Institutional arrangements for disaster management in federal countries: Lessons for Nepal

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The Policy and Institutions Facility (PIF) is a five-year DFID programme that supports the development of the Government of Nepal's policies and institutions for climate change and disaster resilience.

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Prologue

Nepal has been undergoing reforms towards a federal governance system. The Disaster Risk Reduction and Management sector is also following suit with the mandates provided by the Constitution and Disaster Risk Reduction and Management Act (2017). The Government of Nepal, Ministry of Home Affairs (MoHA) initiated the process of setting up the National Disaster Risk Reduction and Management Authority (NDRRMA) in mid-2018. United Nations Development Programme (UNDP) and Department for International Development (DFID) have agreed to work jointly to support MoHA to define the appropriate structure and function for the Authority and to carry out an Organization and Management (O&M) Survey.

In this context, the Policy and Institution Facility (PIF) reviewed institutional structures in selected federal countries. We acknowledge the hard work of Dr Dilip Kumar Gautam who lead the review process and brought this document together with the support of Dinanath Bhandari, Disaster Resilience Lead at the PIF. The authors shared the draft document with relevant experts and actors in the government and development partners and incorporated their feedback. We are grateful for the input of Dr Narayan Thapa (consultant for the O&M process), Sumit Dugar of DFID, Krishna Kaphle of UNDP, Purusottam Ghimire of PIF and Gehendra Gurung of Practical Action.

Special thanks to Mr Bamshi Kumar Acharya, Under-Secretary at MoHA for his thorough review and feedback on the draft document.

The findings and recommendations of this report are useful in the context of defining the most appropriate structure and functions of the NDRRMA. This report is also a useful resource summarising the concepts and practices of DRRM from an institutional point of view.

The document summary is also available in Nepali.

Policy and Institutions Facility (PIF) Team
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Table of contents

List of tables and figures

List of abbreviations

CCEMO	Canadian Council of Emergency Management Organizations
COAG	Council of Australian Governments
DFID	Department for International Development
DMC	Disaster Management Committee
DRR	Disaster Risk Reduction
DRRM	Disaster Risk Reduction and Management
DSS	Department of Social Services
EMA	Emergency Management Australia
FEMA	Federal Emergency Management Agency
GAR	Governor's Authorized Representative
GoN	Government of Nepal
MoHA	Ministry of Home Affairs
NDMA	National Disaster Management Authority
NDMC	National Disaster Management Council
NDRRMA	National Disaster Risk Reduction and Management Authority
NEC	National Executive Committee
NIDM	National Institute of Disaster Management
NIMS	National Incident Management System
NGO	Non-government Organisation
SFDRR	Sendai Framework for Disaster Risk Reduction
SOREM	Senior Officials Responsible for Emergency Management
SOP	Standard Operating Procedures

1   Introduction

1.1 Legal base of disaster risk reduction and management

The increasing human casualties and lost or damaged assets have drawn considerable attention from the Nepali government on the need for disaster risk reduction and management in recent years. Natural and non-natural disasters including the Gorkha earthquake of 2015, the Terai flood of 2017, forest fires, lightening, landslides, and road accidents highlight the breadth of emergencies that the Government of Nepal needs to grapple with.

Nepal's Constitution has allocated responsibility for disaster risk reduction and management to federal, province and local governments. It is often beyond the capacity of a single level of government to handle all aspects of disaster risk reduction, preparedness, emergency response, recovery and reconstruction. Therefore, effective Disaster Risk Reduction and Management (DRRM) requires coordination between local, provincial and federal governments, the private sector, voluntary associations, non-governmental organizations, communities and individuals. It is obvious that the division of roles and responsibilities between various levels of government can create overlapping mandates. Fragmentation can paralyze a federal system in the face of an emergency, leading to the inability to take timely and decisive action.

Recently, the Government of Nepal has promulgated the Disaster Risk Reduction and Management Act 2017 (DRRM Act, 2017), which delineates the roles and responsibilities of the three levels of government in disaster risk reduction and management. The Ministry of Home Affairs (MoHA) is the nodal ministry at federal level. The Local Governments Operations Act 2017 has further defined the roles and responsibilities of local governments in disaster management. To act on the provisions of the Act, the federal government has to prepare and endorse bi-laws and regulations considering the spirit of the federalism and context of DRRM in the country. The MoHA has also prepared a Disaster Risk Reduction National Strategic Plan of Action to fulfill the national commitment to the Sendai Framework for Disaster Risk Reduction (SFDRR, 2015).

According to the provisions of the DRRM Act 2017, the Government of Nepal has initiated a process to constitute a National Disaster Risk Reduction and Management Authority (NDRRMA). The MoHA initiated an Organization and Management (O&M) assessment for the Authority to identify its functional organogram, detailed roles and responsibilities of divisions, sections, units and individuals, human resources, and potential financial resources. The NDRRMA will be a key organization for DRRM in Nepal that steers and coordinates the processes and actions on all aspects of DRRM to achieve disaster resilience. Therefore, it is important that the Authority has an appropriate structure to fulfill its roles and responsibilities on DRRM with adequate mandates and capacity; and has strong functional linkages with the MoHA, relevant ministries and departments of the federal government, province and local government authorities on DRRM. The Authority also needs an appropriate mechanism of collaboration and coordination with businesses and private sectors including media, NGOs and communities.

1.2 Learning from others: South Asian countries

While assessing the organization and management structure of NDRRMA for Nepal, it is imperative to learn from other countries' institutional arrangements for disaster management. It is also important to review past practices and consider the structure and management with respect to the overall governance system of the country.

In Bangladesh, the Ministry of Disaster Management and Relief is a ministry dedicated to disaster management. Disaster risk reduction and management structures are found at Union Parishad level (the smallest rural administrative and local government unit) connecting to local communities' organizations such as community disaster management committees and their volunteer task groups. These were formalized through Standing Orders on Disaster in 2010. Bangladesh has given specific attention to cyclones and has specific structures dedicated to cyclones and flood management. The National Disaster Management Council (NDMC) and Inter-Ministerial Disaster Management Coordination Committee (IMDMCC) coordinate disaster-related activities at national level. Coordination at district, Thana and Union levels is done by the respective local level Disaster Management Committees.

Disaster Management in Sri Lanka has evolved over time since the 1970s. Before 1977, the issue was dealt with by the Department of Social Services (DSS). In 1996, the National Disaster Management Centre was established within the DSS. Sri Lanka has initiated a number of measures on DRR, learning from the Indian Ocean Tsunami, that include an Act, policy and strategies, plans and programmes for action. After the National Disaster Management Act (2005) a cabinet ministry was formed to take DRR actions forward. The Act has also established structures from national to local level such as the National Disaster Management Council, the Disaster Management Centre, and Technical Advisory Committees.

In Bhutan, the government promulgated the Disaster Management Act in 2013, repealing the 2006 national disaster risk management framework (GOB, 2013). The Act established a National Disaster Management Authority formed and chaired by the Prime Minister with all Government Secretaries as members with roles and mandates to prepare policies, plans and guidelines and allocate resources.

1.3 Analysis of NDMAs in federal countries

This working paper attempts to provide an overview of the institutional arrangements for disaster management in some developed countries (United States of America, Canada, Australia), and developing countries (India and Pakistan) who have a federal structure of governance. These were selected on the basis of their exposure to multiple hazards, the countries' capacity with regards to DRRM and their experience of DRRM organization in a federal system. A comparative study is conducted detailing their respective DRRM organizational structures, roles and responsibilities. The findings of this report are acting are as recommendations to define the most appropriate organizational structure, roles and responsibilities for the NDRRMA in Nepal.

2 Objective and Research Methodology

2.1 Objective

The objective of this study is to review the institutional arrangements for disaster risk reduction and management in federal countries. The insights gained on their DRRM organizational structures, roles and responsibilities may in turn inform the design of the organizational and management structure of Nepal's National Disaster Risk Reduction and Management Authority.

2.2 Research Methodology

The author used a secondary research method based on the following sources:

- Online publications,
- Published reports, books, academic journal articles etc.

The study is anchored in the author's knowledge of South and South East Asian Countries. Individual contacts were made with key professionals to understand practical aspects of disaster management functions with respect to structures and countries' overall governance.

3 Institutional Arrangements for Disaster Risk Reduction and Management

3.1 United States of America

3.1.1 The Legal Framework

In the United States, emergency management is the joint responsibility of all three tiers of governments – federal, state, and local. It is also the responsibility of tribal governments (in the USA tribal sovereignty means indigenous tribes govern themselves within the border of the United States). The federal government has the legal authority, fiscal resources, research capabilities, technical information and services, and specialized personnel to assist local, tribal, and state governments to respond to and recover from emergencies and disasters (Forum of Federations, 2015).

The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) is a United States federal law. It is designed to bring a systemic federal natural disaster assistance for state and local governments to carry out their responsibilities towards citizens. The Stafford Act is a 1988 amended version of the Disaster Relief Act of 1974. It created the current system in which a presidential disaster declaration or an emergency declaration can trigger financial and physical assistance through the Federal Emergency Management Agency (FEMA). The Act gives FEMA responsibility for coordinating government-wide relief efforts. Congress amended it with the Disaster Mitigation Act of 2000, and again in 2006 with the Pets Evacuation and Transportation Standards Act. Each state government has legal authority for emergency response and recovery and serves as the point of contact between local and federal governments.

In their delimited reservation land, which constitutes a very small part of US land, tribal governments are responsible for coordinating resources to address incidents. When local resources are not adequate, tribal leaders seek assistance from the state or the federal government. For certain types of federal assistance, tribal governments can opt to work with the state in which they are located; however, as sovereign entities, the Chief Executive of a federally recognized tribe can elect to work directly with the federal government. A federally recognized tribe has the option to obtain federal assistance via the Stafford Act in the state in which they reside or they may ask for a presidential declaration for federal aid.

3.1.2 DRRM Structures and Functions

The Federal Emergency Management Agency (FEMA) is the overarching structure of the federal government for disaster management. It was established in 1979 by an executive order. It became part of the Department of Homeland Security (DHS) in 2003. The role of FEMA is to support citizens and first responders to ensure that the Nation works together to build, sustain, and improve capability to prepare for, protect against, respond to, recover from, and mitigate all hazards. FEMA leads and supports the Nation in a risk-based, comprehensive emergency

management system of preparedness that includes prevention, protection, response, recovery, and mitigation. FEMA's role is to coordinate federal resources that support state, tribal and local efforts when a federal emergency or disaster is declared. One of FEMA's most important supporting roles is to provide disaster assistance to individuals and communities.

FEMA has a headquarter office in Washington DC, 10 regional offices located throughout the country, a National Emergency Training Center, a Center for Domestic Preparedness/Noble Training Center and other facilities. Figure 1 and 2 show the organizational chart of FEMA at federal level and regional level respectively (FEMA, 2018). Some of the important divisions and offices of FEMA are Protection and National Preparedness, U. S. Fire Administration, Federal Insurance and Mitigation Administration, Office of Response and Recovery and Office of Policy and Program Analysis.

Figure 1:   Organizational Chart of FEMA

Source: https://www.fema.gov/media-library/assets/documents/28183
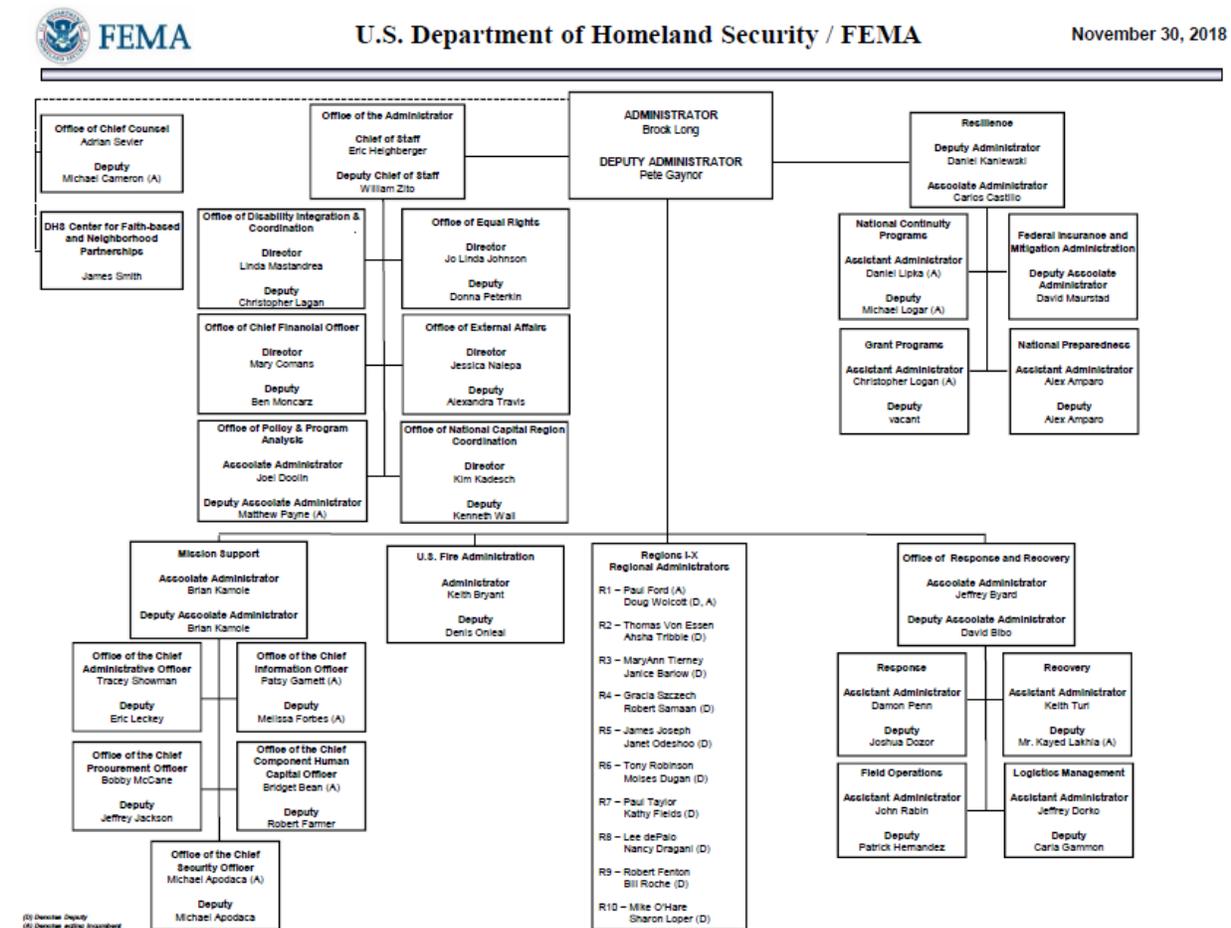
At state level, the Governor's Authorized Representative (GAR), State Director of Emergency Management, and State Coordinating Officer can share information with state agencies (e.g.,

Department of Agriculture) and FEMA Regional Administrators to bring about the necessary response and recovery resources to address the incident.

Figure 2:   Organizational Chart of FEMA Regional Office

Source: https://www.fema.gov/media-library/assets/images/104129
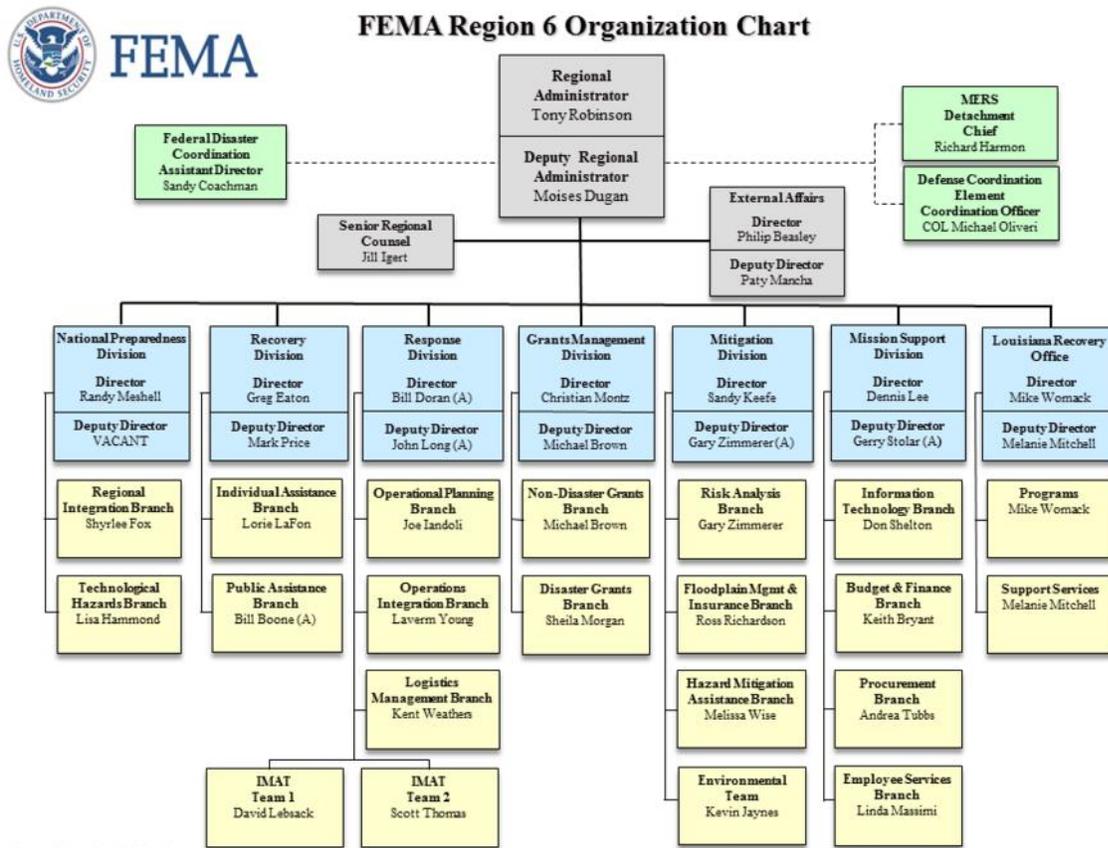
The local governments have direct responsibility for the safety of their local population, acquiring knowledge of the incidents and determining what resources need to be deployed to respond to these. Within local governments, emergency service departments can respond to emergencies 24 hours a day. These include law enforcement, fire service, emergency medical service, and public works.

The Five year (2018-2022) strategic plan of FEMA sets out three strategic goals:

1. Build a culture of preparedness;
2. Ready the nation for catastrophic disasters;
3. Reduce the complexity of FEMA.

3.1.3 Mechanisms for Collaboration and Coordination between DRR Agencies and Actors

In the United States, there are a number of vertical and horizontal intergovernmental cooperation mechanisms. These are:

a) The *National Preparedness System* outlines a systematic process for everyone in the community to move forward with their preparedness activities and achieve the National Preparedness Goal of a secure and resilient nation with the capabilities required across the whole community for five missions - prevent, protect against, mitigate, respond to, and recover from the disasters.

b) The *National Planning Frameworks* which are part of the National Preparedness System foster a shared understanding of roles and responsibilities from the community firehouse to the White House. They help emergency managers understand how to coordinate, share information, and work together for a more secure and resilient nation. There are five frameworks for the five preparedness mission areas.
   i)   *National Prevention Framework* which provides context for how the whole community works together and how terrorism prevention is an important part of national preparedness.
   ii) *National Protection Framework* which describes what the whole community should do to safeguard against acts of terrorism, natural disasters and other threats or hazards in a manner that allows American interests, aspirations, and way of life to thrive.
   iii) *National Mitigation Framework* which provides context for how the whole community works together and how mitigation efforts relate to all other parts of national preparedness.
   iv) *National Response Framework* which serves as a guide to how the Nation responds to all types of disasters and emergencies– from the smallest incident to the largest catastrophe.
   v)   *National Disaster Recovery Framework* which provides context for how the whole community works together to restore, redevelop and revitalize the health, social, economic, natural and environmental fabric of the community after a disaster.

c) The *National Incident Management System* (NIMS) provides a consistent, nationwide approach and vocabulary for multiple agencies or jurisdictions to work together to build, sustain and deliver the core capabilities needed to achieve a secure and resilient nation. NIMS identifies concepts and principles for how to manage emergencies regardless of their cause, size, location or complexity.

d) The *Incident Command System* (ICS) is a standardized, on-scene incident management system that applies to all threats and hazards. It allows users to adopt an integrated organizational structure to match the complexities and demands of single or multiple incidents, without being hindered by jurisdictional boundaries.

The emergency management system of the United States is based on the premise that the government does not, and cannot, work alone in protecting the lives and property of citizens and promoting their well-being. The whole-of-community-approach emphasizes that FEMA is only one part of the emergency management team and that all resources should be leveraged in preparing for, protecting against, responding to, recovering from and mitigating against all hazards. This larger collective emergency management team includes not only FEMA and its

partners at the federal level, but also local, tribal, state and territorial partners, non-governmental organizations like faith-based and non-profit groups and private sector industry, as well as individuals, families and communities who continue to be the nation's most important assets as first responders during a disaster.

3.2 Canada

3.2.1 The Legal Framework

The *Emergency Management Act (2007)* recognizes the roles that all stakeholders must play in Canada's emergency management system. It sets out the leadership role and responsibilities of the Federal Minister of Public Safety and Emergency Preparedness, including coordinating emergency management activities among government institutions and in cooperation with provincial and territorial levels.

Each province and territory has its own legislation on emergency management in harmony with the federal legal instruments, for example, Emergency Management Act, Revised Statutes of Alberta 2000 (http://www.qp.alberta.ca/documents/Acts/E06P8.pdf). These instruments authorize each province and local government to prepare and respond to disasters including declaring state of emergency and accessing support from federal government and other provinces.

Besides, the country has legal responses – provisions, policies and procedures on management of emergencies in sectors like health, fire, accidents. These also recognize shared and sole responsibilities of agencies at federal, provinces and territorial authorities.

On December 10, 2009 Canada approved the Federal Policy for Emergency Management which replaced the 1995 Federal Policies for Emergency (Public Safety Canada, 2009). This policy is a guiding document to emergency management for all federal institutions and provides "direction for the preparation, maintenance, testing, implementation, exercise and training by a federal institution of mandate specific emergency management plans".

Being an example of effective law and regulations for disaster management, Canada has reviewed and revised its legal and policy instruments periodically learning from the lessons of implementation.

3.2.2 The DRRM Structures and Functions

Emergency management responsibilities in Canada are shared by federal, provincial, territorial and municipal governments and their partners, including individual citizens who have responsibility to be prepared for disasters and contribute to community resiliency. Provincial and territorial governments have responsibility for emergency management within their respective jurisdictions. Each provincial and territorial government has its own emergency management office which coordinates emergency management activities related to all four pillars (prevention and mitigation, preparedness, response and recovery) at the provincial and territorial (P/T) level. Many large cities have also established their own emergency management offices.

Figure 3:   Emergency Management Governance Structure in Canada

*Senior Officials Responsible for Emergency Management

Source: https://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/mrgnc-mngmnt-frmwrk/index-en.aspx#a05
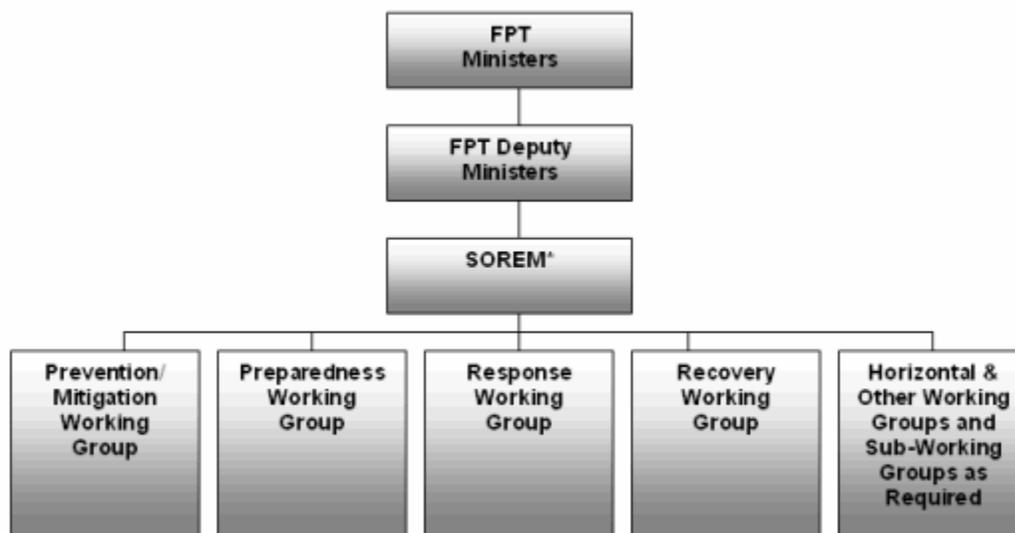
At the federal (F) level, Public Safety Canada is the government department with a mandate to keep Canadians safe from a range of risks, including terrorism, natural disasters and crime. In this capacity, it exercises leadership amongst its federal counterparts relating to emergency management responsibilities in its exclusive fields of jurisdictions and on land and properties under federal responsibility. Many other federal departments are accountable for specific areas that are interconnected with emergency management, including transportation, tele-communications, agriculture and agro-food, energy production and distribution, public health and essential human services, environment, human and social services, law enforcement, international coordination, government services, logistics operations management, communications, and border services. These are referred to as Emergency Support Functions, which are laid out in the Federal Emergency Response Plan (Public Safety Canada, 2017). Figure 3 shows the organizational structure for emergency management in Canada.

The *Government Operations Centre*, housed at Public Safety Canada, supports response coordination across federal government in collaboration with P/T and other key players on emerging or occurring events of national significance.

3.2.3 Mechanisms for Collaboration and Coordination between DRR Agencies and Actors

Public Safety Canada has 13 Regional Offices which serve as the department's primary link to P/T emergency management counterparts, as well as federal departments in the region to ensure whole-of-government response. An integrated federal response to events of national significance is supported through continuous monitoring and reporting. This includes provision

of services and products to support senior officials and Ministers, risk assessments, support to responder communities, contingency plans to guide the integrated whole-of-government response and logistical support.

F/P/T Ministers Responsible for Emergency Management occupy the top tier in the F/P/T emergency management governance structure, meeting annually to discuss key policy issues, and provide guidance and approval. F/P/T Deputy Ministers Responsible for Emergency Management are the second tier of the structure, and speak two to three times per year to implement ministerial decisions by setting priorities and assigning F/P/T Senior Officials Responsible for Emergency Management (SOREM) to specific action items. SOREM meets more frequently (approximately every two to three months) to discuss and provide direction to subordinate Working Groups on these action items.

Historically, SOREM Working Groups have been organized according to the four pillars of emergency management. There are also ad-hoc additional horizontal Working Groups, and sub-working groups, which are set up according to ministerial priorities. In some case, other federal departments co-lead or participate in these F/P/T Working Groups.

The Canadian Council of Emergency Management Organizations (CCEMO), represented by senior officials of P/T governments responsible for emergency management, works to develop consensus and develop a proactive national agenda. CCEMO'S objectives are to strengthen emergency management capacity nationally; provide national leadership on emergency management issues; coordinate inter-jurisdictional emergency management initiatives ensuring that structures and processes are sustainable; and provide an efficient mechanism for information exchange between P/T and the federal government. CCEMO is also working on the development and implementation of national certification and standards for emergency management professionals.

External stakeholders from the voluntary sector, such as the Canadian Red Cross, St. John Ambulance, and the Canadian Association of Fire Chiefs, play an important role in emergency management in Canada. They possess significant assets, resources, and networks that allow them to provide assistance and support to local authorities across all four pillars. Engagement with the private sector on emergency management is a new but growing area of activity, particularly for market-based disaster-related insurance products.

In June 2009, Canada established a National Platform for Disaster Risk Reduction for multi-stakeholder coordination in disaster risk reduction.

3.3 Australia

3.3.1 Legal Framework

Disaster risk reduction and management in Australia is governed by the Constitution of Australia in its civil protection measures. In 1995, a Standard on Risk Management was produced. In the following years Australian state governments applied risk management principles following guidelines provided by Emergency Management Australia (EMA), the government agency

responsible for emergency management coordination. Each state can have separate policy and plans in harmony with EMA. The disaster risk reduction and management in Australia is guided by the National Strategy for Disaster Resilience (AIDR, 2013).

3.3.2 The DRRM Structures and Functions

The Emergency Management Australia (EMA) is the Australian government lead for disaster and emergency management (EMA, 2018). It was under the Attorney General's Department but was recently brought under newly established Department of Home Affairs. Working closely with state and territory governments and the international emergency management community, EMA delivers critical programs, policies and services that strengthen and maintain Australia's national security and emergency management capability. Guided by the National Strategy for Disaster Resilience, EMA ensures Australia is best placed to prevent, prepare for, respond to and recover from disasters and emergencies. While state and territory governments are responsible for emergency management in their jurisdictions, EMA coordinates Australian government support, both physical and financial.

The state and territory governments have the primary responsibility within their own jurisdictions for emergency management. They control most of the essential functions for effective emergency prevention, preparedness, response and recovery. Figure 4 shows the organizational chart of Emergency Management in Victoria (EMV, 2017).

Figure 4: Organizational Chart for Emergency Management in Victoria State, Australia

Source: https://files-em.em.vic.gov.au/public/EMV-web/EMV-organisational-chart-November-2018.pdf
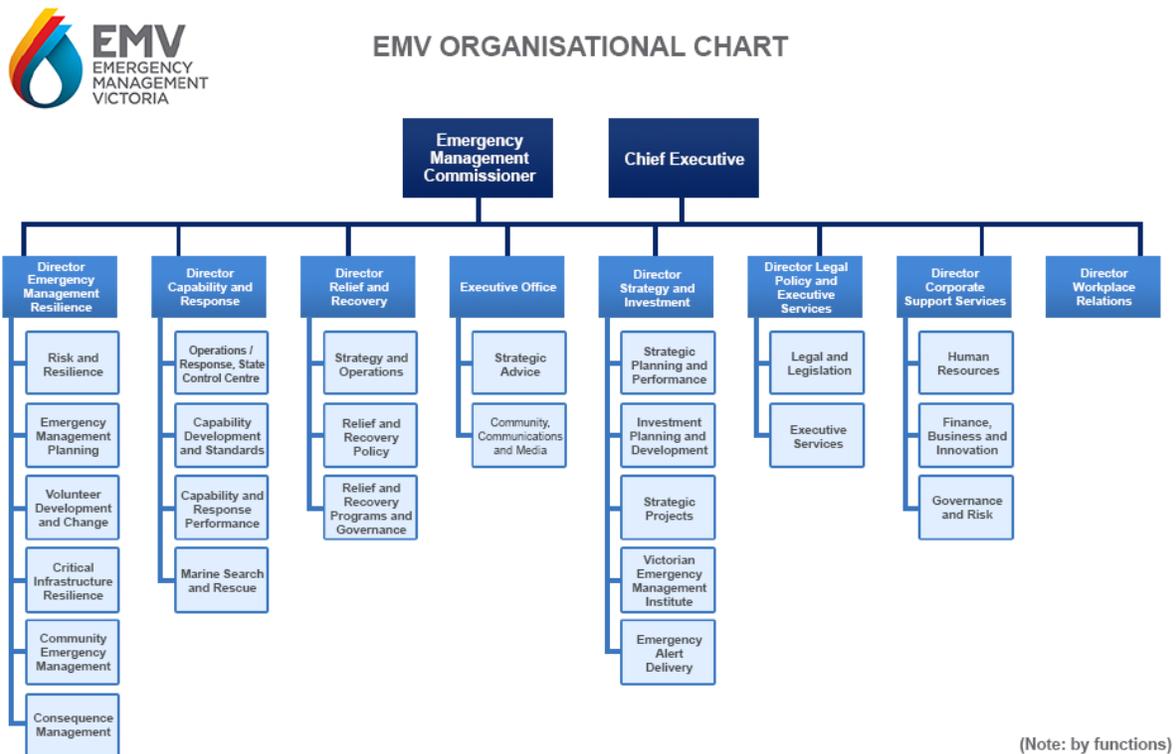
The main role and responsibilities of the federal government for emergency management in Australia are the following:

a. Building and promoting disaster resilience, by developing and implementing national policy in collaboration with states and territories;
b. Undertaking and supporting the conduct of natural disaster research of national significance;
c. Providing vital public warnings and information services such as meteorological, hydrological, geophysical and other geo-data services that inform and underpin emergency management;
d. Coordinating and providing operational support for emergency response to the states and territories where their individual resources are overwhelmed; and
e. Providing a national emergency relief and recovery framework and resources on a cost-sharing basis with the other levels of government.

The Australian government Crisis Coordination Centre (CCC), operated by Emergency Management Australia (EMA), is a dedicated all-hazards monitoring facility that operates 24 hours a day, seven days a week. The CCC provides whole-of-government situational awareness to inform national decision making during a crisis.

The responsibilities of the state and territory governments include:

a.   Building and promoting disaster resilience;
b.   Developing, implementing and ensuring compliance with comprehensive emergency mitigation policies and strategies in all relevant areas of government activity, including planning, infrastructure provision, and building standards compliance;
c.   Strengthening partnerships with, and encouraging and supporting local governments and communities (including remote and indigenous communities) to undertake emergency risk assessments and mitigation measures;
d.   Ensuring provision of appropriate emergency awareness and education programs;
e.   Ensuring warning systems and evacuation and refuge arrangements are in place;
f.   Ensuring community and emergency management agencies are prepared for, and able to respond to, emergencies;
g.   Maintaining adequate levels of well-equipped and trained career and volunteer emergency response personnel;
h.   Ensuring appropriate emergency relief and recovery measures are available;
i.   Ensuring post-emergency assessment and analysis is undertaken; and
j.   Providing relief and recovery assistance (including financial assistance) to disaster affected individuals, communities and businesses (including in the form of cost sharing arrangements with the federal government).

The local governments have responsibilities, in partnership with states and territories, to contribute to the safety and well-being of their communities by participating in local emergency management. In most circumstances, the principle roles and responsibilities of local governments may include:

a.   Building and promoting disaster resilience;
b.   Undertaking cost-effective measures to mitigate the effects of emergencies on local communities, including routinely conducting emergency risk assessments;
c.   Systematically taking proper account of risk assessments in land use planning to reduce hazard risk;
d.   Representing community interests in emergency management to other spheres of government and contributing to decision-making processes;
e.   Ensuring all requisite local emergency planning and preparedness measures are undertaken;
f.   Ensuring an adequate local emergency response capability is in place, including local volunteers' resources;
g.   Undertaking public education and awareness to support community preparedness measures;
h.   Ensuring appropriate local emergency warnings are provided;
i.   Ensuring appropriate local resources and arrangements are in place to provide emergency relief and recovery services to communities; and
j.   Participating in post-emergency assessment and analysis.

3.3.3 Mechanisms for Collaboration and Coordination between DRR Agencies and Actors

As the scale of impact and complexity of an emergency increases, states and territories can request assistance from other states or territories, and/or from the federal government. EMA establishes, funds and supports several capability development activities, often with state, territory and international partners, to strengthen Australia's ability to respond to emergencies. EMA collaborates with other federal government agencies that have a role in emergency management, such as Geoscience Australia, the Bureau of Meteorology, the Department of Defense and the Departments of Infrastructure, Environment and Human Services.

EMA coordinates the provision of federal government physical assistance to affected jurisdictions under the Australian Government Disaster Response Plan (COMDISPLAN), including the deployment of Australian Government Liaison Officers.

Policy decisions on emergency management take place on a collaborative basis through various national forums, such as:

a.   The Council of Australian Governments (COAG), which includes the Heads of Australian Governments;
b.   Council of Ministers meetings responsible for emergency management and tasked to deliver COAG objectives related to emergency management;
c.   A senior officials forum that supports the Ministerial Council (the Australia-New Zealand Emergency Management Committee, ANZEMC); and
d.   Permanent sub-committees at working level: Capability Development Subcommittee; Community Engagement Sub-committee; Recovery Sub-committee, and Risk Assessment, Measurement and Mitigation Sub-committee. These committees oversee a broad program of collaborative work to build capability, improve national understanding of disaster risk, and find new ways to communicate risk to the community, business and markets, consistent with the National Strategy for Disaster Resilience.

The federal, state and territory governments have agreed to adopt a resilience-based approach to managing disaster risks. This approach is articulated in the *National Strategy for Disaster Resilience*, which was adopted by COAG in February 2011. The Strategy outlines the role and responsibilities of all stakeholders including the family, communities, volunteers, NGOs, businesses and primary producers, land use planners, critical infrastructure owners and operators, broadcasters and other information providers.

3.4 India

3.4.1 The Legal Framework

India's disaster management is framed by the Disaster Management Act (2005) under the guidance of India's Constitution. Each state can have separate Act, Policy and Strategy for disaster risk reduction and management. For example, the State of Gujarat adopted the 'Gujarat State Disaster Management Act' in 2003 (http://gsdma.org/Content/gujarat-state-disaster-

management-act-2003-4239). This sets up the provision of structures, functions and mechanisms for collaboration and coordination on disaster risk reduction and management in the state.

3.4.2 The DRRM Structures and Functions

India is a federal country with three tiers of constitutional governance: Union government; state governments and Union Territories; and local governments in rural and urban areas, known as Panchayats and Municipalities. The Union and state governments have their jurisdictions defined under the seventh schedule of the Constitution.

The *National Disaster Management Authority* (NDMA) with the Prime Minister of India as its chairman is responsible for setting out policies on disaster management, approving national plans, approving plans prepared by the ministers or departments of the government of India, coordinating the enforcement and implementation of said policies and plans, taking measures to prevent disasters and capacity building for dealing with possible or occurring disaster situations (NDMA, 2018). NDMA is an agency of the Ministry of Home Affairs. Figure 5 shows the organizational chart of national disaster management structure of India.

The *National Executive Committee* (NEC) with the Union Home Secretary as its ex-officio chairman is responsible for preparing the National Plan, coordinating and monitoring the implementation of national policy and guidelines laid down by NDMA, and giving directions on mitigation and preparedness measures to be taken by different ministries/departments and agencies of the Government of India (Dave, 2017).

Figure 5:   Organizational Chart of National Disaster Management Authority of India

Source: https://ndma.gov.in/en/about-ndma/org-structure.html
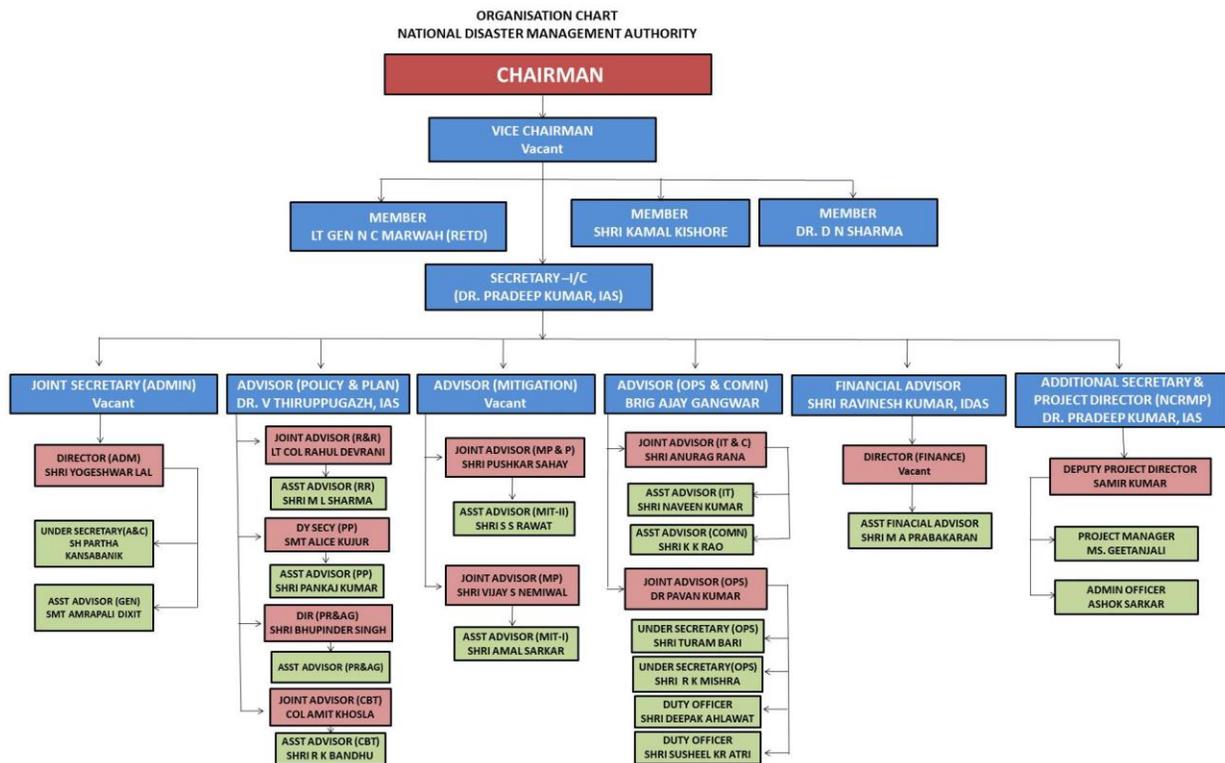
The *National Institute of Disaster Management* (NIDM) is responsible for training and capacity building; research, documentation and development of national information base on disasters; provision of assistance to state governments in the formulation of state level policies and strategies for disaster management; and development of education materials for disaster management, including academic and professional courses.

The *National Disaster Response Force* (NDRF) provides assistance to the concerned state governments/district administrations in the event of an imminent hazard event or in its aftermath.

The *State Disaster Management Authority* (SDMA) with Chief Minister of the State as its chairperson has the responsibility to lay down the state disaster management policy, approve state and district plans and provide guidelines to be followed by the departments of the state governments for the integration of measures for prevention and mitigation. The *State Executive Committee* (SEC) chaired by the Chief Secretary of the state is responsible for implementing the national and state plans and coordinate and monitor implementation of the plans and guidelines in the state.

The *District Disaster Management Authority* (DDMA) co-chaired by the District Commissioner and President of the District Council is responsible for preparing the district disaster management plan; coordinating and monitoring implementation of national and state policies,

plans and guidelines; ensuring that vulnerable district areas are identified; and ensuring government departments, districts and local authorities are putting in place measures for the prevention of disasters and mitigation of their effects.

3.4.3 Mechanisms for Collaboration and Coordination between DRR Agencies and Actors

The various committees and groups for collaboration and coordination between DRR agencies and actors are the following.

1. Cabinet Committee on Security (CCS);
2. Cabinet Committee on Management of Natural Calamities (CCMNC);
3. High Level Committee (HLC);
4. National Crisis Management Committee (NCMC);
5. Crisis Management Group (CMG);
6. Empowered Group of Ministers on Disaster Management.

The Standard Operating Procedures (SOPs) issued by the Ministry of Home Affairs lay down the specific actions required to be taken by various ministries, departments and organizations for responding to natural disasters of any magnitude and dimension. NDMA has prepared national guidelines on the basis of which national and state plans are prepared.

NIDM provides capacity building support to various national and state level agencies in the field of Disaster Risk Reduction and Management. NIDM supports the Disaster Management Centres (DMCs) in all states. As a rule, the DMCs have to conduct a minimum of 25 training programmes and train at least 500 participants every year.

3.5 Pakistan

3.5.1 Legal Framework

Pakistan's disaster management efforts have evolved through legal and policy processes over time. The National Disaster Management Act (http://www.ndma.gov.pk/files/NDMA-Act.pdf) was passed by Parliament in 2010. The Act created a National Disaster Management Commission responsible for developing policies, plans and guidelines for disaster management. It also creates a multi-tiered system for disaster management, with a provincial disaster management commission in each province and a district disaster management authority in each district.

3.5.2 DRRM Structures and Functions

The institutional framework for disaster management in Pakistan sets the *National Disaster Management Commission* (NDMC) as the apex policy making body headed by the Prime Minister. The Commission has the Chief Ministers of all the provinces and Ministers of all key departments of the federal government as its members. The functions of the Commission include laying down policies on disaster management; approval of national plan and plans of ministries/divisions; laying down guidelines for federal/provincial governments; taking measures

for prevention, mitigation and preparedness and capacity building for disasters; arranging funds for implementation of disaster management plans; and supporting other countries affected by major disasters.

The *National Disaster Management Authority* (NDMA) acts as the implementing, coordinating and monitoring body of disaster management in Pakistan. It is responsible for the preparation of the national plan to be approved by the NDMC, laying down guidelines for preparation of disaster management plans by ministries/departments and the provincial governments, providing necessary technical assistance to the provincial governments and authorities for preparing their disaster management plans and coordinating the response in the event of threatening disaster situations or disasters. The NDMA is an autonomous and constitutionally established federal authority headed by its Director General as Chairman and a number of members appointed by the federal government (NDMA, 2017). Figure 6 shows the organogram of NDMA.

Figure 6:   Organogram of NDMA in Pakistan

Source: http://www.ndma.gov.pk/ndma.php
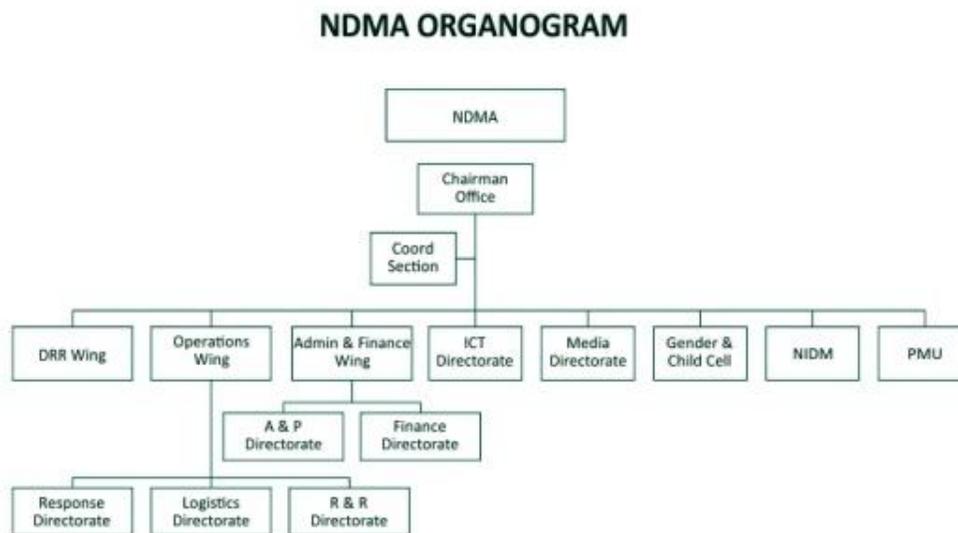
The NDMA has the following mandate:

a)   Act as the implementing, coordinating and monitoring body for disaster management;
b)   Prepare the National Plan to be approved by the National Commission;
c)   Implement, co-ordinate and monitor the implementation of the national policy;
d)   Lay down guidelines for preparing disaster management plans by different ministries or departments and the provincial authorities;
e)   Provide necessary technical assistance to the provincial governments and the provincial Authorities for preparing their disaster management plans in accordance with the guidelines laid down by the National Commission;
f)   Co-ordinate the response in the event of any threatening disaster situation or disaster;

g) Lay down guidelines for or give directions to the concerned ministries or provincial government and the provincial Authorities regarding measures to be taken by them in response to any threatening disaster situation or disaster;

h) For any specific purpose or for general assistance can requisition the services of any person. Such person will be a co-opted member and will exercise such power as conferred upon him/her by the Authority in writing;

i) Promote general education and awareness in relation to disaster management;

j) Perform such other functions as the NDMC may require it to perform.

In order to carry out the assigned tasks/functions, NDMA's organizational structure is divided into three wings: Administration & Finance Wing, Disaster Risk Reduction Wing and Operations Wing with functions described below.

Administration & Finance (A&F) Wing

- Manage all administrative and financial matters of NDMA;
- Provide complete administrative support to NDMA Operations Wing;
- Order, procure, transport and keep record of relief goods;
- Management of human resources and related matters;
- Management/maintenance of NDMA transport vehicles;
- Management all administrative, finance and audit matters.

Disaster Risk Reduction (DRR) Wing

- Handling all matters related to Disaster Risk Reduction policies, risk insurance, flood related issues, disaster awareness and National Disaster Management Committee (NDMC);
- Implement, execute projects and evaluate all matters related to National Disaster Management Plan (NDMP);
- Monitor and evaluate plans, strategies at national, provincial, district level as well as civil sector;
- Mainstream Disaster Risk Reduction into development sector;
- Manage international cooperation, global frameworks and regional organizations;
- Coordinate with United Nations Agencies, bilateral/multilateral organizations and International Non-Government Organizations (INGOs) /Non-Governmental Organizations (NGOs).

Operations (OPS) Wing

- Manage National Emergency Operations Center (NEOC);
- Supervise and coordinate relief and rescue operations (inland and foreign);
- Prepare situation updates/briefs;
- Make contingency plans for the country;
- Supervise all matters related to Urban Search and Rescue (USAR) teams;

- Make briefs/presentations for Prime Minister, President, members of Senate & National Assembly and other dignitaries;
- Coordinate relief efforts with federal/provincial authorities, armed forces and organizations;
- Contingency plans for full spectrum of disasters faced by Pakistan.

The *Provincial Disaster Management Commission* (PDMC) is headed by the Chief Minister of the Province. It also mainly consists of the leader of the opposition, and other members nominated by the Chief Minister. The provincial Commission performs the same functions in the province that the National Commission performs at the national level: laying down provincial policies and plan; approving plans of provincial departments; taking measures for prevention, mitigation and preparedness for disasters; arranging funds; and reviewing implementation of plans.

The *Provincial Disaster Management Authority* (PDMA) headed by a Director General appointed by the provincial government is responsible for the preparation of provincial plans and coordination and monitoring of implementation of the plans. Under the PDMAs are District Disaster Management Authorities (DDMA) whose composition and functions are largely similar to that of the DDMAs in India.

3.5.3 Mechanisms for Collaboration and Coordination between DRR Agencies and Actors

The Standard Operating Procedures (SOPs) issued by NDMA lay down the specific actions required to be taken by various ministries, departments and organizations for responding to natural disasters of any magnitude and dimension. The National Disaster Response Force (NDRF) provides a specialized response during the time of disaster. The National Institute of Disaster Management (NIDM) provides capacity building support to various national and provincial level agencies in the field of Disaster Risk Reduction and Management. NIDM develops training modules, undertakes research and documentation on disaster management and organizes training programmes.

4   Conclusions

The comparative study of different structures and mechanisms on DRRM provides an in-depth overview of institutional arrangements of disaster management in different countries. The findings can be summarized as follows. The summary of the findings is also presented in Table 1 and 2 below.

- The legal frameworks have recognized the overall governance system of the country. The legal provisions have also been amended to harmonize provisions with the governance system instead of fitting structures and functions of authorities into legal frameworks (Acts).
- The frameworks have also considered the specific geographic coverage, hazard potential and other territorial issues of each country.
- More focus is given to build capacity of province and local level governments on DRR whereas national/federal agencies have taken back-up support and facilitation roles.
- Small core structures are considered to become efficient, and more services required to the DMAs should be taken from relevant subject focused agencies such as meteorological offices, security forces and training centers.
- In the United States, the **Federal Emergency Management Agency** (FEMA) under the Department of Homeland Security is the central agency for disaster management. It coordinates federal resources that support state, tribal and local efforts when a federal emergency or disaster is declared. At the state level, FEMA regional representatives work with state authorities to support their emergency management.
- The **Public Safety and Emergency Preparedness Canada** is a key agency under the Ministry of Public Safety to keep Canadians safe from a range of risks, including terrorism, natural disasters and crime. In this capacity, Public Safety Canada exercises leadership amongst its federal counterparts relating to emergency management responsibilities in its exclusive fields of jurisdictions and on land and properties under federal responsibility.
- In Australia, the **Emergency Management Australia** (EMA) under the Department of Home Affairs is the Australian government lead for disaster and emergency management. Working closely with state and territory governments and the international emergency management community, EMA delivers critical programs, policies and services that strengthen and maintain Australia's national security and emergency management capability.
- In India, the **National Disaster Management Authority** (NDMA) with the Prime Minister of India as its chairman is responsible for laying down policies on disaster management, approving national plans, approving plans prepared by the ministers or departments of the Government of India, coordinating enforcement and implementation of said policies and plans, and capacity building for dealing with disasters or threatening disaster situations. NDMA is an agency under the Ministry of Home Affairs. At state level, the **State Disaster Management Authority** is responsible for implementing plans for disaster risk reduction and management.
- In Pakistan, the **National Disaster Management Authority** (NDMA) acts as the implementing, coordinating and monitoring body of disaster management. It is responsible for the preparation of the national plan to be approved by the NDMC, laying down guidelines for preparation of disaster management plans by ministries/departments and the provincial

governments, providing necessary technical assistance to the provincial governments and authorities for preparing their disaster management plans and coordinating the response in the event of threatening disaster situations or disasters. The NDMA is an autonomous and constitutionally established federal authority headed by its Director General as Chairman and a number of members appointed by the federal government. At provincial level, the **Provincial Disaster Management Authority** is responsible for implementing plans for disaster risk reduction and management.

Table 1:   Comparison of Institutional Arrangement for Disaster Management in North America and Australia

Feature	FEMA USA	Public Safety Canada	EMA Australia
Political leadership, and high-level committees	− Directed by Administrator (Presidential Appointee) − National Advisory Council (35 members, ex officio), 2 sub-committees: Integrated Public Alert and Warning System, and Response Act	− Directed by Minister for Public Safety and Emergency Preparedness − Senior Officials Responsible for Emergency Management (SOREM) − Prevention/ Mitigation Working Group − Preparedness Working Group − Response Working Group − Recovery Working Group − Other Working Groups as required	− Directed by Minister for Home Affairs − Australian Government Crisis Coordination Center − Australia-New Zealand Emergency Management Committee
The role, authority and qualifications of the Head of Authority	− Prepare federal response plans and programs for the emergency preparedness − Sponsor and direct such plans and programs − Coordinate such plans and programs with state efforts − Keep the President, Congress, and the states advised of the status of emergency preparedness	Responsible for exercising leadership relating to emergency management in Canada by coordinating, among government institutions and in cooperation with the provinces and other entities, emergency management activities	Deliver critical programs, policies and services that strengthen and maintain Australia's national security and emergency management capability
Major Divisions within the authority	− Office of Disability Integration and Coordination − Office of Equal Rights − Office of External Affairs − Office of Policy & Program Analysis	− Disaster Prevention and Mitigation − Emergency Preparedness − Responding to Emergency Events	− Crisis Coordination − National Disaster Recovery Programs − National Security Training, Education and Development

Feature	FEMA USA	Public Safety Canada	EMA Australia
	− Office of Response and Recovery − United States Fire Administration − Resilience − Mission Support − Regions (10)	− Recovery from Disasters − Regional Offices (13)	− Dignitary and Major Event Security
Expert, technical or other committees and their roles	− Technical Mapping Advisory Council − Review and make recommendations to FEMA on matters related to the national flood mapping program	− National Public Alerting System − Government Operations Center − National Search and Rescue Secretariat	− Crisis Coordination Center − Australian Tsunami Warning System − Emergency Management Assistance Team
Relationship to provincial authorities in federal contexts	− At the state level, the Governor's Authorized Representative (GAR), State Director of Emergency Management, and State Coordinating Officer work together with FEMA Regional Administrator.	− Public Safety Canada's network of Regional Offices serve as the department's primary link to Provincial and Territorial emergency management counterparts, as well as federal departments in the region to ensure whole-of-government response.	− As the scale of impact and complexity of an emergency increases, states and territories can request assistance from other states or territories, and/or from the federal government. − Policy decisions on emergency management take place on a collaborative basis through various national forums.

Responsibilities for different types of risks (particularly DRR) in different structures	− Resilience includes Federal Insurance and Mitigation Administration, Grant Programs Directorate, National Continuity Programs, and National Preparedness Directorate
	− Office of Response and Recovery includes Response, Recovery, Field Operations and Logistics Management
		− National Disaster Mitigation Strategy
		− Platform for Disaster Risk Reduction
		− National Disaster Mitigation Program
		− Emergency Management Planning
			− National Strategy for Disaster Resilience
			− Permanent sub-committees at working level:
			  • Capability Development Subcommittee
			  • Community Engagement Sub-committee
			  • Recovery Sub-committee

Feature	FEMA USA	Public Safety Canada	EMA Australia
	– US Fire Administration manages the national fire data center, conducts research in fire detection, prevention, suppression, and first responder health, safety and effectiveness	– Emergency Management Training – Emergency Management Exercises – Capability Improvement Process – National Public Alerting System – All Hazards Risk Assessment – Government Operations Center – Urban Search and Rescue Program – Disaster Assistance Programs – Disaster Financial Assistance Arrangements – Federal Disaster Assistance Initiatives	• Risk Assessment Measurement and Mitigation Sub-committee

Mechanisms for coordinating different levels of operations (local, provincial or federal) in handling disasters	– National Preparedness System
	– National Planning Frameworks
	  • National Prevention Framework
	  • National Protection Framework
	  • National Mitigation Framework
	  • National Response Framework
	  • National Disaster Recovery Framework
	– National Incident Management System
	– Incident Command System
		– Canadian Council of Emergency Management Organizations
		– Canada's Platform for Disaster Risk Reduction
			– Council of Australian Governments (COAG)
			– Council of Ministers
			– A Senior-officials forum that supports the Ministerial Council (the Australia-New Zealand Emergency Management Committee, ANZEMC)

Mechanisms for ensuring the Authority has the right expertise	– Office of the Chief Component Human Capital Officer is responsible for strategic human capital initiatives	– Canadian School of Public Service	– Australian Institute for Disaster Resilience

Feature	FEMA USA	Public Safety Canada	EMA Australia
	– National Emergency Training Center (NETC) offers training programs for first responders, emergency managers and educators to learn and enhance their disaster management and response skills		
Coordination with other state agencies, particularly the police and armed forces	– The Mission Support coordinates with other state agencies – Office of the Chief Security Officer liaises between law enforcement officials and FEMA leadership and advises to FEMA leadership on matters affecting or impacting the law enforcement community	– Senior Officials Responsible for Emergency Management (SOREM)	– Emergency Management Assistance Team

Table 2:   Comparison of Institutional Arrangement for Disaster Management in South Asia

Feature	NDMA India	NDMA Pakistan
Political leadership, and high-level committees	− Chaired by Prime Minister − Members (max. 9) − Nodal agency: Ministry of Home Affairs − Cabinet Committee on Security − Cabinet Committee on Management of Natural Calamities − High Level Committee − National Crisis Management Committee − National Executive Committee chaired by Secretary	− an autonomous and constitutionally established federal authority headed by its Director General as Chairman and a number of members appointed by the federal government − National Disaster Management Commission chaired by Prime Minister
The role, authority and qualifications of the Head of Authority	− responsible for laying down policies on disaster management, approving national plans, approving plans prepared by the ministers or departments of the government of India, coordinating enforcement and implementation of the policies and plans, and taking other measures to prevent disasters and prepare for capacity building for dealing with disasters or threatening disaster situations	− responsible for managing complete spectrum of DRM at National level − Focal point for dealing with national and international community in disaster related matters
Divisions within the Authority	− Disaster Management Wing − Capacity Building, Communications and NEOC Wing	− Disaster Risk Reduction (DRR) Wing − Operations (OPS) Wing − Administration & Finance (A&F) Wing
Expert, technical or other committees and their roles	− Crisis Management Group − Empowered Group of Ministers on Disaster Management − National Disaster Response Force	− Advisory committee as and when required − National Disaster Response Force

Feature	NDMA India	NDMA Pakistan
Relationship to provincial authorities in federal contexts	− As the scale of impact and complexity of an emergency increases, State Disaster Management Authorities and District Disaster Management Authorities can request assistance from other states, districts, and/or from the federal Government	− As the scale of impact and complexity of an emergency increases, Provincial Disaster Management Authorities and District Disaster Management Authorities can request assistance from other provinces, districts, and/or from the federal government
Responsibilities for different types of risks (particularly DRR) in different structures	− Disaster Management Wing includes Mitigation & Preparedness, Media & Public Preparedness − Capacity Building, Communications & NEOC Wing includes Operations & Logistics, Capacity Building, Communications and Systems & Knowledge Management − There is no Disaster Risk Reduction or Resilience Wing	− Operations wing includes response, logistics, recovery and reconstruction − Separate DRR wing
Mechanisms for coordinating different levels of operations (local, provincial or federal) in handling disasters	− Standard Operating Procedures for Disaster Response − National Guidelines on Disaster Management	− Standard Operating Procedures
Mechanisms for ensuring the Authority has the right expertise	− National Institute of Disaster Management for human resources development and capacity building	− National Institute of Disaster Management for human resources development and capacity building

Coordination with other state agencies, particularly the police and armed forces	− National Disaster Response Force
	− State Disaster Response Force
	   • Home Guard
	   • Civil Defense
	   • Police
	   • Fire Services
		− National Disaster Response Force

5   Potential Lessons for Nepal

The Constitution of Nepal 2015 has identified addressing disaster risk as a key policy of the state. The policies relating to conservation, management and use of natural resources highlights the need to prioritize advance warning, disaster preparedness, rescue, relief and rehabilitation in order to minimize the risks of disasters caused by natural hazards. Schedule 7 of the constitution presents disaster preparedness, rescue, relief and rehabilitation as concurrent responsibilities of federal and provincial governments. Schedule 8 defines local level disaster management as the sole responsibility of local governments. Schedule 9 presents disaster management as concurrent responsibilities of federal, provincial and local governments. Hence, disaster risk reduction and management are the shared responsibility of all three levels of governments.

The Disaster Risk Reduction and Management (DRRM) Act 2017 has envisioned the formation of the National Disaster Risk Reduction and Management Authority (NDRRMA), an apex level body for the implementation of disaster risk reduction and management activities in Nepal. The DRRM Act has also made the provision of a high-level National Council and Executive Committee chaired by the Prime Minister and the Minister of Home Affairs respectively. These high-level committees will provide a coordination, monitoring and supervisory role.

The review of institutional arrangements for disaster management in North America, Australia and South Asia has provided many insights on their organizational / management structures and functions which will be valuable to assess and design the organizational and management structure and functions of Nepal's National Disaster Risk Reduction and Management Authority.

The potential lessons for Nepal are the following:

- The Authority structure and staffing should reflect a strong focus on **disaster risk reduction** and contribute to disaster **resilience.**
- The Authority structure should have a strong **disaster preparedness and response component**. A separate dedicated **National Disaster Response Force** (NDRF) could also be set up for effective and efficient search and rescue operations during the disasters.
- The Authority structure and staffing should reflect a strong approach to **recovery and rehabilitation and reconstruction.**
- The structures should have appropriate mechanisms for **facilitation and coordination** to **integrate disaster risk reduction into development sectors** at all levels**.**
- The Authority structure and staffing should have clear arrangements for **risk assessment, planning and monitoring of hazards over time.**
- Major divisions should include **Disaster Risk Reduction and Resilience**, **Operations (Preparedness and Response)**, **Recovery, Rehabilitation and Reconstruction**.

- The structure should have provision for capacity building. A separate dedicated **National Institute for research and training** would be very valuable to promote research and development, and capacity building in disaster risk reduction and management.
- The Authority structure and coordination function should link strongly beyond MoHA and to other government offices, provinces and local governments. An inter-ministerial working group for DRR, preparedness, response, and recovery and reconstruction may be useful for horizontal linkage. Regional offices could be set up to coordinate federal activities with provincial governments. District emergency operation centers could coordinate federal activities with local governments.
- There should be an appropriate mix of technical and administrative positions to enable strong organisational competence.
- The Authority should have the technical ability and legal mandate to support provincial and local government entities in disaster risk reduction and management as and when needed and requested by these entities.

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