



Disaster Management and Contingency Plan

Ministry of Works and Human Settlement

May 2021



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ROYAL GOVERNMENT OF BHUTAN
MINISTRY OF WORKS AND HUMAN SETTLEMENT
THIMPHU: BHUTAN

"Construction Industry: Solutions to Innovation and Improved Technology"

MoWHS/Sec/32/2021/ 151

FOREWORD

The Disaster Management Act 2013 mandates all agencies to prepare, implement, review and update Disaster Management and Contingency Plan (DM&CP). The Ministry of Works & Human Settlement (MoWHS) is responsible for emergency shelter and Non-Food Item kits under the Logistic Desk, and immediate restoration of roads, bridge parts, and drinking water supply under the Immediate Restoration Desk as per the National Framework for Disaster Management.

The DM&CP has been formulated with the objective to reduce disaster risks and ensure continuity of critical services post-disaster through preparedness, mitigation, and prioritized post-recovery plans. The document has been divided into three sections. Section I comprises disaster management and contingency planning for hazards in the construction and human settlement sectors. A proper institutional set up within the Ministry has been propounded to implement the action plans that have been identified to implement the DM&CP. Additionally, institutional arrangements for emergency response and relief coordination along with Standard Operating Procedures have also been proposed.

Section II comprises the Office Safety Contingency Plan (OSCP) for the Ministry that has been framed with an objective to provide a safe working environment. The OSCP identifies potential hazards within the office premises and has prescribed evacuation plans to ensure the safety of the employees in case of a disaster. It contains plans for periodic safety training and drills for the employees and officials responsible for incident management; backup plans to protect critical data, and service continuity plans to ensure services are not hampered after a disaster.

Section III contains the Terms of Reference for the emergency shelter cluster including distribution plan for emergency shelter materials, Non-Food Item kits, water & sanitation items, and bridge parts.

The DMCP for MoWHS has been developed in line with the Contingency Planning Guidelines of Bhutan 2014 prepared by the Department of Disaster Management and will be reviewed periodically. The DMCP was approved by the 35th Policy and Planning Coordination Meeting of the Ministry held on 2nd June 2021.

(Chencho Dorji)
Secretary

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The Disaster Management and Contingency Plan (DM & CP) report has been prepared by a task force with members from the Policy and Planning Division, Department of Human Settlement, Department of Engineering Services, and the Department of Roads under the guidance of Hon'ble Zhabtog Lyonpo, Dasho Secretary and the Head of Departments of the Ministry of Works & Human Settlement.

The Ministry would like to acknowledge the hard work and contributions of the taskforce members involved in the preparation of the DM&CP for the Ministry. The taskforce members are Ms. Bhawana Chhetri (Chief Urban Planner, Survey and GIS Division, Department of Human Settlement), Mr. Sangay Penjor (Chief Planning Officer, Policy and Planning Division), Ms. Thinley Choden (Principal Engineer, Department of Roads), Mr. Garul Dhoj Bhujel (Dy. Chief Statistics Officer, Policy and Planning Division), Mr. Yeshey Penjor (Executive Engineer, Department of Roads), . and Mr. Bishnu Pradhan (Dy. Executive Engineer, Department of Engineering Services).

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This document is prepared by the Ministry of Works and Human Settlement in technical collaboration with the Department of Disaster Management, Ministry of Home and Cultural Affairs. The UNDP provided technical assistance in the preparation of the Terms of Reference for Emergency Shelter and Non-Food Item Kits.

Disclaimer

The document is a compilation of various consultations with the DDM; desk based research, and analysis of existing documents/reports. Any discrepancies are unintended. Due care has been taken in factual descriptions and data source. This document remains open for any correctness in facts, figures and visuals. The images in the cover page have been used from the Department of Engineering Services, Department of Roads, and The Bhutanese.

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SECTION I

**DISASTER
MANAGEMENT &
CONTINGENCY
PLAN**

CHAPTER 1: INTRODUCTION

1.1. National Framework for Disaster Management

The Disaster Management Act of Bhutan 2013 mandates government agencies or private sectors notified by the National Disaster Management Authority (NDMA) to prepare their Disaster Management Contingency Plans (DMCP) and also strengthen their institutional capacities. Section 6 of the Act establishes NDMA chaired by the Prime Minister as the highest decision making body on disaster management in Bhutan. Similarly, Section 66 of the Act mandates all agencies including the private sector to institute a Disaster Management Unit in its organization. Further, Section 67 a) requires agencies to prepare, implement, review and update Disaster Management and Contingency Plan while Section 67 b) states that all agencies should formulate plans to ensure continuity of critical services in the event of disaster.

The NDMA approves the National Disaster Management Contingency Plan and directs agencies to mainstream disaster risk reduction into their development plans, policies, programmes and projects. It is also responsible to constitute an Inter-Ministerial Task Force (IMFT) with technical experts from relevant agencies and the Head of the Department of Disaster Management as the ex-officio Chairperson. The IMTF is responsible to review national standard, guideline and standard operating procedure for disaster management, and to provide necessary technical assistance in the preparation of the Disaster Management and Contingency Plan (DM & CP).

At the highest level stands the National Disaster Response Coordination Committee (NDRCC) consisting of His Majesty's Secretariat with the Prime Minister as the National Disaster Response Commander. The committee comprises eight desks that are responsible for coordinating and managing various functions during a national level disaster. The Ministry of Works and Human Settlement is the lead agency to manage Immediate Restoration Desk. Under the Desk, the Department of Roads (DoR) is responsible to look after the restoration works of roads and bridges while the Department of Engineering Services (DES) is responsible for drinking water supply.

The Ministry is also a collaborating agency under the Logistic Desk with the Ministry of Agriculture and Forests as the lead. Under the Logistic Desk, the Department of Human Settlement (DHS) and

the DES are responsible for emergency shelter and Non-Food Item Kits (NFIs) whereas the DoR is responsible for equipment for roads and bridges.

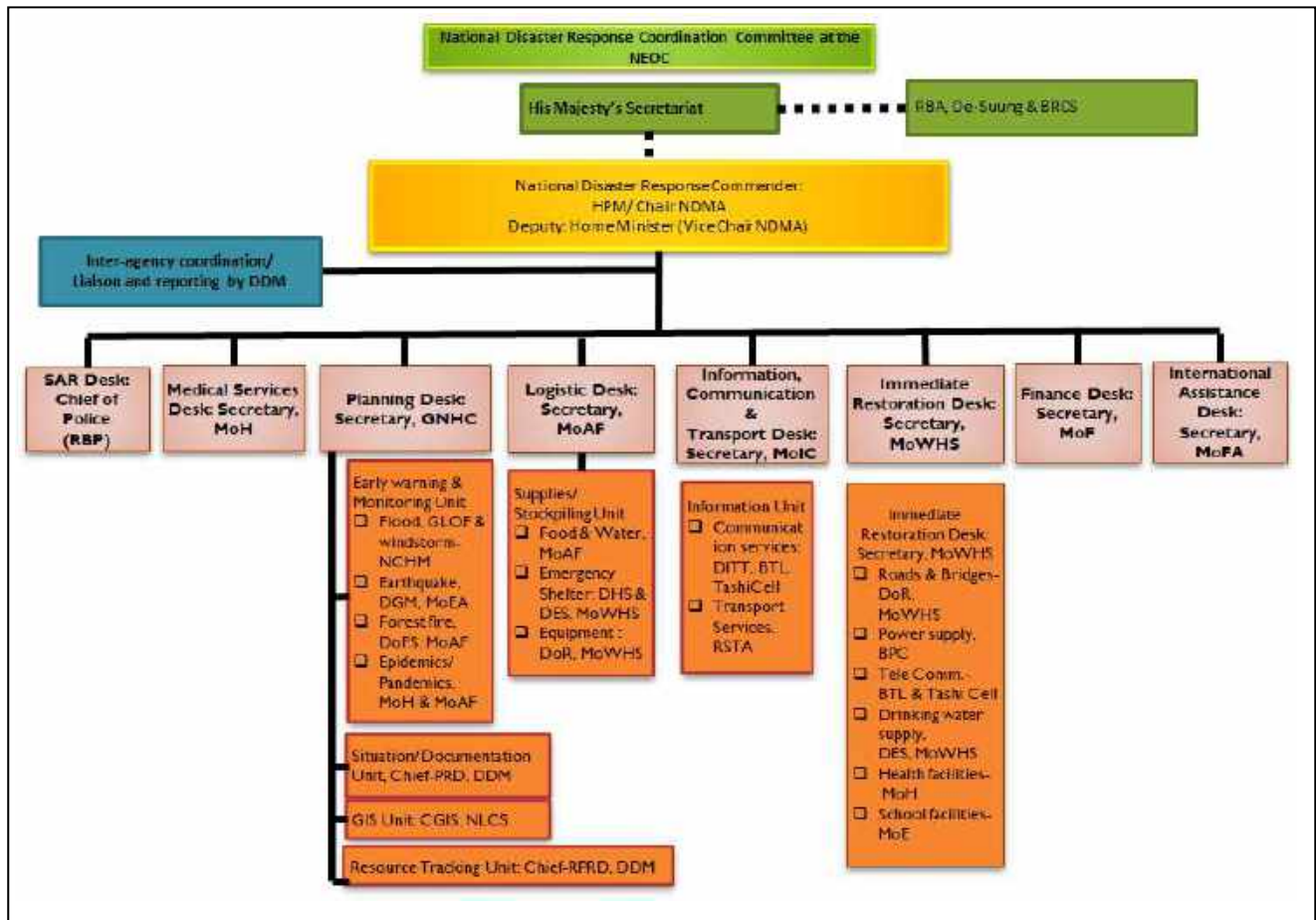


Figure 1: National Disaster Response Coordination Committee (Source: DDM)

1.2. Types of Disaster and Decision Making Process

The disaster level in the country has been segregated into three types depending on the severity viz. Type I, Type II, and Type III. Type I and Type II disasters are those that can be managed at the Local Government's level whereas Type III requires the intervention of the NDRCC.

The decision making process for the three levels of disaster is as indicated in Figure 2:

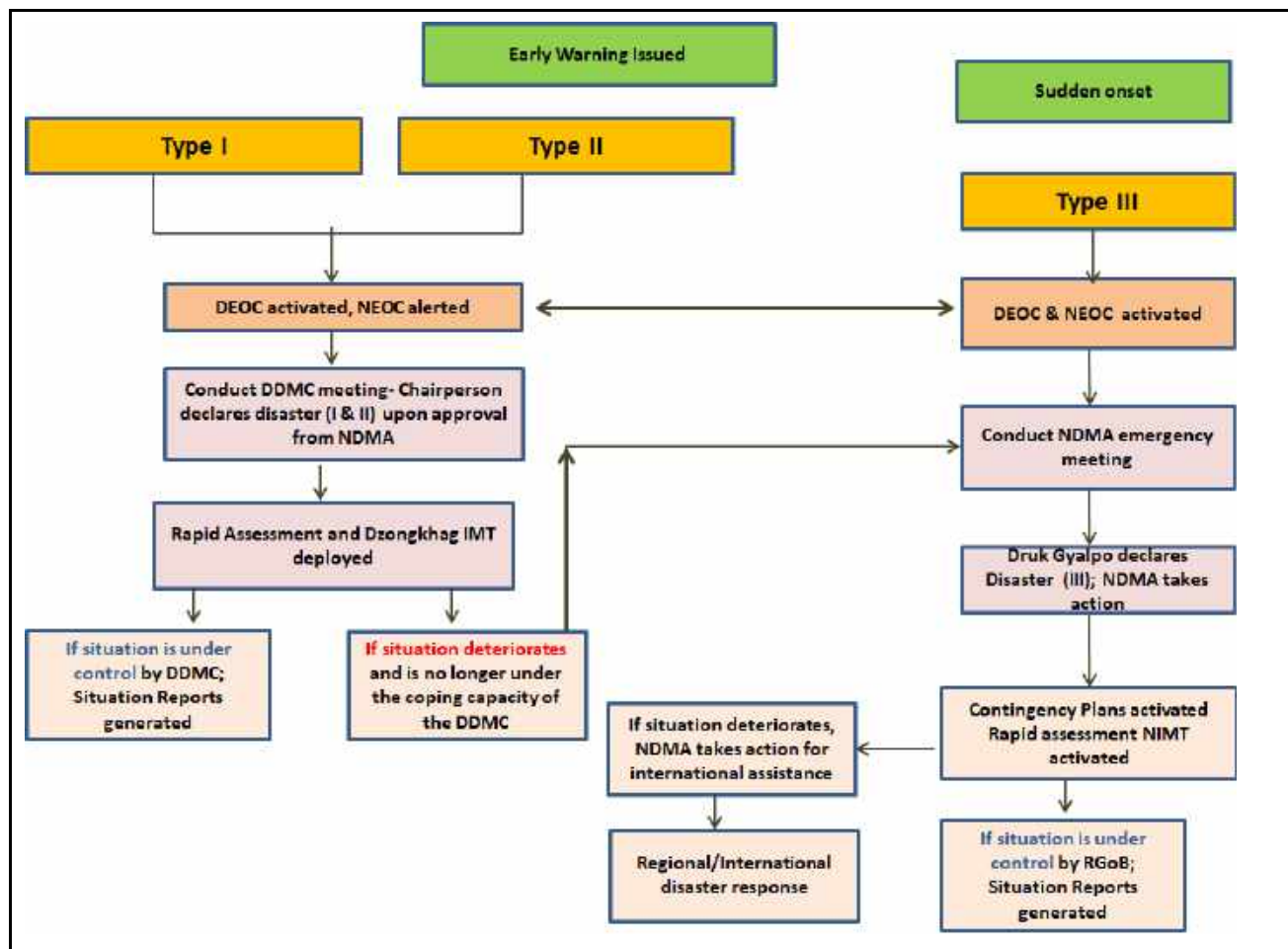


Figure 2: Decision making process for different levels of disaster

1.3. Overview of Disaster Management in the Construction and Human Settlement Sectors

The construction industry is one of the largest industries in Bhutan with significant contribution to the country’s Gross Domestic Product (GDP). The sector’s contribution to the GDP increased from Nu. 6.3 billion in 2005 to Nu. 23.5 billion in 2018. While the construction sector is a major contributor to the country’s GDP, there is also huge investment in the road sector by the government.

Every year, there is substantial damage in the construction sector due to disasters like landslides, floods, earthquake, fire, windstorm etc. While there is significant investment made in the construction sector, there is still no detailed disaster management contingency plan for the sector. Although a number of initiatives have been undertaken to integrate disaster management in the sector’s plans, policies and programmes, considering the magnitude of the investment in the sector and the sector

being a critical component of the nation's economy, the interventions in terms of disaster management needs to be further strengthened.

Similarly, the human settlement sector also needs to further strengthen integration of disaster management into human settlement planning processes and prepare contingency plans to strengthen the human settlement sector and emergency shelter needs. The human settlement sector is fundamental in disaster management and mitigation through interventions like land use planning, imposing building regulations and codes, and development control regulations.

Therefore, a comprehensive Disaster Management & Contingency Plan is of paramount importance for the construction and human settlement sectors to create a more resilient built environment.

1.3.1. Overview of the MoWHS

The Ministry of Works and Human Settlement was established in 2003 after the restructuring of the then Ministry of Communication. Since the time planned economic development started in 1960s and following the subsequent Five-Year Plans, the construction sector and the human settlement sector have seen unprecedented growth. In more than five decades of planned economic development, the ministry has prepared many human settlement plans of different levels and established infrastructure facilities and services in the country.

Currently, there are four Departments under the MoWHS viz. Department of Human Settlement (DHS), Department of Engineering Services (DES), Department of Roads (DoR), and Directorate Services (DoS).

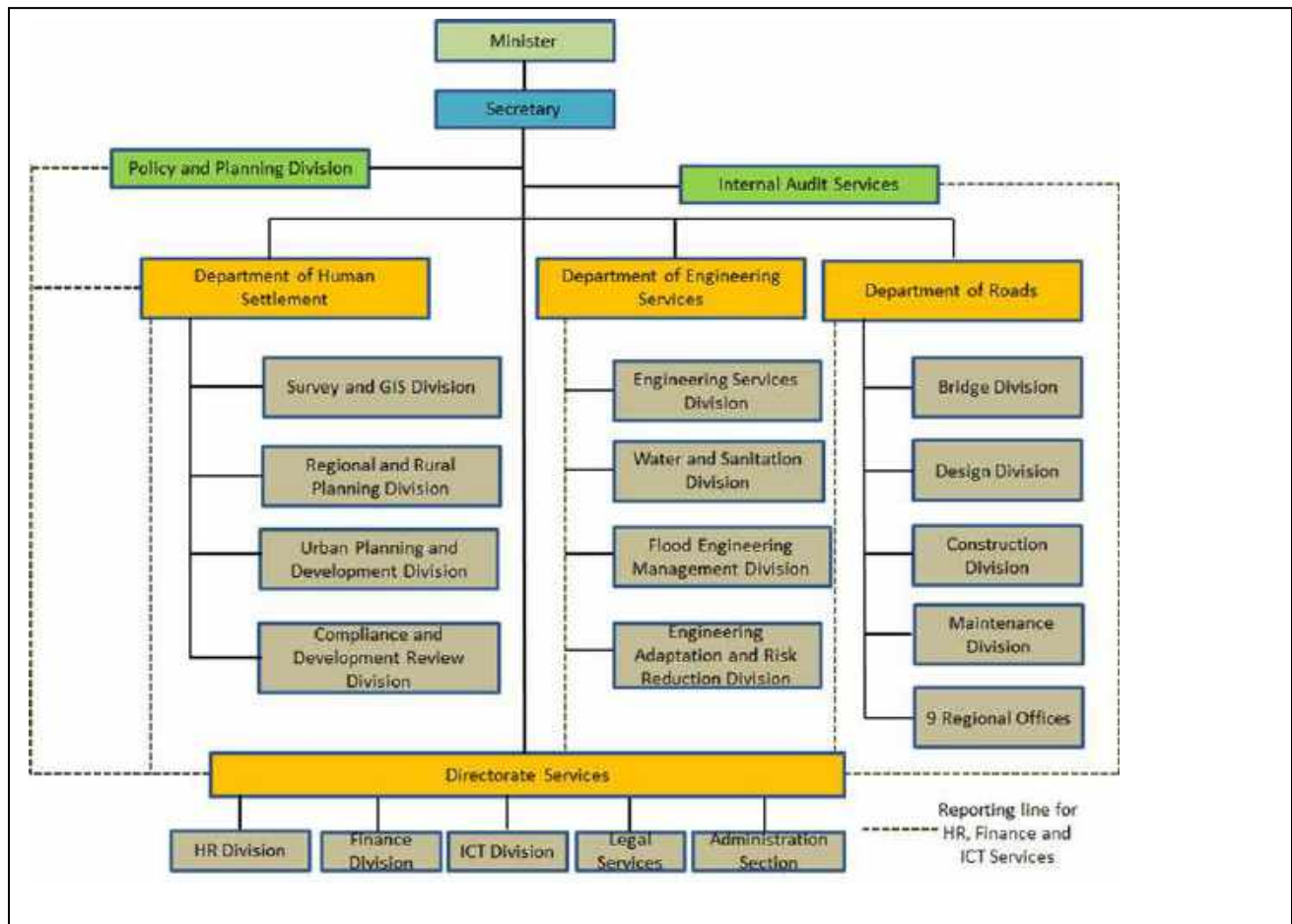


Figure 3: Organogram of the MoWHS

1.3.2. Existing DM and CP Arrangements within MoWHS

Currently, there is no dedicated unit for disaster management in the Ministry. However, integration of disaster risk reduction and management into policies, plans, programs, and projects have long been initiated. While there is no disaster management and contingency plan as such, there are existing provisions of disaster prevention and mitigation measures incorporated in the planning, design and construction phases. For example, the road sector has provisions to mobilize road clearing equipment and bridge spare parts in times of disaster. Similarly, the development control regulation in the human settlement plans restricts construction on steep slopes and river buffers to mitigate disaster risks. The engineering sector also has flood management and engineering adaptation and risk reduction initiatives in place.

Some of the initiatives by the Ministry to incorporate disaster management in its policies, plans, programmes and projects are:

Sl.no	Activities	Agency	Existing Provisions
1	Comprehensive National Development Plan (CNDP) for Bhutan 2030	DHS, MoWHS	<p>1) Creation of Resilient National Spatial Structures Against Natural Disaster : This is to be achieved by Ensuring National Resilience through the following ways:</p> <ul style="list-style-type: none"> i) Strengthen ‘Self-reliability’ in towns and villages in emergency; ii) Utilization of air transport for critical relief; iii) Paro as a temporary operation centre for national government functions; iv) Phuentsholing as a disaster response hub for Thimphu; and v) Alternative to prepared for the closure of airports <p>2) Structural and Non-structural Measures for Disasters which include :</p> <ul style="list-style-type: none"> i) Measures for Earthquake Risk Reduction; ii) Measures for Landslide Risk Reduction; iii) Measures for Flood Risk Reduction; and iv) Measures for GLOF Risk Reduction.
2	The Spatial Planning Bill of Bhutan (Draft) 2019	DHS, MoWHS	<p>Chapter 4: Spatial Plan Preparation and Approval - Study and Consideration</p> <p>Section 34: Spatial Plans shall be prepared on the basis of study and consideration of all matters relevant to their contents, including but not limited to:</p> <ul style="list-style-type: none"> a) environment, ecosystems, biodiversity, sensitive and fragile areas; f) natural hazards and measures to mitigate risks; and j) geomorphology, hydrography, geology and soil investigations as appropriate.
3	National Human Settlement Policy of Bhutan (NHSP) 2019	DHS, MoWHS	<p>One of the objectives of the NHSP is to Ensure that human settlements are safe and resilient to disasters. The provisions for disaster risk reduction and management is covered under:</p> <ul style="list-style-type: none"> i) Policy Objective: Mitigate Factors Leading to Climate Change as follows: <ul style="list-style-type: none"> Policy Statement 6.3.4.1: Low-emission, carbon-resilient development shall be promoted through green design and energy efficient infrastructure. Policy Statement 6.3.4.2: Public transport system and eco-friendly

			<p>modes of transport shall be promoted.</p> <p>ii) Policy Objective: Reduce Vulnerability and Increase Resilience to Disaster</p> <p>Policy Statement 6.3.4.3: MoWHS shall carry out geo-technical studies for settlement sites, prepare geo-hazard maps and demarcate no construction zones.</p> <p>Policy Statement 6.3.4.4: MoWHS shall develop building codes, design standards and guidelines for disaster resilient designs and development of human settlements.</p>
4	National Housing Policy	DHS, MoWHS	<p>Policy Objective 1: To provide Safe, Affordable and Adequate Rental Housing for All</p> <p>8.1.4. Safety</p> <p>Safety should be a priority for housing. Ensuring safety can prevent risk to human life and property, minimize environmental losses, and alleviate heavy investments on recovery. It is important for housing entities to ensure the safety and well-being of the people in the housing design and its construction.</p> <p>Policy Statements;</p> <ol style="list-style-type: none"> a. The government shall ensure that all housing structures are safe and resilient; b. The government shall mandate all houses and buildings to be insured; and c. The government shall enforce safety standards and regulations.
5	National Sanitation and Hygiene Policy	DES, MoWHS	<p>Policy Objective 2: Adopt appropriate technology for sustainable sanitation systems.</p> <p>i) MoWHS/Concerned Agency in collaboration with relevant agencies shall conduct research and development in the sanitation sector to devise appropriate, cost effective, disaster resilient, climate resilient and sustainable technologies.</p> <p>ii) MoWHS/Concerned Agency in collaboration with the Local Governments shall explore and adopt treatment systems that are locally appropriate, disaster resilient, climate resilient and sustainable to minimize the environmental impacts associated with management of wastewater.</p>
6	Bhutan Building Regulations	DHS, MoWHS	<p>One of the purposes of the Regulation is to ensure that buildings are safe and accessible.</p>

	2018		<p>Section 137 under Areas in which construction is not permitted, states that</p> <p>Construction shall not be permitted:</p> <p>a) in an environmentally sensitive area, or along or obstructing a water course or natural drainage; and</p> <p>b) within 15 metres of the edge of a major stream or within 30 metres of the bank or the edge of a river, measured from the highest recorded water level.</p>
7	Road Rules and Regulations, 2016	DoR, MoWHS	<p>Chapter 3: Administration of Roads under Design Standards and Specification has the following provisions:</p> <p>Sl.no 18 states that Standards and specifications shall have due regard to:</p> <p>i) Constructed and natural environment of the area;</p> <p>ii) Environmental, aesthetic, historic, community, and preservation impacts; and</p> <p>iii) Geological stability.</p>
8	Bhutan National Human Settlement Strategy 2017	DHS, MoWHS	<p>The key activities identified for disaster mitigation are:</p> <p>i) Vulnerability mapping;</p> <p>ii) Formulation of architecture and development guidelines in disaster risk-prone areas;</p> <p>iii) Setting up of early awareness centers;</p> <p>iv) Capacity building for disaster preparedness; and</p> <p>v) Research on traditional methods of disaster resilience.</p>
9	Urban and Rural Settlements in Bhutan: A Low Emission Development Strategy 2017	PPD, MoWHS	<p>Chapter 4: Mitigation potential in urban and rural settlements in Bhutan covers mitigation measures of GHG emissions as follows:</p> <p>i) Mitigation measures and mitigation potential in buildings through promotion of Green buildings and sustainable construction standards, and fuel switch from biomass and LPG thermal energy to electricity;</p> <p>ii) Mitigation measures and mitigation potential in transport by promoting electric/hybrid vehicles, and public mass transit; and</p> <p>iii) Mitigation measures and mitigation potential in waste management through solid waste management and wastewater treatment.</p>
10	Building Code of Bhutan 2018	DHS, MoWHS	<p>Chapter 2 – Requirements applying to all buildings</p> <p>Part 1: Environmental Context: Earthquake resistance; Serial no 4 of the section states that if a building is constructed using stone masonry, the construction must comply with Earthquake Resistant Construction Training</p>

			<p>Manual -Stone Masonry, 2014 published by the Ministry.</p> <p>Part 5: Fire Safety: The provisions under this section for fire safety are:</p> <ul style="list-style-type: none"> i) Provision of exits; ii) Escape routes and exits; iii) Provision of fire escape staircases; iv) Design of fire escape staircases; and v) Other requirements relating to fire safety.
11	Guidelines for Planning and Development of urban and rural settlements in environmentally sensitive areas of Bhutan 2013	DHS, MoWHS	<p>The guidelines focus on promotion of eco-friendly technologies, conservation of natural environment, management of environmental hazards (resilience planning). The provisions regarding disaster management in the guidelines are covered as follows:</p> <ul style="list-style-type: none"> i) Guideline 6.1 covers planning for climate change adaptation in all settlements. The section has a list of climate change impacts and suggested adaptation measures at the settlement level.
12	Bhutan Green Building Design Guidelines 2013	DES, MoWHS	<p>The Guidelines has been formulated with the following aims:</p> <ul style="list-style-type: none"> i) Minimize disturbance to site conditions and eco-systems; ii) Maximize the use of renewable sources of energy and materials; iii) Use efficient waste and water management design and operation practices; iv) Minimize external pollution and environmental damage; and v) Consider environmental impacts and waste minimization.
13	Guidelines on Design, Construction & Maintenance of Road Infrastructure incorporating Climate-Resilient Features (2019)	DoR, MoWHS	<p>The Guidelines cover the following:</p> <ul style="list-style-type: none"> i) Survey, Geotechnical Studies & Data Collection; ii) Design of Road & Pavement; iii) Road Construction; and iv) Maintenance of Climate Resilient Roads.
14	Guidelines on Windstorm	DES, MoWHS	<p>This guideline broadly provides information about the different types of roof damages, their causes and the mitigation measures that can be incorporated</p>

	resilient roofing system		during the construction and re-construction of houses to reduce future windstorm damage while preserving the traditional roof architecture.
15	Spatial Planning Standards 2018	DHS, MoWHS	<p>Some of the prerequisites for Spatial Plans under Chapter 1: Spatial Plans states the plans shall be prepared on the basis of a complete study of the planning area and its surrounding context and all data should be identified with its source. Information to be considered shall include, but not be limited to:</p> <ul style="list-style-type: none"> i) the framework of acts, regulations and standards concerning, amongst others, urban and rural development, environmental protection and cultural heritage conservation; ii) geomorphology, hydrography, geology and soil investigations as required; iii) natural features, environment, ecosystems, biodiversity, sensitive and fragile areas; and iv) hydro-geologic and environmental risks such as areas subject to flooding risks; areas that are unstable from a geological point of view; environmental risks due to polluting activities, etc.
16	SoP for WASH in emergencies	DES, MoWHS	<p>Purpose: To simplify, streamline and define clear roles, responsibilities and procedures related to drinking water supply, sanitation and hygiene in emergencies to prevent outbreak of WASH related diseases.</p> <p>Scope : This SOP will apply to all levels of disasters in which WASH interventions are required to provide minimum WASH services to the affected population giving special consideration to the vulnerable groups..</p> <p>Responsibility: In the event of an emergency, the Dzongkhag, Thromde and Gewog engineers will take lead in communicating with the respective Disaster Management Committees to assess the need of WASH intervention, develop action plan, and mobilize a technical team to set up WASH facilities.</p>
17	Earthquake Resilient Stone Masonry Construction Manual	DES, MoWHS	The objective of the manual is to identify and highlight shortcomings of present construction practices in stone masonry and recommend internationally accepted strengthening measures. This manual could be used by all professionals involved in stone masonry.
18	Confined Masonry Construction	DES, MoWHS	<p>The purpose of this document is to:</p> <ul style="list-style-type: none"> i) Introduce the concept of confined masonry in Bhutan ii) Provide an alternative construction technology

			<ul style="list-style-type: none"> iii) Define the difference of confined masonry from RC frame construction iv) Recommend general planning and design aspect and prescribe minimum size requirements for structural components of confined masonry building, reinforcement size and detailing v) Provide a step wise guide to construction a confined masonry building
19	Earthquake Loss Estimation (Ongoing)	DES, MoWHS	<p>EARRD, DES has completed the development of GIS-based building inventory for four Dzongkhags (Paro, Punakha, Trashiyangtse and Sarpang) and carried out risk analysis for different building typology and projected vulnerability for these regions.</p> <p>The inventory developed can be used to address and characterize future earthquake losses. It can provide valuable information based on which earthquake loss prevention and mitigation activities can be systematically carried out. In the event of disaster, the database can be used for assessing the level of damages and mobilize response accordingly.</p>
20	Flood Hazard Assessment	FEMD, MoWHS	Detailed flood hazard assessments of critical areas in Dzongkhags are carried out to prevent flood risks of the areas.
21	Project for Master Plan Study on Road Slope Management in Bhutan (2016)	DoR, MoWHS	<p>Introduction of inspection techniques for road slope disaster management in Bhutan with the focus on:</p> <ul style="list-style-type: none"> i) Preparation of inspection manual; ii) Slope disaster inspection on roads; iii) Develop inspection database and iv) Advice on the countermeasure works.
22	Road Asset Management System	DoR, MoWHS	Highway network is mapped with the geo locations and the road assets such as walls, drainage, slope conditions etc. are recorded in the excel database.
23	Standard Operating Procedures	DoR, MoWHS	<p>The SOP covers the following :</p> <ul style="list-style-type: none"> i) Monsoon Damage Restoration Works; and ii) Proper and Effective Coordination with relevant stakeholders during emergencies.
24	Bhutan Road	DoR, MoWHS	Developed through the G2C initiative to disseminate roadblock status to the

	Safety APP		public. APP needs to be upgraded but works are hampered due to the pandemic.
25	GeoHazard Risk Assessment & Resilient Asset Management on Roads in Bhutan (2019)	DoR, MoWHS	Hazard zonation along the highway corridors and developed risk maps. (The tool could not be adopted as the field verification was not carried out due to the pandemic)

CHAPTER 2: Disaster Management and Contingency Planning

‘Contingency planning’ comprises decisions made in advance about management of human and financial resources, coordination and communications procedure, and a range of technical and logistical responses for possible disasters/ emergencies.

A Contingency Plan is prepared as part of the preparatory process to identify and plan for any disaster event that could occur. It involves making prior decisions regarding management of resources, coordination, and communications involving all concerned stakeholders. It is a subset of a Disaster Management Plan and has to be supported by Standard Operating Procedures (SOPs) or response management plans.

While the disaster management plan includes action plans for mitigation, preparedness, response and recovery for any disaster situation, the contingency plan focuses on specific disasters.

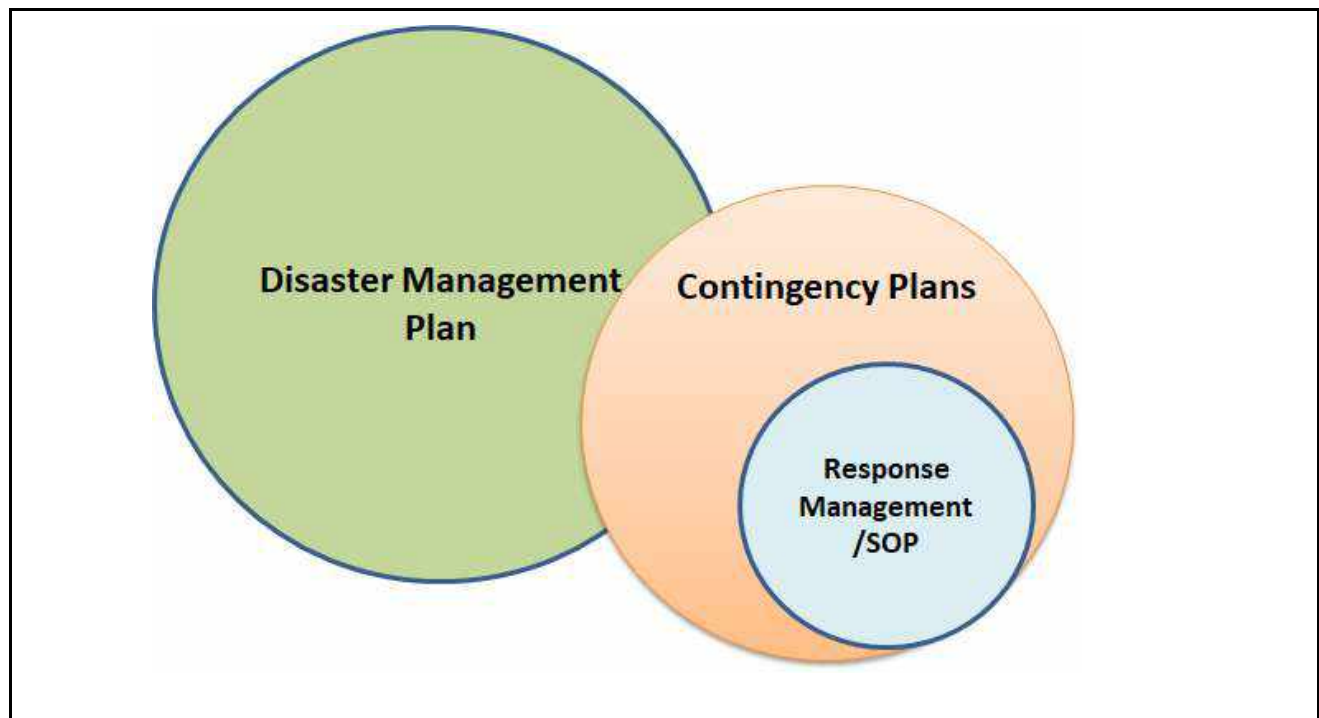


Figure 4: Relationship between DMP, CP, and SOP (Source: DDM, MoHCA)

The contingency planning process involves five stages viz. Prepare, Analyze, Develop, Implement, and Review. The “prepare” phase encompasses the rationale, responsibility, timeline and location. It also includes stakeholder consultations and data collection for planning. The “analyze” step is to assess priority hazard/disaster and its impacts at various levels and includes vulnerability and capacity assessment as well. The “develop” step sets out the detailed process of writing a contingency plan. The ‘implement’ step includes preparedness gap analysis and action plans, and Standard Operating Procedures. The final step ‘review’ would include updating and evaluation of the plan which may also happen after mock drills are conducted.

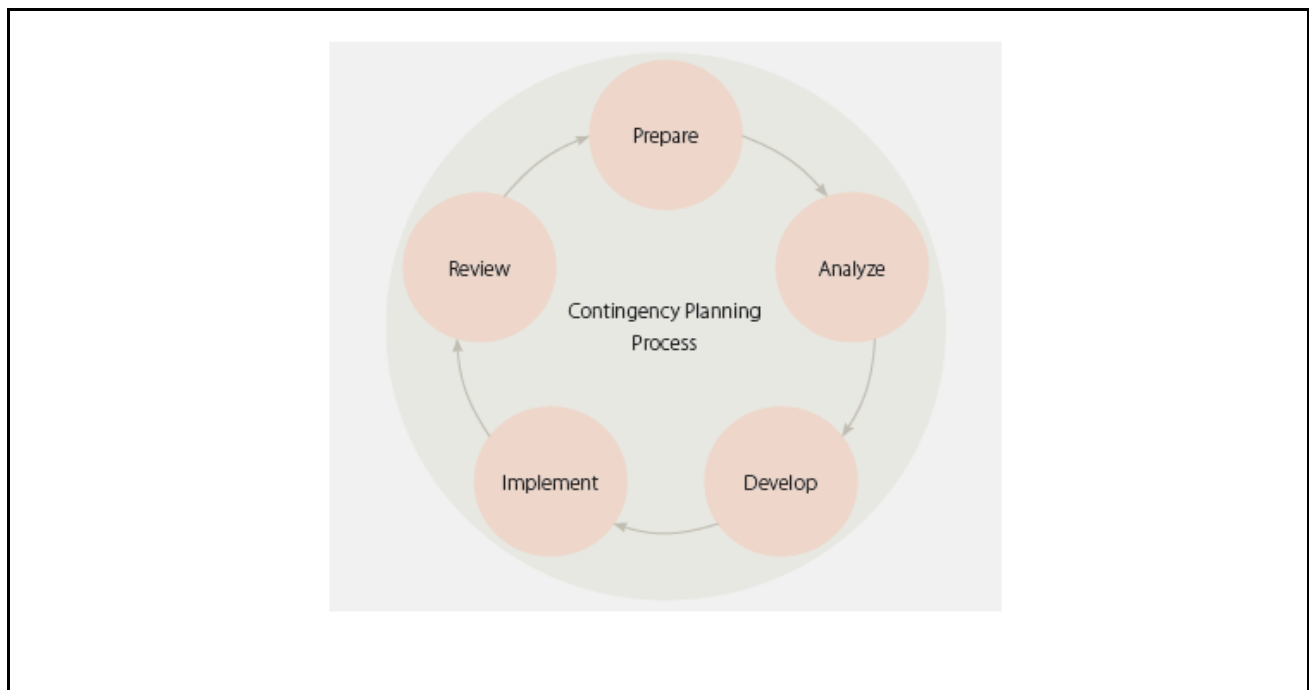


Figure 5: Steps involved in Contingency planning (Source: DDM, MoHCA)

The contingency planning exercise has been carried out through risk profiling by assessing the following:

- i. Hazard assessment;
- ii. Vulnerability assessment; and
- iii. Capacity assessment.

2.1. Hazard assessment of Disaster Risks

Hazard assessment of all those hazards that impact the construction and the human settlement sector was carried out. The details of various primary hazards along with the corresponding secondary hazards and their impacts have been tabulated in Table below.

Hazard	Secondary Hazard	History of major events	Major Impact (Damage & Loss)
Earthquake	Structural Fire, Landslide, Floods	1713,1897, 1906 ,1910 1934,1941,1947,1980, 1988,2003, 2006, 2009, 2011, 2015	Loss of lives and properties, Damage to infrastructure, Pollution (air and water).
Glacial Lake Outburst Floods (GLOF)	Flash Floods, landslides, erosion	1994 (from Luggye Tsho, Lunana), 2015 (Lemthang Tho lake , Laya)	Loss of lives and livelihoods, damage to properties and infrastructure, pollution
Flash Floods	Landslides Erosion	2000, 2004, 2009, 2010, 2013, 2016	Loss of lives and properties, livelihood, damages to infrastructure, closure of highways
Landslides	Deforestati on	2000, 2003, 2011, 2016, 2017, 2018 2019, 2020	Loss of lives and properties, damages to infrastructure, closure of highways
Windstorms and cyclones	Excessive Rainfalls, Flash flood, landslide	2008, 2011, 2012, 2014, 2015	Falling trees & Structural damages, loss of lives & Properties, roadblock etc
Fires (Structural and Forests)	Explosions, pollution	2002, 2011, 2012, 2014, 2020	Damages to properties, loss of lives & Livelihoods
Diseases (Pandemics and	Water pollution	2015, 2020	Pollution of water supply, Public health hazard

Outbreaks)			
Snowstorms & hailstorms	Flash flood	2016	Damage to infrastructure- Power and Telecommunication lines, crops, road blocks, damage to properties.
Droughts/ Famines	Sanitation related disease outbreak. Forest fires	2005, 2006, 2013	Inadequate water supply, loss of crops/ livelihood
Hazardous wastes/materials and industrial accidents/hazards	Air and water pollution, skin diseases, respiratory and other health issues, structural fires.	N/A	Contamination of drinking water, loss of lives and properties in case of fire outbreak, pollution.

2.2. Vulnerability Assessment of Disaster Risks

Vulnerability assessment indicates hazards and what element in the sector could be at risk. It also analyzes the reasons behind why and how the elements came to be at a risk.

Hazard	Element at Risk	Risk	
		Why?	How?
Earthquake	Buildings, roads, bridges,	Inadequate structural strength due to poor design and	Earthquake & landslides can damage roads and bridges.

		construction practices	EQ can trigger structural fires that can damage properties and may also result in loss of lives
Floods (GLOF, Flash, excess Rain Fall)	Human settlements, infrastructure	Human settlements are in river valleys, illegal settlements along river buffers, poor design and construction practices,	Loss of lives and properties downstream, inadequate capacities of infrastructure like protection works, drainages
Windstorm and cyclone	Structures, human lives	Inadequate design and construction practices	Structural damages
Fire (Structural and Forests)	Infrastructure, buildings	Inadequate fire safety measures and practices	Loss of lives and damages to properties
Diseases (Pandemics and Outbreaks)	Water supply infrastructure, waste management, sewerage TPs	Poor sanitation facilities and practices	Public health is compromised
Snowstorm, hailstorm	Infrastructure and properties	Slow response and relief measures	Disruption of road transportation
Drought/famine	Water supply and sanitation	Inadequate supply at sources	
Hazardous wastes/materials and Industrial accidents/hazards	Water supply, structures, air.	Pollution and fallouts	Health and environmental hazard.

2.3. Capacity Assessment

Capacity assessment has been segregated into physical, social, and institutional capacity of the construction and human settlement sectors to manage any hazard.

Physical Capacity	Social Capacity	Institutional Capacity
i) Specialized technical manpower: Engineers, architects, urban planners, urban designers, GIS Officers, urban economist, and surveyors; ii) Administrative, Procurement and Finance personnel; iii) Field staff like plumbers, masons, carpenters, electricians; and iv) Equipment like bridge parts, Earth Moving equipment, safety equipment, pool vehicles.	i) National Work Force at regional level; and ii) Regular training provided to engineers, urban planners, architects and building inspectors in planning and designing disaster resilient human settlements, earthquake safe designs and construction.	i) 9 Regional Offices; ii) Earthquake resilient design standards and drawings; and iii) Trained personnel in post recovery activities, research.

2.4. Disaster Management and Contingency Plan (DM&CP)

The DM&CP will serve as a guiding document to implement disaster risk reduction, preparedness, relief and response operations. The contingency plan aims to prepare the Ministry to respond well to an emergency and its potential humanitarian impact. The plan will include management of human & financial resources, coordination and communication procedure for technical and professional support, and will comprise three sections.

The general objectives of the DM & CP are to:

- i. Plan for disaster risk reduction through preparedness, mitigation, and prioritized post recovery plans;
- ii. Prepare distribution plan of vital emergency shelter and NFIs to the affected areas ;
- iii. Ensure safety of lives and national properties;

-
- iv. Strengthen and manage human and financial resources
 - v. Provide institutional arrangements for emergency response and relief coordination; and
 - vi. Ensure continuity plan of essential services like water supply, roads, and bridges during and post disaster.

The scope of the DM & CP will include:

1. Preparing contingency plan encapsulating response, relief, recovery and preparedness activities for all construction and human settlement sector related hazards including provision of emergency shelter and NFIs kits;
2. Outlining roles and responsibilities of individuals and organizational/functional groups;
3. Capacity building in the entire disaster risk management cycle (Preparedness, Prevention, Response and Recovery); and
4. Mobilize resources to implement the DM & CP.

2.4.1. Disaster Management (DM) Institutions

The lack of a proper institutional mechanism in the sector accentuates the need for a dedicated unit to implement disaster risk reduction (DRR) & preparedness activities and also to effectively carry out disaster response and recovery activities through enhanced capacity building. Additionally, the Disaster Management Act 2013 also mandates all agencies to have a DM Unit in their agencies.

Therefore, the formation of the following institutional set up is being proposed in the MoWHS :

- a) Disaster Management (DM) Committee;
- b) Disaster Management Unit (DMU); and
- c) Rapid Response Team (RRT) -DoR Regional Offices.

2.4.1.1. Disaster Management Committee

The DM Committee will be the highest decision making body and shall constitute the following members:

Sl.no	Members	Roles	Department/Agency
1	Secretary, MoWHS	Chairperson	MoWHS
2	Head of Department, DoR	Member	MoWHS
3	Head of Department, DES	Member	MoWHS
4	Head of Department, DHS	Member	MoWHS
5	Head of Department, DoS	Member Secretary	MoWHS

The Committee shall have the following roles and responsibilities:

- i. Approve disaster management plan, and action plans including any revision or updates;
- ii. Institute the Disaster Management Unit (DMU) and appoint a Coordinator for the Unit;
- iii. Ensure adequate funding and mobilize resources for implementation of the Disaster Management Plan;
- iv. Provide timely updates to the NDMA; and
- v. Liaise with other Ministries, and agencies including international, and regional agencies for support and updates. .

2.4.1.2. Disaster Management Unit (DMU)

The DMU shall function as the overall coordinating body for disaster management within the Ministry and shall comprise of members from all departments.

The roles and responsibilities of the DMU are to:

- i. Coordinate Committee meetings and serve as Secretariat to the DMC;
- ii. Provide technical guidance and support on disaster management plan & activities;
- iii. Assist in the Implementation of disaster management actions plans including mainstreaming into plans, projects and activities
- iv. Carry out monitoring, evaluation, review and update the DM & CP as and when required;
- v. Coordinate with relevant stakeholders and arrange meetings as required;
- vi. Formulate and coordinate response, relief and recovery activities in coordination with the relevant sectors;
- vii. Form RRTS as and when required; and
- vii. Facilitate strengthening of the RRTS through capacity building.

2.4.1.3. Rapid Response Teams (RRTs)

The RRTs will coordinate and implement disaster response and recovery operations on-ground.

Therefore, hazard specific and location specific RRTs are proposed. Composition of the RRTs will depend on the nature of hazards. RRT on any hazards relating to road & bridges will be from the regional office with the Chief Engineer as the focal whereas for issues related to human settlement planning, water or sanitation, the RRTs will be from the respective Departments who will work with the RRTs of the affected local government.

The roles and responsibilities of the RRT are:

- i. Coordinate and implement disaster response and recovery operations on-ground;
- ii. Report to the DMU for updates and assistance; and
- iii. Coordinate with the RRTS of the affected local government/s.

2.5. Disaster Management Action Plan

The DM Action Plan comprises the coordination and reporting mechanism, overall action plan, and hazard specific action plan.

2.5.1. Coordination and Reporting Mechanism

RRTs will be activated by the DMU in case of a Type III disaster. If the local governments run out of emergency shelter and NFIs kits, then the nearest RRTS from the regional offices will be deployed immediately with the necessary kits. Similarly, any restoration works pertaining to roads, bridges, water and sanitation where the intervention of the Ministry is required will be carried out immediately by the RRTs of the Ministry and the regional offices along with the local governments' teams.

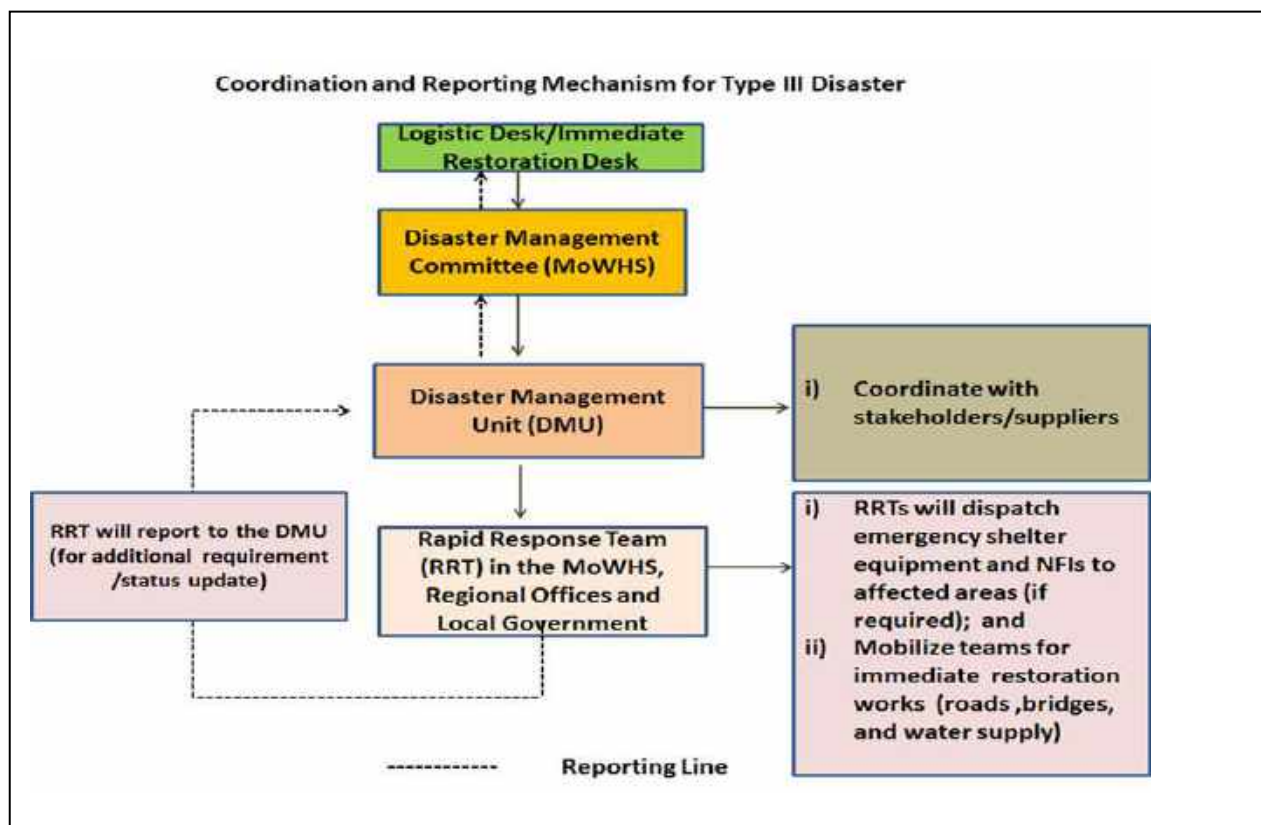


Figure 6: Coordination mechanism for MoWHS, LGs, and ROs

2.5.2. Action Plan for Disaster Management Activities

The following areas of priority have been identified for intervention. Under each priority area, an action plan consisting of main activities, responsible agency, supporting agencies and timeline have been outlined. The action plan for each activity identified has been tabulated as under:

Main activities	Agency/Sector Responsible	Supporting Sector/Agencies	Timeline	Estimated Budget (in Million)
Outcome 1.1. Improved planning tools, methods and facilities to effectively implement preparedness, response and post disaster recovery activities.				
i. Institute Disaster Management Committee (DMC) within the Ministry	MoWHS	DHS, DES, DoS, DoR, PPD, and DDM	Short term (1 Month)	N/A

as the apex decision making body for disaster management				
ii. Create a DMU in the Ministry to implement DMCP activities.	DMC	DHS, DES, DoR, DoS, PPD, and DDM	Short term (1 Month)	N/A
iii. Institute Rapid Response Teams to coordinate response and recovery activities when needed.	DMU	DHS, DES, DoR, DoS, PPD	Short term (1 Month)	N/A
iv. Mainstream disaster risk reduction and management initiatives in plans, projects and activities.	DMU/concerned sector	DHS, DES, DoR, DoS, PPD	Continuous Process	N/A
v. Procurement of basic equipment for the RRTs including emergency shelter, roads and bridge parts, and NFIs.	DMU to coordinate	DDM, ROs	Medium Term (1-3 years)	Nu.175 M for bridge parts Nu.10 M for other equipment

Outcome 1.2. Improved coordination, and fostering active stakeholder participation for emergencies and better decision making

i. Approve & implement DMCP	To be approved by the Ministry and implemented by the respective Department/ Division.	DHS, DES, DoR, DoS, PPD, DDM	Medium Term (1-3 years)	N/A
ii. Develop and strengthen data collection, management & sharing for disaster management	DMU, Departments	MoWHS, LGs, ROs, DDM, relevant agencies	Medium Term (1-3 years)	Nu.1.0 M

Outcome 1.3. Enhanced awareness on preparedness, response and recovery and

implementation of DM &CP activities.				
i. Carry out sensitization & advocacy workshops on disaster management	DMU to coordinate	DDM, relevant stakeholders and LGs	Medium Term (1-3 years)	Nu.0.5 M
ii. Develop audio/video material for sensitization.	DMU to coordinate	ICT Division along with the concerned Departments	Medium Term (1-3 years)	Nu.0.1 M
Outcome 2.1. Enhanced capacity of officials for preparedness, response and recovery and implementation of DM &CP activities.				
i. Capacity building of all relevant officials on preparedness, response & relief activities.	DMU to coordinate	DMC, LGs, ROs, and DDM	Medium Term (1-3 years)	Nu.4.0 M
Outcome 2.2. Enhanced capacity to plan and design disaster resilient infrastructure and human settlements.				
i. Design, and develop/review guideline for disaster resilient infrastructure and settlements.	DHS, DES, DoR	Relevant stakeholders	Medium Term (1-3 years)	Nu.5.0 M
ii. Conduct review and assessment of infrastructure and human settlement plans in terms of disaster resilience.	DHS, DES, DoR	Relevant stakeholders	Medium Term (1-3 years)	Nu.0.1M
iii. Strengthen GIS database and geo technical capacities of the officials in the Ministry and LGs to plan, design and implement resilient human settlement plans and infrastructure.	DHS, DES, DoR	Relevant stakeholders	Long Term (5 Years)	Nu.3.0 M
iv. Promote Research &	DHS, DES,	Relevant	Long Term	Nu.2.0 M

Design on disaster management and climate change.	DoR	stakeholders	(5 years)	
Total budget required (includes bridge parts)				Nu.200.7 M

2.5.3. Standard Operating Procedures (SOP)

2.5.3.1. SOP for Roads and Bridges

Level	Activity	Timeline	Responsibility
Pre-disaster	Need assessment of immediate restoration parts and equipment for roads and bridges in each Regional Office	1 Month	MoWHS and Regional Office
	Stockpiling/ Mobilization plan for immediate restoration of roads and bridges parts, and equipment	6 Months	
During Disaster	Incident reported to the Regional Office		Community/MoWHS
	Report the matter to the DoR	1 day	Chief Engineer, RO
	Report to the DMC	1 day	DoR/DMU
	Depute RRT & relevant equipment for restoration	60 minutes	Chief Engineer, RO
Post-disaster	Report to DoR	1 day	Chief Engineer, RO
	Provide updates to the DMC	1 day	Coordinator of the DMU
	Restocking of used items	2 months	DMU and RO

2.5.3.2. SOP for immediate restoration of water supply

Level	Activity	Timeline	Responsibility
Pre-disaster	Regular monitoring of water supply system and restoration (if required)		LGs
	Stockpiling of water supply items at each RO	6 Months	MoWHS and RO
During Disaster	Water supply issues reported to the LGs		Community
	Depute RRT from the Ministry to the field	1 day	DMU & DMC
	RRTs (MoWHS) to coordinate with the LG and RO and fix the problem	1-3 days	RRTs and LG
Post-disaster	Report to DMU	1 day	RRTs
	Report to DMC	1 day	DMU
	Restocking of used items	2 Months	DMU, and RO

2.5.3.3. SOP for provision of emergency, Sanitation facilities and Non-Food Item Kits

Level	Activity	Timeline	Responsibility
Pre-disaster	Mapping of existing evacuation shelter facilities in each Dzongkhag, Gewog, and Thromde including maintaining demographic details	3 Months	MoWHS in coordination with the LGs
	Need assessment of evacuation shelter, water, sanitation, and access roads in each Dzongkhag & Gewog		

	Planning of water supply, sanitation facilities, and access roads in the identified evacuation shelters (if required)	6 months	
	Procurement of Emergency Shelter Equipment, and NFIs	6 Months	DoS (MoWHS)
	Stockpiling Emergency Shelter equipment & NFIs at each RO		DMU (MoWHS) and Regional Offices
During disaster	Assessment of shelter and NFIs requirement	1-2 days	LGs and RRTs
	Depute RRTs with Shelter Equipment & NFIs	1 day	DMU and ROs
	Facilitate to install or pitch emergency shelter including water & sanitation facilities	1-3 Days	LGs and RRTs
Post-disaster	Report to the DMU	1 day	RRTs
	Provide updates to the DMC	1 day	Coordinator of the DMU
	Restocking of used items	2 months	DMU and RO

SECTION II

**OFFICE SAFETY CONTINGENCY
PLAN (OSCP)**

Chapter 3: Office Safety Contingency Plan (OSCP)

The chapter includes the Office Safety Contingency Plan (OSCP) for the Ministry of Works and Human Settlement. The OSCP has been developed to control emergency situations, minimize hazards, and reduce risks of casualties in case of any office related hazards.

The OSCP comprises Safety Evacuation Plan, Incident Management Plan, and Response Mechanism in the event of any disaster in the MoWHS office premise.

3.1. Objectives of OSCP

The general objectives of the OSCP are to:

- i. Identify potential hazards and prepare Evacuation Plans & exits to ensure safe exit of the employees in case of a hazard;
- ii. Ensure safety of the workplace through the provision of safe working environment;
- iii. Plan periodic safety trainings and drills for the employees and officials responsible for incident management;
- iv. Prepare backup plans to protect critical data; and
- v. Prepare service continuity plans to ensure services are not hampered after a disaster.

3.2. Demographic details

The details of all employees in the Ministry's office premise including the contract employees are as shown in the Table below.

Department	No. of Staff		Total	Staff with Disability	
	Male	Female		Male	Female
Secretariat	34	27	61	0	0
Department of Human Settlement	38	17	55	0	0
Department of Roads	57	19	76	0	0
Department of Engineering Services	65	25	90	0	0
Total	194	88	282	0	0

3.3. Buildings/Infrastructure

There are three blocks in the MoWHS office premise. Block A houses the Office of the Minister, Secretary, and the one of the Divisions of the Department of Engineering Services. Block B is occupied by the Department of Engineering Services, the Secretariat, and the Directorate Services. Block C has the office canteen, the Department of Human Settlement and the Department of Roads. The Creche is located behind Block C, adjacent to the office canteen.

The table below indicates the male and female occupants on every floor. The figure does not include sweepers, gardener, and drivers.

Building	Male Occupant	Female Occupant	Total	Remarks
Block A				
Ground Floor	0	0	0	Used as a parking space
First Floor	8	8	16	Occupied by Water Supply and Sanitation Division, DES
Second Floor	2	1	3	Secretary's Office
Third Floor	3	2	5	Minister's Office
Block B				
Ground Floor	14	9	23	Occupied by DES, ADB and DoS
First Floor	16	12	28	Occupied by DES
Second Floor	16	13	29	Occupied by DoS, DES, Inter Audit Unit
Third Floor	7	2	9	Occupied by PPD-Legal-IAU
Block C				
Ground Floor	26	7	33	Occupied by DHS, Audit and Canteen.

				The figure is for the staff of DHS only.
First Floor	11	11	22	Occupied by DHS, ICT, DoR Project Office
Second Floor	16	7	23	Occupied by DoR
Third Floor	23	9	32	Occupied by DoR
Creche	7	9	16	Behind Block C
Canteen	2	6	8	On the ground floor of Block C

3.4. Inventory of resources

The inventory of existing safety equipment in the Ministry's premise is as tabulated below:

Sl. No	Items	Existing	Required	Gap	Remarks
1	First Aid Box	0	3	3	One kit in each Block
2	Drop down ladders	0	6	6	Two for every block. Provision for escape from windows to be kept.
3	Fire extinguisher	14	21	7	There are 3 fire extinguishers in Block A, 7 in Block B, and 4 in Block C. At least 2 numbers of extinguishers are required on each level in Block B and Block C. One each should be provided in the Creche and FEMD Office since they are detached from other offices.
4	Metal buckets	0	10	10	

5	Alarm System	0	3	3	One alarm system in each block
6	Spades	0	5	5	
7	Crowbar	0	5	5	
8	Pickaxe	0	5	5	
9	Shovels	0	5	5	
10	Stretchers	0	6	6	Two numbers for each block
11	Fire Hydrant	1	3	2	
12	Reservoir Tank	0	1	1	
13	CCTV	10	0	0	
14	Crossover ladders	0	3	3	For emergency escape to nearby open areas.

Fire extinguishers have been installed at every level in all blocks except in the Creche. However, there is a need to install more numbers considering that some office spaces are detached from the others.



Figure 7: Fire extinguishers in the Ministry

3.5. Proposed Office Safety Response Team

The proposed Office Safety Response Team will comprise an Incident Commander (IC) who will be the head of the agency, an Evacuation team, First Aid Team and Fire Response Team. The teams will be headed by the Head of Departments as shown in Figure 7 and they will nominate/select their respective team members. Each team could comprise at least four members including the Head of the Department. The Head of the Team will direct the team and coordinate functions and services during any office hazard for the team.

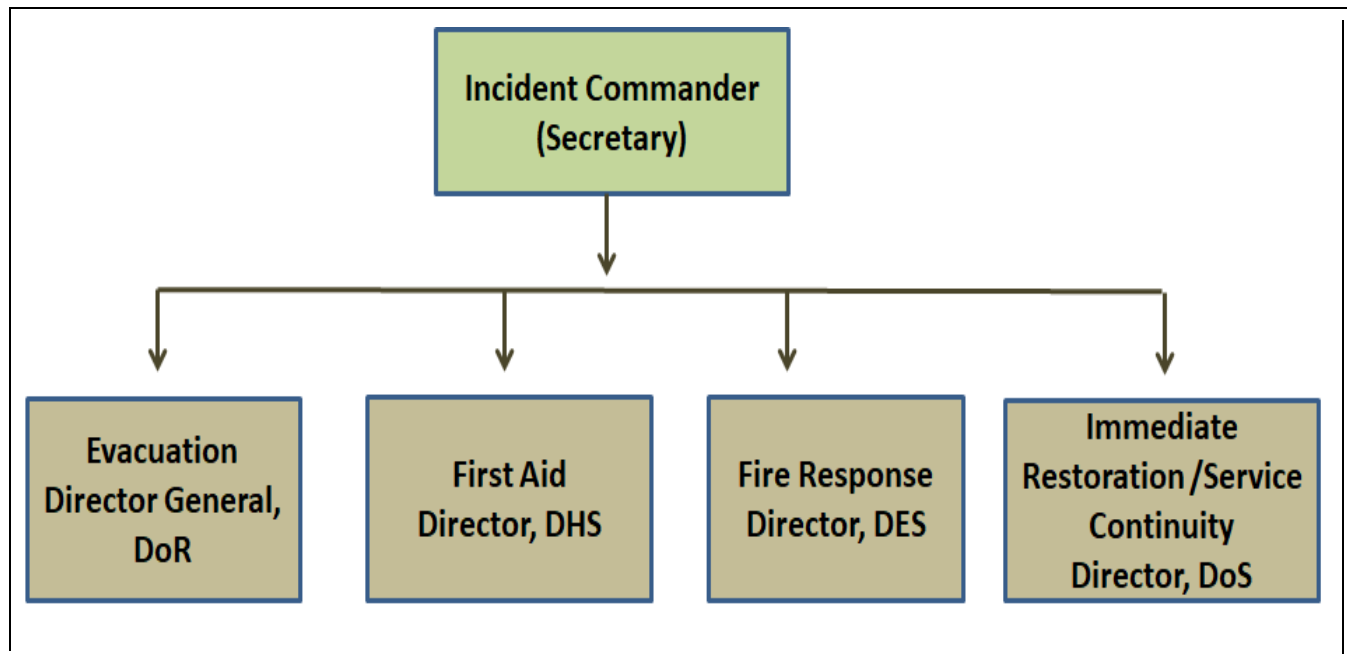


Figure 8: Office Safety Response Team composition for the MoWHS

3.5.1. Roles and Responsibilities of Incident Commander

The responsibilities of the Incident Commander shall be to:

- i. Activate the Office Safety Response team during an emergency ;
- ii. Ensure there are sufficient resources to carry out effective implementation of the OSCP;
- iii. Seek additional resources if required depending on the severity of the hazard; and
- iv. Direct the concerned team for immediate restoration to ensure continuity of services after the hazard is over.

3.5.2. Evacuation Team Members and their Roles & Responsibilities

The Evacuation Team members identified will be led by the DoR. To effectively carry out any evacuation activity, required resources should be stockpiled and made available during emergencies.

The main resources required include:

- i. Financial resources for stockpiling of necessary evacuation equipment; and
- ii. Training/ capacity building on evacuation procedures, and use of evacuation equipment.

The roles and responsibilities of the Evacuation Team would be as follows:

Before

- Identify a focal person to manage necessary evacuation equipment; and
- Coordinate with the DoS to ensure that evacuation equipment is stockpiled and functional.

During

- Ensure that all levels of the building is empty and no one is trapped inside during any hazard;
- Evacuate all people within the office premises to safe evacuation areas already identified and carry out headcount with the concerned Division Heads ;
- Control the crowd to ensure that people do not panic and are kept in safe areas till the situation is under control.

After

- Guide the employees back to the work place after the situation is under control;
- Ensure all safety equipment are replaced/ restored back in place for future emergencies.

3.5.3. First Aid Team Members and their Roles & Responsibilities

The First Aid Team members identified to will be led by the Director, DHS. Providing first aid is a crucial component of any safety response plan and to effectively carry out first aid procedures, the following resources are required:

- i. Financial resources for stockpiling of necessary first aid kits; and
- ii. Training / capacity building on providing first aid, and the use of first aid kits.

The roles and responsibilities of the Evacuation Team would be as follows:

Before

- Identify a focal person to manage the first aid kits; and

-
- Coordinate with the DoS to ensure that the required first aid kits are stockpiled and placed at appropriate locations.

During

- Provide first aid to injured employees;
- In case of serious injuries, seek ambulance/hospital services; and
- Inform family members of the seriously injured officials.

After

- Ensure that the first aid kits are replaced/replenished after every use.

3.5.4. Fire Response Team Members and their Roles & Responsibilities

The Fire Response Team members identified will be led by Director, DES. Similar to the other two response teams, the resources required for the Fire Response Team are:

- i. Financial resources for stockpiling/ installation of necessary firefighting equipment like fire alarm, hydrants, and water reservoir;
- ii. Protective firefighting gears; and
- iii. Training/ capacity building on the use of firefighting equipment.

The roles and responsibilities of the Evacuation Team would be as follows:

Before

- Identify a focal person to carry out periodic checks of firefighting equipment and office electrical fixtures and replace if required; and
- Coordinate with the DoS to install necessary firefighting equipment at appropriate locations.

During

- Notify the Incident Commander of the incident;
- Identify the source of fire ignition/sparks and fix it, if possible.
- Ensure that the firefighting equipment is mobilized immediately if required; and
- Seek assistance of fire services if the situation is unmanageable.

After

- Ensure all safety equipment/protective gears are replaced/ replenished for future emergencies.
- Ensure that the source of fire outbreak is identified and rectified.

3.5.5. Immediate Restoration/ Service Continuity Team Members and their Roles & Responsibilities

The Immediate Restoration/Service Continuity team will be led by the Director, Directorate Services. The team will support the other teams during emergencies and the resources required for the Fire team would be mostly financial resources for stockpiling/ installation of necessary kits and equipment and to contact regular drills and trainings.

The roles and responsibilities of the Evacuation Team would be as follows:

Before

- Coordinate with other teams to procure and restore all safety equipment;
- Carry out regular mock drills for the office staff; and
- In case of a pandemic situation, identify containment areas for the employees.

During

- Assist the other teams in carrying out their responsibilities in case of hazards; and
- In case of a pandemic situation, make necessary logistic arrangements for logistics for the staff till the situation is resolved.

After

- Ensure backup of critical data;
- Prepare service continuity plan so that services are not hampered; and
- Arrange counseling facilities, if required, for the affected officials.

3.6. Standard Procedure during Disaster/Office Related Hazard

The Standard Operating Procedures for each team has to be formulated once the OSCP is approved. Similarly, the DoR Regional Offices will have to identify their respective Office Safety Response Teams and come up with their Office Safety Contingency Plan and SOPs.

The Office Safety Response Team will be headed by the Chief Engineer for the Regional Offices. The Heads will be responsible to identify the team members along with their roles and responsibilities.

3.7. Evacuation Plan and Maps

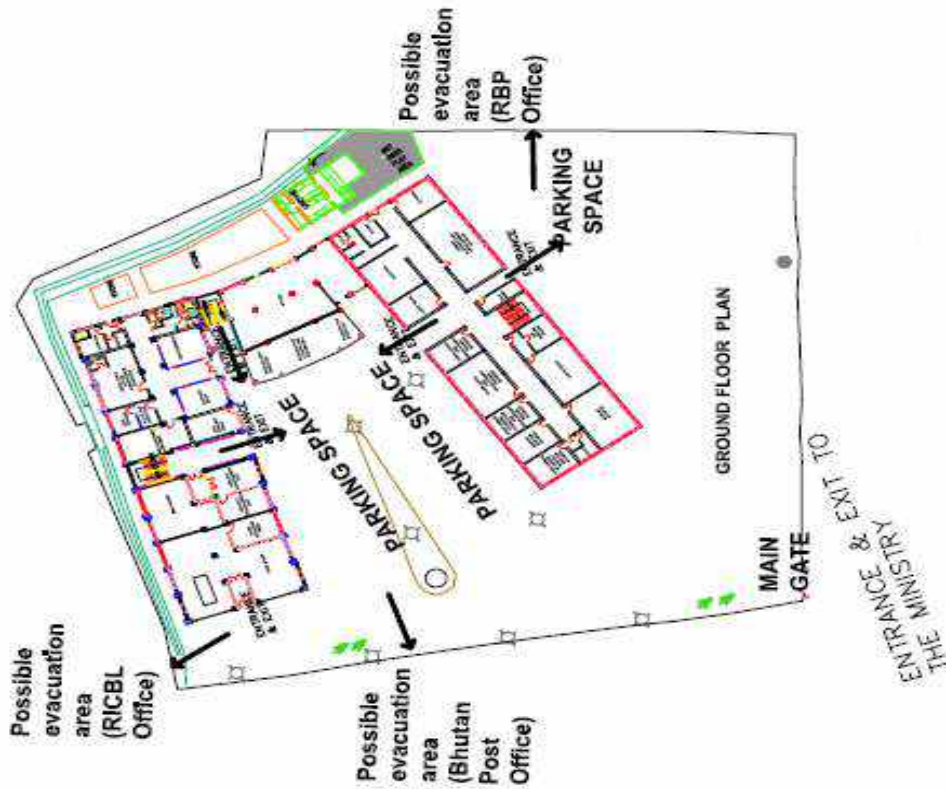
The MoWHS has three main buildings and a crèche within the office premise. Block A and B are interconnected and have two entrances/exits leading to the main office parking. Block C also has one

front entrance/exit opening towards the front office parking and one back entrance/exit opening towards the rear office parking. The Creche has only one entrance/exit that opens up towards the rear office parking.

Since the Block C of the Ministry is structurally unsafe, evacuation near the block should be avoided. Instead, the arrangements for evacuation to the nearest parking spaces of RICBL, RBP, and Bhutan Post buildings could be kept as one of the options. Emergency crossover ladders should be kept for emergencies to evacuate staff safely and quickly in case of fire outbreak or earthquake that are likely to cause major damage. Additionally, fire escape ladders/exits should be provided at every level in all three blocks.

In case of a flash flood where the ground floor of all three blocks and the Creche are likely to be affected, all staff and children should be evacuated to the higher levels for safety.

EVACUATION ROUTE AND PLAN IN CASE OF A DISASTER



IMPORTANT NOTE

1. PARKING BEHIND AND IN FRONT OF BLOCK "C" SHOULD NOT BE USED AS AN EVACUATION AREA DURING AN EARTHQUAKE AS THE BLOCK IS STRUCTURALLY UNSAFE.
2. IN A WORSE CASE SCENARIO, THE EVACUATION AREAS IDENTIFIED ARE THE PARKING SPACES OF THE RBP, BHUTAN POST, AND RICBL BUILDINGS USING A CROSS OVER LADDER.
3. IN CASE OF A FLASH FLOOD, EVACUATION TO HIGHER FLOORS SHOULD BE CARRIED OUT.
4. FIRE EXITS SHOULD BE IDENTIFIED DURING DRILLS AND FIRE EXIT/DROP DOWN LADDERS SHOULD BE INSTALLED FOR EVACUATION FROM HIGHER FLOORS.

Figure 10: Evacuation Plan for MoWHS Staff

3.8. Action Plan for the Implementation of the OSCP

To implement the OSCP for the MoWHS, the action plan has laid out the possible office hazards, the priority areas to be focused on and the key activities required to be undertaken for each priority area.

Possible hazards	Priority area	Key Activities	Target	Responsible agency/unit	Supporting agency	Timeline (FY)	Budget (M)
Fire	Awareness and Education	i) Awareness of fire safety methods. ii) Mock drills	Entire Staff	DMU	DDM	Jul 2021- June 2023	Nu.0.1M
	Enhance preparedness, response and recovery levels	i) Non-structural mitigation like periodic checking of outlets and overloading; ii) Exploring possibility of insulation of openings to reduce the use of heating facilities in winters; iii) Identifying fire exits and evacuation areas; iv) Procurement of first aid kits and necessary safety/evacuation equipment; and v) Training on evacuation procedures, and use of the kits and equipment	Entire Office premise, Entire Staff	Fire Response Team, First Aid Team, Evacuation Team, DMU, DoS	DDM	July 2021- June 2023	Nu. 0.5-5.0M (Including insulation)

Earthquake	Awareness and Education	i) Awareness on earthquake safety and possible secondary hazards after an earthquake. ii) Mock drills.	Entire Staff	DMU	DDM	July 2021- June 2023	Nu.0.1M
	Enhance preparedness, response and recovery levels	i) Non-structural mitigation measures like avoiding overhead storage, keeping exits free of blockages; ii) Identifying evacuation areas; iii) Training on evacuation procedures; and iv) Stockpiling of necessary safety kits	Entire Staff	DMU, Evacuation Team, DoS	DDM	July 2021- June 2023	Nu.0.3M
Flash Flood	Awareness and Education	i) Awareness on Flash Floods	Entire Staff and Creche staff & Children	DMU	DDM	July 2021- June 2023	Nu.0.1M
	Enhance preparedness, response and recovery levels	i) Non-Structural mitigation like keeping drains clear in the office premise, and incorporating urban design components in	Entire office	DMU, Evacuation Team, DoS	DDM	July 2021- June 2023	Nu.0.1M

		<p>the office premise like using permeable pavement, tree trenches, small bio swales, Rain Water Harvesting and so on;</p> <p>ii) Keeping important documents, equipment/ servers at elevated areas to prevent damage by flash floods;</p> <p>iii) Identifying evacuation areas;</p> <p>iv) Training on evacuation procedures; and</p> <p>v) Procurement of necessary tools/ equipment.</p>					
Pandemic	Awareness and Education	i) Awareness on pandemic and safety methods	Entire Staff and Creche Staff & Children	DMU, DoS	MoH	July 2021- June 2023	Nu.0.5
	Enhance Preparedness, response and recovery levels	<p>i) Enforcing safety protocols at all times in the office premise;</p> <p>ii) Identifying containment areas in all blocks of the Ministry, and</p>	Entire Staff, visitors	DoS	MoH	June 2020 onwards (Continuous Process)	

		providing meals if required. iii) Identifying focal persons from each Departments/ Division; iv) Providing counseling, if required, to the affected staff.					
		Total					Nu.6.2 M

3.9. Service Continuity Plan

Essential services	Responsibility	How will the services be continued	From where will the services be provided	Who are the stakeholders		Timeline (within)
				Partners	Beneficiaries	
Human Settlement Planning Services (DHS)	Head of Department	Online services & Emergency services from office	Work from home or new location	LGs & Other relevant Stakeholders	Public	1 Week
Engineering Services (DES)	Head of Department	Online services & Emergency service office	Work from home or new location	LGs & Agencies	Public	1 Week
Road Services (DoR)	Head of Department	Online services &	Work from home or new	LGs & Agencies	Public	1 week

		Emergency service office	location			
Administration, Financial & Procurement Services (DoS)	Head of Department	Online services & Emergency service office	Work from home or new location	MoF, GNHC	Departments & Divisions	1 week
IT Service	Head of IT Division	Through Data backup plan– should be already in place	Work from home or new location	MoIC/ Tech Park, Bhutan Telecom, & Tashi Cell	Departments & Division	1 Week

3.10. Training & Drills

Activities	Responsibility	Timeline/Frequency
Conduct workshops and simulation exercises	DMU with assistance from the DDM	Every 6 months
Provide trainings to the DMC, and DMU on preparedness and disaster risk reduction	DMU with assistance from the DDM	Once in a year
Provide trainings to the RRTs on rapid assessment and evaluation	DMU with assistance from the DDM	Every 6 months
Carry out evacuation drills including operation of safety equipment by the Office Safety Response Teams	DMU	Every 6 months

3.11. Emergency Service & Contact

Sl.no	Services	Contact Nos.
1	Fire	110
2	Traffic Police	111
3	Health Helpline	112
4	Crime Police	113
5	Disaster Helpline	999

SECTION III

ANNEXURE

Annexure I: Terms of Reference for Emergency Shelter, Sanitation facilities and Non-Food Item (NFIs) kits

Emergency shelter forms the most basic and crucial humanitarian needs during any disaster. The affected families need immediate assistance for temporary shelter and more durable homes as part of recovery effort so that they are more resilient to future disaster events. As such, planning for emergency shelter is one of the major preparedness activities for any type of disaster.

Shelter Cluster at the Global Level

Following a 2005 review of international responses to humanitarian emergencies, known as the humanitarian Response Review, the cluster approach was proposed as a way of addressing gaps and strengthening effectiveness. By clarifying the division of labour, and better defining organizations' roles and responsibilities, the cluster approach helps ensure predictability and accountability, and creates a more structured, accountable and professional system.

Under the new system, referred to as the Cluster system, 11 clusters were established at the global level, with one or more lead agencies to coordinate the functioning of each cluster. These clusters include: Food Security, Camp coordination / Management, Emergency Telecommunications, Education, Shelter, Health, Nutrition, Logistics, Protection, Water and Sanitation, and Early Recovery. The Shelter Cluster is co-chaired by IFRC and UNHCR at the global level. IFRC is convener of the Emergency Shelter Cluster in disaster situations while UNHCR leads the Emergency Shelter Cluster in the area of conflict generated Internally Displaced Persons (IDPs). In addition to IFRC and UNHCR, participants in the Global Shelter Cluster include many other UN agencies and INGOs.

Shelter Cluster in Bhutan

The Shelter Cluster in Bhutan is under the Ministry of Works and Human Settlement and Co-Chaired by UNDP under the overall inter-sector coordination led by the Department of Disaster Management.

A close coordination with other Clusters would be required in relation to:

- i. Identification of beneficiaries
- ii. Transportation of emergency shelter supplies (Logistics Cluster)
- iii. Provision of civic amenities such as water and sanitation (WASH Cluster)

Purpose of Emergency Shelter Cluster

The purpose of Emergency Shelter Cluster is to ensure an effective and timely response to emergency shelter and NFI needs during disasters in Bhutan through systematic and coordinated operational planning, response and monitoring.

Objectives of the Shelter Cluster

The Emergency Shelter Cluster in Bhutan will strive to achieve following objectives:

- i. To ensure required level of preparedness is in place in the most disaster-prone districts, as defined by the Department of Disaster Management;
- ii. To meet immediate shelter needs of the people displaced by flash floods, GLOFs, earthquakes, fire and other hazards through provision of emergency shelter supplies;
- iii. To develop and implement temporary / transitional shelter solutions for the displaced population;
- iv. To conduct shelter and Non-Food Items (NFI) needs assessment and mobilize financing to meet emergency shelter and NFI needs; and
- v. To pursue knowledge management in the area of shelter, and apply the lessons learnt to the practice of shelter-building.

Priority Preparedness and Response Activities

The UN Interagency-Contingency Plan for Bhutan has identified UNDP as the lead UN agency for Shelter Cluster/Sector. The Government Co-Lead is the Ministry of Works and Human Settlement. The UN Interagency-Contingency Plan has prioritized the following activities for Shelter assistance preparedness:

- i. Inventory of resources in country ;
- ii. Agree on package and specifications of emergency shelter and NFIs ;
- iii. Coordination of pre-positioning of key shelter and NFI items;
- iv. Partnership building with local authorities; and

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- v. Prepare Shelter Response Contingency Plan and undertake revisions based on lessons learned.

The response activities include

- i. Provision of emergency shelter (as per agreed specifications);
- ii. Organize Temporary Evacuation Centers with basic facilities;
- iii. Provision of Non-Food Item (NFI) kits;
- iv. Distribution of Emergency Lighting;
- v. Distribution of Fuel (Including Firewood) ; and
- vi. Provision of Women Friendly Services.

Action Plan for Shelter Cluster

The Department of Human Settlement is mandated to look after emergency shelter supplies under the Logistics Desk which will be managed by the Ministry of Agriculture and Forests. In line with the national requirement to oversee emergency shelter during a Type III disaster, the Department of Human Settlement is required to list emergency shelter items including Non- Food Items (NFI) to be procured and stored at suitable locations from where distribution to affected areas would be feasible.

Participants / Member Agencies

In order to facilitate effective implantation of the objectives of the emergency shelter cluster, the Department of Human Settlement has to coordinate with other agencies that can assist the Department in either supplying emergency shelter kits or coordinating in distribution of the kits or in providing storage facilities.

The relevant agencies that have been identified to support the Emergency Shelter Cluster are the Department of Disaster Management (DDM), United Nations Development Programme (UNDP), Department of Local Governance (DLG), relevant Local Governments, Bhutan Red Cross Society (BRCS), National Housing Development Corporation Limited (NHDCL), Ministry of Agriculture and Forests (MoAF), Ministry of Health (MoH), De-Suong, National Commission for Women and Children (NCWC), Tarayana Foundation, Save the Children, United Nations Children’s Fund (UNICEF), World Food Programme (WFP) and United Nations Population Fund (UNFPA).

Emergency Shelter Cluster Activities

Participants / member agencies of the Emergency Shelter Cluster will seek wherever possible to engage in the following activities in close cooperation with other partners within the Cluster and with the Emergency Shelter Cluster Coordinator:

Contingency Planning and Preparedness for Emergencies

- Mapping of current emergency shelter and NFI stocks and capacities available in-country;
- Through a consultative process, develop, maintain and regularly test an Emergency Shelter and NFI Contingency Plan for meeting basic emergency shelter and NFI needs during a disaster which is implemented by Cluster members;
- Identify any gaps and priorities where additional funding/resources are needed;
- Develop common methodologies and tools for shelter and NFI needs assessment in line with international standards and practices, involving all relevant partners and ensuring beneficiary participation; and
- Ensure integration of priority cross-cutting issues (Gender, Social Inclusion, Environment, and Disaster Risk Reduction) in shelter needs assessment, and planning and implementing shelter component. There should be no discrimination in the selection of beneficiaries or provision of shelter to different social groups on the basis of religion, ethnicity, age, and gender.

Coordination

- Ensure collaboration and coordination amongst all the participants / members in the Shelter Cluster, Government Agencies and relevant local governments for the purpose of planning and implementing the shelter strategy;
- During non-disaster times, convene meetings of Emergency Shelter Cluster members, as necessary, for preparedness measures including capacity development;
- Participate in the establishment and maintenance of appropriate coordination mechanisms, at the national and, if necessary, Dzongkhag level;
- Assign (part- or full-time) human and/or material resources to the Cluster coordination team on request of the Cluster Coordinator if capacities allow;
- Work collectively in the spirit of mutual cooperation and learning to ensure the complementarity of the various stakeholders' actions;
- Ensure collaboration amongst the shelter cluster agencies responsible for the provision of shelter to promote temporary / transitional shelter in the immediate phase while at the same

time considering the need for early recovery interventions in the sector by ways of repairs and strengthening, and replacement of collapsed houses; and

- Establish appropriate linkages and coordination with other Clusters especially WASH Cluster and Logistics Cluster.

Application of Standards

- Ensure the shelter response is guided by relevant national policy guidelines and technical standards as prescribed by the Royal Government of Bhutan;
- Promote safety features in both engineered and non-engineered construction on the basis of building codes and local building practices; and
- Ensuring safety and dignity in design and management of shelter programmes reflecting protection standards and principles. It should at least meet the basic minimum needs of the affected people.

Advocacy and Resource Mobilization

- Identify core advocacy concerns in relation to shelter in Bhutan, particularly on safe housing and improved civic amenities;
- Contribute to key messages for broader advocacy initiatives of the Shelter Cluster;
- Promote the principles of building back better and safer. It should be the core message of the Shelter Cluster;
- Advocate for donors to fund participants to carry out shelter-related activities, while at the same time encouraging participants to mobilize resources for their activities through their usual channels; and
- Advise the Shelter Cluster Coordinator on issues connected with resource mobilization and advocacy.

Monitoring, Evaluation and Knowledge Management

- Ensure adequate monitoring mechanisms are in place to review the impact of interventions in Shelter Cluster, including safety, improvement in living conditions, and gender sensitive shelter;
- Ensure regular reporting and effective information sharing with Cluster partners and the Cluster coordination team, using common formats, benchmarks, and indicators; and
- Carry out post disaster evaluations of shelter and NFI response interventions to document effectiveness of response efforts and feed lessons learned into future Contingency Planning.

Training and Capacity-building

- Support training of Cluster partner organizations in various aspects of shelter provision and promote transfer of skills.

Annexure II: Stockpiling locations for bridge parts, emergency shelter, sanitation items, and NFIs

Sl.no	Location	Dzongkhags/Areas to be Covered
1	Thimphu Regional Office, DoR	Thimphu, Paro, and Haa
2	Phuentsholing Regional Office, DoR	Chhukha and Samtse
3	Samdrup Jongkhar Regional Office, DoR	Samdrup Jongkhar, Pema gatshel, and Monggar
4	Trashigang Regional Office, DoR	Trashigang, Trashiyangtse, and Lhuentse
5	Trongsa Regional Office, DoR	Trongsa and Bumthang
6	Sarpang Regional Office, DoR	Sarpang, Tsirang and Dagana
7	Lobeysa Regional Office, DoR	Punakha, Wangdue, and Gasa
8	Tingtibi Regional Office, DoR	Zhemgang

Annexure III: List of Items to be stockpiled for emergencies

The four Thromdes of Thimphu, Gelephu, Samdrup Jongkhar and Phuentsholing will have their own stock of the supplies. For other areas that may require additional supplies, the following NFIs and emergency shelter kits may be purchased by the Ministry for stockpiling in the Regional Offices and distribution to the affected areas, when required:

Sl. no	Items	Quantity	Unit
1	Tents	100	Each
2	Tarpaulin Sheet	100	Piece
3	Search light	200	Piece
4	Sleeping Bag	200	Piece
5	Life vest	200	Piece
6	Basket Stretcher	100	Each
7	Static rope (200 m roll)	100	Each
8	Dynamic rope (100 m roll)	100	Each
9	Motorola handsets	100	Each

References

1. *Contingency Planning Guideline for Bhutan*, 2014, Department of Disaster Management, Ministry of Home and Cultural Affairs, Thimphu, Bhutan.
2. *Dzongkhag Disaster Management Planning Guidelines*, 2014, Department of Disaster Management, Ministry of Home and Cultural Affairs, Thimphu, Bhutan.