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Towards Resilient Communities

Scoping Study Report | Nepal

Ganesh Dhungana, MPhil

Hannah Stoddard, MPA

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Harvard Humanitarian Initiative

The Harvard Humanitarian Initiative (HHI) is a University-wide academic and research center in humanitarian crisis and leadership. HHI is based at Harvard T.H. Chan School of Public Health, Department of Global Health and Population and is affiliated with Brigham and Women’s Hospital Emergency Medicine Department. As an Inter-Faculty Initiative at Harvard University, HHI collaborates closely with faculty and students throughout all Harvard Schools and Harvard Teaching Hospitals to create new knowledge and advance evidence-based leadership in disasters and humanitarian crises.

HHI Program on Resilient Communities

HHI’s Program on Resilient Communities uses inclusive, evidence-based approaches to support better preparedness for disasters and adaptation to climate change. The program provides population-based data to identify factors contributing to disaster preparedness and resilience, informs decision-making through dissemination of research, and convenes actors working within and around the disaster ecosystem to promote knowledge exchange across national and disciplinary boundaries. The Program has been operating since 2015 and has implemented projects in the Philippines as well as Bangladesh. In 2022, the Program expanded its work to Nepal.



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List of Acronyms

DDMC	District Disaster Management Committee
DHM	Department of Hydrology and Meteorology
DPNet	Disaster Preparedness Network – Nepal
DRR	Disaster Risk Reduction
DRRM	Disaster Risk Reduction and Management
EOC	Emergency Operation Center
HEOC	Health Emergency Operation Center
HHI	Harvard Humanitarian Initiative
KII	Key Informant Interview
LDTA	Local Development Training Academy
MoFAGA	Ministry of Federal Affairs and General Administration
MoHA	Ministry of Home Affairs
NASC	Nepal Administrative Staff College
NAST	National Academy of Science and Technology
NDRF	National Disaster Response Framework
NDRRMA	National Disaster Risk Reduction and Management Authority
NEOC	National Emergency Operation Center
NRA	National Reconstruction Authority
PEOC	Provincial Emergency Operation Center
SFDRR	Sendai Framework for Disaster Risk Reduction



Executive Summary

Nepal is a hotspot for natural hazards and has repeatedly experienced different geological, hydrological, meteorological, and biological hazards. The frequent changes in the type, magnitude, and frequency of these hazards exacerbated by changing phenomena of climatic extremes necessitate reviewing existing preparedness practices and suggesting more work on preparedness measures.

The HHI Program on Resilient Communities has undertaken a scoping study to review existing practices and identify opportunities for strengthening preparedness in Nepal. The scoping study is the first phase in a project that seeks to improve community resilience to disasters through applied research relevant to effective disaster preparedness and management.

The following report summarizes existing literature and highlights findings from a series of consultations with agencies working in disaster risk reduction and management in the country. These consultations found that despite significant progress in legislation and institutional arrangements for preparedness and risk reduction, there are still gaps in effective implementations of endorsed legislation, coordination among agencies, and resources (human, technical and financial).

The study highlights the need to capacitate government officials working at the local and national levels by enhancing understanding and knowledge of shifting patterns of hazards and its effective management techniques.

Similarly, the study also pinpoints the need for advanced trainings in search and rescue operations for key responders. The study concludes by highlighting the importance of coordination with academic and research institutions to project future scenarios of hazards for better management, indicating a need for national-level research and training programs and initiatives dedicated to disaster management.



1. Introduction

Nepal, a landlocked country along the Himalayan range, is highly susceptible to natural hazards due to the fragile nature of the landscape and extreme climatic conditions in most of the region (Mainali & Pricope, 2017).

The frequency and severity of disasters caused by natural hazards in the country are increasing (Vij et al., 2020; Wanner, 2022). Nepal is one of the top 20 countries in the world most likely to be affected by more than one type of disaster (Khanal, 2019). The country ranks 4th among countries to be severely hit by climate change. It ranks 11th and 30th among countries at risk of experiencing earthquakes and floods, respectively. Over 80% of Nepal's population lives in disaster-prone areas, making Nepal one of South Asia's most disaster-prone countries (Narayan et al., 2022). In addition, Nepal has one of the world's fastest urbanizing rates at 1.9% per annum. Nepal's urban population rose from 13.9% in 2001 to 17% in 2011, and to 58.4% in 2017. Urbanization indirectly indicates economic growth but could also increase vulnerability as Nepal is still struggling for effective risk governance (Hada et al., 2021).

Table 1 shows the common hazards in Nepal and their triggering factors as cited from Khanal (2019) and MoHA's DRR portal.

Furthermore, Nepal's vulnerability to disasters is exacerbated by social, political, and economic

conditions (Wanner, 2022). Following a peace treaty between the Government of Nepal and the Communist Party of Nepal (Maoist) in November 2006 that ended a decade of domestic conflict, Nepal's disaster governance paradigm gradually shifted towards integrated DRR. As a result, the emphasis of governance moved away from human rights activism and conflict resolution to environmental concerns and infrastructure development (Vij et al., 2020). It was during this time of transition that a 7.8 magnitude earthquake – the most powerful earthquake to shake the country in over 80 years – struck on April 25, 2015. Nepal's response mechanism was unprepared for a catastrophe of this magnitude, causing the deaths of nearly 9,000 people and leaving at least 22,000 people injured. The post-disaster needs assessment estimated that the quake and aftershocks directly affected the lives and livelihoods of eight million people (Saha et al., 2021).

Since 2015, Nepal has dedicated significant resources to strengthening disaster governance (Russell et al., 2021). Today, Nepal is moving from sectoral risk reduction to comprehensive federalized disaster governance and is in the process of finalizing the legislation, institutional arrangements, and operational mechanisms to comply with the mandate given by the Constitution of Nepal 2015 to ensure disaster resilience.

Table 1. Context and factors triggering prime hazards in Nepal

Hazards	Context and Triggering Factors
Landslide	<ul style="list-style-type: none"> • Steep slopes • Fragile geology • High intensity of rainfall • Deforestation • Encroachment into vulnerable land slopes • Unplanned development activities, such as constructing roads in the

Table 1. continued

	vulnerable mountain belt
	<ul style="list-style-type: none">• Unplanned human settlements
Flood	<ul style="list-style-type: none">• More than 6,000 rivers and rivulets run from north to south• Rainfall variability• Topography• Deforestation (decreasing vegetative cover)
Earthquake	<ul style="list-style-type: none">• Ranked 11th in earthquake vulnerability• Lies in the active seismic zone V• Lies on two tectonic plates: the Indo-Australian and the Asian plates
Fire	<ul style="list-style-type: none">• Negligence of the people• Hunting practices• Intentional fire to accelerate the growth of grasses to feed livestock• Intentional fire setting by herb and charcoal collectors



2. Objectives

This study aims to understand the strengths and gaps in governance, coordination, knowledge management, and capacity required for disaster management in Nepal.

The specific objectives of the study are as follows:

Objective 1: To understand Nepal's disaster governance paradigm from the lenses of legislation and institutional arrangements.

Objective 2: To understand the coordination and knowledge-sharing approaches and mechanisms adopted and practiced by government and nongovernment actors in Nepal.

Objective 3: To understand strengths and gaps in capacity within the government and nongovernment actors in managing future crises.

3. Methodology

The study adopted a qualitative method and was conducted in three stages. At the initial stage, a literature review was carried out. The review was followed by consultations with different government and nongovernment agencies. Next, KIIs were conducted with 18 participants.

The research team consulted with the following agencies, institutions, and organizations for the study:

- [Armed Police Force](#)
- [Center for Disaster Management Studies](#)
- [Chaudhary Foundation](#)
- [Development Alternatives Inc. International](#)
- [Disaster Preparedness Network – Nepal](#)
- [Kathmandu University](#)
- [Municipal Association of Nepal](#)
- [National Disaster Risk Reduction and Management Authority](#)
- [Nepal Academy of Science and Technology](#)
- [Nepal Army](#)
- [Nepal Disaster Resilient Network](#)
- [National Disaster Risk Reduction Centre](#)
- [Nepal Police](#)
- [Nepal Red Cross Society](#)
- [Resources Himalaya Foundation](#)
- [Tribhuvan University](#)
- [United Nations Office for the Coordination of Humanitarian Affairs](#)
- [World Food Programme](#)

The literature review and consultations with agencies provided a general understanding of disaster management in Nepal. Accordingly, a semi-structured questionnaire was developed for KII.

The KIIs were transcribed, coded, and analyzed to identify key themes in understanding the disaster management scenario in Nepal.

For the literature review, academic literature was collected from Science Direct, Web of Science and the libraries of Tribhuvan University and Kathmandu University. Similarly, grey literature was collected from different government and nongovernment agencies working in disaster preparedness, mitigation, and management in Nepal.

4. Findings and Discussion

4.1. Disaster governance

Disaster governance is concerned with the establishment of an institutional system, mechanisms, policies, frameworks, and arrangements to guide, coordinate, and monitor DRRM by bringing together government and nongovernment actors to work with communities to manage and reduce disaster risks (Shrestha & Pathranarakul, 2018). In the case of Nepal, governance is shifting towards a decentralized approach (Vij et al., 2020). In such context, the study has found that rapid adaptations of legislation to facilitate this shift have created confusion among agencies which has affected the coordination mechanism for effective risk governance and management of disasters.

Nepal's legislation and institutional arrangements, as shown in Table 2, provide a greater ability for cooperation between government and nongovernment actors, both in national and international levels.

The Constitution of Nepal 2015 mandates disaster management at all three levels of government in the new federal structure. Similarly, collaboration between governments is mandated in legislation by allocating shared responsibility to federal, provincial, and local governments, stipulated in Schedule 7, Schedule 8, and Schedule 9 (Narayan et al., 2022). In addition, following the global mandate of the SFDRR, Nepal demonstrated its commitment to DRR by including the key provisions of SFDRR in the National Disaster Risk Reduction Strategic Action Plan 2015-2030.

In the federal government, several departments have been formed under different ministries to enhance capacity for response, preparedness,

and risk reduction. The provincial government coordinates between federal and local governments.

In each province, there is a provision of PEOC, which is part of a larger EOC network set up by the government of Nepal. The principal task of the PEOC is to serve as a coordination and communication point for disaster information across the provinces by coordinating with local and national emergency centers to prepare for and respond to disasters (United Nations Development Programme, 2022). The local government works directly with communities at all points of the disaster management cycle, from mitigation to resettlement, as mandated by the Local Government Operation Act 2017. The act has also mandated the establishment and operation of disaster management funds and the mobilization of resources.

Furthermore, the endorsement of the DRRM Act 2017 has mandated the formation of a national council, executive committee, and authority, as well as the delineation roles, responsibilities, and accountabilities for disaster management (Bhandari et al., 2020). Similar structures are formed at the provincial and local levels. In this new disaster governance framework, NDRRMA plays a crucial role in facilitating coordination and collaboration mechanisms among all for comprehensive disaster management.

Table 2. Key legislations endorsed by the government of Nepal for effective governance of DRRM

Document Types	Titles
Acts	<ul style="list-style-type: none">• Disaster Risk Reduction Management Act 2017• Local Government Operation Act 2017• The Environment Protection Act 2019
Policies	<ul style="list-style-type: none">• National Disaster Risk Reduction Policy 2018• Climate Change Policy 2019
Strategic Planning	<ul style="list-style-type: none">• Disaster Risk Reduction National Strategic Plan of Action 2018-2030• National Strategic Action Plan for Search and Rescue 2013
Guidelines	<ul style="list-style-type: none">• Disaster Preparedness and Response Guideline• Disaster Management and Climate Change Adaptation Learning Center (Operation and Management) Direction• Auditorial Guidelines of Initial Rapid Assessment• National Disaster Response Team• Local Disaster Risk Management Planning Guideline
Framework	<ul style="list-style-type: none">• Sendai Framework for Disaster Risk Reduction• Environment-friendly Local Governance Framework• National Disaster Response Framework• Post Disaster Recovery Framework

The following section examines challenges in legislation from two perspectives: legislation formulation and institutional arrangement.

4.1.1. Legislation formulation

Historically, there has been a culture of upgrading or forming an authority from a department of the ministry. However, the formation of the NDRRMA was different from past processes. The DRRM Act 2017 mandated the formation of a national council, executive body, and authority; accordingly, NDRRMA was established. The establishment of NDRRMA created many windows of opportunity to coordinate and collaborate for comprehensive efforts towards DRRM.

One Key Informant shared,



Because of legislation ambiguity, there is confusion among government agencies and departments, as 11 ministries have been assigned DRRM tasks and are working in accordance with their own legislation.

The study found that before the endorsement of the DRRM Act 2017 and the formation of NDRRMA, the NRA was formed to work on the 2015 earthquake reconstruction process; while forming NRA, 20 legislations were developed. However, during the handover of NRA to NDRRMA, the handover document mentioned that the NDRRMA would not continue the task

assigned to NRA. Instead, it would only continue the remaining reconstruction works initiated by NRA, creating a vacuum in legislation in the reconstruction process in future calamities.

While there is a provision that a certain amount of support will be provided to disaster-affected communities for resettlement, the type of support has not been defined. In such a context, the government has often depended on ad hoc decisions from the council and cabinet. The government of Nepal places a greater emphasis on responding to natural disasters than investing in preparedness (Gaire et al., 2015).

As discussed by Narayan et al., (2022), it is also essential to look from the perspective of leadership; it is alleged that the scope of disaster response is politically determined, and budgetary allocations continue to place a higher priority on response than preparedness.

Furthermore, the study also shows that there needs to be jurisdiction regarding who will lead the recovery process. Except for monsoon-affected communities and fire-affected resettlement guidelines, there are no provisions for resettlement for the other 40 types of disasters. Similarly, at the local level, the municipal council allocates DRR funds based on their needs. However, allocated budgets could be biased by political ideologies (Narayan et al., 2022).

During one consultation, a stakeholder shared that the legislation formation procedure of the government of Nepal is extremely complicated. If the act is to be drafted by parliament, it has to go through 22 steps, from developing pre-draft to getting it approved by the president. However, due to the existing loophole, the council and cabinet can make ad hoc decisions on any issues, which is also becoming a key problem in strengthening the disaster governance of Nepal.

One expert stated,



There is often debate that Nepal has enough legislation however, Nepal still lacks legislation such as procurement policies for the time of crisis, guidelines for mobilizations of human resources during crises, guidelines for operating institutions during an emergency, and response law regarding responders.

Though, plans and policies for effective disaster governance at the federal level are in place. Similarly, to localize DRRM, the provincial and local governments are also developing local legislation. However, there is a chance that the localization plans and policies will remain theoretical rather than practical as there is a gap in funding and institutional setup, and robust regulatory provisions are limited (Narayan et al., 2022).

4.1.2. Institutional arrangement

After the 2015 earthquake, Nepal swiftly changed institutional arrangements for disaster management. Section 11 of the DRRM Act 2017 has clearly defined the functions, duties, and powers of the NDRRMA, whereas the last point in the same section states that while conducting those tasks, it must coordinate with sectoral ministries. However, the documents have yet to identify the mechanism to coordinate with the ministry by the chief executive of NDRRMA.

Regarding the coordination mechanism, one expert shared,



The protocol of the chief executive is equal to the secretary but lacks a clear hierarchy. In a country like Nepal, it matters in governance.

The existing policies mainly highlight the higher-level approach, such as institutionalizing DRRM, but do not specify how this should be accomplished to benefit the target groups (Narayan et al., 2022). Many agencies that were consulted with for this study highlighted that professional lapses are creating problems in the effective functioning of institutional arrangements in disaster management in Nepal.

Institutions exist, but they lack clear jurisdictions and proper demarcation. For instance, the DRRM Act 2017 mentions the mobilization of security forces during the disaster and gives NDRRMA chief executive the role of commander of the disaster; however, the act does not give authority to the NDRMMA chief executive to mobilize security forces or control resources. Instead, it only calls on the executive chief to coordinate with the MoHA while mobilizing security forces. In a similar context, NEOC plays a significant role during the disaster. However, during a KII, an expert highlighted leadership and organizational gaps within the NEOC, mentioning that it does not have a proper plan, logistic backup, separate admin and finance, and a clear mandate of who will direct the person who commands during an emergency.

Regarding disaster management at the district level, the literature review shows that the task of

the district is more operational in response than risk reduction and recovery. Most of the DDMC's task is focused on response.

Whereas, the Local Government Operation Act 2017 has provided authority to local governments to work on risk mapping to the rehabilitation of affected communities. It is essential to understand that the constitution has defined local (municipalities), federal, and province levels as government, and each level is mandated to draft legislation, allocate finance, establish institutions, and recruit human resources. Whereas the district is mandated to carry out tasks assigned by the federal government, the chief district officer also has the authority to mobilize security forces and control resources if required.

In recent years, Nepal has made significant strides in improving its DRRM policies. However, capacity of working officials and stakeholders must be strengthened before the DRRM policy framework can be fully implemented. Endorsed policies should be adapted based on feedback from the community level (Narayan et al., 2022). Though the DRRM Act 2017 has envisioned giving NDRRMA more authority, its limited access to cabinet and dependency on the MoHA for cabinet decisions, limitations in financial decision-making, limitations in control over security mobilization in humanitarian crises, limitations in human resource recruitment and mobilization, and limitations in decision-making power in foreign aid mobilizations are becoming key challenges.



4.2. Knowledge and information sharing and management

Disaster management legislation is limited by the implementation capacity of concerned agencies at both the federal and local levels. If the government lacks expertise and capacity, international organizations are essential in coordinating and implementing activities and initiatives (Shrestha & Pathranarakul, 2018).

The mechanism for inter-organizational coordination and cooperation, including that with international organizations, is one of the critical policy areas governed by the NDRF. The international response to the 2015 earthquake was one of the biggest humanitarian and disaster response operations in recent years. Nearly 70 countries responded to the official request for help. Thirty-four countries sent both aid and people to help, and 17 countries also sent military teams to help with search and rescue right away (Cook et al., 2018).

However, Bisri & Beniya, (2016) argue that during the 2015 earthquake, the mandatory emergency response operational activities and coordination mechanisms outlined in the NDRF were only partially implemented. As such, we outline practices adopted by forums and networks in exchanging information and knowledge, so recommendations for improving coordination and implementing NDRF in future disasters may be made.

4.2.1. Networks and forums

Numerous community-level factors, such as the demographic composition, levels of migration, and the degree of urbanization, impact disaster management. The size and effectiveness of social networks that serve as safety nets for communities are also important to consider. Engagement and participation from the community are crucial for effective disaster management, especially for fostering trust and

awareness raising (Lee, 2016).

In Nepal, government and nongovernment actors have formed different platforms for knowledge exchange and effective coordination between agencies working on disaster management.

Some of these knowledge sharing platforms include:

- National platform for DRR (government-initiated)
- Disaster management working group (association of INGO - initiated)
- Disaster preparedness network – Nepal (registered organization)
- Inter-agency standing committee for emergency response preparedness (managed by UNOCHA)
- Women humanitarian and DRR platform (loose network)
- National Disaster Resilient Network (registered organization)
- National network of community disaster management committee (registered organization)
- Humanitarian accountability monitoring initiative (loose network)

In addition to those mentioned above, many other networks are working to provide a common platform for advocacy, knowledge sharing, and joint initiatives. Institutions consulted during the study have highlighted the role played by these platforms, networks, and forums in legislation formulation and capacity building of DRRM professionals.

However, they also mentioned that the declining funding volume in DRRM in Nepal has impacted these networks. Indeed, most of these registered networks and platforms are

envisioned by the mandate of global commitments and are primarily working in collaboration with international agencies.

Additionally, multiple engagements of members and associated organizations in loose networks are becoming a key issue in achieving set objectives. Platforms initiated by international agencies are on a need basis and lack self-initiated activities. There is a need for academic institutions to take on a leadership role in bridging the gap between agencies to promote knowledge and learning exchange.

4.2.2. Digital portals and platforms

The study has found that digital tools and technologies are playing an increasingly important role in disaster management. The government of Nepal has provided different digital platforms to share knowledge and information. Most importantly, after the establishment of NDRRMA, the advancement of digital tools and technologies required in informing risk, empowering individuals, mapping resources, and developing a roster of professionals and volunteers became one of its

top priorities.

Table 3 shows the digital DRRM-related platforms that are being used in the country.

In a short span of time, NDRRMA has already developed numerous platforms, namely the bipad portal, DRRM e-learning platform, godam, national volunteer registration and mobilization platform, and reconstruction platform.

Besides NDRRMA, other agencies and departments of the government are operating their online portal to share information about their concerned department. Specifically, NEOC operates DRR Portal informing incidents; DHM operates a DHM portal and provides information on weather forecasting; NAST manages Nepal climate change and development portal in disseminating research and studies carried out in Nepal.

Similarly, DPNet, a nongovernment actor, manages a resource depository of disaster-related grey literature. All of these have contributed to strengthening collaborative approaches for better preparedness.

Table 3. Details of digital DRRM platforms being used in Nepal

Operating Agency	Platform	Objective
NDRRMA	bipad portal	A national portal embedded with independent platforms for national, provincial, and municipal governments with a bottom-up approach of disaster data partnership
NDRRMA	DRRM e-learning platform	Provide online learning courses and resources for DRRM professionals, academicians, and other interested learners
NDRRMA	DRRM resource management system – godam	Map logistic facilities across the country for emergency purposes

Table 3. *continued*

NDRRMA	<u>National volunteer registration and mobilization platform</u>	Develop roster of committed volunteers for mobilization during the disasters
NDRRMA	<u>Reconstruction platform</u>	Manage multiple hazard beneficiary and there trances information management
NEOC	<u>DRR portal</u>	Provide near real-time update of disaster incidents
DHM	<u>DHM portal</u>	Forecast meteorological and hydrological information
NAST	<u>Nepal climate change</u>	Disseminate research and studies carried out in Nepal
DPNet	<u>Online resource center</u>	Act as resource depository of disaster-related legislative documents
MoFAGA	<u>CBDRM platform</u>	Strengthen coordination, collaboration, and partnership with wider stakeholders for community-based disaster risk reduction and resilience



4.3. Capacity of disaster management professionals

The most important part of decentralization in disaster management is a system for responding to disasters at the local level, as disaster management is mostly a bottom-up process.

During a disaster, it is very important for the local government and community to be able to act quickly and manage effectively. Their skills are important for saving lives and property during a disaster, but in Nepal, there are big gaps as the key and first responders lack skills and knowledge (Malla et al., 2020). Similarly, Tuladhar et al., (2015) have discussed several DRR lessons that would benefit the local population and professionals, as the processes and programs currently in place for disseminating DRR knowledge need to be revised.

Accordingly, the study has also found two major gaps in terms of the capacity of disaster management professionals in Nepal: skills and technology used by key responders and academic courses in DRRM.

4.3.1. Security forces as key responders

In Nepal, security agencies are key responders in disasters. As discussed in the earlier section, The DRRM Act 2017 has clearly mandated the mobilization of security forces (Nepal Army, APF, Nepal Police, and National Investigation Department).

The Nepal Police has a dedicated disaster management unit with around 1,200 trained personnel. Around 125 police are deployed to each province while 447 remain in the central unit. The Nepal Police has been providing 45 days of comprehensive disaster management training to police personnel, mostly focusing on collapsed structure search and rescue, dignified handling of casualties, rope rescue, and so on.

Similarly, APF also works on disaster management, mostly focusing on rescue and response. The legislation of APF has clearly mentioned disaster management as one of the prime mandates along with the other twelve mandates. Accordingly, APF has a designated disaster management team at the national, provincial, and local levels. The APF has its own disaster management training school, located in Kurintar, Chitwan.

The Nepal Army possesses a strong capacity in responding to national-level disasters as they can use helicopters and other heavy types of equipment and can also support emergency management of critical infrastructures during a disaster. The Nepal army has two battalions specialized for handling disasters and can also mobilize approximately 2,000 medical personnel during disasters.

It is also the prime security agency to lead multi-national army coordination during a disaster. The study found that the Nepal Army adopted a “react and report” strategy during the disaster context as guided by their standard operating procedure and directories.

During the consultation, an official of the Nepal Army shared,



70% of Nepal Army can be mobilized during the disaster. Nepal Army has its unit in all 77 districts, and one-third of the army professionals in each unit are trained in disaster management.

In addition, security agencies are also working in community awareness and preparedness training and working together in learning and sharing. One such collaborative initiation is the “Hattemalo” event organized by the Nepal Army to create an environment for coordination and effective disaster response so that local

and available resources can be utilized at the maximum level as the disaster incidents are increasing in Nepal.

Table 4 shows the numbers of incidents in 2016-2022 and their impact on life and livelihood in the country, according to MoHA.

Table 4. Numbers of incidents and their impact on life and livelihood in the last seven years in Nepal
(Table courtesy: Dahal, MoHA)

Year	No. of incidents	Dead	Injured	Affected families	House destroyed Partial	House destroyed Complete	Estimated Losses (in NPR)
2016	2,368	486	764	13,225	1,225	3,423	2,811,178,791
2017	2,453	489	734	19,065	14,426	1,923	2,494,045,394
2018	3,919	478	2,902	8,180	1,881	2,505	4,341,891,926
2019	4,538	489	2,452	25,264	6,873	4,939	4,709,510,265
2020	3,768	558	1,175	11,313	3,335	1,967	1,760,620,860
2021	4,210	508	1,773	6,578	1,596	2,048	2,541,412,330
2022	3,934	417	983	6,746	2,368	1,952	2,803,542,655
Average	3,599	489	1,540	12,910	4,529	2,680	3,066,028,889

Security agencies consulted for the study highlighted a need for more technical equipment for effective response. In addition, a limited number of capacitated and trained human resources and frequent transfer of senior officials in leadership is also becoming a problem. Another critical issue identified by the study is the overlapping of response mandates in security agencies. Thus, having a classified mandate could make the designated force more accountable for the response mechanism.

For instance, Nepal police can work on community awareness and preparedness activities, APF can be the prime focal unit of medium-sized disasters and specialize in search and rescue activities, whereas the Nepal Army can lead the response to the mega disaster and international collaboration with other forces.

Table 5 shows the current institutional arrangement of security agencies for disaster management in the country.

Table 5. Institutional arrangement of security agencies for disaster management

Agency	Institutional arrangement
Nepal Police	<ul style="list-style-type: none"> • Central Disaster Management Division, Samakushi, Kathmandu • Koshi Province Disaster Management Unit, Jhapa • Madesh Province Disaster Management Unit, Birjung • Bagmati Province Disaster Management Unit, Hetuda • Gandaki Province Disaster Management Unit, Baglung • Lumbani Province Disaster Management Unit, Dang

Table 5. continued

Nepal Police	<ul style="list-style-type: none">• Karnali Province Disaster Management Unit, Jumla• Far Western Disaster Management Unit, Mahendra Nagar
APF	<ul style="list-style-type: none">• Disaster Management Section Headquarter, Halchowk, Kathmandu• Disaster Management Training School, Kurintar, Chitwan• No. 20 BTN H.Q Disaster Rescue, Kathmandu• No. 1 Brigade Disaster Team, Sunsari• No. 2 Brigade Disaster Team, Mahottari• No. 3 Brigade Disaster Team, Makawanpur• No. 4 Brigade Disaster Team, Kaski• No. 5 Brigade Disaster Team, Banke• No. 6 Brigade Disaster Team, Surkhet• No. 7 Brigade Disaster Team, Surkhet• No. 8 Brigade Disaster Team, Kailali• No. 9 Brigade Disaster Team, Kathmandu• Disaster Management bases at Dhankuta, Dhading, Bara, Myagdi, Dang, Surkhet and Dadeldhura

4.3.2. Academic and professional courses

In Nepal, the primary means of awareness about DRR in local communities include awareness campaigns, training, and meetings (Tuladhar et al., 2015). Government officials and elected leaders are reliant on the same resources. The NASC and LDTA are two important government institutions mandated to provide professional training in enhancing the knowledge and capacity of government officials on disaster management. However, these institutions' disaster management courses are general, thus lacking specializations. In addition, the lack of academic institutions providing academic and professional training for disaster management in Nepal is creating a shortage of skilled workforce in the country with a comprehensive understanding of disaster management.

DRR education initiatives implemented in Nepal are not enough (Tuladhar et al., 2015). During the consultation with organizations, disaster management professionals shared that they have been taking online courses from foreign

universities, which do not comprehensively capture the context of disaster management in Nepal.

Table 6 shows the limited universities that offer specific courses in disaster management.

Regarding such issues, an academician interviewed for the study shared,



The massive flow of students going abroad and increasing drop rate in the higher education in Nepal is making institutions wait and see while introducing new specialized courses; as a result, there is the domination of generic courses in Nepalese universities.

Table 6. *Universities or institutions offering disaster-related courses in Nepal*

University / Institution	Course offering	Course objective
Institute of Engineering, Tribhuvan University	Master of Science in Disaster Risk Management	Develop and enhance the capability of managers and development practitioners for management and mitigation of disasters
Institute of Crisis Management Studies, Tribhuvan University	Master in Crisis Management Studies	Provide a comprehensive understanding of managing crises
Lumbini Buddhist University	Master of Science in Disaster Risk Engineering and Management	Produce highly competent professionals and make disaster resilient society in the field of engineering and management
Central Department of Environmental Science, Tribhuvan University	Master of Science in Environmental Health in Disaster	Provide a comprehensive understanding of the intersection of environmental health and disaster management
Purbanchal University	Master Degree in Conflict and International Humanitarian Law	Provide an in-depth understanding of conflict resolution, international humanitarian law, and related legal frameworks
Pokhara University	Master of Science in Public Health and Disaster Engineering	Build capacities that will reduce disaster risks and contribute to better and more targeted public health-based relief of following disasters

Thus, there is an urgent need to establish a DRR research and training institute as planned in the National Policy for DRR, aiming for research and capacity development on disaster risk, prevention, preparedness, search, and rescue, as well as post-disaster recovery, rehabilitation, and reconstruction to support the professional

growth of government and nongovernment officials.

Furthermore, as many of the key informants shared, disaster management professionals in Nepal will be limited to the training provided by national and international nongovernment organizations in developing their expertise.

5. Key Research Areas

This report discusses the key thematic areas of disaster governance, coordination, and knowledge management in Nepal, but there are several areas that merit further exploration to support improved disaster management approaches in Nepal.

Many of the experts interviewed for the study highlighted the importance of **effective implementation of endorsed legislations and the availability of resources** (human, technical, and financial) for better preparedness and effective disaster governance. The experts also indicated the changing phenomena of disaster and the **need to understand the impact of climate change** and its subsequent effect on disaster.

Similarly, the reviewed literature found the need for **documentation on risk and vulnerability assessments**; risk quantification; development of a database of vulnerable (or affected) households; mapping and tracking of available external support; a coordinated approach to preparedness, mitigation, response, and recovery; and planning and preparing for the worst-case scenario, are essential in improving DRRM at local levels (Aryal, 2014; Gaire et al., 2015; Hada et al., 2021; Jones et al., 2016; Narayan et al., 2022).

Furthermore, **social capital** is regarded as an important factor in community resilience (Panday et al., 2021). However, little attention has been paid to the specifics of what supports or undermines the social capital of remote rural communities in disasters. Mainali & Pricope (2017) suggest that region-specific variable selection is needed for more detailed assessments and to prioritize adaptation strategies at scales beyond the administrative divisions' hierarchy. However, the disaster management agenda would not be

successful without political advocacy, ownership, and leadership (Lee, 2016).

The study has identified the necessity to have **discourse-level research on vulnerable communities** to identify ways to bring new interventions that can help promote a community of practice. Countries like Nepal, with a rich history of human civilization, should look inward for the development of localized theory for resilient communities. Particularly, there is a need for local context-focused research. Similarly, there is a need for better collection, dissemination, and application of the empirical evidence found in the academic literature.

6. *Conclusions*

The study finds that the paradigm shift in Nepal's disaster governance is in the process of fulfilling the legislation, institutional arrangements, and operational mechanisms to comply with the mandate under its constitution.

The study, while assessing strengths and gaps in terms of capacity, coordination, and knowledge management for preparation and management of any disasters in future scenarios effectively, finds that plans and policies at federal, provincial, and local levels are in place; however, there is a chance that the localization plans and policies will remain more in theory than in practice due to gaps in funding and institutional setup.

Regarding the institutional DRRM, the study has pinpointed the hurdles of NDRRMA in achieving its goals. Furthermore, the study has identified significant gaps in knowledge management and capacity enhancement of disaster government officials and management professionals.

The study suggests that research and training institutions can bridge the gap by bringing agencies together to share their knowledge, experiences, and learnings that can help DRR programming in local communities.

Lastly, the study highlights the importance of key responders and discusses their roles in managing the disaster. It has found that the overlapping mandates for response of security agencies could pose some problems in the future.

Accordingly, the study suggests having classified responsibilities for security agencies to make them more accountable.

The study was conducted in a limited timeframe and consulted with limited organizations based on convenience samples. Thus, the study only provides a quick overview of the most critical issues and challenges confronting DRRM in Nepal and does not cover all aspects of DRRM in the country.

Nonetheless, this study has highlighted important issues that can be further explored.

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