disaster preparedness, response, recovery rebuilding and to enable the country to be more resilient to disaster. Despite the efforts of the government to assure adequate resources for logistics preparedness and the capacity of human resources required to save life and property, there is still a deficit. The funding mechanism, as identified by the act has provision for collection and management of financial resources for risk reduction and management of disasters. A Disaster Management Fund has been established but it varies in fund volume as per the available resources and priorities.

3.5. Messengers (*International to local*)

Nepal has been actively participating in international and regional forums, and has organized international, regional, national and local events. The country has been celebrating some of the key international day and national events such as the International Disaster Risk Reduction Day, National Earthquake Safety Day, etc. These events help to aware the stakeholders as well as the people on a large scale to understand the importance

of DRRM and the life saving tips from the awareness campaign. Some of the major events Nepal participated and observed during 2017 and 2018 are highlighted below:

3.5.1. International Participations

3.5.1.1. GPDRR 22-26 May, 2017 Cancun, Mexico

Nepal participated in the Global Platform on Disaster Risk Reduction from 22-26 May, 2017 in Cancun, Mexico. The national delegation was led by Secretary of Home Affairs, Mr. Prem Kumar Rai. The delegation shared a national position paper on DRM regarding the current status, national achievements, existing issues and challenges and way forward for Nepal. Nepal also took the opportunity to share experiences and lessons on DRM through the implementation of SFDRR, and the national context, post 2015 earthquake recovery initiatives, policies, legal and institutional frameworks, global and regional commitments, highlights of significant national achievements and the way forward on DRM in Nepal.

The GPDRR Cancun, 2017 Declaration focused on commitments to stepping up our local action with a view to effectively implement the SFDRR. The declaration further insisted on DRR financing, mainstreaming DRR into spatial planning and development, adopting an overall approach to the regional territories in order to consider both risk reduction and climate change, introducing arrangements at local level for coordination and providing more visibility at local level, encouraging public private partnerships, and providing local and provincial governments with all the necessary financial, institutional and legislative support. It also urged the UN specialized agencies to provide their assistance along with technical and financial support to local and provincial governments in order to achieve the goals set by the Sendai Framework and other international agendas.

3.5.1.2. AMCDRR 2018, Ulaanbaatar, Mongolia

Nepal made its representation at Asian Ministerial Conference in Disaster Risk Reduction (AMCDRR 2018), Ulaanbaatar, Mongolia with the delegation led by Secretary of Home Affairs, Mr. Prem Kumar Rai. In the official statement, he reiterated the commitments made by GoN on SFDRR and assured the forum on achieving its target by 2030. He highlighted the achievements of the GoN in putting in place a comprehensive DRRM Act, supported by the DRRM Policy and Strategic Plan of Action (2028-2030) in line with SFDRR to our national context.

3.5.1.3. RCG meeting, 2017

The third session of Regional Consultative Group (RCG) on humanitarian civil-military coordination for Asia-Pacific took place in Singapore from 5 to 6 December; 2017. This session included a dedicated panel discussion on how civil and military actors can leverage humanitarian response.

Nepal shared experiences on civil military coordination and its engagement in several policy developments on the formulation process of Standard Operating Procedures (SOPs) for the MNMCC, national Guidelines for International Assistance, revision of the NDRF and Relief Standards. The new DRRM legal framework was highlighted in relation to civil-military coordination including: the creation of a Disaster Response Flying Squad Team, the definition of roles, responsibilities and authority of security agencies and provisions related to foreign military assistance. Tempest Express-28, was conducted in 2017 in Nepal.

3.5.2 Engagement at national level

3.5.2.1. RCC Meeting, 2018

Nepal hosted the 14th Regional Consultative Committee Meeting on Disaster Management in Kathmandu, Nepal on 3rd to 5th December, 2018, hosting 18 countries delegates and participants. Nepal put forth its position paper on the challenges, progress and way forwards on DRRM in Nepal. The Kathmandu Declaration improves coherence across policies, institutions, goals, indicators and measurement systems for implementing the key global frameworks, promotes partnership at different levels in countries in Asia and the Pacific, promotes risk-financing mechanisms, risk-informed rural and urban communities, strengthens existing regional and national risk monitoring systems, ensures gender-equal, pro-poor, rights-based, and inclusive approaches.

3.5.2.2. National Council on Disaster Risk Reduction and Management Meeting

With the DRRM Act, 2017 in effect, the NCDRRM meeting which was convened on 18 June 2018 in Kathmandu, chaired by the Prime Minister of Nepal, enabled decisions in policy, preparedness, response initiatives, recovery and rehabilitation. The meeting endorsed the National Policy on Disaster Risk Reduction, 2018 and Strategic Plan of

Action on Disaster Risk Reduction and Management (2018-2030), the key policy and strategic framework on DRRM supporting the DRRM Act and SFDRR. It also urged government agencies at all levels, including stakeholders, on preparedness for response and to conduct DRR activities to reduce the impact of disasters. Furthermore, it also guided all DDMCs to position themselves on standby for mobilization before, during and after any disaster event in coordination with all the Local Disaster Management Committees.

3.5.2.3. Executive Committee Meeting

The executive committee is the continuation of CNDRC, with broader mandates for all dimensions of DRM envisioned by DRRM Act, 2017. The executive committee is proactive in planning and guiding the government agencies for DRR activities prior to monsoon, dry season, and winter preparedness along with other anticipated disaster risks. After any disaster incidents, this committee calls a meeting within hours and provides necessary guidance, mobilization of additional resources, response monitoring and facilitation to reduce the impact. The CNDRC meetings were conducted four times and the DRRM Executive Committee Meetings were held twice in 2017 and 2018.

3.5.2.4. National DRR Platform Meeting

MoHA organizes the National DRR Platform meeting at least twice a year. In 2018, the meeting took place on June 6 and December 31 in Kathmandu. The first meeting was chaired by Hon. Home Minister and the second by the Home Secretary. The second meeting on 31 December, 2018 insisted on the importance of coming up with provincial DRRM Policy and Strategic Plan of Action to better understand disaster management in the provinces, supporting DRM localization, and identified the need of operational guidelines.

3.5.2.5. National Climate Change Conference, Sindhupalchowk

A three day National Climate Change Conference was convened in disaster-struck Sindhupalchowk district, one of the worst affected districts after the Gorkha earthquake, on December 30, 2018. The first National Conference on climate change was successfully concluded by issuing the 10-point Sindhupalchowk Declaration aimed at institutionalizing climate change-friendly plans and policies and promote climate change adaptation and mitigation strategies at the national, provincial and local levels.

3.5.2.6. National Earthquake Safety Day

Nepal has been observing Earthquake Safety Day on 2nd of Magh according to Nepali Calendar (Mid-January) every year in commemoration of 1934 Great Earthquake. In 2017 and 2018, Nepal observed 19th and 20th National Earthquake Safety Day, a national program in the presence of Rt. Hon. Prime Minister. The National Earthquake Safety Day is celebrated a week long with nationwide campaign on awareness and sensitization programs for earthquake safety and preparedness for risk reduction and response. These events were marked with activities like road shows, drills, rallies, school and community-based awareness programs to localize the need for earthquake safety measures to save lives and property. Similarly, Earthquake Safety Day, 2017 was observed with the participation of people from different walks of life with the theme “Earthquake Resistant Buildings and Infrastructures for Community Resilience” and “Empowering Communities and Local Governments: Strong Foundation of Earthquake Safety” was for 2018.

3.5.2.7. International DRR Day

International DRR day was observed in Nepal with number of events on raising awareness on disaster risks on 13th October of 2017 and 2018 with engagement of all stakeholders and humanitarian partners. Government agencies, including humanitarian and non-government actors take this event as an opportunity to explore and advocate in raising awareness. The event was marked with the theme “Increase Investment in Disaster Reduction, Reduce the Economic Loss” for 2017 and “Home Safe Home” was for 2018.

3.5.2.8. Province and Local Level Meetings/Consultations

All seven provinces in Nepal have formed a Provincial Disaster Management Committees as per the DDRM Act, 2017; Province No. 1, Province No. 2 and Province No. 3 have their separate Provincial DRRM Act and functions as envisioned by that committee. They coordinate and monitor the DRM activities of DDMC and LDMC under their jurisdictions and come forward to facilitate support with resources and capacities as and when required.

MoHA organized provincial level consultative workshops to enhance understanding and facilitation of federal policies and legal frameworks, practices, experiences, issues and challenges with the provincial governments. Province level DRRM consultative workshop was conducted in Province No. 1, Gandaki, Province No. 5, Karnali and Sudurpaschim

Provinces. These consultative workshops helped the provincial governments to carry forward the national initiatives of DRM at provincial and local levels. Similarly, there has been continuous engagement at district and local levels for policy formulation, sensitization, planning, and capacity development of stakeholder during the period.

There has been substantive progress in the formulation and institutionalization of disaster risk reduction and management policies and institutional arrangement in Nepal during the past two years. Localization of policies, resources, leadership, and capacities were key priorities for strengthening the local engagement in disaster management. Resources and efforts of stakeholders at different tiers of governments mobilized during the period were pivotal in effective management of disasters. The planning for and capacities of the agencies towards preparedness for disasters were key priorities. Local, provincial, national and international level participation in disaster management related events further strengthened Nepal's solidarity and commitments for global efforts towards a safer world.

Chapter IV

International Commitments: Nepal's Roadmap and Achievements

4.1. International Commitments: Nepal's Roadmap and Achievement

As a signatory to a number of global and regional conventions and commitments on DRR and CCA, Nepal has been working towards realizing those commitments in contributing to a sustainable and resilient country. The global and regional collaborations have enhanced coherence across policies, institutions, goals, indicators and monitoring systems for implementing key global frameworks for DRM and sustainable development. This chapter will reflect on the progress made and current situation of Nepal on implementation and achievement of commitments made on the Sustainable Development Goals (SDGs), SFDRR and the Paris Agreement on Climate Change.

Nepal has developed its road map to achieve the targets by developing/endorsing an Action Plan during the current report period. The implementation of the key actions is still at the initial stage; however, Nepal is making a good progress on some of the indicators. The section below will provide a summary of Nepal's roadmap and its progress.

4.2. Regional Context

The need for bilateral, multilateral and regional cooperation has been identified by various global forums for reducing the disaster risk in the region. There have been numerous initiatives to develop partnerships between the neighboring nations and enhancing a knowledge network. This helps diminish the disaster risk induced by one country to another, identify and elaborate country and regional priorities, develop and implement regional programs and projects for early warning and mitigating the disaster risk in the region. These partnerships will create a regional response mechanism dedicated to disaster readiness, emergency relief and rehabilitation to ensure immediate response and it also helps to facilitate monitoring and evaluation of achievements towards goals and strategies to trim down the risk.

The Asia Pacific region is home to 40 percent of all-natural disasters and 84 percent of people are affected by disasters worldwide. During the last few decades, floods and storms have been the primary type of disasters caused by natural hazards around the world – though even more people were affected by droughts and extreme temperatures. Geographically, Asia has seen the most disasters and the most people affected. (WDR, 2018)

Many multilateral, regional and inter-governmental organizations exist in Asia for coherence of policies, collaboration, partnership, mutual cooperation, integration, and implementation of key global frameworks for reducing disaster risk in the region. United Nations International Strategies for Disaster Reduction (UNISDR) regional offices, SAARC Disaster Management Center (SDMC), Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), Association of South East Asian Nations (ASEAN), Asian Disaster Reduction Center (ADRC), Asian Disaster Risk Reduction Network (ADRRN) and Asia and Pacific Centre for the Development of Disaster Information Management (APDIM), Regional Consultative Committee (RCC) on DRR are some of the key organizations among others working for DRR in Asia and the Pacific.

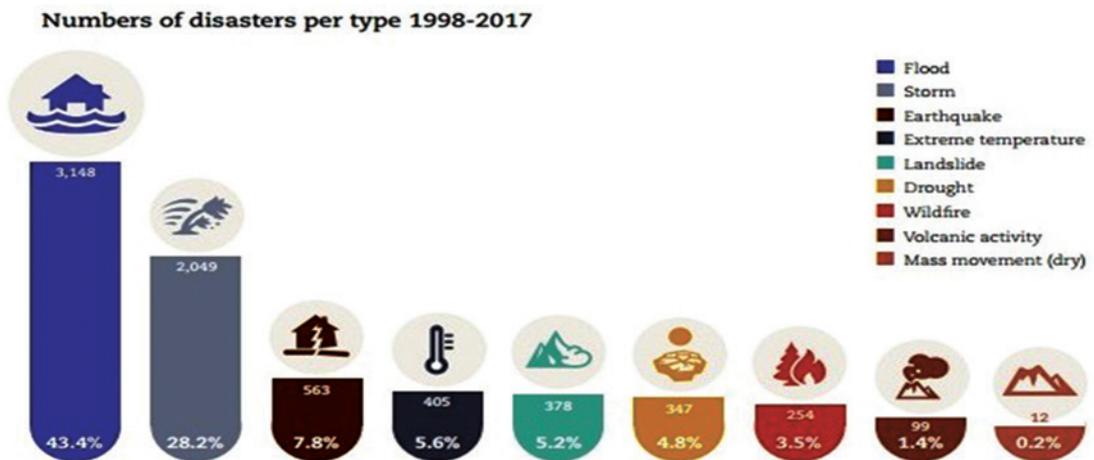
The regional collaboration has been enhancing the coherence across policies, institutions, goals, indicators and monitoring systems for implementing key global frameworks for disaster risk reduction and sustainable development. These partnerships particularly focus on the regional adaptation/implementation of Sendai Framework for Disaster Risk Reduction (SFDRR), the Agenda 2030 for Sustainable Development and the Paris Agreement on Climate Change.

Nepal has an opportunity to share experiences regarding existing disaster risk and measures to reduce the new risk of disaster on these platforms. It can exchange our lessons learned, existing conditions and vulnerability and use these regional platforms for knowledge exchange on mitigation measures, emergency preparedness and support for quick response and recovery.

4.3. Global Context

According to the 2018 Global Humanitarian Assistance Report, ongoing and new crises left an estimated 201.5 million people in 134 countries in need of international humanitarian assistance in 2017. International humanitarian assistance remains a critical resource to meet the needs of people affected by crisis and 2017 saw a record USD 27.3 billion allocated to humanitarian responses. Between 1998-2017, disaster-hit countries reported direct economic losses valued at USD 2,908 billion, one of which was climate-related disasters that caused 77% (USD 2,245 billion) loss. This was up from 68% (USD 895 billion) of losses (USD 1,313 billion) reported between 1978 and 1997. Overall, reported losses from extreme weather events rose by 151% between these two 20-year periods.

Figure-2

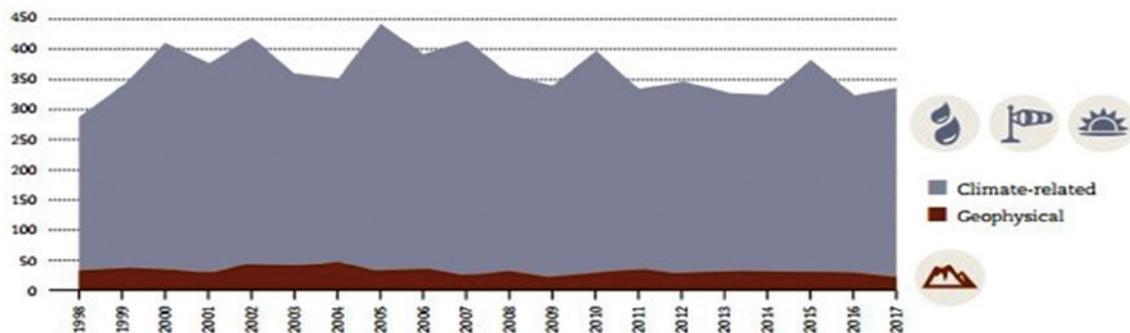


Source: Center for Research on the Epidemiology of Disaster (CRED), UNISDR 2018.

Disasters and climate change have posed major threats to the world. Loss of life, property and heritage, massive economic loss, environmental degradation, and business disruption create a huge setback for economic development. Low and middle-income countries are most affected by human fatalities and other losses due to limited or low levels of preparedness and capacity to tackle disaster. Developed countries with high level of income also are suffering from these disasters with less impact on life but, bearing huge economic losses. In the CRED report 2018, the disaster types in the last 20 years has shown that hydro meteorological related disasters have the most impact, they comprises shares to 82.4 percent (floods, storms, extreme temperatures, landslides) globally.

Figure-3

Number of disasters by major category per year 1998-2017



Source: CRED, UNISDR 2018.

Climate change has had a big impact on the range and intensity of disasters. The figure above shows that the occurrence of climate related disasters has soared around 9 times compared to geophysical disasters. Action should be made on the points identified in the Paris Agreement, to reduce the impact of climate change. Nepal and other countries in the Himalayas are particularly vulnerable to the global warming effects of climate change. Moreover, drought, epidemics, changes in the monsoon pattern, excessive rain, GLOFs, heat waves, and cold waves have a both primary and secondary impacts on agriculture, cause loss of life, and affect the economy at large.

4.4. Disaster Risk Reduction National Strategic Plan of Action 2018-2030

The GoN developed and endorsed Disaster Risk Reduction National Strategic Plan of Action (2018- 2030), as Nepal’s roadmap to implement the key provisions of SFDRR in our context. The Strategic Plan of Action has a long-term vision to build a safer, adaptive and resilient nation from disaster risk and ensure sustainable development.

Nepal, being a hazard prone country, has been taking collective action to prevent new and reduce existing disaster risks. This will be accomplished through the implementation of integrated and inclusive economic, structural, legal, environmental, technological and institutional measures. Such concerted effort will be instrumental to prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience of the country. The Strategic Plan of Action has set four priority areas in line with SFDRR priorities.

4.4.1 Priority Area 1: Understanding Disaster Risk

To understand the level of disaster risk is essential for policy makers and other stakeholders working with DRM. An extensive disaster risk assessment and a well-maintained information management system to foresee disaster risk and updated information of disaster loss and damages should be in place.

Under the Priority 1, MoHA has initiated activities on all four priority areas. Currently, Nepal has a regular mechanism for collecting information and regularly updates disaster loss and damages, response and recovery initiatives. MoHA is leading the process to map and consolidate various multi-hazard risk assessments done by a number of agencies over the past years with the objective of establishing a uniform and comprehensive disaster information management system (DIMS). DIMS will serve as a repository of disaster information from all levels: local, provincial and federal. This system is expected to be live and interactive information management system for DRM in Nepal.

In order to ensure the common sharing platform, it will serve as a common system for disaster management fostering data partnership at multiple tiers of governments and relevant stakeholders. A strong linkage will be established among the institutions and agencies involved in forecasting, managing and assessing the risks and responses.

Some of the vulnerable settlements have been identified for relocation as per the risk exposed. Different levels of capacity development programs are taking place ranging from security forces to government officials, federal to local authorities and practitioners, non-government actors to communities are supporting to enhance the disaster risk understanding. But, it still needs to be standardized and institutionalized in the respective levels. Seismic stations, hydro-metrological stations, lightning detection centers have been established for real-time hazard risk monitoring system at different parts, throughout the country. Kathmandu valley soil liquefaction map has been prepared. All the major glacier lakes monitoring and regular assessment system has been developed which feeds the real time information.

4.4.2 Priority Area 2: Strengthening Disaster Risk Governance at Federal, Provincial and Local Level

The state can ensure disaster risk governance through incorporation and ownership of the disaster risk reduction components and their governance system priorities. The

mainstreaming of disaster risk management in development initiatives, strengthening institutional capacities, preparedness for reducing existing risk and preventing new risk along with risk-informed governance systems can reduce the impact and pave the way towards resilient communities.

The disaster risk governance primarily entails the establishment of mechanisms, institutions and processes for effective DRM. Furthermore, it includes the ability of all level of Government to use those mechanisms and institutions for disaster preparedness, response and recovery activities. In the current federal set up, most of the provincial and local governments have given priority to disaster risk reduction and management. They have developed policies, laws, plans and formed committees, institutional structures and disaster funds, and are already engaged in disaster preparedness and response initiatives. Disaster management councils at national and provincial level and committees at local and community level have been formed to lead the disaster management at various levels.

Federal government is dedicated to accomplish all targets of Priority Area 2 within the short span of time. The localization of the act, policies and Strategic Plan of Action follows a participatory approach with engagement of key stakeholders at various levels. EOCs are being expanded at the provincial and local levels. In order to strengthen institutional capacity for effective disaster risk governance, the government has been maintaining close partnership with the non-governmental sectors and humanitarian actors across all levels. The DRRM act and policies ensures the inclusiveness of vulnerable groups in different phases of disaster, from participation in preparedness to prioritization of services in response and recovery.

Nepal has adopted Sustainable Development Goals by replicating it to our context through the sustainable development agenda of Nepal identifying the responsible authorities with the targets to accomplish. Nepal also has adopted and localized SFDRR by developing National DRR Strategic Plan of Action 2018-2030, which has identified 272 priority activities for reducing the disaster risk. The coordination level has been enhanced with the dedicated desk in the federal ministries and departments and DRR focal persons are identified at each level of all tiers of government. In the provinces there are separate unit under ministry of internal affairs and law. Emergency Operation Centers (EOC) have been established to strengthen the response effort at national, provincial, district, local levels as well as at sectoral levels too. DRM and climate adaptation program has

been mainstreamed in the development plans to reduce the impact as well as mitigations measures applied to reduce further risk.

4.4.3 Priority Area 3: Promoting Comprehensive Risk-Informed Private and Public Investments in Disaster Risk Reduction for Resilience

The state is responsible for enabling environment for preparedness and response to disasters, bringing all stakeholders together. All tiers of governments have maintained disaster funds at each level for preparedness and emergency responses. However, due to lack of a comprehensive law on the fund management, checking for duplication and the coordination of relief support is a challenge faced by the governments.

Under this priority action, a number of ongoing recovery efforts to 2015 earthquake and 2017 flood demonstrate good examples of the private and public investments in disaster risk reduction for resilience. For further engagement of private sector in disaster management, consultation and discussion on the possible areas of substantive partnership in risk reduction are being held.

The organized efforts with the use of security forces, volunteers, students, experienced and skilled human resources of government and non-government sectors in preparedness can further contribute to an enhanced and effective response. Open spaces have been identified within Kathmandu Valley as a safe places for displaced population in post disaster scenario assuring them with preparedness of basic facilities required in the aftermath. Disaster management funds have been allocated at all tiers of government typically for effective and immediate response and relief after any major events. Support of private sector has been increasing in the response and recovery phase, but there are still some rooms to motivate them to encouraging their support in risk reduction programs.

MoHA has taken the lead and has started discussion with the wider stakeholder to establish the risk transfer mechanism. Existing insurance system as health insurance, livestock insurance, other social security provisions could be tied up together to transfer the risk.

4.4.4 Priority Area 4: Enhancing Disaster Preparedness for Effective Response and to “Build Back Better” in Recovery, Rehabilitation and Reconstruction

The National Reconstruction Authority is leading the reconstruction efforts of the government as per the Rehabilitation Policy and Post Disaster Recovery Framework.

Primarily, it intended to support affected communities to bounce back rapidly to normalcy, and to ensure safety and resilience to future shocks. Reconstruction efforts focused on developing a well-planned, resilient settlement in the earthquake affected districts ensuring safe structures, social cohesion, access to services, livelihood support and capacity building of the community and develop resilient critical infrastructure and cultural heritages.

Under the Priority 4, Nepal has initiated its 6 priority actions. NRA has provided people with reconstruction needs with multiple options of architectural design to construct their new houses that has allowed them to ensure safer house reconstructed with quality materials in close supervision of engineers by following "Build Back Better" principle. The individual house reconstruction drastically went above 42 percent from 7 percent in two years period, where there is remarkable progress on reconstruction of government buildings including schools and health facilities above 50 percent, though there is very little progress on cultural heritage and security forces infrastructure reconstruction with 30 percent progress on an average.

SAR capacity has increased, as security forces developed their institutional capacity, logistics requirements and started producing skilled human resources from their own disaster schools. Local levels are conducting a number of community-based disaster activities including comprehensive DRM activities on mitigation and prevention of disaster risk at local levels. They cover a wide range of activities by identifying the risks in a particular community to reduce its impact and exposure.

Similarly, Nepal has initiated preparedness in airports for disasters. Regular simulations based on the plan are carried out in Tribhuvan International Airport by Civil Aviation Authority of Nepal (CAAN). Domestic airports are also developing their contingency plans. Regular simulations have been carried out jointly with the engagement of both civil, security agencies and public.

For emergency response, emergency items are stockpiled in strategic locations. Humanitarian Staging Area at TIA and forward logistic bases are being constructed at the provincial level. Search and rescue items are being upgraded and expanded to cover more areas with the intention to reach the community level. Regular updates of heavy equipment located in the strategic locations keeps it ready for deployment in emergencies. Capacity

and resources of trauma centers are being enhanced regularly. National Trauma Center in Kathmandu, trauma centers at Bharatpur Hospital, Chitawan in East-West Highway and Dhaulagiri Zonal Hospital, Baglung at Mid-Hill Highway are providing trauma care services, while others are in the process.

Cultivating a culture of safety is crucial for risk reduction and saving lives in emergencies. Incorporation of disaster risk management in both formal and non-formal education system helps the cause. Curriculum development consultation is being carried out during the period.

There are number of ongoing activities to develop early warning systems and forecast the anticipated disasters, by which the government along with communities and individuals can prepare themselves to avoid risk. Efforts are focused on expansion of weather stations and achieving higher precision in monitoring and forecasting. Alert messaging has been delivered more frequently among the target audience through various media. DoHS have established a mechanism to prevent possible epidemics and outbreaks of diseases through the use of Early Warning and Reporting System and Integrated Disease Surveillance System.

During the period, there has been remarkable progress in establishing and strengthening coherence from global to national, and national to sub-national (province and local) level. Gradual implementation of the priority-based disaster risk reduction activities including: risk identification and assessment, strengthening disaster governance at three tiers of government, mobilization of public and private investments in risk reduction and emergency management, and significant progress on reconstruction of damages caused by 2015 Earthquake.

Chapter V

Paving the way Ahead

5.1 Conclusion

The legal and policy provisions outlined in the report marked the paradigm shift in disaster management in Nepal. The shift focuses on strengthening legal frameworks, policy and planning, organizational aspects, institutional capacities and partnerships for DRM, over the years.

Nepal has been steered by the principles of disaster risk reduction and allocated tasks to the three-tiers of government with sole and concurrent responsibility for disaster management according to current legislation. The provisions have provided the tiers with roles and responsibilities for disaster risk management. The Disaster Risk Reduction National Strategic Plan of Action 2018-2030, framed within the objectives of the act and SFDRR, took forward the strategic priorities and actions that guide disaster risk reduction initiatives in Nepal. Nepal should focus its initiatives on effective implementation of National DRR Strategic Plan of Action (2018-2030) to meet the international obligations as well as making Nepal resilient to any disaster.

The reported incidences of disasters show water induced disaster claiming the majority of loss and damages in Nepal. Other seasonal disasters including fire incurred significantly higher economic losses and fire incidents are much more concentrated in urban areas.

Localization of policies, resources, capacities and institutions were key priorities during the period. There has been substantial progress in establishing disaster risk management funds, and remarkable progress towards meeting the agenda of localization of strategies at sub-national and local level.

As per the challenges faced during the implementation of the objectives set by the disaster risk reduction policies and priorities, there has been important lessons learnt that guide strategies and actions for future endeavors.

5.2 Way forward

- Substantive progress has been achieved towards establishment of the NDRRMA. Establishment of authority would be a significant milestone towards disaster governance in Nepal.
- Progress on localization of policies, institutions, and resources at sub-national level is highly commendable. It is equally important to ensure that there is coherence among the policies and their subsequent implementation. A close and proactive engagement of all tiers of governments and related stakeholders needs to be further strengthened to this end.
- As per the legal provision, disaster management funds have been established in three tiers of governments. However, a specific act on management of the funds would foster clarity and effectiveness while utilizing the fund.
- Assessing risk is a priority agenda in Nepal. To meet the minimum requirements of the assessments, hazard specific standards should be agreed based on scientific practices and local needs. National and sub-national level risk assessments should be carried out to understand the severity of risks to foster evidence-based risk sensitive development planning for risk reduction and avert the creation of further risks. Every government unit should manage resources to prepare multi-hazard risk profiles, to be achieved gradually.
- Further targeted efforts should focus on the empowerment of children, women, senior citizens and people with disabilities and strengthen the capacities of the stakeholders for participatory approaches in planning, preparedness, response and rehabilitation.
- There is an increasing trend of disaster related displacements in Nepal which may be further accelerated by the impact of climate change. Appropriate policy legislation and implementation on disaster displacement would reduce the associated risks.
- Management of DRR related information, its accumulation, establishing common platform and ensuring access to all is a key concern, to address this crucial requirement, Disaster Information Management System needs to be

institutionalized at all tiers of government. Arrangement for required resources and capacity enhancement activities should be the priority at concerned levels.

- For effective emergency responses, establishment and strengthening capacity of emergency operation centers is pivotal. Similarly, there should be a focus on enhancing the capacity of agencies directly involved in emergency management.
- Mainstreaming disaster risk reduction in development is crucial for achieving sustainable development. Disaster risk and impact assessment should be incorporated in development planning along with the environment impact assessments. A policy provision would guide the objective in practice.
- Based on a ‘whole of society’ approach to disaster risk reduction, continuous engagement of stakeholders and further collaboration with the private sector would enhance effective partnership for disaster management. A private sector engagement strategy would guide the collaboration further.
- In order to foster a ‘culture of safety’, the inclusion of disaster risk management in formal and informal education system would be an effective tool.
- Early warning systems should be shaped in legal framework and expanded further and hazard specific monitoring and warning system needs to be strengthened.
- DRR budgeting should be focused on implementing disaster initiatives in Nepal. A dedicated budget code allocation will account for investment in disaster management in Nepal. This will allow monitoring progress and ensuring public investment for disaster management in Nepal.
- A formal mechanism should be established for regular and periodic monitoring of DRR strategic action plan and other DRR initiations for assessing the progress and adjustment of plan accordingly assuring the inclusiveness in all DRR activities.

References

- ADPC, 2018 https://www.adpc.net/igo/category/ID1442/doc/2018-uAqc6G-ADPC-Kathmandu_Statement_RCC_14_PDF.pdf
- AMCDRR, 2018 Ulaanbaatar, Mangolia, https://www.unisdr.org/files/globalplatform/amcdrr_2018_ministerialstatementnepal.pdf
- Central Bureau of Statistics (CBS), 2011 Department of Statistics
- Civil Aviation Authority of Nepal, 2017 & 2018
- DRR Portal, MoHA, NEOC, <http://drrportal.gov.np>
- Economic Survey, Nepal Rastra Bank, 2018
- Global Humanitarian Assistance Report, 2018
- GPDRR 2017, Cancun, Mexico <https://www.unisdr.org/conferences/2017/globalplatform/en/programme/statements>
- <https://cafodpolicy.wordpress.com/2017/06/23/localization-inclusion-and-integrated-approach-on-disaster-risk-reduction/>
- <http://documents.worldbank.org/curated/en/958801481798204368/pdf/111015-REVISED-WP-ECA-Country-risk-profiles-PUBLIC.pdf>
- <http://www.eldis.org/document/A21631>
- <https://reliefweb.int/sites/reliefweb.int/files/resources/Disaster%20Risk%20Management%20in%20South%20Asia%20-%20A%20Regional%20Overview.pdf>
- <https://www.statista.com/statistics/422620/urbanization-in-nepal/>
- Nepal Disaster Report, 2009
- Nepal Disaster Report, 2011
- Nepal Disaster Report, 2013
- Nepal Disaster Report, 2015
- Nepal Disaster Report, 2017
- Nepal Reconstruction Authority, Annual Report, 2073/74

Nepal Disaster Report | 2019

Nepal Reconstruction Authority, Annual Report, 2074/75

Seasonal Disaster Review: Monsoon related disasters in Nepal, 2018, MoHA

Sectoral reports from Armed Police Force Nepal, 2018

Sectoral reports from Cluster co-leads (UN agencies), NGO/INGOs, Humanitarian Partners and Other different Stakeholders, 2018

Sectoral reports from Department of Health Services, 2018

Sectoral reports from Department of Hydrology and Meteorology, 2018

Sectoral reports from Department of Mines and Geology, 2018

Sectoral reports from Local Levels, 2018

Sectoral reports from Ministry of Agriculture and Livestock Development, 2018

Sectoral reports from Ministry of Communication and Information Technology, 2018

Sectoral reports from Ministry of Culture, Tourism and Civil Aviation, 2018

Sectoral reports from Ministry of Education, Science and Technology, 2018

Sectoral reports from Ministry of Federal Affairs and General Administration, 2018

Sectoral reports from Ministry of Forest and Environment, 2018

Sectoral reports from Ministry of Health and Population, 2018

Sectoral reports from Ministry of Physical Infrastructure and Transport, 2018

Sectoral reports from Ministry of Urban Development, 2018

Sectoral reports from Ministry of Water Supply, 2018

Sectoral reports from Ministry of Women, Children and Senior Citizen, 2018

Sectoral reports from Nepal Army, Disaster Management Directorate, 2018

Sectoral reports from Nepal Police, 2018

Sectoral reports from Nepal Reconstruction Authority, 2018

Sectoral reports from Provincial Governments, 2018

UNISDR, Annual Report 2018, Centre for Research on the Epidemiology of Disasters

World Disaster Report 2018

Annex I

Multi-hazard scenario of Nepal by its socio-economic loss, 1971-2018

Type of Disaster	No. of Incidents	Human Loss				Houses Damaged
		Death	Missing	Injured	Affected Family	
Fire	12694	1755		2176	265962	90044
Lightning	2143	1780	129	3235	7758	1000
Landslide	3729	5141	191	2053	559347	34094
Wind storm	298	21		95	1718	1279
Flood	4368	4628	87	615	3726261	230900
Epidemic	3474	16598		44992	513409	0
Avalanche	3	17	4	7	1	0
Snow Storm	7	97	7	0	10	0
Hailstones	134	9		24	3407	157
Earthquakes	175	9771		29142	890995	982855
Cold Waves	438	563		83	2441	0
Others*	1134	626	13	919	3214	2461
Total	28597	41006	431	83341	5974523	1342790
(Average)	608	872	9	1773	127118	28570

Source: NEOC, MoHA, 2018 *-Structure Collapse, drowning, boat capsized, animal attack and others

Annex II

Aircraft and Helicopter Accident data 2017 and 2018

S.N.	Date of Accident	Place of Accident	Fatality	Survival
1.	27 May 2017	Lukla, Solukhumbu	2	1
2.	28 Nov 2017	Simikot, Humla	0	5
3.	12 Mar 2018	TIA Airport, Kathmandu	52	19
4.	16 May 2018	Simikot, Humla	2	0
5.	7 Jan 2018	Grandee Hospital, Kathmandu	0	1
6.	9 Aug 2018	Nuwakot	5	1
7.	14 Aug 2018	Hilsa, Humla	1	6

Source: Civil Aviation Authority of Nepal, 2017 & 2018

Annex III

Road Traffic Accidents (RTA)

Road Traffic Accidents in 2017 and 2018

Death	No. of Serious Injury	No. of Minor Injury	No. of Road Traffic Accidents	No. of vehicles involved	No. of Damaged Vehicles
5,557	9,217	19,083	24,541	40,221	20,982

Source: Traffic Directorate, Nepal Police Headquarters, 2018.



Source: Traffic Directorate, Nepal Police Headquarters, 2018.

Annex IV

Disbursement from Central Disaster Management Fund to DDM Fund, 2017 and 2018

Details	Amount
Disbursement to DDM Fund in 2017	1,099,751,796
Disbursement to DDM Fund in 2018	167,449,425
Total	1,267,201,221

Source: MoHA, 2018.

Annex V Case Stories

Some Case Stories of Monsoon 2018

1. Disaster Creating Hazards

The *Bodyguar* River in Baglung turned to a big lake all of a sudden when *Turture Danda* started to slide in the river. The landslide buried two houses along its way. The swelling artificial lake submerged a part of the Mid-Hill Highway for days. The lake expanded to 2.5 km in length and 50m in breadth.

The suddenly created lake put the threat of abrupt outbreak creating a panic in settlements downstream along the river. An alert message was passed to the vulnerable population through mass media and updated status of the river-turned-lake regularly. The lake overflow continued the water downstream after hours. The families were rescued immediately and managed temporary shelter in their relatives' houses. The local municipality supported to build new houses of the affected families.

Now, the detail geological study of the lake is planned which will inform the local stakeholders to decide whether to dry-up the lake or let it remained as a scenic beauty.

2. Inundation in Bhaktapur

The incessant rains for two consecutive days from 11 June 2018 triggered inundation in Bhaktapur. Emergency team rescued more than one hundred people from the submerged settlements. Houses, sheds, factories, shops, schools, hospitals, a bridge and a road were submerged and property worth millions was damaged by the inundation.

Such an inundation in Bhaktapur was the first of its kind and scale the experience of the local communities. The occurrence of the disaster is sudden in nature but the cause is being accumulated for longer time. The low lying areas were waterlogged as there was insufficient outlet for swollen rivers. Lack of mainstreaming of disaster risk reduction in development plan especially construction of houses and roads fueled the hazards to turn havoc. The disaster impact could have been lowered if the construction plan had adapted risk sensitive approach.

3. Development and disaster nexus

Vehicular movement between Lamjung and Manang got disconnected for 18 days when the part of Besisahar and Chame road was swept away at Marsyangdi Rural Municipality. The section spanning 3 Km was destroyed by landslides. The section of the road had not seen such interruptions before. The incessant rain for days caused the slide of *Ghopte Bhir* causing the damage. It affected the local economy and added financial burden of reinvestment in reconstruction of the section of the road.

Adaption of efficient disaster preventive methods while constructing the road would have prevented the disaster at all or reduce the associated impacts.

4. Exposure to hazards intensified the impact

During this monsoon, Nuwakot experienced many landslides. Most of the landslides were triggered by incessant rain while the then Ghayangphedi (now Dupcheshwor) had to deal with dry landslides. The steep terrain above fell on the settlements and buried 11 houses and damaged 33 houses. The disaster displaced 110 families whereas the immediate escape from the exposed area saved lives of many. Socio-economic loss was significantly high in that particular area.

The geological strength of the steep hill was further weakening by the 2015 earthquakes and aftershocks. The settlements were highly vulnerable to landslides, yet the timely precaution would have reduced the risk. Relocation of the settlements would have prevented the loss occurred. Risk sensitive land use planning based on exposure is the way to reduce such disasters.

5. Local Level's support facilitated the recovery quickly

Many families were left homeless within hours of incessant rain in Jajarkot. During this monsoon, 26 houses were swept away by swollen rivers and 38 families were displaced for days. District Administration Office and District Disaster Management Committee provided the immediate relief for the displaced people. Cash and emergency items were provided as an immediate relief.

The local levels have been supporting the homeless families to build back their houses. Cash and kind supports were collected from stakeholders and individuals too for the speedy recovery from the disaster.

6. Emergency communication accelerated response

Rasuwa, a mountainous district is vulnerable to landslides as indicated by the geo-hazard survey carried out by Nepal Reconstruction Authority and the then Ministry of Federal Affairs and Local Development of Nepal.

This monsoon triggered landslides in three places took life of 9 people. Although, the spots were relatively less prone to landslides as indicated by the geo-hazard survey, the sudden onset disaster destroyed 15 houses partially or completely. Among the affected families, five were displaced.

The District Administration Office (DAO) and the District Disaster Management Committee coordinated the response and relief activity. The group messaging system initiated in the district recently worked out significantly that escalated the immediate response effectively. The SMS system informed the stakeholders immediately within minutes, then the willingness to support gathered quickly.

The displaced families owned fallow land nearby, where they build their house with the support of stakeholders. The DAO facilitated and coordinated the support to build back their houses.

The hard earned lesson during effective recovery has been incorporated in District Preparedness and Response Plan prepared by the District Disaster Management Committee. It urges related stakeholders including local non-government organization to prepare program and the bigger private establishments to allocate budget under their corporate social responsibility.

7. Mitigation measures on time saves settlements from flooding

As a regular exercise towards risk mitigation and preparedness, District Disaster Management Committee and District Administration Office assessed the local vulnerability and prepared monsoon preparedness and response plan. The clusters updated their contingency plan as per the risk assessment and included in response plan. The simulation exercise was also performed to aware the population at risk. Based on the gap analysis, emergency items were purchased and stockpile was maintained in the local levels.

Flooding in Bardiya is a regular disaster caused due to swollen Babai. With the onset of monsoon, more than 100 houses of Gulariya-10 were at high risk of flooding this year. DAO, DDMC, the Babai, Bhada, Aurahi River Management Project, security agencies, local levels and community worked together to build protection wall immediately.

The gabion wall prevented the river eroding its bank and thus protected the settlement from recurring seasonal flooding. A small scale investment in immediate build-up of embankment of few meters not only saved the nearby road linking to Banke to Bardiya, but also lives and property of many people.

8. Integrated response saves children from acute malnutrition

In the evening of 27 August 2018, the Saptakoshi river entered to six wards of Hanumannagar Kankalini Municipality (ward no. 5, 6, 7, 9, 11 and 12) and two wards of Tilathi Koiladi Rural Municipality (ward no. 4 and 5) inundating about 540 households.

Hanumannagar Kankalini and Tilathi Koiladi Rural Municipalities and Saptari District Disaster Management Committee (DDMC) work in collaboration with Health, Nutrition, WASH, Education and Child Protection cluster for immediate relief. A technical team screened the nutrition and health status and kept vigilance on nutrition level of the children, pregnant and lactating women. A total of 264 children of age 6-59 months were examined and provided counseling and essential commodities related to nutrition. This integrated effort helped save vulnerable groups from acute malnutrition during the emergency.

Source: Seasonal Disaster Review: Monsoon related disasters in Nepal, 2018, MoHA

Children as agent of change in DRR

Number of disasters are increasing, so are the disaster risks. As the evidences show, globally and in Nepal, children belong to one of the most vulnerable groups during disaster: children represent about 40 % of nearly 9,000 deaths and 23,000 injuries caused by the 2015 earthquake. In addition to the direct death and injuries, they also suffer from diseases related to malnutrition, poor water and sanitation - conditions which are normally exacerbated by disasters. In addition, disasters disrupt education and can cause psychological trauma. In 2015 earthquake, students in 14 severely hit districts were out of schools for more than 30 days. Disasters also separate children from their families and increase vulnerability to trafficking, exploitation, violence and abuse.

The recent national DRR policies and Strategic Plan of Action of the GoN focus on the multi-stakeholder and inclusive approach to disaster risk reduction. Additionally, children's inclusion is an integral element of SFDRR, which helps ensure that DRR programs are designed from a children's lens, to minimize their exposure to hazards and to reduce the likelihood of children suffering from mortality, morbidity, injury, displacement, and losses. The recent legislation and SFDRR provide important policy and advocacy basis for child centered DRR (CCDRR) program for the children's organizations including the Child-Centered DRR and Climate Change Consortium (CDCC) comprised of UNICEF, Save the Children, World Vision and Plan International.



Children preparing risk map in Saptari district

CCDRR program approach focuses on educating children on disaster risks in their schools, house and communities and empowering them to use that knowledge on mitigating risk while ensuring the participation and voice of children in disaster risk reduction efforts. For this, the program engages community

and school-based child clubs and child club network during the local level planning process, where children play a very important role in identification of hazard and analysis of risk (children prepare hazard and risk map, multi hazard calendar); communicating

risks for action (child club members at community and school level conduct door to door visit with message on fire safety during dry season in Terai districts - Saptari, Dhanusha and Parsa – to cite an example), influencing resource allocation for risk mitigation and support for the implementation of small scale adaptation/mitigation action (for example plantation- children took a lead in collecting seeds/saplings and planting in and around school area in Bajura and Achham districts). In schools, child clubs provide a platform for children to learn and share information about comprehensive school safety and disaster risk reduction. Within the school family, child clubs play a lead role in awareness on comprehensive school safety among their peers. Children also play vital role in influencing family and community to adopt the safety measures at household level. As an example, children after getting engaged in school safety activities, have facilitated to prepare family safety plan in Banke, Baglung, Kailali, Sindhupalchowk etc.



Students and teachers mapped the potential risks in and around the school premises. The risk mapping is painted on the school wall visible to everyone.

Thus, it has been learnt over the years that children are not only the passive recipient of the relief items but are the effective change agent for DRR. Acknowledging the role of children in DRR and investing on their capacity and empowerment does not only provide a short-term benefit, but also provides a long-term and sustainable return as they are the DRR champions of the future.

Source: UNICEF Nepal, 2018 - Child-Centered DRR and Climate Change Consortium (CDCC)

Government of Nepal

Ministry of Home Affairs

Singhadurbar, Kathmandu, Nepal