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**Master's Thesis of Public Administration**

**Disaster Management System in Nepal:  
Explaining Coordination Success and  
Failures in Disaster**

**네팔의 재난 관리 시스템:  
재해 시 조정 성공 및 실패의 설명**

**August 2020**

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# **Disaster Management System in Nepal: Explaining Coordination Success and Failures in Disaster**

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# **ABSTRACT**

## **Disaster Management System in Nepal: Explaining Coordination Success and Failures in Disaster**

Nepal is highly vulnerable to number of disasters because of uneven topography, fragile geophysical structure, high angle of slopes, complex geology, variable climatic conditions, unplanned urbanization and settlement. The government has emphasized multi agency approach in disaster management. Therefore, the capacity to cope with the adverse effects of a disaster largely depends upon the preparedness and coordination among multiple agency.

The main objectives of the paper were to analyze disaster management system in Nepal and factors affecting coordination in disaster. This study has pursued to understand current status of coordination among different actors and existing barriers in coordination. Furthermore, it also focused on existing problems in disaster management system and ways to improve disaster management in Nepal.

This study used Qualitative descriptive design to answer the research questions. The narrative literature was reviewed from published journal, article, laws, regulations, polices, action plan and institutional mechanism to identify existing disaster management system in Nepal. Apart from this, semi structured interviews were conducted to gather depth information with key persons from different agency involved in disaster management.

The study revealed that coordination among different actors during response phase is good however, coordination in risk reduction and post disaster is in shadow. There is need of national platform and disaster authority to carry out the tasks of coordination effectively. National policy regarding relief distribution is indispensable for standardization in relief distribution across the country. It is concluded that government should focus on disaster risk mapping, replacing traditional live saving equipment, and advancing disaster

management information system to minimize loss of lives and property from disasters.

**Keywords:** Disaster Management, Coordination, Lives, Property, Effective, Response, Information, Risk reduction, Relief, Disaster Mapping, Multiple Agency, Resources, Equipment.

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## **List of Abbreviations**

DRM	Disaster Risk Management
UNDRR	United Nations Office for Disaster Risk Reduction
UNISDR	United Nations International Strategy for Disaster Reduction
MoHA	Ministry of Home Affairs
NDRRMA	National Disaster Risk Reduction and Management Authority
NEOC	National Emergency operation center
DEOC	District Emergency Operation center
CDO	Chief District Officer
LDMC	Local Disaster Management Committee
DDMC	District Disaster Management Committee
PDMC	Province Disaster Management Committee
DRRM	Disaster Risk reduction and Management
INGO's	International Non-Government Organizations
NGO's	Non-Government Organizations
DRR	Disaster Risk Reduction
NCDM	National Council for Disaster Management
NPC	National Planning Commission
NPDRR	National Platform for Disaster Risk Reduction
MoFAGA	Ministry of Federal Affairs and General Administration
NDRRP	National Disaster Risk Reduction Policy
CCTV	Closed Circuit Television

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# **Chapter one: Introduction**

## **1.1 Background.**

Nepal is highly vulnerable to number of disaster because of uneven topography, fragile geophysical structure, high angle of slopes, complex geology, variable climatic conditions, unplanned urbanization and settlement. The country faces different disaster such as flood, landslide, earthquake, drought, avalanche, hailstorm, lightening, glacier lake outbursts and so on. The geographical area of Nepal can be divided in three regions in terms of disaster. The Himalayan region of Nepal located in northern side is vulnerable to landslides, glacier outbursts, avalanche and flash floods. The hilly region which consists more than half part of Nepal is prone to landslides, lightening, and hailstorms whereas the region terai is vulnerable to disasters like; flood and fire. The country ranks 4<sup>th</sup> in terms of climate change and 11<sup>th</sup> in terms of earthquake vulnerability in world. (MoHA, 2017). Natural disaster occurs every year causing heavy loss of lives and physical properties. Sometimes the major disasters like earthquake as we have experienced in 2015 results in massive destruction of physical properties, human lives and largely affects the socio economic condition of people and country.

There are number of actors ranging from ministry, security forces, international organization and local community that works for disaster management. Ministry of Home Affairs is the focal agency to disaster management in Nepal. Disaster Management includes the process of planning, organizing, coordinating and controlling of different activities and resources before during and after disaster. Disaster Management seeks systematic approach to improve different measures related to prevention, preparedness, response and recovery of disaster (Carter, 2008).

According to National Governors Association (1979) Disaster Management can be categorized in four phases; Mitigation that focus on eliminating or minimizing the occurrence of disaster, preparedness activities to minimize the loss of life and property, response during disaster and recovery after disaster. A

number of literature (Carter, 2008; Schneid & Collins, 2000; National governor's association, 1979; UNISDR, 2019) focus on institution, resources, training, leadership, motivation, communication, technology and government regulation as an important factor in disaster management.

Besides above factors in disaster management the lack systematic and effective coordination among agencies related to disaster management and clear job descriptions for those agencies, the shortage of technical manpower, an increasing population, weak economic conditions, a lack of public awareness, a low literacy rate, the absence of modern technology, lack of early warning system are some other factors which have made Nepal vulnerable to different types of natural disaster (Chhetri 2001).

The rapid growth of populations with interconnected and complex societies is leading to extensive damages and losses during disaster. The natural disaster may not be stopped; however best efforts can be made to reduce the impact of disaster. There are many factors to minimize the impact of disaster among which coordination among different stakeholders is an important factor to minimize the impact of disaster. The meaningful coordination and collaboration of different stakeholders is indispensable to prepare a National and local action plan on disasters, preparedness and simulation, Response, Mitigation, Rehabilitations and Reconstruction.

## **1.2 Statement of the problem.**

The government of any nation has great role in minimizing the disaster and its impact. The challenge for government arise from preparation of action plan before disaster to reconstruction and rehabilitation after disaster. There are various agencies involved in disaster management in Nepal. Non-government organizations working in disaster project is growing day by day. The positive aspect multi stakeholders in disaster management can be sharing of knowledge, experience and resources whereas major challenge is to create the environment for effective coordination and work as per common goals of minimizing loss of lives and property from disaster. More importantly there are various

government agency involved in disaster management for instance Nepal Army, Nepal police, ministries and departments that requires effective coordination among themselves for disaster management. The government of Nepal often used to be criticized for ineffective coordination and collaboration during disaster. Moreover, the government is facing various problems regarding technological, political, legal, socio economic and managerial factors in different phase of disaster management. Therefore, the main focus of this study is to explain factors for effective coordination and identify existing problems in disaster management system of Nepal

### **1.3 Objectives of the study.**

The general objectives of this study is to find out the factors and causes of success and failure of coordination in disaster management and ways to improve disaster management system in Nepal. Moreover, it also focuses on the current disaster management system and practices of Nepal. the specific objectives of research will be as follows:

- To understand the disaster management system and practice of Nepal.
- To analyze the coordination and collaboration status among different actors during major Natural disaster in past.
- To identify the causes for success and failure of coordination in disaster management.
- To identify problems of disaster management system and solutions to make disaster management effective.

### **1.4 Scope of the study.**

This study analyzes the government and its actor role in disaster management ranging from pre disaster to post disaster. Even though government mobilize huge resources to manage the rescue and relief activities there is no strong mechanism to ensure the effective coordination among actors. The government used to be often criticized for ineffective disaster management especially during response and recovery phases, such as duplication of relief material in some places, late rescue, ineffective relief procedure. This study tries to analyze the

disaster management structure as well as the coordination practices to identify the cause and factors for success and failure of coordination in Nepal. This research will use a different disaster to analyze the coordination among different actors in central level and district level and problems in disaster management.

### **1.5 Research question.**

- How do different stakeholders perceive the status of coordination in disaster management in Nepal?
- what are the reasons for success and failures of coordination in disaster management?
- what are the major problems regarding disaster management in Nepal?
- what are the perceived solutions to improve disaster management system in Nepal?

## • **Chapter Two: Theoretical Background and Literature review**

### **2.1 Disaster Management.**

Disaster is an event, natural or man-made, sudden or progressive, which impacts with such severity that the affiliated community has to respond by taking exceptional measures. According to United Nations, disaster is a serious disruption of the functioning of society, causing widespread human, material or environmental losses that exceeds the local capacity to respond, and calls for external assistance. Disaster Management is an applied science which focus on systematic observation and analysis of disasters to improve measures related to different phase of disaster management that includes prevention, preparedness, response and recovery. (carter, 2008).

Disaster management is the sum total of all the activities done by government before, during and after a disaster to minimize the loss of life and physical property. According to Habit for Humanity (2012), Disaster management should never begin with the disaster nor it should end after accomplishment of rescue operation. whereas, disaster management should be understood to be continuous process starting from preparations of minimizing risk and vulnerability, to response, to mitigation based on knowledge learned from disaster.

The success and failures of disaster management largely depends upon accurate and timely preparation and diagnosis of critical part of the problem. According to Farazmand (2001, p.4) the effective disaster management requires knowledge, skills, leadership with risk taking abilities, commitment, motivation, creative thinking and sense of immediate response.

The United Nations office for Disaster Risk Reduction (UNDRR,2017), “Disaster management may not completely eliminate the threats but it focuses on planning, organization and application of different measures that facilitates to respond and recover from disaster”

Disaster management depends upon basic assumption that we can do something to avoid disaster and minimize the loss of life and property as well as environment on which people depends upon. (Pinkowski, 2008).

The requirements of Successful disaster management are: (1) sensing the urgency of situation and problem; (2) Thinking creatively and strategically in disaster; (3) taking strong decision and acting sincerely with courage; (4) breaking way from insignificant solutions and (5) making continuous presence in the dynamic context with unfolding dramatic events. (Farazmand, 2001, p.4).

According to National Governors Association (1979) The disaster management comprises four phase of disaster model that helps to prepare and respond to a disaster and also known as the life cycle of comprehensive emergency management. The four phase are

1. Mitigation: Mitigation measures are those activities to eliminate or minimize the long term risk, probability of occurrence of disaster and reduce vulnerability to the impact of disaster such as severe injuries, damage of property and loss of life. This may include comprehensive disaster management programs, building codes, land use management, strengthening of public infrastructure and so on.
2. Preparedness: As Natural disaster cannot be controlled by human, preparedness helps to minimize the loss of lives and property. Preparedness focus on developing integrated plan to strengthen the capacity of people to respond and recover from disaster. This may include well managed ware house, public awareness programs, training to handle the emergency situation, installation of early warning systems and logistics management.
3. Response: Response is the phase of acting to address the immediate threats brought up by disaster. This includes action taken during disaster to ensure the instant need of victims to minimize sufferings. Normally they are designed to provide fast and emergency assistance to meet immediate humanitarian needs for victim. This includes search and



rescue of casualties, providing food, drinking water, shelter, clothes, health and safety, emergency medical treatment.

**Recovery:** Recovery is the phase of restoration of all the aspects of society after disasters with a aim to rehabilitate the normal life of people and community. Recovery activities continues unless all the systems of community returns to normal phase or better. This includes short term recovery and long term recovery. Short term recovery may be less than one year that focus on maintaining minimum operating standard and services to people such as cleaning disaster site, temporary housing. Long term recovery may last decades and involves strategic planning to address the impact of disaster and built better. Thus Recovery is the process that aims to bring communities and nation in returning to their proper level of functioning following a disaster. The recovery generally includes restoration, rehabilitation and reconstruction of structures.

The Planning and preparedness phase in disaster management cycle is designed to frame disaster response and recovery before occurrence of a disaster. It is a state of readiness to respond crisis or emergency situation that involves evaluating the community's potential disaster risk, vulnerabilities, the probability of disaster to occur, and developing action plan to respond. (Herrmann, 2007).

According to carter (2008), the disaster warning and its impact time can be long or short depending upon disaster. The massive disaster like earthquake may give no warning with short impact time whereas the disaster like flood may have a long warning period. Response measures are normally those activities that are taken immediately prior to and following disaster impact. Such actions are primarily directed toward minimizing loss of life and property, and dealing with the immediate destruction, damage, and other effects cause by disasters.

## **2.2 Factors affecting Disaster Management.**

Disaster Management is an integrated process of organizing and managing of resources and responsibilities to minimize loss of life and property. It involves

coordinated efforts and responsibilities to deal with all the humanitarian aspects in crisis. There are various aspects that affects in effective disaster management.

### **2.2.1 Political Factors**

Political factors are related with parties, politicians, government and political priority for disaster management. Disaster management activities such as rescue, relief distribution, reconstruction and recovery largely depends upon the political stability and condition of the disaster affected areas. (Oloruntoba, 2005). People tend to follow government information and directives if they have high political trust towards the government and politics of the country. High political trust in disaster management is achieved through government priority and allocation of resources regarding disaster management.

The citizen evaluates performance of government and political parties when there is any disaster in the country. The government role is appreciated or criticized especially during response and recovery phase of disaster management. The level of trust of citizen towards government is shaped on the fact that how quickly and successfully government can respond to minimize losses during natural disaster. (Albrecht, 2017)

### **2.2.2 Technological Factor.**

Technological factors comprise of all the available hardware, equipment and software that helps in easy process of disaster management activities. It involves application of scientific innovation, any tools, equipment, product, technique, methods or process that facilitates disaster management. The use of information and communication technology and other scientific innovation in today's world are heavily growing to mitigate natural disasters and this has result in significant saving of life and property even in big disaster. (WCDR, 2005, cited in oloruntoba ,2005).

According to Minges (2019) technological innovation and advancement have created new opportunities for enhancing disaster management and risk reduction. The development of artificial intelligence system, robotics, drone and other infrastructural development and equipment are transforming many

fields including disaster management. The use of technology in preparedness such as early warning system, monitoring disaster intensity; response phase such as photographing disaster areas, locating people, delivering relief materials helps to minimize loss of life and physical damages. Thus technology is one of the important factors of disaster management.

### **2.2.3 Social Factor.**

Social factor includes all the aspects related to human society and engagement of people in managing disasters for instance initiation to increase education level, awareness, increase employment opportunity, minimizing poverty, public participation in decision making, women empowerment that assist in mitigation and preparations for future disasters. (Rodriguez et al.,2006, cited in Pathirage et.al.,2014)

The impact of disasters on social system can vary from poorest people even in rich districts, and affected people may respond differently to crisis situation relative to factors of social vulnerability. During disaster the countries experience widespread destruction of infrastructure, utility systems, health, schools, business and government organizations that affects their social life and makes them more vulnerable. (Sanchez, 2018)

### **2.2.4 Economic Factor.**

Economic factors comprise of financial aspects such as fund management, budget allocation and economic measures for instance production of goods and services, distribution and consumption patterns in community. The lack of funds for economic planning measures, rigid economic policies, financial mismanagement and poor accountability negatively affects disaster management cycle and risk reduction. (Pathirage et.al.,2014)

The budget allocation for different stage of disaster management depends upon the economic situation and phase of disaster cycle in the country, for instance the budget for preparedness or disaster risk reduction is limited by response, recovery and reconstruction phase of disaster management cycle. Many countries do not have system to measure and monitor their budgets for disaster

management as resources are allocated to different ministries and organizations and coordination among them is ineffective. This leads to inefficient use of resources in disaster management. (UNISDR, 2015)

### **2.2.5 Legal Factors.**

Legal factor comprises of constitutions, laws, rules, regulations, and directives that helps disaster management. These factors provide bases and support for infrastructural development, mobilization of resources, environment protection, for disaster risk reduction. According to Gaire (2015) Nepal is need of clear legal framework and act to regulate pre disaster to post disaster activities. The government focus on the aftermath of disaster but disaster management should be carried out regularly which should be mentioned clearly by law and acts.

The act and regulation should be formulated on the basis of disaster risk mapping and vulnerability assessment The regulations sometimes act as bottleneck for development and reconstruction activities for instance strict building code. However, the poor construction quality is found to be major reason for higher destruction and deaths usually in developing countries. (pheng et al.,2006, cited in Pathirage et.al.,2014)

In a study conducted by (Pokharel & Goldsworthy,2017) found that most of the houses in Nepal were constructed by people based on their own needs and priorities without consulting engineer and following building codes. The government of Nepal has formulated building code but not compulsorily implemented in every part of the country and this was the major reasons for massive destruction form gorkha earthquake. Thus laws and regulations are important for every phase of disaster management cycle.

### **2.2.6 Managerial Factor.**

This factor comprises of managerial ability related to planning, organizing, coordination and decision making for effective disaster management. The lack of skills and knowledge of different actors involved in risk reduction, response, recovery and reconstruction is a major issue for effective disaster management.

A study of post disaster reconstruction after 2015 Gorkha Earthquake found that weak governance, lack of preparedness, lack of knowledge gap, effective coordination as the major challenges for disaster reconstruction. Sharma et.al., (2018)

The effectiveness of disaster management depends upon the effort of planning in preparedness phase, organizing resources and coordination during and after disaster. The disaster recovery and reconstruction depends upon the managerial skills such as identification of project objectives, coordination with different actors and meaning engagement and understanding of socio cultural environment of particular place of disaster project. Lin et al., (2016). Thus we can conclude that managerial factor is an important aspect for effective disaster management.

**Table 2.1: Summary Table.**

<b>Disaster Dimension</b>	<b>Factors that affect disaster management</b>
Political	<ul style="list-style-type: none"><li>• Political stability</li><li>• Political Priority in disaster Risk Reduction</li><li>• Trust of citizen towards Political Parties</li><li>• Long term vision of politician in disaster management</li></ul>
Technological	<ul style="list-style-type: none"><li>• Availability of Modern tools and equipment's</li><li>• Information management system</li><li>• Artificial intelligence system and early warning software</li><li>• Knowledge and skills to use technology</li></ul>
Social	<ul style="list-style-type: none"><li>• Disaster awareness and education</li><li>• Community training and preparedness</li><li>• People perception and attitudes in disaster management.</li><li>• Consideration of social factors in recovery and reconstruction</li></ul>
Economic	<ul style="list-style-type: none"><li>• Fund management and Budget allocation</li><li>• Long term economic planning</li><li>• Investment in infrastructure and mitigation</li><li>• Employment and Income of people</li></ul>
Legal	<ul style="list-style-type: none"><li>• Acts, regulations, polices and action plan</li><li>• Effective implementation of Law</li><li>• Regular update in law</li><li>• Environmental and social considerations</li></ul>
Managerial	<ul style="list-style-type: none"><li>• Planning, organizing, coordinating and control</li><li>• Decision making and implementation</li><li>• Leadership Traits, skills and knowledge</li><li>• Communication and network</li><li>• Knowledge management</li></ul>

### **2.3 Disaster Management System in Nepal.**

Disaster Management in Nepal is governed by number of legal, institutional and policy frameworks. Nepal is one of the active members of International Disaster Risk Reduction Community. The Disaster Management of Nepal is guided by various international DRR instruments such as Yokohama Strategy,

Japan (1994), Hyogo Framework of Action(HFA) (2005-2015), Sendai Framework for Disaster Risk Reduction (2015-2030), the sustainable Development Goals (SDGs) of United Nations and the Paris Agreement on Climate Change (MOHA,2018). Similarly, there are national Legal and regulatory Framework, action plan and Institutions in Disaster Management of Nepal.

### **2.3.1 Legal and Regulatory Framework.**

#### **A. The Constitution of Nepal 2015.**

The current Constitution of Nepal 2015, has mention Disaster Risk management for the first time and clearly states DRM as a shared responsibility of three tiers of government and falls under the jurisdiction of federal, provincial and local government. The article 51(G) of constitution has mention polices relating protection, promotion and uses of natural resources to ensure environment friendly, sustainable use of natural resources and mitigating risks from natural disasters. Similarly, Article 267 of Constitution provides rights to government to mobilize Nepal Army in Disaster Risk Management. The Article 273 of the constitution mentions various emergency powers to President. Article 273(2) mention that the State government may request the Government of Nepal to declare a state of emergency in respect of the whole or specified part of the State if there arises a grave emergency in a state because of natural disaster or epidemic. (Constitution, 2015)

Disaster Risk Management is assigned as one of the important task of local level out of 22 tasks mention in (schedule 8) of constitution. DRM is also mentioned in (schedule 9); List of concurrent powers of Federation, state and local level to emphasize as the mutual responsibility of three level of government but emphasize more on local level. (Constitution, 2015).

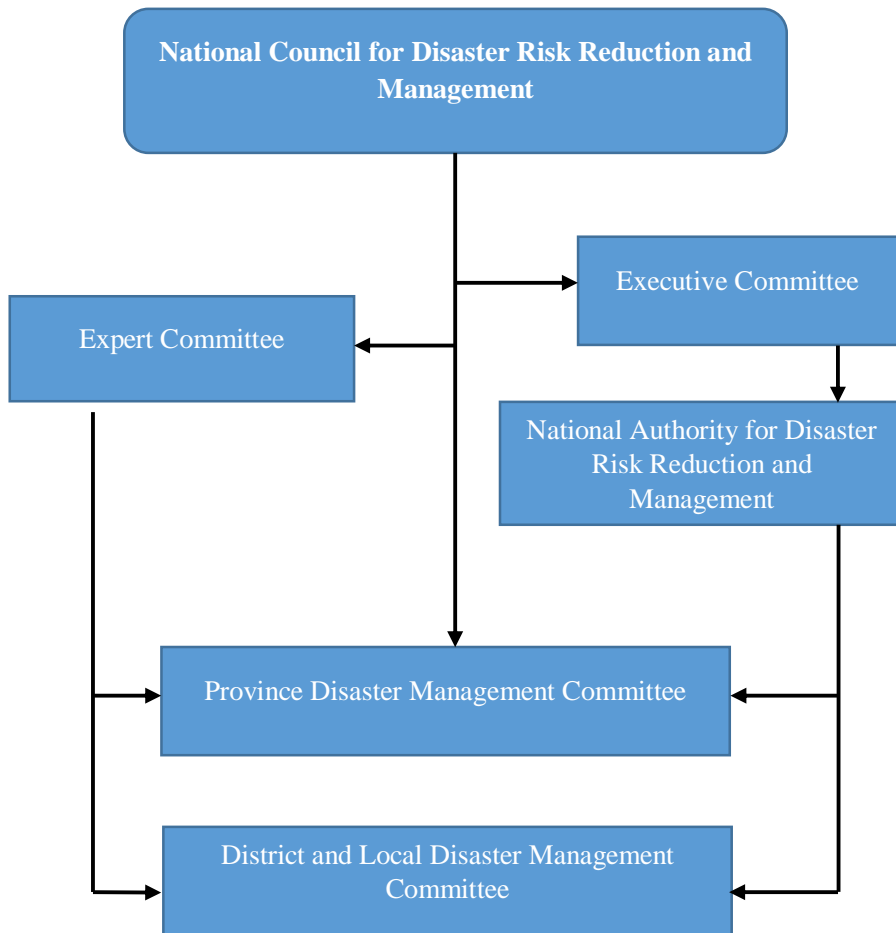
#### **B. Disaster Risk Reduction and Management Act, 2017.**

Disaster management in Nepal is governed by Disaster Risk Reduction and Management Act (2017) as it replaced 40 years old Natural Calamity Relief Act. This act provides overview of action plan from central government to local

government to execute and implement disaster management program. This act is more comprehensive First, it considers both risks reduction and management as integral parts of the task. Second the act has mentioned a clear multi-tier institutional structure of Disaster Risk management at the national, provincial, district, local/municipal, and the community. The act has made clear provision of Disaster Management Fund at the three levels of government and provides security forces the responsibility of search and rescue under civilian command. (MoHA, 2017). The Act has envisioned two kinds of DRM Structure; First, National Council for Disaster Management (NCDM) under the chairmanship of Prime Minister as the highest body with policy and administrative decision making and supervisory roles that consist mainly of DRR and management National council and Executive committee. Second, National Disaster Risk Reduction and Management Authority (NDRRMA) and the Provincial, district, and local Disaster Management Committee with more implementation roles. The Executive Committee under Home Minister and Expert committee (not exceeding five from different fields) focus on implementing the plan, policies and decisions of NCDRM. National Disaster Risk Reduction and Management Authority (NDRRMA) will be set up under Ministry of Home Affairs and NCDM to act as the focal agency for disaster management. Likewise, this act has mention province Disaster Management Committee (PDMC) under Chief Minister and District Management Committee (DDMC) under the Chief District Officer and Local Disaster Management committee (LDMC) in lower levels.



**Figure 2.1: Institutional Structure of Disaster Management proposed by DRRM Act, 2017.**



**C. Other Acts and Regulations.**

There are other bunches of acts, rules and regulations regarding prevention and disaster management. The Soil and Watershed Conservation Act (1982), Water Resource Act (1992) and Forest Act, 1993 focus on minimizing adverse effect on environment and prevent floods, soil erosion and landslides. The provision on Environment Impact Assessment before starting any project or industry is mentioned in Environment Protection Act (1996). Similarly Building Act 1998 regulates construction of building through building codes obligation to be followed by builders in order to minimize the adverse effects of Earthquakes

and other Disasters. The Local Government Operation Act, 2017 has made provision of roles and responsibilities of Municipalities, Rural Municipalities, District Councils/District Coordination Committees and Provincial Coordination councils regarding Disaster Management. The Act has provided authority to local level to form their own plan and policies, rules and regulations for effective Disaster Risk Management. (MoHA, 2018)

### **2.3.2 Policies and Action Plan.**

#### **A. National Policy for Disaster Risk Reduction 2018**

The Government of Nepal has formulated National Disaster Risk Reduction policy (NDRRP) in 2018 with the goal of reducing disaster mortality and number of affected people substantially, increase resiliency by reducing disaster damage to means of livelihoods as well as critical infrastructures and disruption of basic services such as agriculture, industry, roads, communication, water supply and sanitation, education and health facilities, and reduce direct disaster economic loss. (MoHA, 2018) The policy has been prepared to build safer, adaptive and resilience nation from disaster risks, taking account of recent global agendas including Sendai DRR declaration, Sustainable Development Goals, Paris Declaration on climate change and other international commitment. The policy focus on awareness and education on disaster, disaster mapping system, technology and training institute, participation and collaboration of disaster management actors, national land use policy for safer settlement, mandatory insurance to minimize loss of properties, institutional arrangement and building disaster resilient infrastructures. (MoHA, 2018).

#### **B. National Disaster Risk Reduction Strategic Action Plan (2018-2030)**

National Disaster risk reduction strategic action plan has been formulated with a vision to make Nepal a safer and resilient nation by 2030. This action plan is a successor of National strategy on Disaster Risk Management, 2009 and follows Sendai Framework for Disaster Risk Reduction (SFDRR) priorities.

The NDRRSAP aims to substantially reduce mortality and disaster affected population size and enhance resilience of important infrastructures and basic services such as health, education, communication, livelihoods, agriculture, water and sanitation, industry road in order to reduce their loss and damage by disasters. (MoHA, 2018)

### **2.3.3 Disaster Risk Management Institutions.**

There are number of Government institutions and agencies that are involved in disaster management in Nepal. The Office of the Prime Minister and Council of Ministers provides policy directions and resources during major disasters and emergency. The Ministry of Home Affairs (MoHA) is the focal ministry of disaster risk management. it plays lead role in every phase of disaster management. The mobilization of security forces (Armed police force, Nepal police) and other humanitarian actors are coordinated by MoHA and its district office. Besides, MoHA is also responsible for response phase; rescue and relief distribution, collection of data and dissemination of information. These task are implemented through Department of disaster management and National emergency operation center (NEOC). Similarly, the National Planning Commission plays role in mainstreaming the DRR into National polices and periodic plans ensuring tuning with other national and sectoral polices. The Ministry of Federal Affaris and General Administration (MoFAGA) plays a vital role in enhancing technical and functional capacities of the local bodies for mainstreaming disaster risk reduction in to periodic development plans and support local government to prepare harmonized disaster management action plan. (MoHA, 2018).

#### **A. National Council for Disaster Risk Reduction.**

Disaster Risk Reduction and Management Act, 2017 article (3) has mentioned National council for Disaster Risk Reduction and Management (NCDRRM) under the chairmanship of the prime minister is an highest level of authority for disaster management including minister, leader of opposition party, chief minister of every province, chief secretary, chief of Nepal army, and experts. The major functions of NCDRRM are;

- To approve national plan and policy related to Disaster Management
- To provide direction to National Disaster Authority and executive committee.
- To guide and suggest province and local level in terms of disaster management
- To assist and direct executive committee and disaster authority for Disaster fund management.
- To evaluate performance and activities of disaster management.

## **B. Executive committee.**

The executive committee is the second highest authority for disaster management under Home Minister that helps to implement plan and policies formulated by the national council. The major function of executive committee as per DRRM act 2017 article (6) is;

- To prepare national plan and policy related to disaster and submit to council.
- To implement integrated policy, plan and activities for disaster risk reduction, disaster response and recovery.
- Approval and implementation of strategic action plan related to disaster management.
- To specify role of different stakeholders regarding disaster management.
- To strengthen institutional capacity of all the levels of government for disaster management.
- Formulation and implementation of emergency plan in different field.
- Disaster Risk Mapping for disaster risk reduction.

## **C. National Disaster Risk Reduction & Management Authority**

DRRM Act, 2017 article (10) has envisioned the provision of National Disaster Risk Reduction and Management Authority under Ministry of Home Affairs for operation and management of disaster related activities. The major tasks of Disaster authority are;

- To work as resource center and implement the decisions and plans approved from council and executive committee related to disaster management.
- Provide financial and technical assistance to province and local level for disaster management
- Ensuring coordination and cooperation of private, public and civil society participation in disaster management.
- Establishment and strengthening search and rescue team in all the levels of government.
- Management of international humanitarian and financial assistance during disaster response and coordinating with them for effective mobilization of search and rescue team.
- Work as study and research center for disaster mapping and risk reduction. Mobilize security forces, search and rescue team for disaster management.

#### **D. Province Disaster Management Committee.**

Province Disaster Management committee is established in every province under the chairmanship of chief minister of province that formulates midterm and short-term plan and policy taking into account of policy approved by National Council. The major task, responsibilities and authorities of this committee are;

- Coordinating with central level, local level and other stakeholders for effective search, rescue and relief distribution.
- Formulation and implementation of Relief distribution guidelines.
- Management of temporary shelter, food, clothes and drinking water for disaster affected people
- Mobilization of volunteer and other equipment's of government, non-government and private organizations during declaration of disaster crisis situation.

- Development of provincial early warning system and reporting information during search, rescue and relief distribution to Disaster Authority
- Regulation of market price, artificial shortage and quality control during disaster
- Other functions related to disaster response, rehabilitation and reconstruction with the sprit central government in disaster management.

#### **E. District Disaster management committee**

District Disaster Management Committee is one of the important body for disaster management under the chairmanship of chief district officer (CDO) including local representatives, civil society and office head of different district office. The important functions of this committee are;

- Preparation and implementation of Disaster response plan of district as well as operation of District emergency operation center.
- Facilitating in implementation of disaster plan and policy approved by council, executive committee and province disaster management committee.
- Maximum utilization of available resources for search and rescue during disaster
- Regulation on transportation and mobility of people during disaster
- Management of security force in ready position for emergency mobilization in disaster situation.
- Settlement transfer of people from disaster risk area to safety place.
- Awareness campaign and reporting information to disaster authority about search and rescue.

#### **F. Local Disaster Management Committee**

DRRM Act, 2017 article (17) has provision of Local Disaster Management Committee (LDMC) under the chairmanship of chief of rural municipality or municipality. The major responsibility of LDMC are;

- Formulation and implementation of local disaster management plan.
- Budget allocation for disaster management and risk reduction.
- Coordination and cooperation with private, public, local volunteers and civil society to conduct disaster management activities.
- Implementation of building codes and directives during construction.
- Awareness program for local community and Formation of local response team to mobilize during disaster.
- Conducting training and drill exercise for effective disaster response
- Installation of early warning system and developing information management system related to disaster.

## **2.4 Importance of coordination in Disaster Management.**

A number of literature (Carter, 2008; Schneid & Collins, 2000; National governor's association, 1979; UNISDR, 2019) has identified different factors for effective disaster management such as institution, resources, political will, human resource planning, training, leadership, motivation, appropriate communication, time management, technology, government regulation and effective coordination. As disaster management involves different stakeholders and multi-agency with the common goal of eliminating or minimizing loss of life and physical property from a disaster. The activities of different actors should be organized in certain way to achieve common goals, and the process to organize different actor's activities in right track is an effective coordination

Coordination is an important function of management that seeks to organize and interconnect different activity to ensure effective and efficient operations of a system. According to Malone (1988) coordination refers to task of processing additional information when multiple interrelated actors pursue goals that a single actor pursuing the same goal would not perform. Coordination can be taken as the common measures followed by two or more organizations to solve the problems or achieve common goals. Generally, intra organizational coordination emphasized on the collaboration and organization

of activities to achieve common goals. (Bahador., Khankeh, ,Zaboli & Malmir, 2015).

The larger or specialized organizations tends to face more complex requirement for effective coordination as hierarchical structures and chain of command may be likely to be breakable because they cannot coordinate the response of lower level. ( Morden, 2004, p.96).

Disaster is a sudden event that comes in a dramatic way and causes the loss of human life, physical property and other environmental losses resulting serious disruption in functioning of society and people. During disaster the need for resources and assistance goes on increasing which makes the role of government more challenging. In major natural disasters, disaster management is undertaken by several organizations with special duties. The coordination in natural disasters is explained as the close relationship among different agency that need each other services in time of disaster and compliments their roles and duties to achieve mutual goals under predetermined action plan. (Rabiee, Ardalan & Poorhoseini., 2013). The massive disaster need huge resources and the success of operation largely depend upon the ability of communicating within themselves and effective team work.

Natural Disaster are serious rupture with extreme intensity and needs a significant intervention under extreme situations and associate with some results such as loss of life and property, serious injuries and widespread of infectious diseases that cannot be controlled by single agency using common methods and limited resources. (Bahador,et al., 2015). Disaster threatens all the economic, socio cultural, technological and Political infrastructures of a country, that all equipment's and resources available in a society should be mobilized with effective coordination. Thus disaster coordination is more intense to minimize mortality and illness with rapid appropriate predictions and decisions of events.

Effective coordination among multi agency is a main problem and challenge in disaster management which is caused by undefined disaster activities.



Cooperation and coordination among responsible agency result in successful natural disaster management. (Rabiee, et.al., 2013).

Another study explains coordination as an efficient assignment of useful resources in order to effectively achieve the mutual goals or is determined as combined efforts designed to minimize reworks in the measures and also to minimize differences in providing services. (Parmar , Lobb, Purdin, & McDonnell, 2007)

The massive disaster occurs rarely but they have devastating effects. So it is better to be well prepared with coordination plan to minimize the effects. Coordination among different agency is required in every phase of disaster management but it is very important in response phase.

“Effective disaster preparedness and management require coordination and collaboration among public and private sectors and agency on the local state, national, and even international levels. (Pinkowski, 2008, P. 95)

The activities in the response phase are complex that includes search and rescue, warning, evacuation, emergency health services, incident management, destruction assessment, declaration of the disaster, boundary control, debris removal, public safety, sheltering, logistic management, disaster assistance, utility restoration, public information and business resumption and these functions involved collaborative effort of individuals and agencies in the public, private as well as nonprofit sectors. (Mc Entire, 2002)

Bharosa et al (2009), conducted a study on challenges and obstacles in sharing and coordination of information during multi agency disaster response using participatory observation in Disaster management exercise of six group composed of 30 participants and survey questionnaire found that information sharing and coordination is affected by various factors in different level of coordination; community, agency and individual level. The laws, authorities and information sharing mechanism affects in national level coordination. An incentive for sharing information, emotional reward, understanding each

other's work process and the usability of information promotes information sharing and coordination.

From above literature review we can conclude disaster management involves multi agency and number of factors; resources, institution, time management, human resource management and so on. Disaster management comprises four phases of disaster; mitigation, preparedness, response, and recovery. Coordination in all these activities are equally important, however the intensity of coordination may increase during rescue and response phase. The effective coordination among these stakeholders helps to mobilize all the resources and effort in same direction. The success and failure of disaster management largely depends upon the effective coordination among different stakeholders towards same direction with common goals of minimizing loss of lives and property. Thus coordination is considered as mother (key) factor that compliments all other factors of disaster management.

## **2.5 Factors affecting Disaster Coordination.**

### **2.5.1 Motivation**

According to Schermerhorn, (2013) "Motivation describe forces within the individual that account for the level, direction, and persistence of effort expended at work". One of the most significant managerial functions is to create situation under which employee and other people feel inspiration for hard working.

coordination among different individual, group and organizations largely depends upon willingness and ability of people to cooperate and work together. The willingness to work arises from different factors that may be either intrinsic or extrinsic. Intrinsic motivation originates from within the individual; essentially desire to perform any activities for their own sake and needs. The sources of intrinsic motivation participation in decision making, right job, recognition and authority. Likewise, extrinsic motivation comes from outside an actor, when one perceives their activities will result in reward or avoid

punishment. The sources of external motivation can be salary, benefit package, bonus. (De Rijk et al.,2007).

According to Megginson (1989, p.,312) Motivation is essential to get rid of the hazard of work burnout, which results in significant depletion of physical or mental health below one's capable level of performance which is major reason of work stress, absenteeism and alienation.

Disaster management seeks to organize and interconnect different activities of multiple actors, to minimize the loss of life and property in disaster. As disaster management is related directly with human life, emotion of people and resources the task is challenging and courageous. The effective coordination in disaster management helps to synchronize the activities of multiple actor towards same direction and common goals. The people with higher motivation are more committed and satisfied in their job eventually leading to effective coordination. Thus motivation is an important factor that affects coordination in disaster management.

### **2.5.2 Communication.**

Disaster management is a situation of urgency where normal procedures cannot be applied. The effective communication among different agency and stakeholders is significant in handling the emergency situation successfully.

According to Pinkowski (2008) there are two factors that distinguish communication in emergency from normal communication. First, there is time limitation in disaster and all means of communication may depend upon single medium such as news, telephone contact, media relationship in particular place. Therefor the actors involved in disaster management need to change their mindset and act with instant information. Secondly the external communication may be only and fastest way to communicate, whether within an organization or throughout a network of all agencies.

Effective communication is indispensable for team work to achieve common objectives in organization. The good communication in organization is more likely to result in effective collaboration. The measures through which better communication can enhance the collaboration in any agency are found in use of technology, electronic media, transparency and openness culture, active listening practices, constructive feedback, and appropriate space design. (Schermerhorn, 2013, p.466)

According to Megginson (1989, p.,277) “Communication is the chain of understanding that links the members of various units of an organization at different levels and in different areas. This concept has the following elements: (1) an act of making oneself understood, (2) a means of passing information between people, and (3) a system for communicating between individuals.”

Disaster and crisis events are chaotic and highly dynamic that creates physical, emotional and social disorder. The role of communication is critical at all phases of disaster management. The use of communication and technology acts as a primary factor for well-defined and effective coordination. Thus communication and technology is considered as vital factor for effective coordination in disaster management.

### **2.5.3 Trust.**

Trust among multi agency is a primary requirement for effective disaster management to carry out networking activities. The trust can be change with a single incident and behavior of people. Maintaining a trust is a great challenge in networking activities.

Trust is considered as an important aspect to develop confidence within different agency in disaster management. The lack of trust and public understandings among stakeholders prevents the effective implementation of strategies, methods, and technology in different phase of disaster management. (Bahador,et al., 2015).

According to study (Askvik et al.,2011), the trust is high for number of professional institutions such as schools and hospitals but the citizen trust in the

parliament and the government is much lower. Furthermore, the study also finds out weak relationship between institutional trust and identity variable based on social identity of groups and trust judgement based on institutional performance.

There are different actors involved in disaster management in Nepal. The level of trust among these actors as well as trust of people towards government agencies in disaster management is one of the serious issues. Lack of trust among these actors leads to absence of higher level of efforts effective coordination and efficient use of resources. The higher level of trust results in more positive attitudes and behavior of people involved in disaster management. Thus Trust is considered as one of the important factor that affects coordination.

#### **2.5.4 Institution.**

The human societies are characterized by stable, valued, recurring patterns of behavior, more or less complex networks of social interaction and practices. The different dimension of human life ranging from political, economic, social, or cultural, technological that have recurring patterns of interactions and behavior needs mutually agreed and predictable rules norms and values. Such set of rules and regulations, norms and values constitute institution. (Hodgson, 2006).

The institution may be formal or informal. Formal institutions are generally established with laws, rules and regulations and have legal status. Informal institution is formed as a result of norms, values and cultural practice in society.

Institution helps to shape patterns of behavior and activities of people in disaster management. it also influences the level of dependence among different agencies. The influence of institutions on different agency through legislation might be direct or indirect, short term or long term. For instance; legislation regarding funding of resources in disaster may enhance the dependence of disaster management agency on one another. ((De Rijk et al. (2007).

Hence Institutions refers rules and regulations that focus on practicality of maintaining social interaction and regulated behavior pattern. It involves maintaining discipline and curbing the human emotions and behaviors through different legislation and behavior. Thus it affects in effective coordination among different actors involved in disaster management.

### **2.5.5 Information Management.**

The good management and sharing of information is the key to effective coordination in crisis management. The information management is highly significant, especially in the initial phase of the response when information is very scarce and hard to get it. The raw data received from various sources needs to be processed and shared with every agency involved in planning the response.

According to Christine (2012), the information challenge in disaster may include excessive or lack of information, as multi agency and actors increases the amount of information, integration and coordination of information by these actors and agencies, linking formal and informal means of information, dissemination of information, changing information needs at different phase of crisis, uncertainty of information, reliable sources of information, and obtaining the right information to the right person at the right time.

The access to core information by identifying critical nodes and small number of links enhances efficiency of response action in disaster management and coordination throughout network of actors and responding organizations. The blind response where responding agency that have no information regarding time or severity of problems is less effective than either time based response or severity based response. Therefore, the information regarding time based search and severity based search is significant rather than blind response in disaster management. (Louise, Kilkon & Adam, 2004)

Information is a most important resources of any organization that helps in coordination on every phase of disaster management. The primary source of information in disaster can be achieved from affected community through

participatory approach. Moreover, the medium of transfer, language, culture and technology also affects in flow of reliable information.

As coordination in disaster management involves assessing situations and needs, determining priorities, developing mutual strategies to address disaster, mobilizing other resources systematic information management plays role in effective coordination and implementation of actions plans in disaster management.

**Table 2.2: Coordination summary**

<b>Factors</b>	<b>Elements affecting coordination</b>
Motivation	<ul style="list-style-type: none"> <li>• Willingness and ability to cooperate and work together</li> <li>• Intrinsic motivation arises within individual to perform task</li> <li>• External motivation comes from reward or punishment</li> <li>• Disaster management as a challenging job</li> </ul>
Communication	<ul style="list-style-type: none"> <li>• Situation of urgency in flow of information</li> <li>• Source of communication</li> <li>• Pattern of communication</li> <li>• Technology and media to communicate</li> </ul>
Institution	<ul style="list-style-type: none"> <li>• Mechanism to govern Disaster management</li> <li>• Formal: Acts, rules and regulations</li> <li>• Informal: Norms, values and cultural practice in society</li> <li>• Pattern of Behavior</li> </ul>
Trust	<ul style="list-style-type: none"> <li>• Ability and integrity</li> <li>• Positive attitudes and behavior</li> <li>• Implementation of laws, rules and regulations</li> <li>• Relationship between people and government</li> </ul>
Information management	<ul style="list-style-type: none"> <li>• Converting raw data to reliable information</li> <li>• Reliable and updated information</li> <li>• Advance technology to analyze information</li> <li>• Important in every phase of disaster management</li> </ul>

# **Chapter Three: Research Design and Methodology**

## **3.1. Research Design.**

This study aims to analyze and understand the disaster management system of Nepal and identify the causes for success and failure of coordination in disaster management. In response to massive disaster, coordination is considered as one of the major cause in failure of effective disaster management. coordination itself is the problem and solution to disaster management.

This explorative study uses a qualitative research and focus on studying the status of coordination and factors that affect coordination among different agency involved in disaster management. Similarly, it also focusses on studying existing problems and ways to improve disaster management in Nepal such as Gorkha earthquake management. The Gorkha earthquake 2015 followed by more than 300 aftershocks resulted in huge loss of life and property. According to National planning commission (NPC, 2015) 8790 people loss their life and more than 22,300 were injured. The earthquake destruction was wide spread in many sectors ranging from health, education, water, housing, historical temples, commerce and industry. The total loss was estimated at over NPR 500 billion with economic losses that flow from this destruction at NPR 200 billion which is almost one third of Nepal GDP (NPC, 2015).

## **3.2 Conceptual Framework.**

The conceptual framework of this study illustrates the factors that affect effective coordination and disaster management. As mention above Disaster management comprises of comprehensive set of activities that includes planning, organizing, coordinating, controlling and directing the actions and resources in order to eliminate or minimize the loss of life and property. Disaster management activities depends upon different phases of disaster management ranging from mitigation, preparedness, response and recovery. Moreover, effective disaster management largely depends upon political factor: stability, priority of politician in disaster management, trust of people in

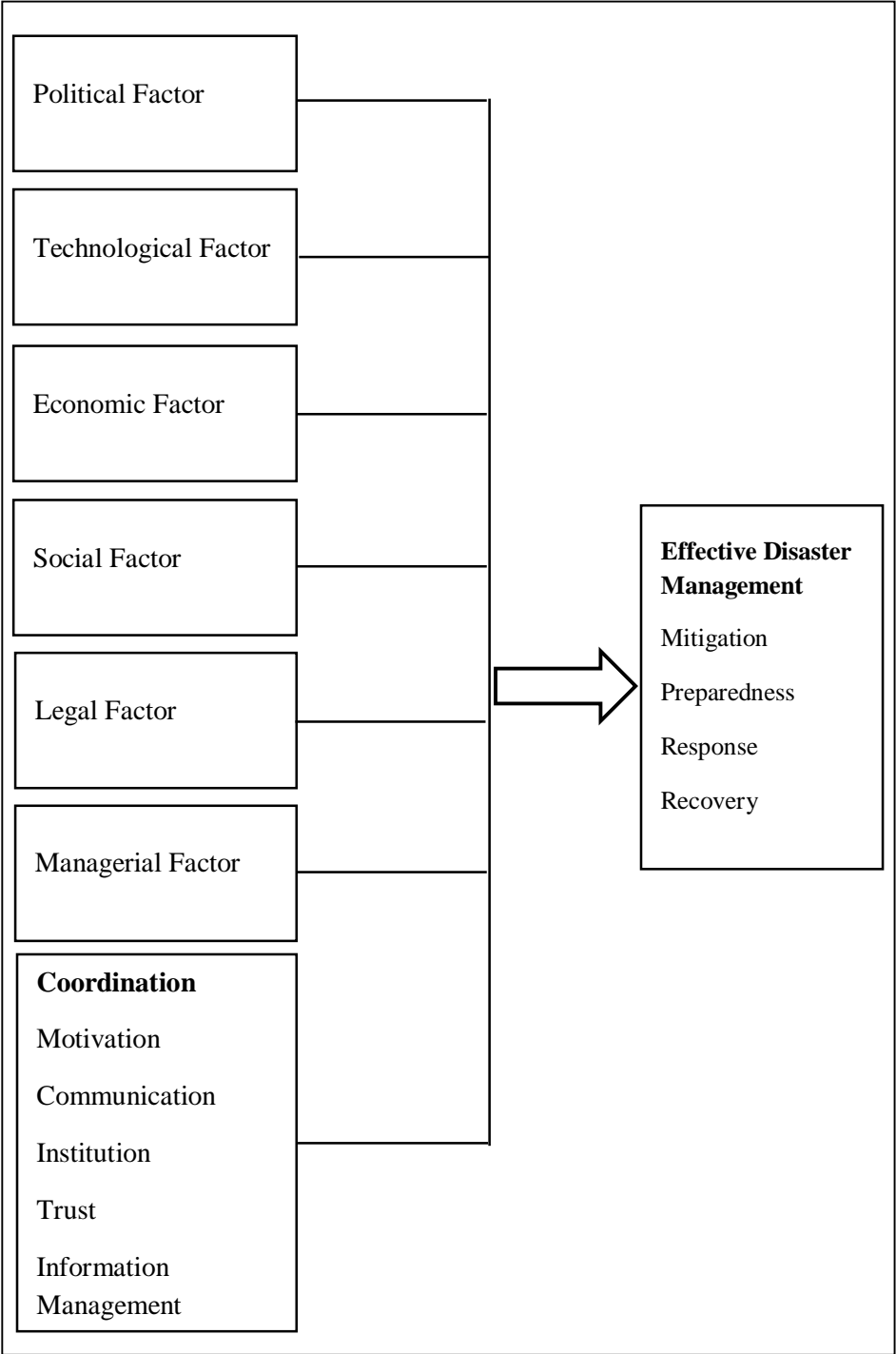


government. Similarly technological factor; availability of modern tools and equipment, information management system, early warning software, knowledge and skills to use technology are important in disaster management. The social factor such as Disaster awareness and education, community training, people perception and attitudes as well as economic factor; budget allocation, fund management, and vision, Organization, Resources, Technology, communication, legislation, infrastructural investment, People income level also affects disaster management. Likewise, legal aspects such as law, rules and regulations, policy and action plan helps to smoothly conduct activities of disaster management and managerial factor Decision making capacity of leader, planning, organizing, networking are very important in disaster management. However the success and failures of disaster management largely depends upon coordination of all the activities and stakeholders in disaster management.

Effective coordination is an important aspects of disaster management which is indispensable in every phase; mitigation, preparedness, Response and Recovery. Coordination among government entities, private sector and INGO's before during and after disaster is significant as single actor cannot handle massive disaster.

There are different factors identified through literature review that affects the effective coordination in crisis management. The factors are group in five categories: motivation, communication, Institutions (organization), Trust, Information Management.

**Figure 3.1: Conceptual Framework.**



### **3.3 Data collection.**

**Participants:** This study aims to analyze the data collected through secondary sources (document analysis) and semi structure interview with the key persons of different actors. Data were gathered mainly from government and International non-government organizations as they can provide relevant, reliable and authentic information about coordination and disaster management. The semi structured interview was taken with 12 people: eight government officials and four International non-government organizations officials.

The people interviewed are the key and focal persons of different agency who are directly involved in management of different disaster including gorkha earthquake. The major purpose of interviews was to gain depth knowledge, opinions, perception of coordination and perceived problems and solutions of disaster management in Nepal. The data was collected from central level as well as the district level disaster management actors to identify the causes of success and failures in coordination and situation of disaster management.

**Documents:** This research used secondary information from documentary review from journals, dissertation, text books, articles, newspaper and official publications of governmental and non-governmental documents related to coordination and disaster management. Documentary review assisted researcher to gain in-depth analysis of coordination in disaster management and construct study variables related to disaster management. The study from documents, research reports, publication, articles and newspapers was triangulated with responses from different respondents from different actors of disaster management.

### **3.4 Sampling Frame and Technique.**

The senior officer from Government and Non-government agencies who are working in disaster management are the sampling frame for this study. Ministry of Home Affairs is the focal agency of Disaster management in Nepal. The ministry of Home Affairs is responsible for mobilizing Nepal police and Armed

police force to maintain security and control emergency situation such as crisis and disaster. Besides it has District administration office and Area administration office in every district as a field office. The Chief district officer is responsible for disaster management in every district with collaboration with other agency. According to NPC (2015), overall 22,500 Civil servants, 65,059 Nepal army staff, 41,776 staff of Nepal police and 24,775 staff of Armed police force was mobilized to aid rescue and relief efforts.

The list of officer who played key role in central and local level will be taken from Ministry of Home Affairs. The required sample of informants for interview will be selected from sampling frame by using purposive and snowball sampling method.

### **3.5 overview of Interview.**

The interviews were conducted with key people from different agency involved in disaster management and recorded with microphone to store the information. The interviewee is from Ministry of Home Affairs, Nepal Army, Nepal Police, Armed Police Force and International Non-government organizations who are working as a focal person in disaster management. All interview was transcribed from Nepali language to English and encrypted in words ensuring confidentiality and consensus of informants.

**Table 3.1: Interview Summary.**

<b>Organizations</b>	<b>Respondents position</b>	<b>Interview type</b>	<b>Interview date</b>	<b>Duration</b>	<b>Language</b>
MoHA	Joint Secretary	Semi structured	August 26 2019	20 minutes	Nepali
MoHA	Under secretary	Semi structured	August 26 2019	26 minutes	Nepali
MoHA	Under secretary	Semi structured	August 20 2019	25 minutes	Nepali
Nepal Army	Brigadier General	Semi structured	August 20 2019	35 minutes	Nepali
Nepal Army	Major	Semi structured	August 14 2019	35 minutes	Nepali
Nepal Police	SSP	Semi structured	August 16 2019	20 minutes	Nepali
Nepal Police	DSP	Semi structured	August 16 2019	18 minutes	Nepali
Armed Police Force	SSP	Semi structured	August 13 2019	25 minutes	Nepali
Armed Police Force	SP	Semi structured	August 13 2019	27 minutes	Nepali
Armed Police Force	Inspector	Semi structured	August 14 2019	15 minutes	Nepali
DPnet-Nepal	General Secretary	Semi structured	August 12 2019	26 minutes	Nepali
UNRCO	Coordiantion officer	Semi structured	August 11 2019	24 minutes	Nepali

## **Chapter Four: Findings and Discussion**

This Chapter illustrates the findings and results of this research that came from interview process and subsequent data analysis. The sector wise profile of participants is presented first and key findings from interview are analyzed and discussed. This results of interview are reported and discussed together as this study uses qualitative methodology approach. The analysis of the data is based on the information collected through interview with the key persons involved in disaster management and exclusively examines their responses to the questions regarding disaster management system, status of coordination in disaster management, causes and solutions of ineffective coordination in disaster management and some recommendations to improve overall disaster management in Nepal.

As mentioned in the methodology chapter, twelve interviews have been conducted to explore the research questions. The focal persons who are involved in central and local level disaster management t from Ministry of Home Affairs, Nepal army, Nepal police, Armed police force and Non-government organizations were interviewed during the research. The interview has been recorded and transcribed afterward for greater accuracy.

### **4.1 Key points from the interview.**

#### **4.1.1 NON-Government organizations.**

According to General secretary of Disaster Preparedness Network (Dpnet-Nepal), that comprises of 90 NGO's and 30 INGO's the proverb "Everybody wants coordination but no one wants to be coordinated" is implemented in Disaster management system of Nepal. According to him UNDRR has envisioned the national platform for disaster risk reduction in each country that coordinates with every stakeholder involved in disaster management. But in case of Nepal NPDRR guidelines in not formulated yet though the draft is prepared since long time ago. The general secretary further explains that he has several experience of receiving few reports and information from NGO's and

INGO's when Ministry of Home Affairs ask disaster related information and the main reason behind this is lack of NPDRR guidelines. The Sendai Framework for Disaster Risk Reduction (2015-2030) article 27 (g); focus on establishing national and local platforms to ensure multi-stakeholder coordination mechanisms for disaster risk reduction. It also states that it is necessary for such mechanism to have as strong foundation in national institutional frameworks with clearly assigned responsibilities and authority to identify sectoral and multisector disaster risk, build awareness and knowledge of disaster risk through sharing and dissemination of disaster risk information and data. Similarly, Sendai Framework for Disaster Risk Reduction (2015-2030); article 48 (c) states United Nation office for Disaster Risk Reduction (UNDRR) disseminate disaster risk information, policies and practices, through establishment and coordination with National platforms.

The General secretary further argues that the coordination between civil society and government largely depends according to ministry and government offices. He clarifies that NGOs and INGOs gives high attention to those offices and civil servant that can impact their sustainability. They are more sensitive and serious to provide information and coordinate with District administration office and Chief District officer as they need to renew their organizations every year but they tend to ignore or resist to coordinate with other ministries and offices that does not challenges their sustainability and existence as there is no any legal obligation towards those organizations. Liza (2013) argues that natural disaster provides an opportunity to strengthen relationship between civil service and civil society as civil servants helps to mobilize the interests of marginalized people collaborating with civil societies to reduce disaster vulnerabilities but civil servant must be capable of being socially reliable to build and maintain trust in relationship with civil organizations and local communities. In some cases, he further claims that Civil society also does not have active vision and people are working for livelihood rather than social service. In most of the cases NGOs and INGOs are donor driven and they are strict in their proposal so they cannot even spend small amount of money for disaster management other than specified in their proposal.

The general secretary further emphasizes on implementation of new Disaster Risk Reduction act and policies. The new DRR act, policies and strategic action plans are very good but he doubts in proper implementation of these acts. Furthermore, he is concerned with the CEO leadership capability and positions in Disaster authority as mentioned in new act. He emphasizes on selection of CEO of disaster authority that has long experience in disaster management and should be selected from higher level of authority so that he/she can raise the issues of disaster management to the minister and prime minister. Lin et al. (2016) studies on disaster recovery focus on active leadership in effective identification of project objectives, stakeholders and efficient management of stakeholder's engagement as well as understanding of the socio culture context of the place where disaster recovery project is happening.

Another Coordination officer from United Nation Residents coordinators office (UNRCO), argue that Coordination should be predictable in disaster management. To achieve more predictable coordination, the government and civil society should exercise during preparedness phase of disaster management. However, the emerging new actors such as Non Residents Nepalese, Volunteer donor's in rescue and relief distribution process makes coordination unpredictable and creates more chances of duplication. Furthermore, it is difficult to regulate these new actors as disaster management is related with human sentiments and comes spontaneously. This has been supported in a study by Nicole et al., (2017); that studied predictability of a partner's actions modulates the sense of joint agency and founds people felt more shared control when they coordinated with more predictable partner and derive a sense of joint agency during interpersonal coordination.

Furthermore, he argues that Coordination depends upon the soft skills of the people holding key position in disaster management and their personal relation and network with other actors. In this case he clarifies with the examples of informal meeting and talks between different actors. Similarly, Temby et al. (2016) studied role of trust and informal communication on mutual learning in government and argue that formal communication among civil servants from



different agencies were more characterized by a feeling of fair play of trust dimension whereas informal communication and networks focus on relational comfort of trust dimension which is most important in facilitating interagency collaboration.

The coordination officer says that emergency operations employees and Bureaucracy should frequently provide accurate and updated information to politicians regarding policy and regulation of disaster management as politician wants to be directly involved in disaster management that has created problems especially in relief distribution and reconstruction after disaster. Furthermore, he emphasized on use of technology in relief distribution to avoid duplication. The use of technology like CCTV, electronic verification, electronic transfer of relief fund helps to solve the duplication problem and queuing people for long time in relief distribution. Walker et al, (2012) emphasize on importance of information technology in rescue and relief distribution efforts however it should be backed up by strong leadership and communication skills to make sure that technology is implemented in proper way. The technology based relief distribution focus on monitoring relief distribution quantity in different location, quality of materials, delivery condition, to ensure easy and timely distribution by avoiding duplication of relief materials.

#### **4.1.2 Nepal Army.**

The director of Nepal Army Disaster Management Directorate says that Nepal army coordinates with other actors in disaster management as per the structures and council in different level of government as per Disaster Risk Reduction and Management Act 2017 but they are having problems in provincial level compared to local and central level. He further argues, as provincial government is new level of government after restricting country operation center such as Provincial emergency operation center, Division operation center, logistic operation center, onsite operation coordination center (OSOCC), air operation center, provincial health emergency operation center should be established in every province for effective coordination. Weeks (2007) in his research after 2005 earthquake in Pakistan emphasize on

establishment of resilient and robust organizational structures as one of the important aspects of disaster management. In his study he suggests for temporary organizational structure in different places with a common cognitive map to improve information flow in crisis, improve sense making for employees, and establishing priority system for assessing potential course of action and effective and efficient response during disaster.

The Director further argue that coordination in disaster management is effective in the province where there are active and energetic secretary and ministry. However, he doesn't see problems with trust in different actors, communication and information sharing among them. Furthermore, management of Gorkha earthquake was more challenging because of lack of action frame and planning between other actors and foreign agencies. There was no onsite operation coordination center (OSOCC) to coordinate with foreign agency in rescue and relief activities which is no more problems now. He believes that disaster management system in Nepal is gradually improving however the government should focus on implementing strategic action plan (2018-30) and Disaster risk reduction and management act, establishing national disaster authority, investing in mitigation and preparedness rather than response phase of disaster management.

### **4.1.3 Nepal Police.**

According to Senior superintendent of Nepal police the coordination in disaster management in Nepal among different actors is good. The coordination among these actors are based upon different structures of government such as National emergency operation center (NEOC) in central level and District emergency operation center (DEOC) in local level. Furthermore, every security agency including Nepal army and Armed police force have our own preparation for disaster management however we coordinate according to our responsibility from preparedness to reconstruction and rehabilitations of disaster management. According to chhetri (2001) Nepal police officials collects first-hand information in disaster event and report the officials concerned that plays

significant role in mitigating the effects. In district level disaster management Nepal army, and Nepal police helps chief District officer in managing disaster.

Furthermore, he emphasized on implementation of new acts and policies. In present situation the government has completed the task of formulating new acts and polices of disaster management but the phase of implementing that act but the pace of implementation of act is very slow. He focused on relief distribution as a major problem of coordination and disaster management. He says that clever and elite people of disaster affected area tries to take more advantage during relief distribution whereas real victims does not get anything sometime because of lack of proper information to identify real victims. If those clever people did not get relief as per expectation they try to spread rumors and unwanted propaganda in the society. In this regard Nadi & Edrisi (2017) suggest that emergency management is effective only when there is true and accessible information. For this purpose, multi agent team for relief assessment team (RAT) and emergency management team (EMT) should be mobilized immediately in response phase. The cooperative action between these team helps to achieve real time information ensuring maximum survival and effective relief distribution

He furthermore emphasizes on increasing number of trained manpower, capacity building program and rescue equipment's to increase the confidence level of people during rescue missions. He says that rescue persons in their organization are highly motivated in their duty however sometimes they raise grievances regarding insurance policy as they work in risky area during disaster such as high altitude rescue, deep diving.

According to Deputy superintendent of police, they are giving high importance for coordination with other security agency and actors of disaster management so that there would be no duplication and search and rescue will be easy during disasters. He further argues that effective coordination in disaster management largely depends upon organizational structure mentioned in acts and polices, communication and information technology. Besides these factors effective coordination also depends upon personal relationships of focal persons of

different actors and regular formal or informal interaction between them. Usually actors other than security force are less proactive and doesn't provide timely response and information. According to Zanini & Migueles (2013). Trust is an important element in informal coordination within organization that helps to build intangible assets. Though trust is not a determining variable in organization performance but it can be considered as a mediator that indirectly contributes in coordination of various organizational tasks.

He says that the capacity of Nepal police is more strengthened in disaster management in terms of trained manpower, equipment and other resources however trained manpower regarding chemical induce disaster, deep diving, high altitude rescue and other risky area are still few in numbers.

Talking about motivation of police personnel working in disaster management he says that police force is always doing praiseworthy job in spite of less equipment's and resources. Especially in search and rescue our team has to work under high pressure in risky area such as fire, deep water, collapsed building compared to regular police. The moral of police involved in disaster management would be further high if they have disaster risk insurance.

#### **4.1.4 Armed police force:**

According to Deputy superintendent of Armed police force the coordination in disaster management since preparedness phase to rehabilitation and reconstruction is done on the basis of prescribed structures and bodies in DRR Act and policy. However, the coordination largely depends upon the nature and leadership of the focal person who is in charge of that structures for instance Chief District officer in district or Joint secretary in Ministry.

Furthermore, coordination is related with synchronizing and unifying the behavior and action of different actors in disaster. The different actors have their own nature and objectives. But in case of disaster management all these actors and employees should harmonize their works. So basically the government should determine similar facilities and benefits for working in similar nature of jobs regardless of their organizations.

Furthermore, he focusses on problems of disaster management, that the disaster management committee makes good and ambitious decision in meeting whereas they show less interest during implementation phase. Besides enough rescue equipment, well trained manpower the major problems is seen in relief distribution. The government should come up with specific policy regarding relief distribution that should be followed in every province.

According to Inspector of Armed police force the success of coordination largely depends upon mutual respect and good relations between actors in district level. The coordination should not base on fear or command from senior only. It should be based on mutual cooperation and willingness to achieve better results in disaster management.

He says that the rescue equipment's in local level are usually traditional one. So the government should focus on buying modern equipment. Sometimes there are many people for rescuing one people however with modern equipment's it is easy to rescue with few people and less time. Furthermore, he says the attitude of local people towards security force is not good. They usually wait security for small job. It takes some time for arrival of security that can results in loss of lives and property so community disaster team should be formed and trained for initial rescue whereas security is the final resort for danger and difficult jobs.

#### **4.1.5 Ministry of Home Affairs.**

According to joint secretary of disaster and conflict management division there are two types of coordination in disaster management. Formal and Informal coordination. Disaster risk reduction act has focused in joint coordination and disaster management as a duty of different agency of government and non-government. There are different committee in three level of government. The coordination among these committees are formal coordination. Likewise, Ministry of Home Affairs, District Administration office or key person of these organizations takes suggestion from different experts, line ministries personnel,

politician, during planning and preparedness, rehabilitation and reconstruction which can be considered as informal coordination.

Furthermore, coordination is good in search and rescue. Basically the district level coordination among DAO, Nepal Army, Nepal Police, Armed police force and local people is good in terms of search and rescue but coordination is weak regarding disaster risk reduction to some extent. There may be different factors for ineffective coordination in risk reduction such as low priority, resources constraint, nonpolitical agenda and so on.

Talking about problems of disaster management the joint secretary emphasizes on problems of coordination in relief distribution. The new act has not clearly mentioned about the functions of relief distribution and reconstruction. It has stated relief distribution function of all three levels of government which is resulting in high politics in relief distribution. The Joint Secretary suggests in defining level of disasters and developing one door policy for relief distribution and standardization across the country. Furthermore, the local government should especially focus on risk reduction rather than during disasters and relief distribution only.

The development activities of each ministry should be mainstreamed with disaster. Besides the data related to disaster management is also poor. For instance, there is no actual data about resource mobilized in disaster management in Nepal. Furthermore, Joint Secretary also focuses developing human resources according to nature and type of disasters and policy to mobilize volunteers and local people in disaster management.

In another interview, undersecretary of disaster study and research section says that coordination in disaster management is good because it has been institutionalized. The decision is made by committee. He argues that though, ministry of home affairs is focal agency in disaster management but decision is made by committee. Similarly, in district, chief district officer takes decision as a president of disaster relief committee rather than head of district administration office (CDO).

Furthermore, he argues that coordination during disaster is good whereas coordination for risk reduction is in shadow. There is less political interest in risk reduction, government tries to focus on current issues so during disaster governments is proactive whereas risk reduction is less prioritized.

Talking about acts, plans and policies, the new act after thirty-five years has very good provisions related to disaster management but it is not fair to expect everything from single act. This time we need to be focused in implementation of DRR Act and formulating other acts like response act, risk reduction act and so on.

Furthermore, he argues that the major problems of disaster management in Nepal is lack of disaster mapping that helps to understand disaster risk and mitigating those risks. The success of Participatory disaster mapping for risk reduction among local communities, NGOs and government depends upon the respect of local needs and aspirations and this map should be used to foster a dialogue among actors of disaster management to assess disaster risk and plan for disaster risk reduction. (Gaillard et al, 2015). Similarly, disaster management is effective during disasters but there is less efforts in preparedness, risk reduction and rehabilitation phase. The resources and equipment's for live saving intervention is limited and traditional though it is in the process of improvement. Disaster management fund is allocated in ad hoc process. It should be allocated in regular process rather than allocating on the basis of events.

The another undersecretary of ministry says that the major threat in today's world is terrorism and disaster management. Though thousands of people losses their lives and property due to disasters, risk reduction and mitigation has not been highly prioritized.

Talking about coordination he emphasized that ministry follows participatory approach in preparedness and policy making. During policy formulation process we identify possible stakeholders and coordinates with them to take their ideas and feedback. The ideas are filtered according to policy needs and

government mandates. This has developed feeling of ownership in policy that results in easy implementation.

He further says that coordination is very good in terms of search and rescue. They are more strengthened these days. In a district all the security forces are coordinated by chief district officer and mobilized them in search and rescue. Similarly, there are disaster department in every security agency in central level that coordinates through joint committee. He explains the case of Bara District Tornado to support his idea of effective coordination during response phase.

#### Case of Bara Tornado

*There was powerful rainstorm on 31 March 2019 across two districts in southern Nepal that killed 28 people and injured over 1100 people which also damaged 2,600 buildings. The rainstorm was officially identified as a first recorded case of Tornado in Nepal by department of hydrology and meteorology (DoHM). The department research team analyzed high resolution images from the European earth observing satellite taken before and after the event and compared them with data collected from the field visit. The researcher found 90-kilometer-long and 200-meter-wide path of destruction carved by the tornado for five to 20 minutes.*

*According to Chief District Officer the rescue team was mobilized immediately with coordination with Nepal army, Nepal police, Armed police force and other actors. More than 500 people were taken to hospital within two hours of event to minimize loss of life. Despite of power cut the electricity was immediately supplied in hospital. More serious patients were sent to Kathmandu hospital by helicopters. The rescue team focus on nutritious food, shelter, medical treatment and children's safety. Nepalese army coordination with other security personnel and actors were the first responders to provide immediate assistance, help in removal of debris, and construction of 869 environmental friendly houses within 97 days that won the heart of local people. This was remarkable achievement and example of effective coordination in disaster management in Nepal.*



*The undersecretary further claims that coordination in response phase is effective however, coordination in relief distribution doesn't have specific policy and jurisdiction among level of government. He further claims that out of seven provinces three provinces has made disaster act whereas every province has formulated relief distribution act and regulation. This act is not compatible with central government act of relief distribution. For instance, there is provision of one hundred thousand rupees for dead people according to central government standard whereas province no. 2 provides three hundred thousand for dead people in Bara tornado.*

## **4.2 Finding Summary.**

### **Research question 1:**

#### **How do different stakeholders perceive the status of coordination in disaster management in Nepal?**

Disaster management requires comprehensive understanding of risk, planning, coordination and mobilizing resources. Coordination and cooperation among government and non-government actors in every level of government are indispensable to minimize the losses of lives and property in disaster. From the above discussion, status of coordination in disaster management is good during disaster but not effective in pre disasters and post disasters. The coordination of different actors for risk reduction is in shadow. Furthermore, there is coordination gap and conflict of interest in relief distribution process in disaster management. The responses from government actors perceived coordination is effective because it is institutionalized. The government makes their decision through a committee and structure defined by the law. The government have developed cluster mechanism that has identified eleven clusters in disaster management and different ministry are in lead role of those clusters. However non-government organizations have different view regarding coordination and disaster management. The government has been slow in formulation of NPDRR guidelines that has been envisioned by sendai framework and united Nation office for disaster risk reduction. In case of coordination Non-government

actors provide information within time to those organizations that can affect their sustainability and existence but gives less priority to coordinate with other. Besides coordination in disaster management has been challenging during disasters because of emerging new actors that come voluntarily to provide assistance to disaster affected areas.

The coordination in disaster management in Nepal can be classified into formal and informal coordination. The coordination in preparedness, planning, during and after disaster carried out within different committee and structure stipulated by laws and regulations are formal coordination. Similarly, the ministries in central level and district administration office in local level invites different experts and stakeholders to develop plan and policies regarding preparedness, relief distribution, rehabilitation and reconstruction can be considered as informal coordination in disaster management.

**Research question 2:**

**what are the reasons for success and failures of coordination in disaster management?**

Coordination in disaster management helps to integrate and synchronize activities of different actors towards common goal of minimizing loss of lives and property from disasters. From the above discussion, the first important factors for coordination is leadership. The effectiveness of coordination largely depends upon the soft skills of the key person who is responsible for coordinating others. The personal trait of leaders such as strong determination, communication, network and relationship and decision making capabilities motivates, balance and harmonize opinions and activities of different actors towards common effort.

The next point from discussion is the importance of organizations and guidelines for coordination. As Sendai Framework for disaster risk reduction and UNDRR has envisioned establishment of national platform for disseminating disaster risk information, policies, practices and coordinating all the stakeholder and activities related to disaster management. however, lack of

formulation of NPDRR guidelines has been one of the factor for ineffective coordination in disaster management. The ministry of home affairs and disaster management department receive very few response and information from different stakeholders and civil society because of lack of NPDRR guidelines.

Another argument from the discussion is based upon the national policy for relief distribution. The new disaster risk and management act has not clearly defined jurisdiction of relief distribution. The act has mentioned relief distribution as the responsibilities of all the level of government which has resulted in high politics in relief distribution. The province and central government has different provisions for relief distribution that has created problems of duplication and inequality across the nation. Since there is no common policy the coordination between different level of government in relief distribution is ineffective.

Another equally important issue raise from the discussion is importance of informal relationship and communication for effective coordination. This point is also related to the earlier discussed issue of leadership. In several cases the key persons from different actors has experienced the feelings of self-esteem and easiness in coordinating with the focal person of ministry who wants to establish informal relationship with them. On the surface it seems like it is not such a big issue to ensure effective coordination in disaster management. However, in reality the key persons from different actors feel more committed and responsive to coordinate with the focal person of ministry who have informal relationship and networks with them.

The next point from the discussion is coordination between government actors and civil society also depends upon legitimate coercive power. For example, the Ngo's and Ingo's are more responsive and committed to coordinate with Ministry of Home Affairs in central level and District administration office in local level as they can influence the existence and sustainability of their organizations. They tend to provide timely and accurate information to those offices that can directly influence them through legitimate power and gives less priority to those organizations that does not challenges their existence.

The next point from discussion is importance of information management for effective coordination. The coordination in disaster management is related with assessing situations and needs, developing action plan and strategies, allocation of resources in disaster affected area and so on. There is need of accurate and reliable information to coordinate all these activities however in case of Nepal the government does not even have actual data regarding total resources mobilized for disaster management, information related to vulnerable areas and disaster mapping. Thus lack of information creates dilemma in effective coordination in disaster management.

### **Research question 3:**

#### **what are the major problems regarding disaster management in Nepal?**

From the above discussion, it has been observed that there are multiple constrain in disaster management of Nepal. The most important one is lack of disaster mapping. Disaster mapping helps to know the areas that are vulnerable to particular disaster so that the government can develop their mitigation plans to minimize loss of life and property from disasters. Disaster mapping can be further integrated with disaster management information such as safe evacuation, evacuation location and so on. As the country is highly vulnerable to number of disaster because of uneven topography, fragile geophysical structure, high angle of slopes, complex geology, variable climatic conditions, unplanned urbanization and settlement the different parts of country faces different disaster such as flood, landslide, earthquake, drought, avalanche, hailstorm, lightening, glacier lake outbursts and so forth. Disaster mapping helps to identify probability of particular risk across the country that helps in effective preparedness for disaster risk reduction.

The another point from discussion is the disaster management is effective during disaster management however the government does not emphasize more on risk reduction and recovery phase. For example, security personnel and government were appreciated by people after Gorkha earthquake for their

immediate response in search and rescue however government has been criticized for delaying reconstruction of houses and other structures.

The next point from the discussion is lack of resources and equipment's for live saving intervention. Though there is increase in number and quality of life saving equipment's it is still less in terms of frequency and scale of disaster that generally occurs in Nepal. Most of the equipment's in local level are traditional one.

Another major problems of disaster management in Nepal is effective implementation of new disaster risk reduction and management act. From above discussion disaster management act, policies and strategic action plan are sufficient for now but there is doubt in effective implementation.

The another problem related with disaster management in Nepal is Ad hoc process of fund allocation in disaster event. The disaster fund is allocated on the basis of events instead of regular allocation that creates possibility of politicization of fund. Besides number of trained power that can search and rescue in risky area such as high altitudes, deep diving, chemical induce disaster are less in number. Besides these rescuer working in disaster management are seeking for life insurance for higher motivation in disaster management.

#### **Research question 4:**

#### **what are the perceived solutions to improve disaster management system in Nepal?**

From the above discussion, it has been observed that there are multiple factors that needs to be improved for effective disaster management. The most important one is focusing on disaster risk reduction. As Nepal is exposed to number of disaster every year the government should put its effort on disaster risk reduction that aims to reduce damage caused be natural disaster. Disaster risk is higher when natural hazards interact with socio economic vulnerabilities of people So the disaster risk reduction comprises of mitigation and preparedness activities to enhancing resilient capacity of people.

Another important issues from discussion is establishment of Disaster authority as soon as possible. Disaster Risk Reduction and Management Act, 2017 has made provision of National Disaster Reduction and Management Authority (NDRMA) for disaster management. However, the authority has not been established yet. At present Ministry of Home Affairs is the focal agency for disaster management but the ministry multiple more important activities to carried out and maintain peace and security in the country. The establishment of NDRMA helps as a key organization that only focus on disaster management and risk reduction in a country.

Similarly, the formation of policy and directives such as Relief distribution policy, response phase directives, recovery directives are another important points to improve disaster management in Nepal. The relief distribution is important issue among central, province and local government. Every level politician wants to catch the sentiments of people in disaster so they are formulating their own policy that has created the problems of duplication and differentiation in relief distribution. Likewise, specific directives and regulations related to response and recovery should be formulated to implement DRR act and strategic action plan effectively.

Information management is another aspect to be improved in disaster management. Information Management helps to minimize loss of lives and property through early warning safe evacuation, and assistance for relief materials. The information related to disasters is important in every phase of disaster management. Similarly, disaster mapping is another vital aspect in disaster risk reduction. Disaster mapping helps to identify vulnerability of different places and disaster possibility that helps government to prepare for disaster risk reduction.

Another equally important aspects from discussion is resource management. The traditional equipment for disaster management should be replaced by modern equipment's. The government should supply light, medium, and heavy equipment's as classified by INSARAG USAR team in every province. Besides

the number of training and rescue team should be increased in different province for effective search and rescue.

## **Chapter Five: Conclusion and Recommendation**

### **5.1 Conclusion.**

Since Nepal is exposed to number of disasters every year due to its geophysical structure, uneven topography and unplanned settlement, disaster management has been one of the important aspect of governance to minimize loss of lives and property. Disaster management is affected by numbers of factors such as Technology, political will, Information management, Resources, Trained manpower, geo physical condition, public awareness, and effective coordination among stakeholders.

This study aimed to examine the major factors that affects effective coordination and perceived solutions to improve disaster management in Nepal. Based on the qualitative data from the interview with key persons of different actors for disaster management and document analysis, it can be concluded that coordination among different actors in disaster management is effective in response phase however the coordination in pre disaster and post disaster is yet to be improved. The results of the current study suggest five major themes which are very important in determining the effectiveness or ineffectiveness in coordination among various actors and improving disaster management in Nepal. They are (a) Establishment of Disaster Authority, (b) Formulation of Relief Distribution Policy, (c) Developing advance information management system (d) Adequate Resources and (e) Disaster Mapping

#### **A. Establishment of Disaster Authority**

One of the themes to emerge from this study is that there is need of separate entity for disaster management. At present Ministry of Home Affairs is a focal agency for disaster management and risk reduction but the ministry focus more on other issues related to internal peace and security. Disaster Risk reduction and Management Act, 2017 has envisioned establishment of National Disaster Reduction and Management Authority (NDRMA) but the government has not yet established. The establishment of Disaster management authority helps to



focus on disaster risk reduction, provide training, coordinate with different stakeholders, mobilize security forces and rescue team, and other emergency management.

#### B. Formulation of Relief Distribution Policy

Another important issue that has been noted down from the discussion is formulation of National relief distribution policy. The different relief distribution policy and regulations of central and provincial government is fostering high possibility of politics in relief. Disaster Risk Reduction and Management Act, 2017 has mention relief distribution jurisdiction on central, provincial and local level of government however it should be specified by new policy and regulation to ensure effective coordination and minimize the chance of politics in relief in disaster management. Besides, the ununiformed relief distribution policy is resulting in duplication of relief and real victim are abandoned from benefits of government.

#### C. Developing advanced disaster management information system

Information management and sharing is one of the vital aspects of disaster management. Disaster information management plays a significant role in every phase of disaster management from planning and preparedness to recovery in disaster management cycle. From discussion above the disaster management information system is poor in Nepal. There is no any specific data about total resource mobilized for disaster management, vulnerable mapping of different place, record of actual disaster affected people and so forth that has created problems in effective coordination.

#### D. Adequate resources for Disaster management

Another essential point to be noted down from the discussion above is lack of adequate resources in disaster management which is resulting in ineffective coordination and disaster management. There are few heavy equipment's for search and rescue in disaster management in central level however the equipment's in local levels are traditional one that makes rescue task more challenging. Besides equipment trained manpower for risky job such as rescue

in high altitude, underwater, fire fighters, and chemically induced disaster are few in numbers.

#### E. Disaster Risk Mapping

Disaster Risk Mapping is an important part of disaster management that helps to provide information to understand the risk of natural disasters of different place and develop plan for mitigating those disasters however, the government of Nepal has not focus on disaster mapping yet that shows less priority of government regarding disaster management. Nepal is vulnerable to number of disasters because of its land topography and geophysical location and the people are more socio economically vulnerable to disaster because of low income and poverty disaster mapping is one of the important aspects for planning and mitigating disaster.

### **5.2 Recommendation**

From the results of the study, it suggests that there is need of strong commitment from government and other stakeholders to improve coordination and overall disaster management system in Nepal. Based on the research findings of the current study, few recommendations are mentioned below

First Disaster management should be primary agenda of government, political parties and other stakeholders. Every government should show their commitment on providing adequate resources for disaster management that minimizes loss of lives and property in the country. They need to focus on Disaster risk reduction rather than being proactive during disasters only.

Disaster risk reduction and management authority should be formed as soon as possible for disaster management. Besides the authority and members of authority should not be politicized. The Chief executive officer of disaster management should be appointed on the basis of experience and knowledge about disasters rather than political appointment. The disaster management authority should be powerful that can talk directly to head of state regarding issues of disaster management.

The government should focus on disaster risk mapping across the countries and develop information management system to keep all the records related to disaster. Information management and sharing helps to maintain effective coordination among different stakeholders in every phase of disaster management.

Formulation of specific policy regarding disaster relief distribution is important in present situation to avoid duplication of relief distribution. Uniform policy across every province and specified jurisdiction for the responsibility of relief distribution helps to end politicization on relief materials. Besides specific directives related to response and recovery should be formulated to support new disaster risk reduction and management act and strategic action plan of government.

### **5.3 Limitations of the study**

There are some limitations of this study. First of all, the research topic is sensitive in nature as it focuses on explaining the reasons for ineffective coordination and constraint of disaster management in Nepal. Most of the respondent were the focal person of different department of government that works for disaster management. so it may be sensitive to respondent to disclose all the facts related to disaster management. However, caution has been maintained to receive actual information from right respondents for the current research purpose.

Likewise, this study was conducted with the qualitative methodology. The semi structured interview with focal person of Ministry of Home Affairs, Nepal Army, Nepal Police, Armed police force, NGO, s INGO, s and working in central level and district level were interviewed. So qualitative method of study only may not be sufficient enough to analyze and generalize the success and failure factors of coordination and disaster management system of Nepal. Thus findings of current study should be generalizing with caution while inferring in wider population.

As this research was conducted by civil servant of nepal and the study was more concentrated on interviewing with public servant, the final limitation of the

research may be 'insider research' effect. Though there are many advantages of being insider researcher such conscious and cautious in collection of data with right persons, data interpretation and analysis, avoiding prejudice and biased information. However, they may be some hidden and unknown biases during research.

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## Abstract in Korean

# 네팔의 재난 관리 시스템: 재해 시 조정 성공 및 실패의 설명

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글로벌행정전공

네팔은 고르지 못한 지형, 취약한 지반, 높은 경사각, 복잡한 지질, 다양한 기후 조건, 계획되지 않은 도시화 및 정착 때문에 많은 재난에 매우 취약하다. 정부는 여러 기관에게 재난관리에 대한 접근을 강조해 왔다. 그러므로, 재해의 역효과에 대처하는 능력은 주로 다양한 기관들 사이의 준비와 조정에 달려 있다.

본 논문의 주요 목적은 네팔의 재난 관리 시스템과 재난의 조정에 영향을 미치는 요소들을 분석하는 것이다. 본 연구는 서로 다른 행위자들과 조정에서 존재하는 장벽들 사이의 조정 현황을 이해하기 위해 추구하였고, 또한 네팔의 재난 관리 시스템의 현존하는 문제와 재난 관리 개선 방법에 초점을 맞췄다.

본 연구는 이러한 연구의 질문에 답하기 위해 질적 연구를 사용하였다. 본 연구의 방식은 네팔의 기존 재난관리 시스템을 확인하기 위한 간행물, 기사, 법률, 규정, 정책, 행동계획 및 제도적 메커니즘에서 검토되었다. 이와는 별도로, 재해 관리에 관여하는 여러 기관의 주요 인사들과 심층 정보를 수집하기 위해 반 구조적 인터뷰를 실시하였다.

본 연구는 반응 단계가 좋을 때, 서로 다른 행위자들 간의 조율이 좋다는 것을 보여주었다. 그러나 리스크 감소와 재해 후의 조정은 그늘에 가려져 있다고 할 수 있다. 조정의 과제를 효과적으로 수행하기 위해서는 국가 플랫폼과 재난 당국이 필요하다. 구호물자에 관한 국가 정책은 전국의 구호물자 표준화를 위해 마찬가지로 필수적이다. 따라서 재해로

인한 인명 및 재산의 손실을 최소화하기 위해 재해 위험 지도화, 기존 생활 구조 장비 교체, 재해 관리 정보 시스템 고도화에 주력해야 한다고 본 논문은 결론을 내렸다.

**주제어:** 재난 관리, 조정, 생활, 재산, 효과, 정보, 위험 감소, 구제, 재난 지도화, 다중 기관, 자원, 장비

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