Emergency Preparedness and Response Assessment 2022 - 2030

Using the Ready 2 Respond Methodology

Government of Nepal

National Disaster Risk Reduction and Management Authority

2022

ABBREVIATIONS

APF	Armed Police Force
CAP	Common Alter Protocol
CCA	Climate Change Adaptation
CDOs	Chief District Officers
CPR	Cardiopulmonary Resuscitation
CSSR	Collapsed Structure Search and Rescue
DAO	District Administration Office
DBM	Dead Body Management
DEOC	District Emergency Operation Centre
DHM	Department of Hydrology and Meteorology
DM	Disaster Management
DMIS	Disaster Management Information System
DREE	Disaster Response Exercise and Exchange
DRR	Disaster Risk Reduction
DRRMA	Disaster Risk Reduction Management Act
DSP	Deputy Superintendent of Police
EHRP	Earthquake Housing Reconstruction Project
EHRP-PIU	Earthquake Housing Reconstruction Registration Program,
EMAP	Environmental Monitoring and Assessment Program
EMT	Emergency Medical Technicians
EOC	Emergency Operations Center
EPR	Emergency Preparedness and Rescue
EWS	Early Warning System
FCGO	Financial Comptroller General Office
FEWS	Flood Early Warning System
FMTC	Food Management and Trading Company Ltd
GIS	Geographic Information System
GLOF	Glacier Lake Outburst Flood
GoN	Government of Nepal
HAZMAT	Hazardous Materials
HEDMU	Health Emergency and Disaster Management Unit
HEOC	Health Emergency Operation Centre
HF	High Frequency
HR	Human Resource
HSAs	Humanitarian Staging Areas

ICIMOD	International Centre for Integrated Mountain Development
ICS	Incident Command System
ICT	Information and Communications Technology
INSARAG	International Search and Rescue Advisory Group
ISO	International Organization for Standardization
IT	Information Technology
KII	Key informant interviews
LDCRP:	Local Disaster and Climate Resilience Plan
LEOC	Local Emergency Operation Centre
LGO	Local Government Operationalization
LGOA	Local Government Operation Act
LMBIS	Line Ministry Budget Information System
LSGA	Local Self Governance Act
MDTF	Multi Donor Trust Fund
MFR	Medical First Responder
MIS	Management information system
MoHA	Ministry of Home Affairs
MoHP	Ministry of Health and Population
NA	Nepal Army
NCDM	National Council for Disaster Management
NCRA	Natural Calamity Relief Act
NDRA	Natural Disaster Relief Act
NDRF	National Disaster Response Force
NDRF	National Disaster Response Framework
NDRRMA	National Disaster Risk Reduction and Management Authority
NEOC	National Emergency Operation Centre
NFC	Nepal Food Corporation
NFPA	National Fire Protection Association
NGOs	Non-Governmental Organizations
NIMS	National Incident Management System
NP	Nepal Police
NRCS	Nepal Red Cross Society
NSET	National Society for Earthquake Technology – Nepal
PAIC	Province Affairs Information Center
PAN	Permanent Account Number
PEER	Program for Enhancement of Emergency Response

PEOC	Provincial Emergency Operation Centre
PHSA	Provincial Humanitarian Staging Areas
R2R	Ready to Response
SAR	Search and Rescue
SASCOF	South Asia Seasonal Climate Outlook Forum
SMS	Short Message Service
SOP	Statement of Purpose
SP	Superintendent of Police
SPSS	Statistical Package for Social Science
SSP	Senior Superintendent of Police
TOR	Terms of Reference
UHF	Ultra-high frequency
UK	United Kingdom
UN	United Nations
USA	United States of America
USAID	United States Agency for International Development
USAR	Urban Search and Rescue
USD	United States dollar
VAT	Value Added Tax
VHF	Very High Frequency
WASH	Water, Sanitation and Hygiene
WFP	World Food Programme

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Executive Summary

Nepal is one of the most vulnerable countries in the world to natural hazards. Yearly hundreds of lives are lost owing to natural hazards, and assets, both private and public, worth billions of NPR are lost. Nepal is a developing country with many development priorities such as physical infrastructure, education, health, manufacturing, etc., and thus most of the government budget have focused on this sectors. However, disasters such as an earthquake in seconds can wipe out development gains made over decades. Disaster risk reduction needs to be prioritized.

The main objectives of the consulting assignment was to assess the emergency preparedness and response capacity in Nepal and to prepare a work plan to strengthen the emergency preparedness and response system in Nepal. The consulting assignment was conducted over three months starting April 2022 till June 2022. World Bank's Ready to Respond (R2R) methodology was used to conduct the assessment, which looks at the whole ecosystem of emergency preparedness and response - legal and institutional mechanisms, information, facilities, equipment and training. During this assignment, the government and non-governmental stakeholders at federal, district and municipal levels were interviewed and consulted. Field visits were conducted in 23 municipalities in 7 Provinces.

Nepal has an overall score of 143.1 out of a total of 360. This is 39.8% and means that most of the attributes of the Emergency Preparedness and Response systems in Nepal are currently weak or were not in place at the time of the analysis. While Nepal's EPR systems can handle small scale disasters fairly well, handling medium to large-scale disaster is a huge challenge. Some major challenges include: severe lack of search and rescue equipment for different hazards, dysfunctional emergency operational center network, weak communication and IT systems, over-reliance on development partner funded projects or activities and lack of funding from the government. Legally, Nepal has plenty of laws, guideline, and directives that focus on filling these gaps; however, their implementation is not carried out or is weak. Seeing some of the existing gaps and duplications highlighted by this assignment, it can be argued that there is no strategic vision for strengthening the EPR system in Nepal which will help Nepal move away from reactive approach to a more systematic approach towards preparedness for response. This assignment collected recommendations from current and past-EPR experts in Nepal which have been grouped into 5 components of the R2R methodology. A investment plan has also been prepared from the recommendations made up of short-term (2 years), medium-term (5 years) and long-term (8 years) investments. The total cost of the investment on EPR is estimated to be NPR 24,089,700,000, which is equivalent to US$ 191.2 million.

Please note that this exercise in Nepal using the R2R Diagnostics Methodology is one of the first in South Asia, thus paving way for similar exercises in the region.

Chapter 1: Introduction to the assignment

1.1 General

This final report has been prepared as per the Terms of Reference (TOR) for **Selection of Firm for Emergency Preparedness and Response (EPR) System considering Four Levels Emergency Center (EOC) including Health Emergency Operation**. The main objectives of the consulting assignment are: a) to assess the emergency preparedness and response capacities in Nepal, and b) to prepare a work plan 2022 - 2030, including a budget plan, to strengthen the emergency preparedness and response system in Nepal. The 2030 timeline that this report follows matches that of Sendai Framework for Disaster Risk Reduction 2015 - 2030 (https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030).

The consultancy was commissioned by the National Disaster Risk Reduction and Management Authority, Government of Nepal. The Ready to Respond (R2R) methodology was been used to assess the emergency preparedness and response capacities. This report includes a summary of the findings and identifies key investment recommendations for each of the five R2R components. The research was done by a team of Nepali Disaster Risk Management professionals, including researchers and enumerators who were deployed in the field to collect data and conduct interviews. The research was conducted in 23 Local Governments (Municipalities) in all 7 provinces in Nepal.

1.2 Report Organization

This report is organized into 10 chapters. Supporting evidence, that substantiate the background, or the logics of conclusions and recommendations made, are given in 4 Annexes.

Chapter 1 provides the background and need and use of this research. Chapter 2 explains the methodology used as this is one of the first instances of the use of the methodology in South Asia. The research spins around five components that define the EPR capacity of a nation, namely, a) Legal and Institutional Framework, b) Existing Facilities for EPR, c) Availability of emergency preparedness equipment and logistics, d) Availability of EPR-trained personnel (expertise), and finally e) Existence and use of information management including accessibility to early warning system.

Chapter 3 provides a summary of the findings, which also aids in understanding the usefulness and importance of the methodology in a summary form by examining attribute-based scores for each indicator. This Chapter also list the major recommendations pertaining to each of the components classified as short-term (to be implemented within 2 years), Medium-term (to be implemented within 5 years), and Long-term (to be implemented within the next 8 years).

Chapters 4 - 8 provide the details of the diagnostic assessment of all components of EPR status. An overview is usually accompanied by a set of component conclusions followed by unpacking of related factors, financial analysis, and finally, an explorations of key investment opportunities alias recommendations of activities for improving the status of the component. This chapter is the heart of the report.

The next Chapter 9 includes the Gender Equality, Disability and Social Inclusion perspective into emergency preparedness and response. Chapter 10 proposes a work plan for EPR strengthening.There are 4 annexes of this document.

Chapter 2: Emergency Preparedness and Response Methodology – Ready 2 Respond (R2R)

2.1 General

This assessment of the existing emergency preparedness and response capacity of Nepal has been carried out using the R2R methodology devised by the World Bank and successfully used in many member countries. However, the present work is first of its kind in the use of the R2R Diagnostics methodology is one of the first in South Asia, thus it paves way for similar exercises in the region. The use of this methodology was done after a thorough review of pertinent existing information and implementing the tool in 23 selected Municipalities of Nepal where extensive work was done to collect primary data and information with direct face to face communication with pertinent stakeholders. In additional, detailed discussions were held with federal-level agencies who work on emergency preparedness and response, including NDRRMA, Ministry of Home Affairs, Ministry of Federal Affairs and General Administration, Nepal Army, Armed Police Force, Nepal Police, Nepal Red Cross Society, National Society for Earthquake Technology, etc.

The following sections provide details on the R2R diagnostic tool as well as on the nature and extent of primary and secondary data collected and analyzed in this study.

2.2 The R2R Diagnostic Tool

The diagnostic is designed to be an objective, data-driven foundation to engage country counterparts in EP&R development projects. As per the TOR, the methodology builds on the five core components of emergency preparedness and response: legal and institutional frameworks, information, facilities, equipment, and personnel.

Figure 1: Emergency Preparedness and Response System Core Components of R2R Diagnostic

Each component includes a set of criteria that address a particular aspect of a functional EP&R system for a jurisdiction. In turn, each criterion includes a set of four indicators, each with five key attributes that gauge the maturity of that aspect of the preparedness and response system. In total, the diagnostic examines 360 individual data points related to the strength of the EP&R system.

The Ready2Respond Rapid Diagnostic uses an attribute-based scoring system for every indicator. This allows results to be quantified and verified; key considerations for informing investments. Further, this approach ensures that results are replicable by largely removing subjectivity and qualitative assessment from the diagnostic approach. As well, the Ready2Respond Rapid Diagnostic avoids fidelity to any particular emergency management standard (e.g., NFPA, EMAP, CSA, ISO), communication standard (e.g., CAP, 700mHz), incident organization structures (e.g., NIMS, ICS), etc. Rather, the Rapid Diagnostic

focuses the scope entirely to the typical operational needs and creates room for the application of these standards in jurisdictional program design. This approach ensures that a market advantage is not created for any particular standard and that EP&R solutions can be tailored to the needs and context of the jurisdiction, rather than requiring the jurisdiction to conform to a standard at the outset of the discussion.

Secondary Data: The report is based on secondary data published by governmental and non-governmental agencies of Nepal and other relevant countries. This includes current laws, legislations, plans, and agreements. The secondary data are cited with proper references.

Primary Data: The EPR experts and enumerators have visited all 7 provinces, 15 districts and 23 Palikas including1 Metropolitan City, 6 Sub-Metropolitan Cities, 14 Municipalities, and 2 Rural Municipalities.

Furthermore, the team also had in-depth meetings with the following agencies: NDRRMA, MOHA, NEOC,

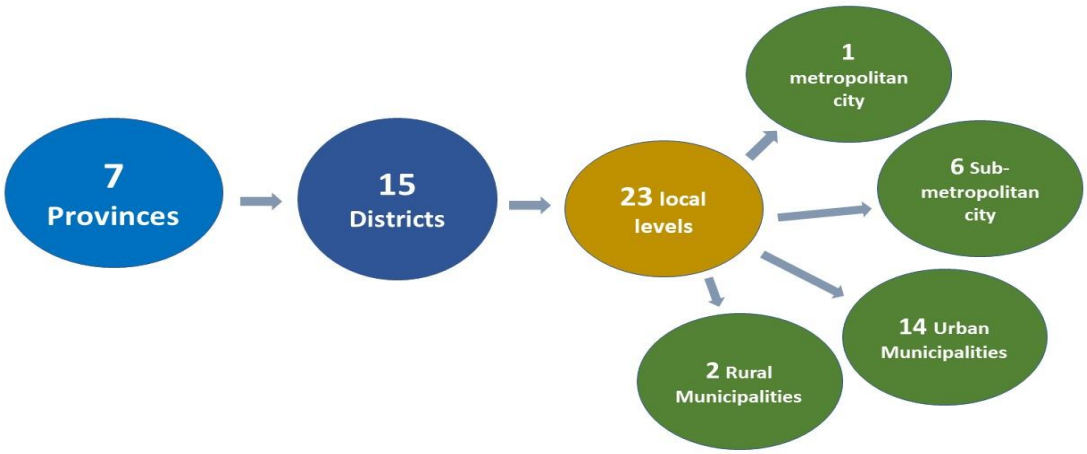

Figure 2: Coverage for EPR Assessment

Nepal Army, Nepal Police, Armed Police Force, Nepal Society for Earthquake Technology – Nepal (NSET), WFP, and Nepal Red Cross Society. The experts and enumerators held consultations with relevant stakeholders from various agencies at the local level. Key informant interviews (KII) with the concerned people from the government, NGOs, and other relevant experts in the field were organized. Before sending the team to the field, the team had finalized the R2R questionnaire through various internal and external consultations. The enumerators were trained collectively with all the necessary information about the research and the research requirements. Before being deployed in the field, the team members had full comprehension of the tools they were to use, what is the goal of the tool, what are the possible challenges in the field, and how to solve them. The data collection was done on mobile devices. All of the primary data collection have followed the ethical guidelines of research with full disclosure documents and information statements outlining the purpose of the research and the confidentiality agreement between the interviewer and the interviewee. The tools have been pilot-tested for contextuality and applicability in Nepal's context in EPR with a strong disaster rescue and response mechanism to check the validity of the questions.

Data Collection and Analysis: Kobo toolbox is the primary app and software that has been used to collect data and information from the field as well as during the meetings with key stakeholders in Kathmandu. Further analysis was done using SPSS and MS Excel for qualitative data, and NVivo for qualitative data.

Chapter 3: Overall Results

3.1 Nepal's EPR Scores

The R2R methodology's 360 attributes represent elements of the EP&R system that should be in place in a system considered fully mature. The maximum score that can be achieved is therefore 360. Nepal has an overall score of 143.1. This is 39.8% and means that most of the attributes of the EP&R systems are currently weak or were not in place at the time of the analysis.

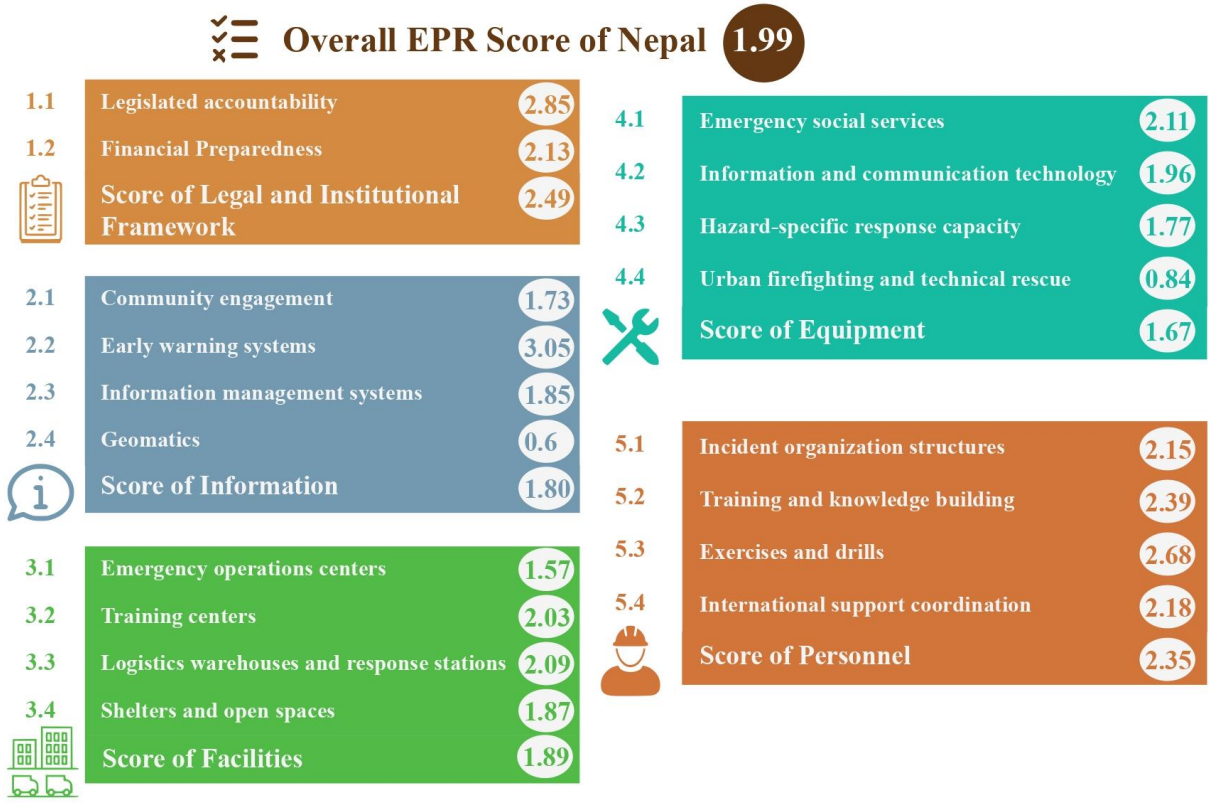

Table 1: Average EP&R Component and Criterion Scores for Nepal

Note: Scale from 0 (absent) to 5 (fully in place).

To support an overall understanding of the relative weakness or strength of elements in the EP&R system, the average score for each of the five components, 18 criteria, and 72 indicators have been calculated and transposed to scales from 0 (absent) to 5 (fully in place). These are listed in the table below.

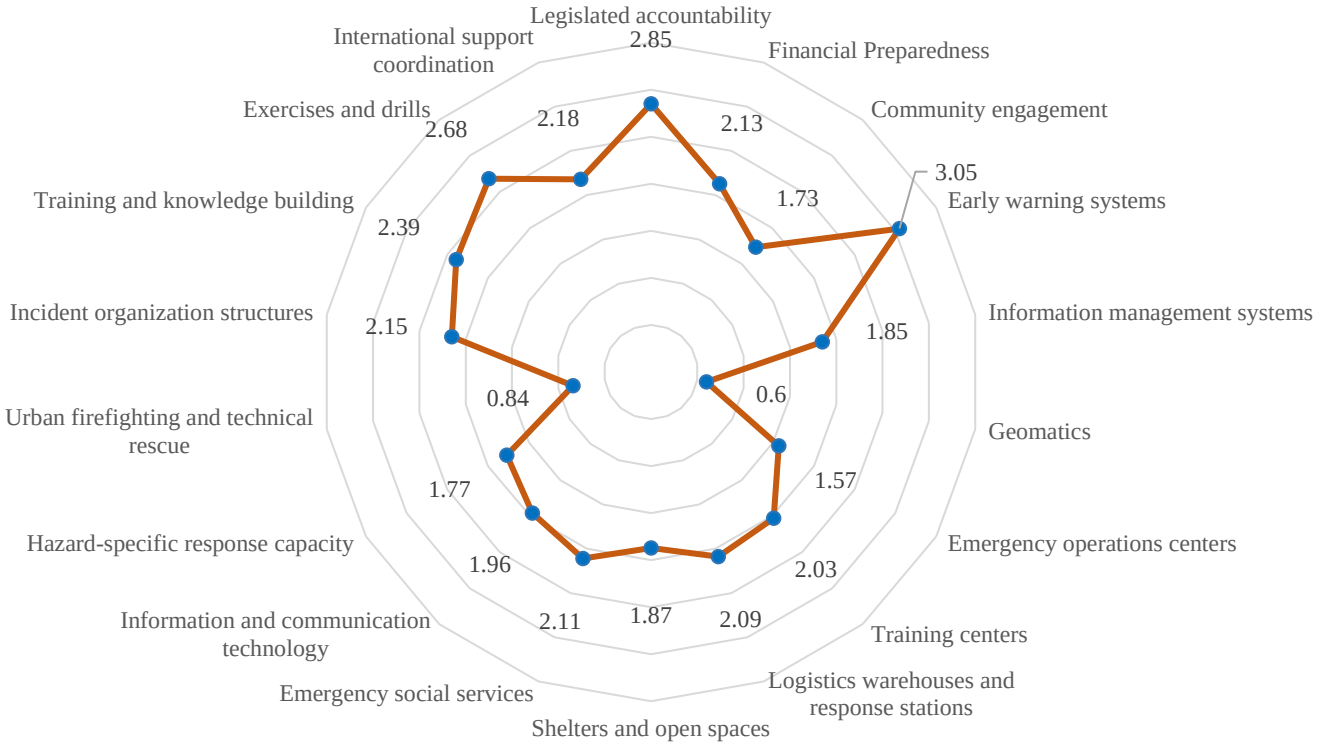

Figure 3: Diagnostic scores for Nepal

Nepal's EP&R scores vary greatly depending on the criteria and indicators used. Although legislative accountability is reasonably high, this number may not fully reflect reality. All four components—information, facilities, equipment, and personnel— have obtained low scores and need to be improved gradually. The system can handle modest response needs daily, but it lacks the operational framework for a coordinated and effective, interagency response for medium to large-scale disasters. For example, during the April 2015 earthquake, the incident command system was insufficient to oversee search and rescue activities. Although the security forces did their responsibilities in search and rescue, due to lack of proper equipment they were not as effective as they could have been. Despite having a strong legislative framework in place, Nepal has a tendency of responding to disasters on an ad-hoc basis.

Component 1 Legal and Institutional Accountability scored the highest with 2.49 out of 5, which is 49%. This illustrates that Nepal does have policies, frameworks, acts, regulations, guidelines, and standards related to EPR, but there are still room for improvement. One of the strengths of legal aspect of EPR in Nepal is that all three levels of government have developed a strategy framework, policies, procedures, and plans, as well as standard operating procedures, for disaster preparedness and response. Within the

component, however, financial preparedness is weak because adequate budget is not allocated systematically to EPR.

Component 5 Personnel received the second highest score of 2.35 out of a total of 5 points, or 47%, as shown in the table above. This means that the training system in Nepal is the most advanced among the 5 components, which makes sense because Government of Nepal and development partners have invested heavily on EPR training over the last 2 decades.

Component 3 Facilities also does not fair very well, with a score of 1.89 out of 5 which is 37.8%. Although the Government has established the EOCs throughout the country, almost none of them are operational because of lack of personnel, equipment, and IT and communication systems. They don't even have their own independent building.

Component 4 Equipment scored 1.67 out of 5, which is 33.4%. Comparing this with Component 5 Personnel (47%), it can be concluded that although there are EPR trained personnel (responders), Nepal severely lacks SAR equipment.

Component 2 Information management is weakest component of EPR system in Nepal, with a score of 1.8, which is 36%. It demonstrates that Nepal's information management systems, community engagement in disaster management, and early warning systems are all in need of significant improvement. Although 3-5 Disaster Information Management Systems exist in Nepal, they need to be consolidated, and new MISs need to be developed, for example, for database of trained personnel and inventory of SAR equipment.

3.2 Summary of recommendations

Below is the summarized list of recommendations:

Short Term (within 2 years) NPR 884,500,000 (US$ 7 Million)	EOCs need to have permanent staff	Legal and Institutional Framework
	The communication and chain of command need to be maintained between NDRRMA and EOCs network	Legal and Institutional Framework
	All the EOC offices need to have a standard operating procedure (SOP)	Legal and Institutional Framework
	Funds that exist in Central, Provincial, District and Local levels need to be used for preparendess activities	Legal and Institutional Framework
	Dedicated budgets need to be provisioned to the security agencies	Legal and Institutional Framework
	The mandate for Dead Body Management needs to be given to Nepal Police	Legal and Institutional Framework

	A common SOP needs to be prepared for fire brigades	Legal and Institutional Framework
	Agreement with neighboring Indian cities for fire fighting	Legal and Institutional Framework
	Develop a budget code for DRM and EPR activities	Legal and Institutional Framework
	SAR Equipment Inventory Information Management Systems need to be established	Information
	Training Management Information System needs to be established	Information
	Disaster Management Information System (DMIS) needs to be consolidated	Information
	EWS messages need to be disseminated widely	Information
	Development of the disaster data reporting protocol	Information
	Recognize the role of HAM radio operators in an emergency	Information
	Training Exchange or Consolidation of Training Facilities	Facilities
	Agree to the use of warehouses	Facilities
	Create SOP for warehouses	Facilities
	NDRRMA should provide a blueprint for EOC infrastructure	Facilities
	Local Palika should have at least one helipad	Facilities
	The EOC offices need to be adequately equipped and regularly maintained	Equipment
	A replenishment policy needs to be formulated and a budget needs to be	Equipment
	Prepare guidelines for the usage and storage of SAR equipment	Equipment
	Different EPR training needs to be streamlined	Personnel
	Scouts can be provided with basic first aid and relief training	Personnel
	DRM, medical first responder, and basic EPR training need to be integrated into the general training of security agencies	Personnel
	NRCS representatives to be a member of EOCs	Personnel
Medium Term (within 5 years)	Establish standing agreements	Legal and Institutional Framework

NPR 11,475,200,000 (US$ 91 million)	Nepal Police needs to have Light SAR teams	Legal and Institutional Framework
	The Common Alert Protocol (CAP) needs to be implemented	Information
	EOCs need to be strengthened in wireless communication	Information
	Give guideline and incentives to business to prepare Business Continuity Plans	Information
	Construction and upgrading of training facilities	Facilities
	EOCs need to be established in independent buildings	Facilities
	Combine EOCs (PEOC, DEOC, LEOC)	Facilities
	Procurement of SAR equipment for security agencies	Equipment
	Establishment of high-rise building fire-fighting capability	Equipment
	Insurance for EPR personnel and volunteers	Personnel
	NA and APF need to obtain INSARAG accreditation for Medium SAR teams	Personnel
	Local governments (Palika) need to organize EPR training periodically	Personnel
Long Term (within 8 years) NPR 11,730,000,000 (US$ 93 million)	Volunteers need to be produced for SAR	Legal and Institutional Framework
	Capacitate existing community-level structures	Legal and Institutional Framework
	Resources need to be shared between different levels of Government	Legal and Institutional Framework
	Construction of Multi-Agency National Disaster Training Academy	Facilities
	Construction of High-Altitude SAR Training School	Facilities
	A cluster of Palikas served by one EOC	Facilities
	Merge EOCs and Fire Brigade	Facilities
	Prepositioning of SAR equipment at ward level	Equipment
	HAZMAT disaster response capability	Equipment

Chapters 2 – 6 has detailed diagnostics of the five components of EPR, and also the list of recommendations.

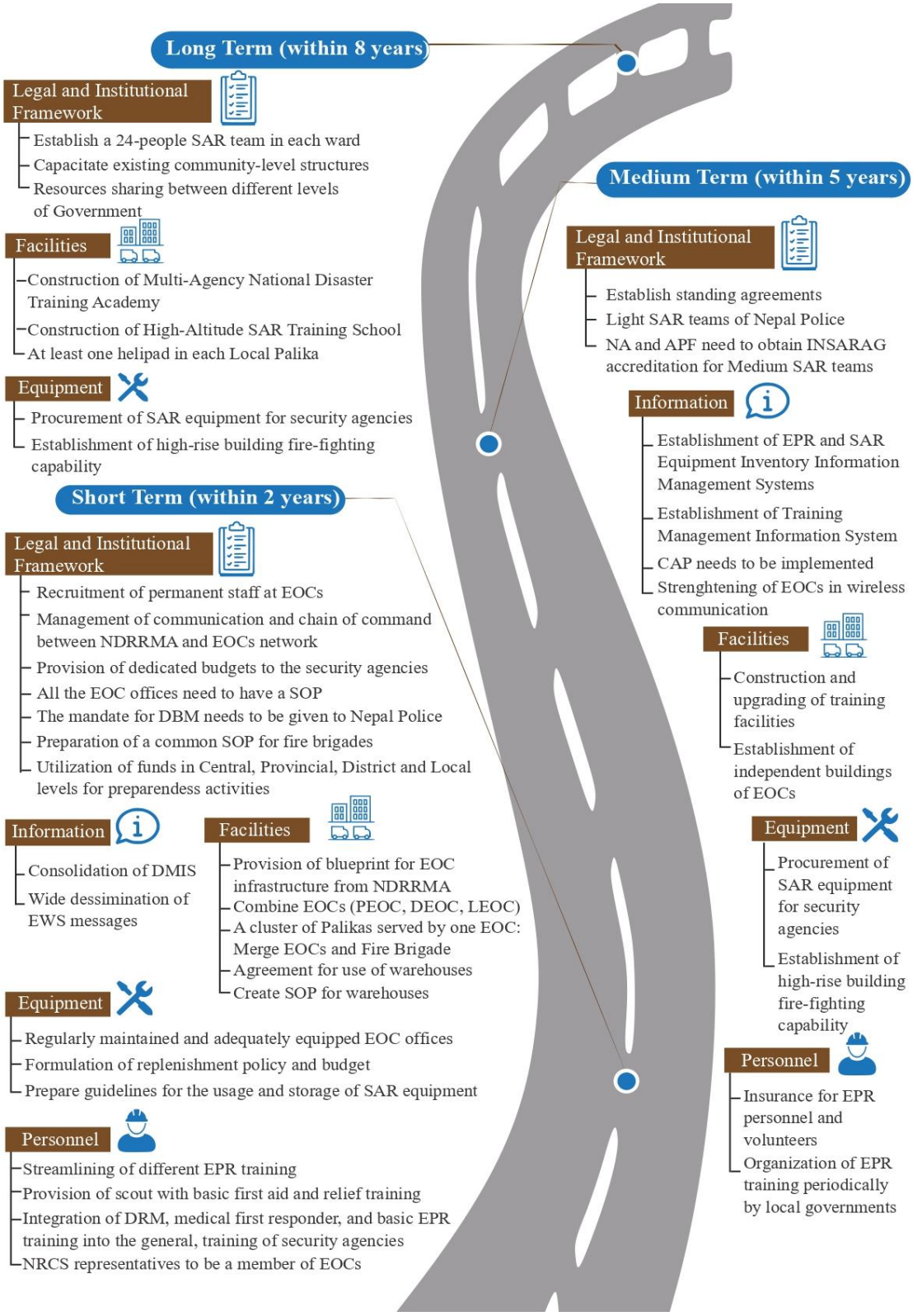

Figure 4: Early Preparedness and Response Roadmap 2022-2030

Chapter 4: Legal and Institutional Accountability (Component 1)

4.1 Component Overview

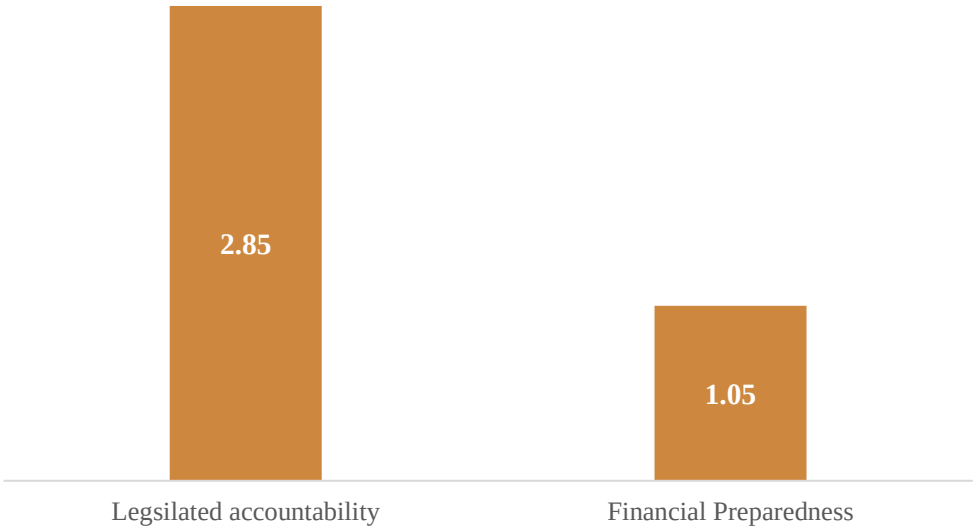

Figure 5: Criteria-wise score on component 1- Legal and Institutional Framework

Note: Scale is from 0 (absent) to 5 (fully in place).

Internal and external clarity about the role of various public and private agencies is critical during disaster and emergency response. Where ambiguity exists, inefficiency and jurisdictional overlap are likely, and human and economic losses may be greater than they would otherwise be. Improving clarity about institutions' preparedness and response roles can be a potent means to improve resilience at various levels of government. Further, clarity about roles ensures that World Bank investments in capacity do not lead policy but instead that policy comes first, with financial and technical support provided at the right time to the right agency.

Ideally these accountabilities are clearly enshrined in legislation with directive regulations. Where possible, coordinated policy instruments should identify the operational expectations for agencies assigned a preparedness and response mandate. However, even in the absence of complete organizational clarity, investment in preparedness and response can often improve a jurisdiction's ability to mitigate impacts and limit disaster- and emergency-related losses.

4.2 Component Conclusions

In 2017, Nepal implemented a new federalized governance structure – a significant shift from district level administration to a devolved structure of seven provinces and 753 local government units (6 Metropolitan Cities or Mahanagarpalika, 11 Sub-Metropolitan Cities or Upamahanagarpalika, 276 Municipalities or nagarpalika, and 460 Rural Municipalities or Gaupalika) covering urban and rural areas across the country.

In this report, the writers are using "Palika", a Nepali word for a city or township, to refer collectively to all the 4 different types of Municipalities. Province Governments and Palikas have the authority and responsibility to plan and execute service delivery that was historically done at the district and national levels, including for issues on disaster risk reduction/management and climate change. Although federalism is predicted to improve service delivery in the mid-to-long term, capacity challenges at the provincial and municipal levels must be addressed to prevent under-execution of budgets for effective service delivery.

The Constitution of Nepal 2015 gives responsibilities for DRM to all three levels of government - Federal, Provincial, and Municipal. Furthermore, the Disaster Risk Reduction and Management Act and Disaster Risk Reduction and Management Regulation give different roles, responsibilities, and authorities to different levels of government. Interestingly, these two documents (Act prepared in 2017 (amended in 2019) and Regulation prepared in 2018) give roles, responsibilities, and authorities to the District Administration Office too, which is a District-level office under the Ministry of Home Affairs. The NDRRMA Act has established the National Disaster Risk Reduction and Management Council which is headed by the Honorable Prime Minister. Similarly, the Disaster Risk Reduction and Management Executive Committee is headed by the Honorable Home Minister. Both high-level structures give strategic guidance to the NDRRMA for various DRM activities, including EPR, and NDRRMA functions as the secretariat of both committees. At the provincial level, there are the Provincial DRRM councils and committees. At the district and municipal levels, there are the DRRM committees.

Within the Government of Nepal's system, the mandates for disaster preparedness and response lie with the following agencies:

- **NDRRMA**: The DRRM Act gives the mandate of coordination of disaster preparedness and response to NDRRMA. The mandate also includes health hazards. The main responsibilities of NDRRMA and its Committees at sub-national levels are to liaise with different government and non-governmental agencies, coordinate preparedness and response activities, data and information management, and disaster communication.
- **Emergency Operations Center (EOC)** network: EOC network (at Federal, Provincial, District, and Municipal) are the operational wing of NDRRMA for preparedness for response, response coordination, data collection, analysis, management, and communication and dissemination.
- **Health Emergency Operations Center (HEOC):** HEOC mainly deals with health-related hazards such as epidemics. HEOC coordinates with NEOC and security agencies as per need, especially in epidemics in post-disaster situations.
- **Security Agencies** (Nepal Army, Nepal Police, Armed Police Force): The Government (Executive Committee and NDRRMA) can instruct the three specialized security agencies for preparedness and response activities.
- **National Volunteer Bureau:** Recently approved Disaster Risk Reduction and Management Volunteer Bureau Formation and Mobilization Guidelines stipulate that volunteer groups will be formed at the Palika level throughout the country which will implement pre-disaster preparedness and response activities.

Within the non-governmental sector, the following agencies play a critical role in disaster preparedness and response: Nepal Red Cross Society, National Society for Earthquake Technology - Nepal, United Nations Agencies, International and National Non-Governmental Organizations, and the Private Sector (mainly for procurement of SAR equipment). In addition to the above, the Government of Nepal as well as some non-governmental agencies have established warehouses in different parts of the country to pre-position food and non-food items, such as search and rescue equipment, tents, medicines, etc. Detail of warehouses is mentioned below.

Palikas' investment in disaster risk reduction (DRR) and climate change adaptation (CCA) is critical for ensuring resilient development. Key stakeholders must understand the current governance structures, processes, and investment outcomes of municipalities for DRR and CCA so newly formulated guidelines, policies, and resources support the needs of local governments. Infrastructure development is a top priority for federal, provincial, and local governments, and large sums of grants and government funding are allocated to it. As a result, DRM and EPR are not among the country's top priorities, even though the federal government spends a significant amount of money on ex-post activities such as relief, response, and recovery.

Legally Nepal has ample disaster risk management policies and tools that enable EPR at all three levels of the government and there is a lot of scope for key government agencies to invest in EPR in Nepal, which is a very positive sign. However, many gaps still exist; for example, some provinces (Gandaki and Karnali) still don't have the Provincial Disaster Risk Reduction and Management (DRRM) Act. Similarly, many Palikas don't have DRRM Act and Local Disaster and Climate Resilience Plan (LDCRP). Likewise, either SOP does not exist or is not followed in most of the EOCs (PEOCs, DEOCs, and LEOCs). The security agencies have their disaster response forces; however, due to the lack of a comprehensive HR development strategy or plan, there seems to be duplication of efforts and resources, as well as unfulfilled gaps. These have resulted in inefficient and unsystematic emergency preparedness and response operations.

To some extent, Nepal's preparedness and response activities are guided by the National Disaster Response Framework (NDRF - please see Component IV for more details). However, the key EPR stakeholders have not yet prepared based on the roles and responsibilities outlined in the NDRF. Furthermore, the governance structure is complicated because of the unclarity of the chain of command between different levels of government. For example, there is still no clear chain of command between the EOCs at 4 levels of government. Thus, there are gaps in coordination, implementation, and reporting that are rendering the whole disaster response system weak.

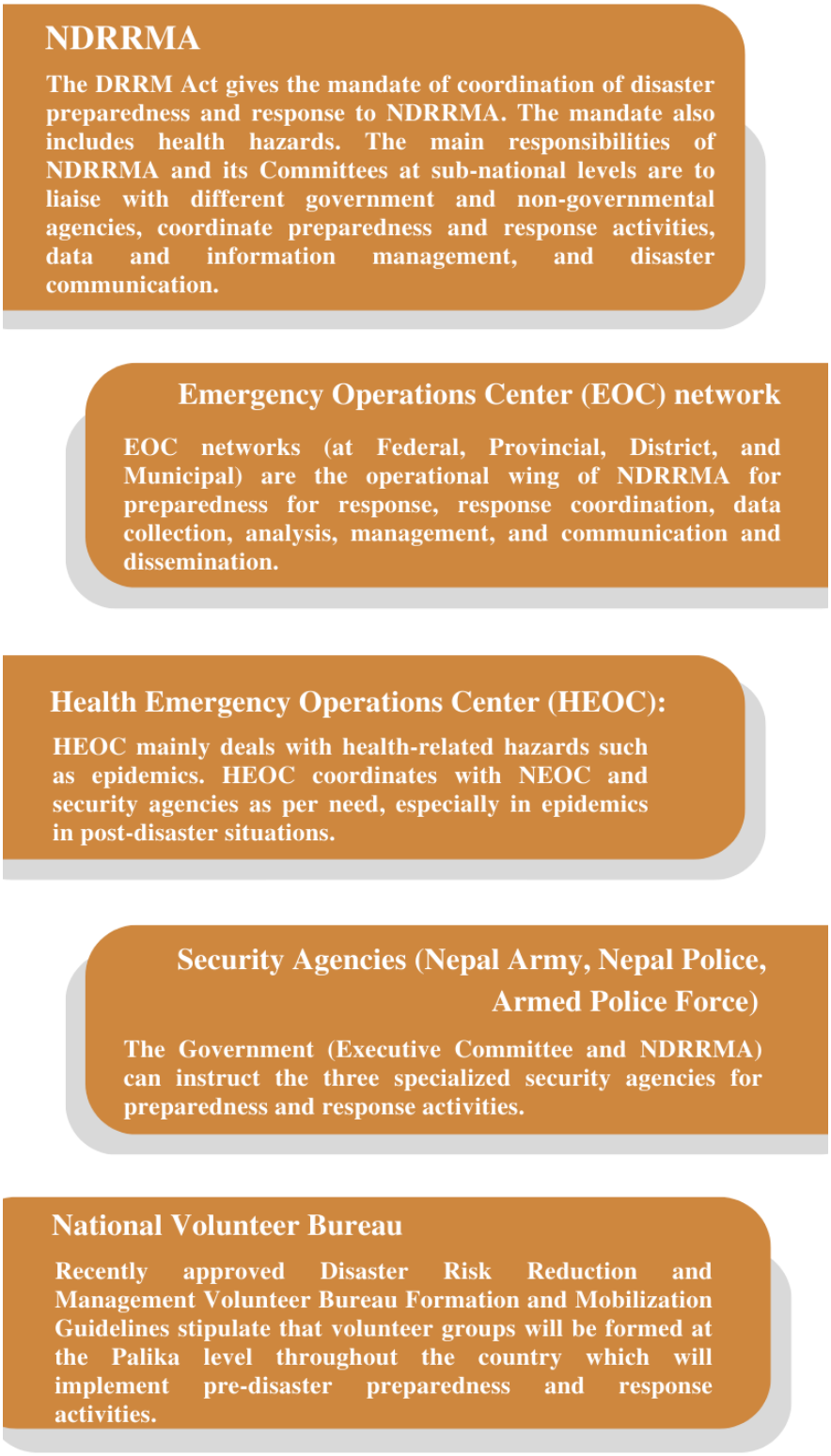

Figure 6: Responsible agencies for DRM in Nepal

Figure 7: DEOC Office, Makwanpur

To some extent, Nepal's preparedness and response activities are guided by the National Disaster Response Framework (NDRF - please see Chapter 5 Information for more details). However, the key EPR stakeholders have not yet prepared themselves based on the roles and responsibilities outlined in the NDRF. Furthermore, the governance structure is complicated because of the unclarity of the chain of command between different levels of government. For example, there is still no clear chain of command between the EOCs at 4 levels of government. Thus, there are gaps in coordination, implementation, and reporting that are rendering the whole disaster response system weak.

4.3 Financial Analysis

The team reviewed the red book (detailed annual budget) published by the Ministry of Finance. The budget allocation and expenditure on activities related to Disaster Risk Management are uneven; they may correlate with disaster events in that fiscal year or the previous one. However, an upward trend of budget allocation for DRM has been seen in recent years; a partial reason for this is the budget allocation for reconstruction activities following the 2015 earthquake, 2017 floods, and 2019, 2020, and 2021 floods and landslides. Please also note that the budget allocated for COVID-19 response was sometimes tagged under the Disaster

Response Fund at the local level; therefore, budget in the recent years have also increased due to this. Separate entities, namely Emergency Operations Center offices, and the National Disaster Risk Reduction and Management Authority have been established by the Government of Nepal, which also corroborates the increased budget and expenditure.

In the last 10 years, the major entities that have implemented emergency preparedness and response-related activities are the Ministry of Home Affairs, NDRRMA, EOC offices, National Reconstruction Authority (2015 - 2021), Nepal police, Armed police, Nepal army, and district administration offices in the federal context and Province Government and Municipalities in sub-national context.

Most of the activities related to emergency preparedness and response are done by MOHA and agencies under its jurisdiction, which includes NDRRMA, EOC network, Nepal Police, Armed Police Force, and District Administration Office. The amount allocated for MOHA in F.Y. 2078/79 is Rs. 22,800,000.00, and Rs. 794,000,000.00 was allocated to NDRRMA. Besides these, there was no separate budget allocation for relief, rescue, and rehabilitation to any other government entities. It may be that other agencies were allocated budgets for emergency preparedness and response activities, but the allocations were not assessed under this consultancy as they have been budgeted under the sub-head of the program budget, security system, and equipment procurement. Rs. 868,100,000 in recurrent budget and Rs. 1,449,500,000 in capital budget were allocated to the Ministry of Forest and Environment under several projects (Nepal Climate Change Support Programme, REDD Forestry Programme, Rastrapati Chure Programme, etc.), but by just looking at the budget allocation it can’t be determined what activities were implemented and whether or not they are related to EPR.

Prior to 2017, the Ministry of Home Affairs (MOHA) used to manage the Natural Disaster Relief Fund which is the federal-level fund that is used for the following purposes: a) provide relief funds to victims of a disaster in case of death, injury, loss of property, etc., and b) provide logistics cost, such as use of helicopter for rescue and relief. The accounts of the Fund were in different commercial banks. After the enactment of the National Disaster Risk Reduction and Management Act, the MOHA changed the name of the National Disaster Relief Fund to Central Disaster Management Fund and it was supposed to be handed over to the NDRRMA; however, the management of the NDRRMF still remains with MOHA. As per the latest information, the National Disaster Fund has more than NPR 1 billion (roughly US$ 9 million) which has been accumulated over the years following allocations by the Government of Nepal.

As per the DRRM Act, 2074, Clause 22 provisioned a Disaster Management Fund at the central level to be managed by NDRRMA. Likewise, Clause 23 also provisioned a separate disaster management fund in province, district, and local level also. While the Provinces have created such funds, not all local levels have established the funds.

There is also a fund in office of prime minister and council of ministers named Prime Minister's Relief Fun

Status of these funds are as follows:-

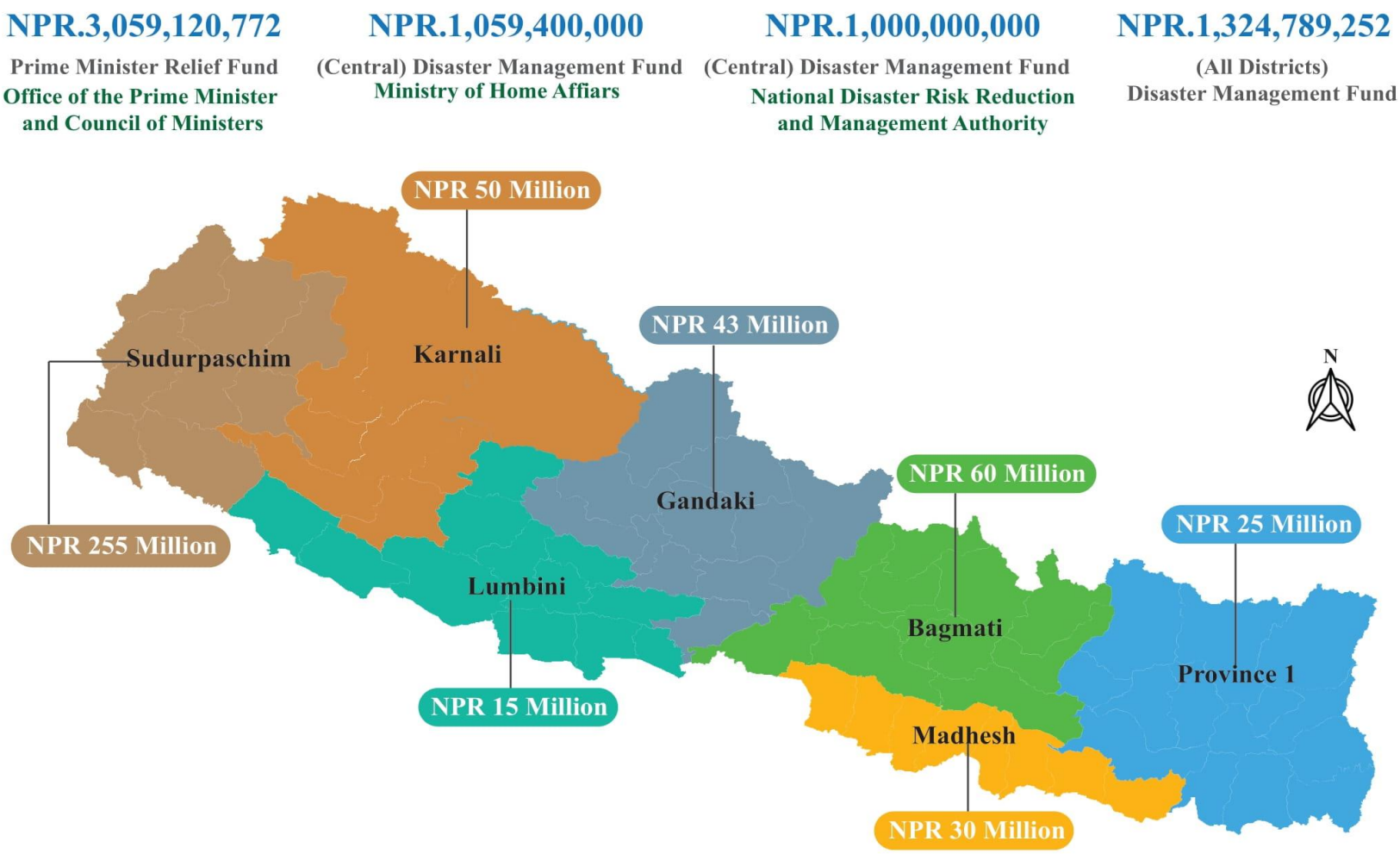

Figure 8: Federal, Provincial and Distrct level Disaster Management Fund

**Note: information as of June 15, 2022.*

District level have also that type of fund. Status of the funds are as follows:

Name of district	Amount (NPR)	Name of district	Amount in NPR
Ilam	9,848,443	Tanahu	2,644,099
Udayapur	1,601,572	Nawalparasi Purba	402,010
Okhaldhunga	7,854,685	Parbat	1,174,303
khotang	581,500	Baglung	1,241,131
Jhapa	17,571,700	Manang	1,863,130
Taplajung	3,659,000	Mustang	2,625,156
Tarathum	974,488	Magdi	2,522,685
Dhankuta	1,241,930	Lamjung	18,236,227
Panchthar	392,377	Sanjaa	2,021,174
Bhojpur	507,747	Arghakhanchi	3,000,000
Morang	17,185,980	kapalvastu	3,314,623
Sankhuwasabha	2,311,300	Gulmi	1,146,000
Sunsari	10,025,000	Dang	26,010,521
Solukhumbu	1,687,190	Nawalparasi Paschim	4,025,080
Dhanusha	4,792,132	palpa	7,845,152
Parsa	16,785,035	Puthan	1,386,110
Bara	10,661,231	Bardiya	30,956,000
Mohattari	30,598,729	Banke	21,782,822
Rauthat	176,545,032	Rukum purba	1,045,370
Saptari	166,136,790	Rupandhai	135,000,000
Sarlahi	42,346,758	Rolpa	873,323
Siraha	9,043,772	Kalikot	903,564
kathmandu	19,048,794	Jajarkot	1,310,257
kavrepalanchok	21,701,751	Jumla	400,000
chitwan	292,600	Dolpa	860,000
Dolakha	705,000	Dailekh	1,181,600
Dhading	151,526,523	Mugu	750,000
Nuwakot	112,320	Rukum Paschim	1,739,552
Bhaktapur	1,800,000	Salyan	3,685,833
Makawnpur	1,418,890	Surkhat	14,951,488
Rasuwa	1,172,622	Humla	4,633,029
Ramechhap	537,610	Achham	5,096,671
Lalitpur	53,625,246	Kanchanpor	5,657,245
Sindhuli	804,000	Kailali	210,000,000
Sindhupalchowk	6,602,603	Dadaldhura	1,415,109
Kaski	1,520,249	Doti	1,839,071
Gorkha	4,476,000	Darchula	1,408,454
Bajhang	279,566	Baitadi	911,553
Bajura	954,745		

Disaster risk reduction and management act, 2074 also provisioned a separate fund in municipalities. Some representative status is as follows:-

Name of municipality	Amount (NPR)	Name of municipality	Amount (NPR)
Siddartha Nagar Municipality	1,000,000	Biratnagar Metropolitan	50,000,000
Butuwal sub metropolitan	24,700,000	Dhankuta municipality	1,000,000
Ghorai municipality	50,000,000	Dhangadhi municipality	3,000,000
Birendranagar municipality	5,000,000	Tikapur municipality	8,000,000
Rajbiraj municipality	3,000,000	Rajapur	5,000,000
Kanchanrup municipality	2,000,000	Barbardiya	1,500,000
Chendrapur municipality	1,000,000	Gularia	10,000,000
Tila	700,000	Tatopani	1,300,000

In August 2018 (Bhadra 2075) the Ministry of Federal Affairs and General Administration sent a sample fund operation and mobilization guideline to all municipalities which became a template for all the municipalities to developed their own Municipal Disaster Risk Reduction and Management Fund Operations Guideline. However, it must be noted that while most of the municipalities throughout Nepal have established the Municipal Disaster Risk Reduction and Management Fund, not all the municipalities have established the Operational Guideline, without which expenditure on EPR or DRM is difficult.

National Disaster Risk Financing Strategy

The National Disaster Risk Financing Strategy 2020 (NDRFS) is developed by the NDRRMA, with support from the World Bank, with a goal to ensure pre-arranged financial mechanisms for providing adequate financial resources in both pre-disaster and post-disaster periods while reducing financial, physical, social, and human losses from disasters.

NDRFS has identified following strategic activities:

1. Conduct natural and non-natural hazard mapping at National, Provincial, District, Sub-national and Community levels; estimate disaster risks; and maintain updated details of risk-prone places, communities, physical structures, natural resources, basic services etc. by entering them in the National Disaster Risk Information System.
2. Implement necessary financial planning according to determination of the volume of contingent liabilities by employing Financial and Actuarial Analytics to provide information about potential financial and economic losses and impacts from disasters.
3. Conduct investigation, study, research and analysis on nature of hazards and potential situations arising therefrom, and enter them in Disaster Information System of Federal, Provincial and Local Levels.
4. Make timely amendments in the National Disaster Risk Assessment and Management Information System- NDRA-MIS and enhance capacity thereof, enabling it to perform data collection and processing, and manage information about adverse impacts of climate change as well as all communities which are at risk of disasters. In addition, expand the Data System to the Provincial and Local Levels.

5. Implement disaster risk reduction measures and risk transfer instruments by making appropriate provisions of necessary standards/norms, conditional grants, reward, punishment, fine etc. in the implementation process of development plans and socio-economic activities of Federal, Provincial and Local Levels.
6. Develop and expand the capacity of Hazard Monitoring and Disaster Early Warning Information Systems. In addition, develop and implement laws, guidelines and Common Alerting System (CAP) that are necessary for establishment and effective operation of Hazard Monitoring and Disaster Early Warning Systems.
7. Adopt the measures to economic recovery of Private, Public, and Sovereign Assets from disaster damage through life and non-life insurance products by pursuing necessary policy, structural and practical reforms.
8. Make a provision of Catastrophe Fund to cover the catastrophic loss in excess to first loss cover transferred to insurance disaster of public service infrastructures; especially historical, religious and cultural heritages; and sovereign liabilities.
9. Create an enabling environment necessary to involve the private sector and capital market in disaster risk reduction and management.
10. Make arrangements of public and private financing for risk reduction and risk transfer through identification and measurement of economic and financial risk of public and private sectors related to disaster.
11. Make arrangements for liquid financial resources, such as Reserves Catastrophe Bond, Contingent Credit, Insurance Linked Securities and other available disaster management financing instruments at the onset of catastrophe.
12. Make provision of adopting pre-arranged and well-planned protection measures like insurance and reinsurance to maintain financial stability of banks, insurance and financial service provider organisations and cooperatives for managing their financial risks during a disaster.
13. Encourage to prepare Business Continuity Plan to minimise the damage and immediately run the services smoothly during a disaster, by making legal provisions of risk reduction and safety measures required to be adopted while operating services of public service provider government agencies and firms, enterprises, businesses etc. of private sector.
14. Make the disaster preparedness and response more effective by ensuring proper management of Federal, Provincial and Local Disaster Management Funds to enhance financial capacity for response actions according to nature, magnitude and impact of various types of disasters.
15. Make provision of providing insurance security to persons engaging in various professions and occupations as a livelihood source, poor people, marginalized and vulnerable groups immediately for restoration of their livelihood after a disaster, in accordance with the law.
16. Establish and operate Pre-arranged Financing Mechanism.
17. Ensure Early Warning Information based pre-financing by making weather forecast dependable.
18. Conduct pilot test of, develop and implement the concepts and practices of promotion of new financing to be available for disaster risk reduction, economic resilience, institutional resilience and management.

19. Conduct pilot test of, develop and implement the concepts and practices of promotion of new financing to be available for regional and cross border (Regional and Cross Border e.g. SAARC, BIMSTEC, Nepal-India, Nepal-China) disaster risk reduction and management.

Catastrophe Deferred Drawdown Option (Cat - DDO)

In line with the recommendation of point 16, the Government of Nepal has signed a Development Policy Credit - Catastrophe Deferred Drawdown Option, which is a contingent financing worth US$ 50 million available to Government of Nepal in case of a disaster. This is a good example of emergency financing strategy. The Government has disbursed monies from this fund twice in 2020 and 2021. However, this arrangement is coming to an end in 2022.

Analysis of the data in the Red Book published by the Ministry of Finance reveals the following:

1. A sufficient budget has not been allocated to emergency preparedness activities, because a lot more budget is spent on post-disaster response and recovery activities.
2. Of the funds managed by MOHA and Disaster Administration Offices, almost all the funds are used for relief and response activities only, particularly for giving compensation in case of death, injury, and loss of houses.
3. While monies exist in the Central and District level Funds' accounts, the funds are not used for pre-disaster activities, such as risk assessment, risk mitigation and preparedness. In many cases, Funds are not even allocated for drills for emergency preparedness.
4. Budget allocation for relief, response, and rehabilitation activities occur in the post-monsoon period when floods and landslides have caused much damage.
5. The Government's fiscal year is 1 Shrawan - 30 Asar (16 July - 15 July). The discussions and budget preparation happen around Falgun, Chaitra (Feb - April); so, the budget is not yet allocated for relief and response activities because Monsoon-induced disasters haven't happened yet (Monsoon is from mid-June to mid-September).
6. Only nominal (average Rs. 287,196,000 per year (based on five F.Y.s data) amount is expended to the federal-level disaster reduction and management fund (previous natural calamities and relief fund). In fiscal year 2074/75 only NPR 100 million has been expended and there is no expenditure in other fiscal years (Prime Minister Disaster Relief Fund and National Disaster Risk Reduction and Management Fund) - this means that there is money in the two federal funds, but they have not been expended on preparedness or risk mitigation activities. Annual program activities and budget is not prepared for these funds.
7. When disasters strike, usually the money allocated to these funds is not enough. Thus additional funds need to be allocated for relief, response, and recovery activities from other development activities. Budget reallocation is done only after the first trimester of the fiscal year (the Financial Procedural and Fiscal Accountability Act 2076 prevents the Government from doing budget virement and reallocation before the end of the first trimester). This delay means the emergency response and recovery activities are underfunded and thus less effective and less impactful.
8. The Line Ministry Budget Information System (LMBIS) may show the exact budget approved and expenditure incurred but currently, the team does not have access to the LMBIS data. The Red Book does not show the expenditure of Provincial Governments and Municipalities. So, the

expenditure detail for Provinces needs to be obtained from Financial Comptroller General Office (FCGO) records, which the team didn't have access to. In addition, budget and expenditure details of Municipalities also need to be collected from the SUTRA system, which is the financial accounting management system used by municipalities.

9. There is no specific budget code for DRM activities; due to this, the budget portfolio analysis has not revealed any substantive findings.

4.4 Key Investment Opportunities (Recommendations)

Recommendation 1

EOCs need to have permanent staff: Currently, the provision for staffing at all EOCs is inadequate. At the federal level, the selection of chief of NEOC needs to be more rigorous: s/he needs to have proven experience in handling complex emergency response situation(s) and need to take at least 2 advanced trainings on EPR in particular and DRM in general. Furthermore, the appointment for the chief of NEOC needs to be made for at least 5 years. In the case of DEOCs, the deputy CDO is generally the head of DEOC. However, a deputy CDO has many other important responsibilities, which means DEOCs are effectively without a chief. There is also no official understanding between NDRRMA, MOHA, Nepal Police, or Armed Police Force for staffing at the DEOCs; there is no permanent staffing position for Nepal Police and or APF personnel at DEOC. The cases are similar for PEOCs and LEOCs, where there are no permanent staffs, rendering the EOCs ineffective. EOC office staffing needs to be made permanent) and include personnel from Nepal Police and Armed Police Force. NP and APF staffs are trained in radio communication. This will create a career path and encourage people to specialize in disaster preparedness and response.

Recommendation 2

The communication and chain of command need to be maintained between NDRRMA and EOCs network: Although the NEOC is mapped under the NDRRMA NEOC generally receives instruction from the disaster management division of MOHA; there is already a disconnect between NDRRMA and EOC system at the top of the chain. Similarly, there is a disconnect in the chain of command between NEOC and PEOC, NEOC and LEOC, and DEOC and LEOC; this is because NEOC and DEOCs are under NDRRMA, whereas the PEOCs are under the Provincial Governments and LEOCs are under the Palikas. Thus, LEOCs do not follow the instructions given by NEOC and DEOC. Similarly, PEOCs don't readily follow the instructions given by the NEOC. Although in theory, the EOC offices should follow one chain of command, it is not the case. A policy-level decision needs to be taken by the Government of Nepal that establishes a single chain of command. This needs to be reflected in the Standard Operating Procedures (SOPs) of 4 types of EOCs.

NDRRMA <----> NEOC <----> PEOCs <----> DEOCs <----> LEOCs

Recommendation 3

All the EOC offices need to have a standard operating procedure (SOP): The establishment of EOC offices started in 2010. The SOPs of NEOC and DEOCs were prepared in 2012 by MOHA. However, the SOPs have never been contextualized to the local conditions and have never been revised based on learning over the last 11 years. The DEOC's SOPs do not recognize LEOCs or PEOCs, therefore they do not follow the same chain of command and there is no information exchange between PEOCs, DEOCs, and LEOCs. On an urgent basis, the SOPs of all EOC offices need to be revisited and revised. The SOPs must consider including at least one drill exercise per year and must also contain the regular materials replenishment procedure and management approaches. It is suggested that NDRRMA annually monitor (based on a checklist/M&E framework) the functioning, operation, and efficiency of EOCs offices which include NEOC, PEOCs, DEOCs, and LEOCs.

Recommendation 4

Funds that exist in Central, Provincial, District and Local levels need to be used for preparendess activities: The budget analysis revealed that monies allocated to Disaster Risk Management Funds at federal, provincial, district and municipal levels are sitting idly over many years. Altogether, more than NPR 6 billion remains in these funds. Paradoxically many important pre-disaster activities (drills, trainings, equipment SAR equipment purchase or replenishment, repair and maintenance, etc.) well as post-disaster recovery activities are either not funded or underfunded. Many of the short-term and medium-term activities recommended by this report can be financed by the monies sitting idly. If not all, some percentage of these funds needs to be spent on important emergency preparedness and response activities.

Recommendation 5

Dedicated budgets need to be provisioned to the security agencies: Currently, the Government of Nepal provides a budget to NDRRMA and MOHA (including EOC offices) for any type of DRM/EPR activities, but no budget is allocated to the three security forces who do most of the EPR-related work. Either NDRRMA from its own budget or the Ministry of Finance (upon recommendation of NDRRMA) needs to provide a budget to the security agencies annually for different types of EPR activities.

Recommendation 6

Establish standing agreements: It is recommended that the NDRRMA has standing agreements between different agencies. For example, NDRRMA needs to have a standing agreement with Food Management and Trading Company (previously Khadya Sansthan, a government-owned state company) and Nepal Warehousing Company (new, private-sector owned food warehouse) for the distribution of food items in times of disaster. Similarly, NDRRMA needs to have a standing agreement with Department of Commerce, Supplies and Consumer Protection (Banijya Bibhag) and Department of Customs(Bhansar Bibhag) for the relaxation of import duties on a list of important items during disasters so that time is saved, and bureaucratic hassles are avoided. Furthermore, NDRRMA needs to have agreements with commercial banks for the transfer of relief monies to identified victims of disasters.

Recommendation 7

Establish a ward-level EPR team throughout Nepal: Past Nepali and global experiences confirm that during any disasters, the first responders are community people. Therefore in the medium to long-term the Government of Nepal needs to establish community-level trained SAR teams in each ward of the country. This mainly includes i) training for community volunteers, and ii) pre-positioning of training and SAR equipment in each ward of Palikas. It is recommended that a minimum of 24 trained CADRE (Community Action for Disaster Response) volunteers be trained in each ward, which will result in 161,832 trained volunteers throughout Nepal (6,743 wards x 24 SAR volunteers). This would make disaster preparedness and response much more effective.

Recommendation 8

Capacitate existing community-level structures: Kathmandu Valley's Newar communities, there is the Guthi system which is a committee of community leaders who are primarily responsible for religious and social activities within their community. The major responsibility of Guthi is to support the members in times of need, especially during birth and death rituals, festivals, social events, and disasters events, etc. Beyond that, Guthis own lands and communal buildings which are rented (rental income sustains some annual activities of Guthi). These buildings are used as places to hold communal congregations. In the aftermath of the 2015 earthquake, many such communal buildings provided immediate shelter to those who needed it. Eventually, the communal buildings were used to store and distribute relief materials. As of 2019 there are more that 2400 public and private Guthis registered in the Guthi Sansthan all over Nepal. While Guthi system is commonly practiced by the Newar communities in Kathmandu Valley and a few other places, but there are many other forms of community groups all over Nepal. As these structures have deep community ties and have been used as a commonplace to help the people in times of need. The social hierarchy helps to accumulate and spread information during disaster scenarios. Members of the Guthi can be trained on SAR, and Guthi buildings can store SAR equipment which can be used in an emergency. It is recommended that NDRRMA make arrangements with different Guthis for capacity building for effective response.

Recommendation 9

A common SOP needs to be prepared for fire brigades: All three security agencies and a few Palikas (mostly urban Municipalities) have fire brigades. However, there is no single SOP that outlines the tasks and responsibilities of all fire brigades, particularly vis-a-vis the firefighters of security agencies. The lack of a standard operating procedure (SOP) for the proper use of fire brigades during emergencies may impede successful fire brigade mobilization. A standard SOP that allocates the tasks and responsibilities of each agency's fire brigade, as well as their mobilization plans, areas to be covered, and so on, is recommended to ensure appropriate coordination between all fire brigades.

Recommendation 10

Resources need to be shared between different levels of Government: The financial resources needed to implement the EPR activities recommended by this report need to be shared among three levels of

government. It is recommended that NDRRMA organizes a meeting with MOFAGA and MOF to discuss budget sharing.

Recommendation 11

Establish HAZMAT disaster response capability: Different types of fuels, chemicals and explosives are among the hazardous materials being utilized in the country in large quantities on a regular basis. They are mostly used in the transport sector, industrial and the development work (for example, explosives are used in tunnel construction). The use of these hazardous materials is increasing. Despite this, till date Nepal doesn't have any HAZMAT disaster response mechanism. 2020 Beirut explosion and 2022 Chittagong chemical fire are some recent examples to elucidate how deadly the effect could be. Thus the country should establish a HAZMAT response system. Among the security agencies, Nepal Army is the most apt agency in this regard because they have a separate division that manages explosives.

Recommendation 12

The mandate for Dead Body Management needs to be given to Nepal Police: Dead body management involves post-death administrative procedures, which is usually dealt by the Nepal police. Thus, Nepal Police is the most appropriate agency to do dead body management.

Recommendation 13

Agreement with neighboring Indian cities for fire fighting: There are some cities in Nepal that share borders with neighboring Indian cities, for example, Birgunj in Nepal with Raxual in India, Biratnagar in Nepal with Jogbani in India. Although the Nepali cities have fire fighting capability, in case of a big fire, the existing capacity is not adequate; same is the case vice-versa. In such cases, it is advised that the municipality signs an agreement with the counterpart Indian municipality for mutual assistance in case of a major fire.

Recommendation 14

Develop a budget code for DRM and EPR activities: Currently there is no specific budget code for DRM, CRM or EPR activities. For proper budget analysis of DRM and EPR related activities, it would be prudent to develop a budget code which will be used in LMBIS.

Chapter 5: Information Systems (Component 2)

5.1 Component Overview

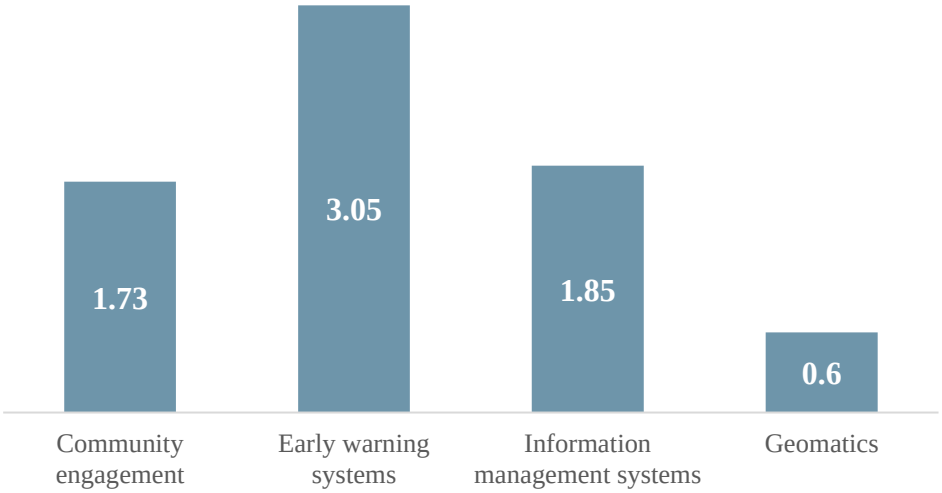

Figure 9: Criteria-wise score on component 2-Information
Note: Scale is from 0 (absent) to 5 (fully in place).

The collection, analysis, and swift dissemination of information enables better decision-making in advance of emergencies, during response operations, and through the transition to early recovery. Impacts from emergencies are felt locally, and so community engagement is vital to a well-developed state of preparedness. The information used for preparedness and response includes the information generated from early warning systems; this information provides local residents—and the response teams that support them—with advance notice of emerging hazardous events. Other relevant emergency information comes from responding agencies and social media; coordination of this information ensures horizontal and vertical situational awareness that enables efficient, coordinated, and prioritized response operations. Finally, the development of hazard and vulnerability maps along with other georeferenced emergency information, captured digitally and shared electronically, provides decision-makers with a key resource for planning across time scales to reduce risk. However, for high-quality information to have an impact, it must be utilized both by the affected community and by well-trained, committed personnel that have the appropriate equipment to respond safely and effectively to the given event.

5.2 Component Conclusions

Overall, Nepal has made huge progress in this component in the past two decades. Starting with the endorsement of the National Strategy for Disaster Risk Management in 2009, there have been several

achievements that can be considered as milestones in the field of Emergency Preparedness and Response, such as approval of the District Disaster Preparedness and Response Plan Guidelines in 2011, development of the District Disaster Preparedness and Response Plans for all the districts in Nepal, endorsement of the National Disaster Response Framework in 2013, etc. The Government has also endorsed the Initial Rapid Assessment (IRA) guideline[1], which was complemented by the Multi-Cluster Initial Rapid Assessment (MIRA) guideline[2].

Figure 10: SAHANA Disaster Management System

The NDRF lists the roles, responsibilities, and main activities of all the key agencies (government and non-governmental) in disaster preparedness and response. It also acknowledges the roles of United Nations Agencies, bilateral particularly USA, India, China, UK, Bangladesh, etc., and also incorporates the international standard protocols such as INSARAG and Cluster System. Consistent with the NDRF, there are Standard Operating Procedures (SOP) for the Emergency Operations Center (EOC) network in Nepal, which delineates the chain of command, communication procedures, and actions to be done by different agencies.

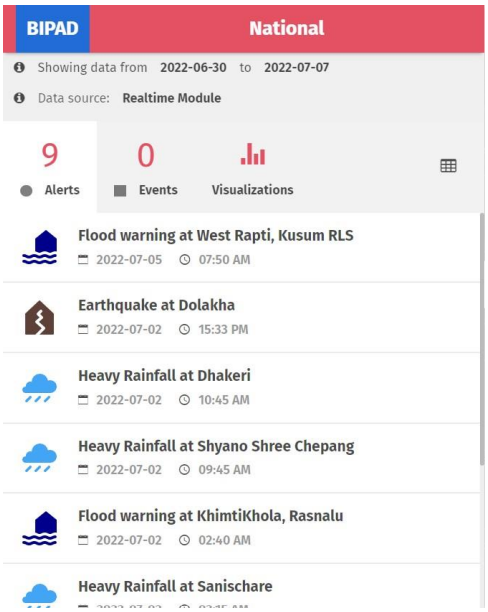

Figure 11: Bipad Portal

With regards to the health hazards, just before the COVID-19 pandemic started globally, the National Pandemic Preparedness and Response Plan was approved by the Ministry of Health and Population in 2020. SOP for HEOC was endorsed in September 2015 (amended in 2018), after more than a year of establishment of the Health Emergency Operations Center. In the federated context, a Health Emergency and Disaster Management Unit (HEDMU) of the MoHP has been mandated for the development of strategic and technical documents to guide and mentor federal and provincial level health entities for the management of public health emergencies. It functions as the Secretariat of MoHP-ICS during any health emergency or disaster. It works closely with the Department of Health Services and the Provincial Ministry of Social Development and Health Directorates and coordinates directly with the NEOC.

The DRR Portal http://drrportal.gov.np/ is the main Disaster Risk Management Portal, which is under the jurisdiction of MOHA. It contains all the DRM-related documents (policies, acts, regulations, guidelines, etc.) as well as data. A new disaster platform called Bipad https://bipad.gov.np/np/ which means “Disaster” in the Nepali language has recently been launched. The web portal is under the jurisdiction of NDRRMA.

It can be assumed that the Bipad platform will replace the DRR Portal. In addition, the Bipad Portal https://bipadportal.gov.np/ is the main data repository of the Government of Nepal for disaster-related geospatial data.

There are other Disaster websites and MISs, such as DRR Portal, SAHANA, DesInventar, meteorological forecasting website, flood forecasting website, and highway blockade information website. Among them, a few are obsolete already, such as DRR Portal and SAHANA. At present, BIPAD is the national information platform for a disaster management system; however, there is feedback from the field that the BIPAD portal is not user-friendly because data and maps can't be obtained easily. The people at the sub-national level, who use the BIPAD system, most of whom are eighth-grade pass handling DEOCs can hardly comprehend the features, icons, and system. Hence, the portal needs to be simplified to make it Palika-friendly or people-at-risk friendly.

However, there are still many gaps that need urgent attention. In absence of a comprehensive central information system, the data and information management related to disaster risk management and emergency preparedness and response systems are poor. In the absence of an common data format, the data and information tend to be lost, damaged, and distorted.

Some donors have invested in awareness-raising on EPR through print, digital and social media, which have been project-based efforts. Running programs or campaigns in the media is expensive. The Government has not been able to meaningfully encourage media outlets (TV, radio, and paper) in a disaster awareness campaign. One of the options that the Government can consider is to encourage media companies to run media campaigns on EPR and DRM as a part of Corporate Social Responsibility.

Early Warning System in Nepal

Figure 12: Rainfall Monitoring at PEOC, Makwanpur

Meteorological and Hydrological Hazards: Various meteorological and hydrological hazards frequently occurring in Nepal include flood, inundation flash floods, landslides, GLOF, rain, drought, forest fire, cold, heatwaves, lightning, snowstorm, windstorm, hailstorm, and air pollution. The Department of Hydrology and Meteorology (DHM) has been monitoring meteorological and hydrological hazards. There are more than 100 automatic hydrological observation stations and approximately another 200 manual observation stations across the country to monitor rainfall and this helps to assess the risk of hydrological hazards related to disaster risk. There are more than 200 automatic weather observation stations and approximately 100 more manual observation stations, bringing the total number of weather observation

stations to 300. In addition, there are 11 lightning observation systems, 1 upper air radiosonde system, and 1 X-band radar station while 2 more will be established within 2023. These stations monitor different weather parameters such as temperature, humidity, wind speed and direction, solar radiation, precipitation, atmospheric pressure, visibility, lightning, hail, etc., and create alerts for severe weather events.

Flood Early Warning System (FEWS) exists in 12 major river basins for the downstream communities in Terai. The FEWS is linked to community disaster management groups, which then carry out preventive actions following the alert and warning messages.

The DHM is a member of regional and global mechanisms on weather and climate analysis and has access to regional and global weather information from satellites. Meteorological Departments from South Asian Countries are organized into South Asia Seasonal Climate Outlook Forum (SASCOF), which forecasts climate on a seasonal basis and issues monsoon, post-monsoon, winter, and pre-monsoon seasonal outlooks. Building on the South Asia outlook, the DHM develops a seasonal outlook for Nepal. The DHM provides a regular weather forecasting service, which covers the whole country all the time of year and is issued twice a day – by 6:30 a.m. and 6 p.m. for the next 3 days. However, the weather forecast lacks area and time-specific information. DHM analyzes the river data and different weather parameters and makes forecasts. These forecasts are available through web pages of the DHM and are further amplified by all media including social media. The DHM also issues special weather bulletins if there is the likelihood of an extreme weather event.

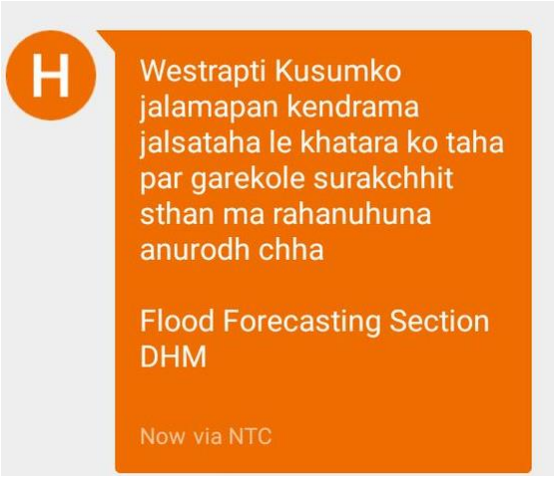

Figure 13: Flood warning via SMS

`To disseminate alerts and warnings if the disastrous event occurrence potential exceeds a threshold level, the DHM has made a unique arrangement with 2 of the biggest mobile operators: Nepal Telecom and NCell, whereby alert SMSs are sent free to charge to mobile phones whose numbers were registered in the areas at risk of floods or severe weather hazards. The country has been divided into 246 areas (polygons) based on the river, population, exposure to physical and environmental assets, etc. This system can deliver Early Warning messages 8-10 hours in advance for the major river system, 5-6 hours in case of the smaller river system, and 1-2 hours in case of a flash flood.

Seismological hazards (earthquake, landslide): There are 21 short-period seismic stations and 7 accelerometer stations throughout Nepal which are managed by the Department of Mines and Geology. These stations do not issue early warnings because of the nature of the earthquake hazard (unpredictable and immediate). In some industrialized countries such as Japan, an Earthquake Early Warning System exists with a lead time of around 10-15 seconds which is useful to warn people and stop fast-moving trains and traffic. However, such a system is not applicable in Nepal at this moment, due to the lack of comprehensive seismic observation equipment, and interconnected Artificial Intelligence-enabled IT, communication, and warning systems. The National Earthquake Monitoring and Research Center monitors, records, and makes

data on earthquake events public at http://seismonepal.gov.np/earthquakes. The Center provides post-event information on earthquake occurrence including its epicenter and magnitude.

There is no fully operational landslide monitoring system in Nepal. Some projects and agencies have used remote sensing and satellite images to monitor the movement of landmass over a long period. Similarly, some efforts have been made to establish a local landslide monitoring system, for a specific location or an individual slope. A few landslide hazards, as well as risk maps, have also been prepared [reference needed]. However, there is no real-time landslide monitoring system.

Forest fire hazard: Analysis of satellite images has enabled monitoring of fire hazards across the nation, and information is shared with concerned authorities. The Department of Forests and Soil Conservation has been working with ICIMOD to further enhance the fire detection and monitoring system. However, preparedness and response actions such as fire suppression based on fire detection are yet to be implemented.

For many hazards, the feasibility of the EWS is yet to be understood due to the uncertainty and lack of lead time between detection risk and the actual event hitting the community.

There is a communication mechanism between emergency operation centers, which are functional down to the district level and expanded to some local governments as well. The national communication network of telephones, radio, and online media including social media are the major communication channels disseminating forecast information.

Digital Reporting Format: One of the most challenging aspects of Disaster Management in Nepal is the lack of proper reporting and information management systems. Since there is no standard format and means and methods to send disaster reports and data, the information tends to be lost, distorted, and delayed during emergencies. There have been many attempts at standardizing the disaster data and information management - from Initial Rapid Assessment, to Multi-Hazard Initial Rapid Assessment to Post-Disaster Needs Assessment, etc. However, at the field level, those who are stationed in the EOCs, staffs of the security agencies, or I/NGOs are not oriented on these data and information systems; thus data and information collection tends to be unsystematic, incomplete and incompatible with existing MIS systems. This is one of the reasons why the real scenario of disaster and its impact that occurred at the local level can't be obtained timely and accurately at the national level.

5.3 Key Investment Opportunities (Recommendations)

Recommendation 1

EPR and SAR Equipment Inventory Information Management Systems need to be established: Over the years, there has been some substantive supports from donor agencies for SAR equipment to different relief and response, government and non-government agencies. Similarly, different levels of Government have also procured SAR equipment using government funds. However, without a proper inventory management system, it is unknown how many of them still exist and are functional, how many need repair and maintenance, and how many need replacement. Therefore, the NDRRMA is recommended to establish a SAR equipment inventory MIS. Access to this MIS needs to be given to key stakeholders such as

NDRRMA, MOHA, Nepal Army, Armed Police Force, Nepal Police, Provincial Governments, District Administration Offices, and Palikas. It is recommended that a decision in this regard be taken by the DRRM Executive Committee that would make it mandatory for all key stakeholders to enter equipment inventory information in the MIS.

Recommendation 2

A training management information system needs to be established. With DRM and EPR trainings that are currently taking place at different levels in Nepal, and more importantly more trainings that will take place in the future, it would be very important that a comprehensive Training Management Information System need to be established. At the core of the system would include a database of trainers and trainees. This system needs to be kept up to date periodically so that trainers can be deployed for training, and responders can be deployed for emergency response easily and timely. The database of the trained personnel must be accessible to all the key stakeholders: NDRRMA, MOHA, Nepal Army, Armed Police Force, Nepal Police, Provincial Governments, District Administration Offices, and Palikas. Since a significant number of EPR training are conducted at the local level (by Palikas) and donors, the NDRRMA needs to make sure that data is entered by these stakeholders. It is recommended that a decision in this regard be taken by the DRRM Executive Committee that would make it mandatory for all key stakeholders to enter training information in the MIS.

Recommendation 3

Disaster Management Information System (DMIS) needs to be consolidated: There are currently 3-5 DMISs, namely the Bipad website, Bipad portal, Sahana, DesInventar, and DRR Portal under NDRRMA and the Ministry of Home Affairs. There are further some more donor-supported portals or DMISs that are not under the jurisdiction of NDRRMA or MOHA but they are operating in isolation. Although having a multiple DMIS exists, none of them are comprehensive, thus creating the information gap. It is therefore recommended to consolidate multiple DMIS systems into one under the NDRRMA jurisdiction ensuring effective collection, analysis, and dissemination among relevant stakeholders and the general public.

Recommendation 4

EWS messages need to be disseminated widely: In particular, the DHM has made a unique arrangement with two of the country's largest mobile operators, Nepal Telecom and NCell, under which alert SMSs are sent free of charge to mobile phones whose numbers were registered in flood-prone areas in case flood levels breach a certain threshold. These messages are also sent to mobile numbers of a few important government officials, such as CDOs of the target district and a few officials from NDRRMA. However the messages are not sent to disaster responders like the Nepal Army, Armed Police Force, Nepal Police, or Red Cross. Early warning messages need to be relayed to all security agencies as well as NRCS and other prominent NGOs/INGOs working in the field of DRM.

Recommendation 5

The Common Alert Protocol (CAP) needs to be implemented: A CAP allows emergency messages to be simultaneously disseminated over a wide variety of alerting systems. If CAP is well managed, a single

alert can trigger a wide variety of public warning systems that increases the likelihood of intended recipients receiving the alert through one or more communication pathways. CAP can include rich content, such as photographs, maps, streaming video, etc., and it also enables geo-targeting alerts to a defined warning area, limited only by the capacity of the delivery used. Besides, CAP can also serve the needs of the people who are deaf, hard or healing, blind or have low vision, and can send alert messages in multiple languages. The development and implementation of a common alert protocol among hazard monitoring agencies, NDRRMA, relief and response agencies, and the media aids in early warning and reduces the risk of potential loss and damage caused by the disaster.

Recommendation 6

EOCs need strengthened in wireless communication: During a disaster, land telephonic network mobile networks may be down, especially in the case of a major earthquake, and may not be operational for days or weeks. Therefore, wireless communication via radio (HF, VHF) is the means to maintain communication during disaster scenarios. Currently, it can be said that the radio communication systems that are supposed to be established in EOCs are not operational. One of the main issues is the lack of trained HR to operate the radio sets. There are other issues as well, such as frequency is not transmitting properly due to the lack of robust and effective repeater stations; handheld radio sets don't have spare batteries; different types of radio sets are given to different EOCs which has resulted in communication systems being incompatible with each other. Hence there is a need to carry out a comprehensive technical study of the EOCs wireless communication system to arrive at a possible technical solution.

Recommendation 7

Development of the disaster data reporting protocol: Due to the poor and unsystematic information management and reporting systems among various agencies in disaster scenarios, the data tends to be lost, distorted, and delayed. There is a need to utilize a digital format from the local to national level that will automatically generate and accumulate data at the national level that is fed by local municipalities. This sort of system will help to systematize the information system that has remained unsystematic till now. In this scenario, there is a need for a single systematic data collection and management system that works from national, provincial, and district to the Palika levels. Training also need to be provided to staffs of EOC offices on how to use the data reporting format and tool.

Recommendation 8

Recognize the role of HAM radio operators in an emergency: Around the world Ham radio operators play a crucial role in incident reporting and information relay. Nepal has a young but growing Ham radio operator community whose members have taken training and passed competitive exams to obtain the license. In case of a major disaster such as a MMI 9 earthquake, there is a risk that the telecommunication systems (mobile network, internet, land-line, etc.) will be down. Ham radio provides an excellent alternative for systematic communication between key stakeholders until the main telecommunication systems are restored. Recognizing Ham operators does not cost anything to the Government because amature Ham operators buy their own radios and program their telecommunication systems; thus it is a low hanging fruit.

Recommendation 9

Give guideline and incentives to business to prepare Business Continuity Plans: The government should also encourage the private sector businesses including the SMEs to prepare Business Continuity Plans (BCP) for them considering the highest levels of natural and non-natural hazards faced. This will gretly help to inculcate a culture of safety and hazard preparedness and disaster resilience in the country. NDRRMA needs to prepare a BCP guideline for private sector. In the initial phase, it would help if NDRRMA also gives some form of incentives (work together with Departments of Industries, Commerce, Transportation, Health, etc., to offer private sector companies prepare BCP), particularly for the following sector that are mainly led by private sector: transportation, food supply, medical and medicine supply, oxygen production and supply, etc.

Chapter 6: Facilities (Component 3)

6.1 Component Overview

Figure 14: Criteria-wise score on component 3-Facilities
Note: Scale is from 0 (absent) to 5 (fully in place).

Coordination of effort for EP&R activities requires a structural presence, be it for command and control, movement of emergency aid, or the staging of response teams and their equipment. These physical facilities act as a core element in establishing a culture of preparedness, ensuring a dependable common operating picture and resilient services when most other critical infrastructure and government services are disrupted. This component ensure that there is a nexus for information, personnel, and equipment as the EP&R system matures through focused investment.

6.2 Component Conclusions

EOC Infrastructure:

The main agency responsible for emergency preparedness and response is the Emergency Operations Center network, which consists of the following: a) National Emergency Operations Center (NEOC) in the capital city of Kathmandu, b) Provincial Emergency Operations Center (PEOC) in the capital cities of 7 provinces, c) District Emergency Operations Center (DEOC) in 70 districts out of 77 districts (except and Kathmandu, Bhaktapur, Lalitpur, Kaski, East Rukum, Doti, and Nawalparasi East) d) Municipal Emergency Operations Center in approximately 100 municipalities. The EOC network is under the jurisdiction of NDRRMA and its mandate is to coordinate

Figure 15: LEOC at Tikapur, Kailali

with all key stakeholders in EPR, particularly the District Administration Office (DAO), offices of line ministries, Nepal Police, Nepal Army, and Armed Police Force, Red Cross, and other I/NGOs. While conceptually the EOC offices need to have their own independent space, search and rescue equipment, IT and communication equipment, furniture, human resources, vehicles, etc., in reality, in most cases, DEOCs are housed within the District Administration Office (one room is allocated to DEOCs) and the staff is also temporarily deputed from DAO. The establishment of EOC offices was initially funded by development partners (UK Government in particular) and later on by the Government of Nepal. While search and rescue equipment, IT and communication equipment, solar panels, furniture, etc., were made available during its establishment, most of them are not currently present in the EOC offices.

Health Emergency Operation Center (HEOC): HEOC was established at the premises of the Ministry of Health and Population (MoHP) in 2014 that includes both physical spaces as well as an approach for managing emergencies. The World Health Organization (WHO) conceptualized the Public Health Emergency Operation Center as a public health-oriented EOC that integrates traditional public health services into an emergency management model. It further emphasizes the Public Health Emergency Operation Center being part of a comprehensive program of public health emergency preparedness, planning, and capacity building and supporting national disaster management authorities or entities. The HEOC plays a pivotal role in facilitating and maintaining operational linkages between health sector multi-hazard preparedness and response mechanisms and the existing and emerging institutions/mechanisms for community, province, and the central level disaster risk management initiatives in other sectors. The HEOC operates and functions as a high-level operational command center for the MoHP. HEOC, while discharging the key mandate of operational coordination during emergencies, builds on and facilitates the implementation of policies and strategies and develops and updates planning tools, databases, etc. for multi-hazard health sector emergency risk assessment, risk mitigation, preparedness, and response readiness during the non-emergency settings. After the response period, the HEOC undertakes after-action reviews; facilitates and documents learnings; updates plan, strategies, and tools; and coordinates and monitors the implementation of recovery interventions.

Figure 16: PHEOC at Rupandehi district

Provincial EOCs have been established in 6 out of 7 provinces; Lumbini Province has a Ministerial Information Center instead of PEOC which mainly looks at collecting data and information on incidents such as law and order, accidents, as well as disasters. Similarly, approximately 100 Palikas have established their own Local Emergency Operations Centers (LEOCs).

Power back up: In most EOCs (PEOC, DEOC, LEOC), there is no provision of an effective alternative power backup system to support the office and signal equipment that lasts for at least a week long. Most of

the EOCs are powered by the national grid and there are supposed to be solar panels and inverters as a power backup, but these were missing or not working in many EOCs that were visited. Hence it is required to have a generator (3/5KVA) with a minimum of at least 1000 liters of fuel storage capacity.

Figure 17: Battery and invertor backup in Rajapur, Bardiya

Internet facility: Many of the EOCs are receiving internet facilities from DAO, Municipality, and Ministries' offices. EOCs are supposed to be functional during any disaster event, and they need to have alternative provisions for the internet.

Wireless communication and effective repeaters: Wireless communication is a problem in almost all EOCs. Most EOCs lack HF, VHF, or handheld radio sets, and those that do have these sets are unable to communicate with their higher, lower, and flanking EOCs due to a lack of an effective repeater system. Spare batteries have not been provided with the handheld sets.

Competent human resource: The HR plan of EOCs is not uniform. The chief of NEOC is usually an Under Secretary; however, there are no minimum competency or experience criteria for selection. Therefore, the chief of NEOC learns about emergency preparedness and response during the job; this is not ideal because proper preparedness and response require a competent and experienced leader. Furthermore, looking at data from the last 10 years, the chief of NEOC usually stays in the job for approximately 2 years. This situation needs to be changed.

Figure 18: VHF, HF and telecommunication devices at PEOC, Kaski

Figure 19: Warehouse of Redcross at Makwanpur

The Deputy CDO is the head of DEOCs; however, usually, the de-facto chief of a DEOC is CDO. Other DAO staff are given partial responsibilities for different functions of DEOC, which is not ideal because the effective running of a DEOC requires dedicated staffing. In some cases, the DEOCs are staffed by Nepal Police and Armed Police Force Nepal signalers (Communication Operators); however, these are temporary appointments determined usually by the CDO and permanent positions do not exist for Nepal Police or Armed Police Force personnel. Furthermore, it is not necessary that the staffs of DEOCs are competent and trained in emergency preparedness and response. The same is the case with PEOCs and LEOCs: there is no standardized HR plan for EOC offices, and those government officers assigned from MOHA, DAO, and Municipality also don't have enough understanding of EPR. Even the Nepal Police and Armed Police Force personnel are appointed temporarily only; there is no provision of permanent staffing of Nepal Police or Armed Police Force for EOCs.

Standard Operating Procedure (SOP) of EOC: SOP for EOC was prepared in 2012 when the Governance system in Nepal was centralized; since the enactment of the Constitution of Nepal in 2015, governance has completely changed. However, the SOP of EOCs has not been updated. More concerning, however, is the fact that even the old SOP has not been followed in any of the EOCs visited. Due to the lack of updated EOC SOP, the entities are not fully functional.

Figure 20:Open access firefighting equipment in Chandrapur, Rautahat

Training Centers: The security agencies have their training centers in different parts of the country where they conduct disaster and emergency preparedness and response training. Nepal Army and APF have already established their Training School for the disaster management competency building process whereas Nepal Police is on the verge of establishing one. Nepal Army has proposed to establish a Multi-Agency National Disaster Management Training School so that all the disaster responding agencies (Nepal Army, Nepal Police, APF, Bureaucrats, Elected Representatives,

among others) can be trained there together. Similarly, the APF Disaster Training School in Kurintar requires capacity expansion: more training facilities, accommodation, resources, and training instructors are required. Furthermore, APF intends to establish two more disaster management training facilities; i) a training school in Barmajiya, Saptari district, and ii) a high-altitude SAR training school in Manang. Nepal Police does not have it's own training facility; it is conducting EPR related trainings in its office premises in Maharajgunj.

Development partners, particularly the US Government, have invested in the past in the development of training curricula and the purchase of equipment for training purposes. Many other development partners have since further provided training equipment to the security agencies. Our initial interaction with the personnel indicates that the training centers still lack a budget for regular repair, maintenance, and replacement of some of the training equipment and training facilities. More concerning is that they indicated a severe lack of search and rescue equipment (heavy machinery, hand-held equipment, protective gears, etc.) that is to be used during actual emergency response.

Warehouses: Humanitarian Staging Areas (HSAs), built by WFP in collaboration with the Ministry of Home Affairs and the Civil Aviation Authority, are an essential component of Nepal's emergency response operations. There are already 7 HSAs, one in each province, and they have played an important role in the government's response to the COVID-19 pandemic and other emergencies. With a storage capacity of 1,535 metric tons, HSA can store humanitarian relief supplies, such as shelter materials, health, and hygiene kits, and water and sanitation equipment - enough to serve more than 60,000 people each HSA. Birgunj is the biggest port that handles more than 50% of imports in Nepal; a storage space near the airport in Birgunj has

Figure 21: Warehouse/Contianer DEOC, Badiya

been constructed which has a storage capacity of 2,032 square metric tons. The HSAs are equipped with logistical items, such as generators, satellite phones, fuel, boats, and search and rescue tools. The staging area is located in the provincial airport to be able to collect and disperse as per need in a short time. Nepal Red Cross Society, which mainly focuses on the distribution of relief items, has altogether 12 warehouses that store relief items. There is one central level warehouse that stores 10,000 kits, four regional warehouses that store 4,000 kits, 2 Zonal warehouses that store 2,500 kits, and 5 sub-zonal warehouses that store 1,000

relief kits. The warehouses supported by WFP and Red Cross only store non-food items and do not store food.

Nepal Food Corporation (NFC) was established by the Government of Nepal in 1965 to facilitate the storage and availability of cereals and other food products in Nepal. In 2018, the Government of Nepal decided to merge the Nepal Food Corporation and Salt Trading Corporation to form the Food Management and Trading Company Ltd (FMTC), a government-owned company; the process of merger is still ongoing. Our consulting team has not been able to determine how many warehouses FMTC has and the total storage space; the team will collect this information for the final report. Similarly, private-sector-led Nepal Warehousing Company Limited has a state-of-art grain storage space for farmers that also does auction management, commodity trading services, and delivery and transport services. NDRRMA and MoHA do not have a standing agreement with FMTC or Nepal Warehousing Company to obtain and/or distribute food to the affected population during an emergency.

6.3 Key Investment Opportunities

Recommendation 1

Training Exchange or Consolidation of Training Facilities: Nepal Army has the Mountain Warefare School in Mustang where they give trainings related to mountain rescue. At the same time, APF is planning to establish the Mountain Rescue Training School at Manang, adjoining district of Mustang. Currently there is no agreement between Nepal Army and Armed Police Force on training exchange, i.e., an APF staff doesn't take training in Nepal Army training facility. In the absence of this, there seems to be duplication of investment and associated costs for the same or similar outputs. It is recommended that Government of Nepal (NDRRMA and respective Ministries, Departments and Divisions) does a in-depth consultations with the three security forces, look at their medium- to long-term strategy, and identify points of convergence. There are three points of conversion that the consultants have identified: a) make agreements between the three security agencies for trainings of their staffs in any training facility, b) make agreements between the three security agencies for trainers or instructors so that they can be resource persons in any training facility, and c) identification of specialist trainings and construction of multi-agency training facilities under any one security agency.

Recommendation 2

Construction of National Disaster Training Academy: The Government needs to invest in the construction of a Muti-Agency National Disaster Training Academy. Nepal Army is proposing this concept to the GON. It is proposed that the Nepal Army will oversee the management and operations of the Academy. Approximatley 10,000 personnel from different agencies are estimated to be trained annually at the Academy. The Academy will also have facilities and resources to conduct relevant research on Emergency Preparedness and Response. It is proposed that the Academy will be accessible to personnel from other agencies as well as researchers and academicians from Nepal and abroad. Since most of the training (from 3 days to 4 months) will be residential, the premises and infrastructure of the Academy need to be built accordingly.

The consulting team believes this could be a good option to consider seriously, as the establishment of a disaster training academy will help to consolidate disaster and EPR-related training that is currently being run by three different security agencies. This consolidation may lower the training management costs for the government of Nepal and will bring a standardized approach. Furthemore, the consolidation would also benefit local governments. For example, Nepal does not have a fire-fighting school. If a fire-fighting training course could be planned under the Academy, not only will the fire fighters of the three security agencies receive uniform training (which helps during execution in the ground), even the fire fighters currenly operated by different municipalities will benefit.

Recommendation 3

Construction and upgrading of training facilities: While the Nepali Army plans to establish the National Disaster Training Academy, not all the training can be given in one location. In addition, training facilities of different agencies that are currently operational are in desparate need of repairs and upgrades. The Training Center of APF in Kurintar is one such example:- while the center has functioned well, it urgently needs repairs and many of its facilities need upgrades, such as training halls, residential blocks, etc. Similarly, swift water rescue training needs to be given at a river and rappelling training needs to be given in the mountains. The following types of training facilities need to be established:

- High rise building firefighting facility
- High altitude SAR training facility
- Integrated disaster management training facility
- Deep water SAR facility
- Simulation exercise facility

GoN needs to invest in the construction of appropriate training facilities across Nepal. Most of the training is residential type, therefore the training centers also have residential complexes.

Recommendation 4

Construction of High-Altitude SAR Training School: Although the Nepali Army has high altitude SAR capability, the training is running on an ad-hoc basis in Mountain Warfare School, Mustang. Disaster data show that climate change and earthquake-induced avalanches and other mountaineering-related incidences are on the rise in the last decade. It is therefore prudent to establish a High-Altitude SAR Training School, where not only security agencies take part in training, but also professionals, individuals, enthusiasts, and even international SAR professionals can take training.

Recommendation 5

EOCs need to be established in independent buildings: It is recommended that DEOCs be established in their building, with at least one operations and signal room, meeting space, sleeping facility for duty officers, SAR storeroom, and a small kitchen, and toilet bathroom facilities. LEOCs also need to be established similarly. Whereas in the PEOC context, there should be more infrastructure and space because it needs to be converted as the command post for the entire provincial response, with ad hoc officials and authorities joining PEOC during the disaster situation. It would be ideal if all EOCs also had open space, which would be extremely useful during a disaster event and effective in disaster response.

Recommendation 6

NDRRMA should provide a blueprint for EOC infrastructure: A few resourceful municipalities have established or are in the process of establishing municipal-level EOCs. However, without proper guidance or specification, the LEOCs are not similar to each other. It will be useful if the NDRRMA can provide a blueprint of LEOCs to municipalities, which would include (the list is not exhaustive): building design and furniture requirements, functions or services that the EOCs will provide, a list of minimum IT and communication equipment, list of minimum SAR equipment, list of the minimum number of staffing requirements, SOPs, etc. NDRRMA also needs to provide similar blueprints for PEOCs and DEOCs to Province government and districts, respectively.

Recommendation 7

Combine EOCs (PEOC, DEOC, LEOC): If different EOCs (Provincial, DEOC, Municipal EOCS) exist in the same Palika (like in the case of Dhangadi where PEOC, DEOC, and LEOC exist besides each other), it is recommended that the EOCs are brought under an umbrella from the perspective of efficiency and adequate resources allocation. Bureaucratically and politically, different types of EOCs are accountable to different tiers of the government which shouldn't be changed. However, the physical office space, equipment warehouse, IT equipment and training systems, and human resources could be shared between the EOCs so that there is harmony in office operation and more efficient EPR activities on the ground.

Recommendation 8

A cluster of Palikas served by one EOC: In case there is a lack of resources in some Palikas for the establishment of EOCs, it is recommended that a few Palikas be clustered and served by one EOC based on geographic location, population density, and disaster risks. This, however, will be contextual and the governance system needs to be decided by the different Palikas in close collaboration with the NDRRMA, NEOC, PEOC, and DEOC.

Recommendation 9

Merge EOCs and Fire Brigade: In a resource-constrained environment, it is advisable to bring different offices under the same umbrella. Therefore, it is advisable to merge the fire brigade and LEOCs, particularly because both of these offices are under the jurisdiction of Palikas. With a combined SOP, human resources, equipment, and training management system, the new structure will be more efficient and this will also save resources for Palikas.

Recommendation 10

Agree to the use of warehouses: Different agencies have established different warehouses in different locations in the country. Either these agencies need to allow other agencies to use their spaces. They need to share information about the warehouses and inventory available at the warehouses.

Recommendation 11

Create SOP for warehouses: The existing warehouses supported by WFP (which has already been handed over to the Government of Nepal) and the Red Cross do not have an SOP. It is advised to develop an SOP that must include an item replenishment policy, inventory management, monitoring, item mobilization during an emergency, and so on.

Recommendation 12

Each Palika should have at least one helipad: Local governments are responsible for disaster risk management on a local level. Having a well-managed helipad aids in emergency response, particularly in evacuation from the provincial or federal level. As a result, it is recommended that all local government units, except those that already have one, build at least one helipad.

Chapter 7: Equipment (Component 4)

7.1 Component Overview

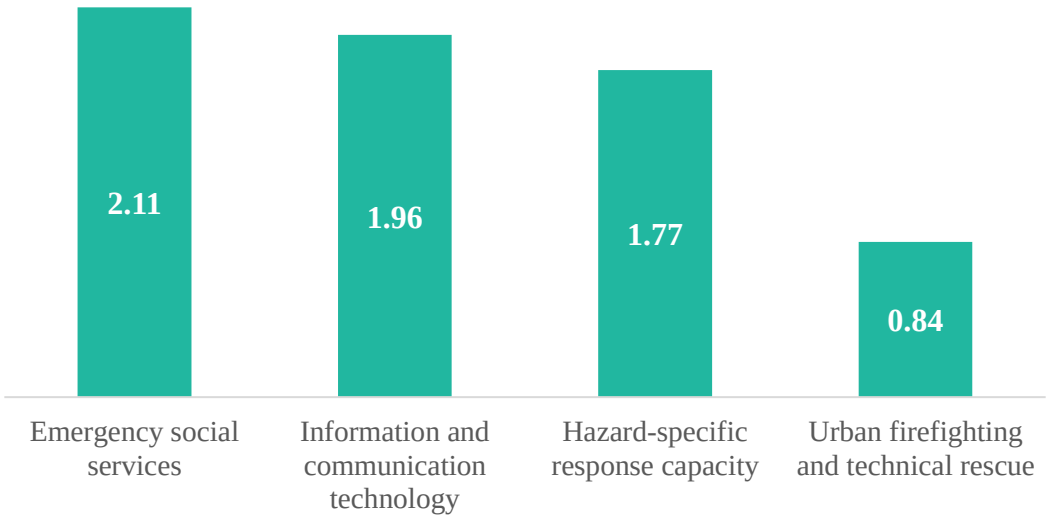

Figure 22: Criteria-wise score on component 4-Equipment
Note: Scale is from 0 (absent) to 5 (fully in place).

The appropriate acquisition, use, and maintenance of preparedness and response equipment ensures timely information sharing and safe, effective rescue operations. It allows for effective communication in even the harshest conditions. Investments in equipment help governments overcome the capital requirements to ensure access to lifesaving technologies and resources. Combined with clear implementation guidance, established parts and service supply chains, and program budgets for maintenance and upgrades, these elements ensure a government's core preparedness and response agencies have the tools to safely and effectively deliver their services.

7.2 Component Conclusions

There is a severe lack of SAR equipment at all levels and for all designated disaster response agencies in Nepal. Security forces have produced thousands of SAR trained human resources, but there aren't enough SAR equipment, which has rendered disaster response ineffective. Government and development partners emphasize on giving trainings to community volunteers, but there is no policy-level decision taken with regards to pre-positioing of basic SAR equipment at the community level. In the case when the security forces have received SAR equipment for training purposes, they frequently use the same for actual SAR because of lack of equipment. Development partners and Government prioritized establishment of EOCs since 2010. Over 170 EOCs have been established all over Nepal; some SAR equipment, medicines and

IT/communication equipment were also procured. However, right now most of them are either not present in the EOCs, or they are un-usable or un-serviciable because they were not repaired, maintained or replenished properly. DEOCs have SOPs, but they have never been revised. There is no manual for usage, repair or maintenance of the SAR equipment. There is no policy, and therefore no budget, for repair, maintenance and replenishment of SAR equipment.

There are more than 100 fire brigades in Nepal (number yet to be verified due to discrepancy in data); however, almost all of them lack standard fire fighting machinery and equipment, such as fire trucks, fire suits, fire suppressant equipment, alert and early warning system, IT/communication system, etc. Regular training is a vital part of fire fighting; almost all the fire brigades severely lack training equipment. Due to lack of a national standard for fire fighting equipment and technology, many times the equipment and

Figure 23: Equipments such as fire brigade at Ghorahi, Dang

systems are not interoperatble or compatible as many of the existing equipment was received as donations from various sources. Many times already used (10 years old) fire trucks were allowed to be imported into Nepal, which has resulted in maintenance issues.

There is no common radio communication system in use by emergency first responders, i.e., Nepal Army, Nepal Police, APF, Fire Brigades, Ambulances, etc. The security forces use their independent radio systems, which others have to rely on mobile network and land line, both of which may not be operational in case of a major disaster.

Figure 24:Available ambulances at Nepal Red cross, Biratnagar District chapter

After the 2015 Gorkha Earthquake, there was a sense of realization that: a) Nepal needs SAR trained HR, and b) Nepal severely lacks SAR equipment, which needs to be pre-positioned at the community level and with security agencies. Currently, the Nepal Army and APF have three DM battalions with technical capability (Nepal Army-2, APF-1). The NDRF plans to establish two medium INSARAG qualified Urban SAR teams in Nepal Army and APF, and seven light INSARAG qualified USAR teams in Nepal Police. To realize this, the GON has to procure SAR equipment accordingly. Furthermore, Nepal also needs a heavy INSARAG-qualified USAR team.

Although the government, as well as donor agencies, have procured and handed SAR equipment to the security agencies, there is no inventory management information system to track the location and status of the SAR equipment. Therefore, the current status of overall SAR equipment is unknown at the moment.

7.3 Key Investment Opportunities

Recommendation 1

The EOC offices need to be adequately equipped and regularly maintained: Most of the equipment that was given to EOC offices when they were established is missing from the EOC offices. VHF devices are not connected to the repeater system, and the medicines expired long ago. Most of the communication happens using mobile phones or landlines, which may not work in case of a massive disaster such as an earthquake. None of the equipment and medicines has been replaced or repaired because EOCs do not get a separate, yearly budget allocation. NDRRMA needs to urgently do a detailed needs analysis of equipment purchase and repair and maintenance, which can be done internally by the NEOC staff. NDRRMA needs to allocate a budget for the procurement of SAR equipment to be given to PEOCs and DEOCs. Similarly, NDRRMA needs to make a yearly allocation of 5% - 15% of the total equipment purchased as annual maintenance and replacement cost.

Recommendation 2

Procurement of SAR equipment for security agencies: Nepal's National Disaster Response Framework aspires to establish INSARAG accredited SAR teams in Nepal Army, Armed Police Force, and Nepal Police. However, all these three agencies lack SAR equipment for both training and actual search and rescue activities - this was seen during the 2015 earthquake when all the three security forces did a fantastic job of saving people's lives almost with their bare hands and by improvising equipment. They would have saved more lives had they had proper SAR equipment at their disposal. Of the three security agencies, Nepal Army is the most resourced in terms of light, medium and heavy SAR equipment, followed by the Armed Police Force; both of these agencies have limited interaction with the general public due to the nature of their mandate. Nepal Police does not have much SAR equipment.

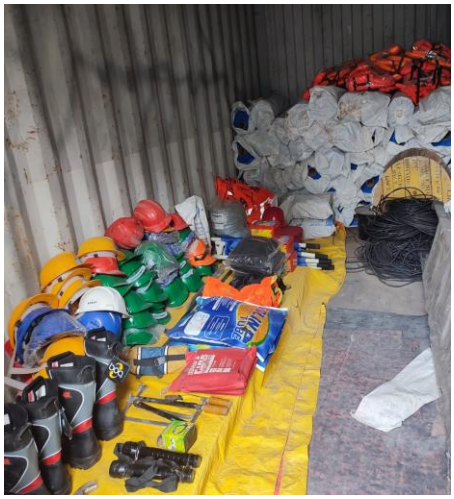

Figure 25: SAR equipments at

Figure 26: Urban firefighting equipment,

The specialized disaster management units that are of minimum strength have some SAR technical equipment but those ordinary units that are deployed on the ground and are the first echelon during disaster response are mostly dependent on handheld equipment s uch as picks and shovels. Therefo re, there is an urgent need that standard criteria should be made for the locally deployed units of the three security forces on what kind of equipment they need and what should be provided. For example, basic SAR equipment as well as MFR equipment need to be made available in police stations which is headed by an Inspector. Detailed analysis and mapping need to be done for equipment needs for training and actual SAR for all three security agencies. This would be an important activity which needs to be carefully and comprehensively planned and executed. The identified essential SAR equipment can be procured phase-wise because the GON may not be able to allocate all the funds at one go to procure all equipment.

Recommendation 3

Prepositioning of SAR equipment at the local level: The NDRRMA has prepared a list of basic SAR equipment that needs to be pre-positioned at the ward level. However, it is neither mandatory to be followed, nor NDRRMA has offered any financial support to the wards for its procurement. Regardless, NDRRMA leadership has realized that SAR equipment need to be pre-positioned at the local level. For this, NDRRMA has three choices:

i. Pre-position the SAR equipment in each ward of a Palika. Pre-positioning of SAR equipment will be a huge procurement and logistics exercise and this way it will be easier for NDRRMA to manage.

It will also be relevatively easy to generate interst and ownership of the SAR equipment by the wards and Palikas – we recommend that the maintenanace and replenishment budget needs to be funded by Palikas. However, this might not be very effective approach as some of the wards are so big that it takes one or even two days to transverse the ward by walking. Furthermore, while some wards are populous (>100,000 people in Kathmandu), while other wards are sparsly populated (<100 people in Jumla); so the same amount of equipment will not be appropriate.

ii. Pre-position the SAR equipment based on the population density and geographic context without considering the political boundaries. This approach will be the most effective from the disaster response perspective. However, a detailed field analysis might have to be conducted to determine where and how much SAR equipment to be pre-positioned, which will take a long time. A complicated situation may arise, because we have seen that there is migration of people from rural areas to urban areas; so this exercise needs to be dynamic – repeated every few years. Some sparsely populated areas, particularly in Western Nepal and mountain areas of Nepal, may not have pre-positioning of SAR equipment in close proximity. It will also be difficult to generate interest and ownership of the SAR equipment by the wards and Palikas.

iii. Combination of the above two. The consultants recommend that the third approach is taken. Pre-positioning of SAR equipment at the ward level based on the population density and geographic context. This means each wards will have some SAR equipment pre-positioned in their jurisdiction. But the number and types of equipment and number of pre-positioning location may not be uniform among different wards. NDRRMA needs to prepare a criteria (threshold) based on a consultations with Palikas.

Please note that the NDRRMA needs to prepare the list of SAR equipment to be pre-positioned based on local disaster risk context. For example, Palikas that face flood risks (especially in Terai) will require more SAR equipment for flood response, and Palikas that face high fire risks (in Pungling of Taplejung) will require more fire response equipment.

The equipment could be kept either inside a public building, community-owned building, or cargo container.

Please also note that this approach needs to be in tandem with the development of SAR volunteers (CADRE-trained) in each ward of the country.

It is difficult to estimate the investment needed for pre-positioning of the SAR equipment in each ward of the country. However, for the ease of calculation, if we assume that on average one ward should have at least NPR 1,000,000 worth of SAR equipment, as there are 6,743 wards, the overall cost would come out to be NPR 6,743,000,000 or approximately USD 55 million.

Please note that perhaps the procurement and logistics of pre-positiong of SAR equipment is “easy” part of the process. The difficult part is the repair, maintenance, and replenishment of SAR equipment. The NDRRMA needs to prepare a manual or guideline on the usage and storate of SAR equipment that the wards or communities will be responsible for. NDRRMA also needs to prepare a M&E framework and equipment MIS for regular monitoring and keeping the DB up-to-date, respectively. On the financial side,

the repair, maintenance and replenishment cost is generally 5-15% annually, which comes out to be NPR 50,000 - 150,000 per ward, which should not be unaffordable for Palikas.

Recommendation 4

A replenishment policy needs to be formulated and a budget needs to be allocated: Based upon the consultation with key stakeholders, it seems that the Government or donors have never made any budgetary provision for replenishment of equipment and items stored at the EOCs. Therefore, it is recommended that a policy is formulated for replenishment, repair, and maintenance of equipment and items at the EOCs. The management (NDRRMA, Provincial Governments, and Palikas) also needs to ensure the provision of an adequate budget for the same.

Recommendation 5

Prepare guideline for the usage and storage of SAR equipment: Most of the EOCs have possessed SAR equipment for the emergency purpose. But due to the lack of proper usage guidance and storing capability many of such SAR and emergency response equipment are not used properly and remain in a dilapidated condition, hence are in-effective, un-usable and un-serviceable. NDRRMA needs to prepare a guideline or manual for systematic usage and storage of SAR equipment in EOCs, warehouses and training centers. There are generally two usage of SAR equipment – i) for training, and ii) for actualy response purposes. The usage manual need to make it clear – it may be that an equipment is used for both training and actual response! Furthermore, trainings also needs to be given to staffs of EOCs, warehouses, and training centers on manual(s) for usage and storage of SAR equipment.

Recommendation 6

Establishment of high rise building fire-fighting capability: Nepal is one of the fastest urbaning countries in Asia. In the last decade, Kathmandu Valley has witnessed construction of many high-rise buildings (+10 storeys). The same could be expected in other cities: Pokhara, Butwal, Nepalgunj, Biratnagar, Dharan, etc. However, Nepal still does not have a single fire engine for high-rise buildings. This is a huge, looming risk. Metropolitan Cities (6) and Sub-Metropolitan Cities (11) need to invest in fire engines that cater for high-rise buildings.

Chapter 8: Training and Personnel (Component 5)

8.1 Component Overview

A highly skilled and experienced workforce is the most valuable resource in any disaster preparedness and response system. To achieve this, there must be a culture of preparedness in which both the public and political entities trust the agencies tasked with ensuring public safety and minimizing economic disruptions. Developing such a culture requires intensive and extensive training of those involved in EP&R so that they acquire the necessary knowledge, skills, and practical experience. Training of personnel must take advantage of the best available plans, information, facilities, and equipment to ensure an interoperable systems approach is broadly understood. It must also enable deep capability in focused areas of expertise to ensure that personnel development spreads upward, from the individual to the team, and from the team to the agency.

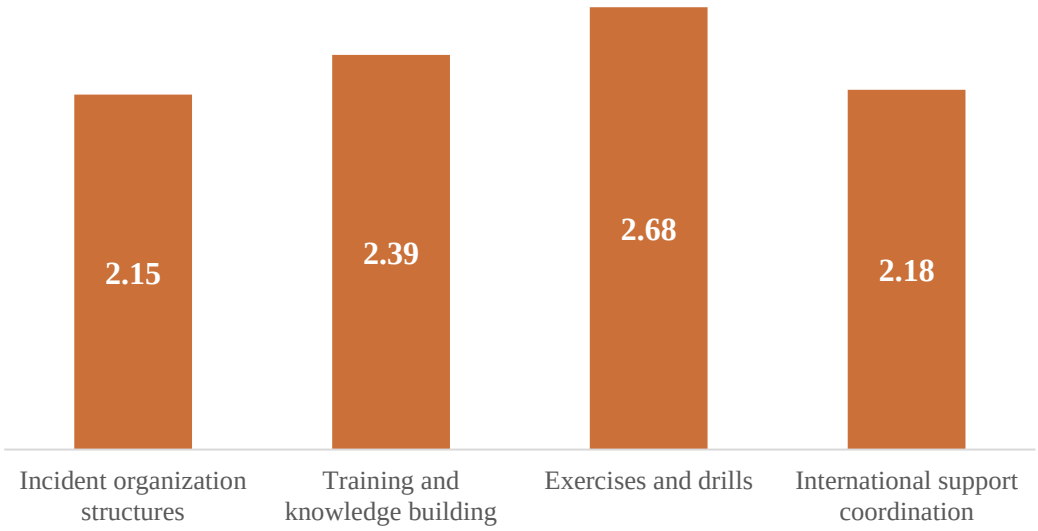

Figure 27: Scoring for Personnel
Note: Scale is from 0 (absent) to 5 (fully in place).

8.2. Component Conclusions

Since 2006, the USAID-supported Program for Enhancement of Emergency Response (PEER), implemented by the National Society for Earthquake Technology - Nepal (NSET), has been imparting EPR training which includes basic EPR training, Collapsed Structure Search and Rescue (CSSR), and Medical First Responder (MFR) to the three security agencies. Through this training, the NA, NP, and APF have PEER qualified instructors, who are an asset to the nation because they can train more people on EPR, CSSR, and MFR. Unfortunately, the security forces don't have an up-to-date database of disaster-trained human resources. Hence there is an urgent need to establish such a database.

During the consultation, one of the key issues identified is that there is a lack of trained human resources on EPR, and there is an over-reliance on security forces who are themselves operating with very limited resources (lack of equipment, appropriate budget, incentives for responders, etc.). There is no civilian volunteer system yet in the country.

Career Path: Since Disaster Management is not a separate career path in any of the security agencies, the competency-building process has not received due attention and priority. In the Nepal Police and APF, the DM training counts only one point for promotion, hence officers and other ranks are not motivated to be trained in EPR. Nepal Army does not even have such a provision, and it's purely voluntary, which is not generating due interest among the army personnel. There should be proper incentives for the security personnel to encourage involvement in training, exercise, and other competency-building processes.

8.3 Key Investment Opportunities

Recommendation 1

Volunteers need to be produced for SAR:

The government has recently approved the National Volunteer Guideline which aims to create volunteers at Palika levels for emergency preparedness and response. Similarly, according to the Red Cross, there are approximately 90,000 Red Cross volunteers that have received basic Red Cross training that includes relief distribution. NDRRMA needs to prepare a plan to produce community volunteers in each ward of the country. Nepal Police can train community-level volunteers. Nepal Police has a presence in almost every ward and Palikas of the country. They are in everyday contact with people for many different activities. Unlike other security forces, the relationship between police and communities is closer. Considering this fact, Nepal Police can lead the training for community volunteers in each ward of the municipalities across the country. Nepal police can coordinate with the respective NRCS district chapters, and municipalities in the districts to bring the multiple stakeholders together to train community-level volunteers on a mass scale. A concise training manual on developin g community-level volunteers for EPR needs to be developed beforehand. NDRRMA may consider Nepal Police to be the main ve hicle through which community volunteers are trained for SAR.

Figure 28: CADRE training to LDMC taskforce and CDMC Task force Jumla

Recommendation 2

Local governments (Palika) need to organize EPR training periodically: Local governments are required to manage local disasters on their own to a certain extent. Local governments understand the local context better in terms of disaster risk, so it is critical to create a contextual EPR training module and to

hold EPR training at least once a year. This helps to better manage the EPR human resources that can be mobilized during emergencies to save lives and property. Local governments can obtain trained human resources from security agencies, which have a roster of master trainers and trainers. The cost of training can be shared between Palikas and NDRRMA.

Recommendation 3

Insurance for EPR personnel and volunteers: People who receive EPR training and are deployed in the field must be provided with appropriate insurance in addition to the general insurance provided by their respective agencies. Insurance is a financial incentive or regulation that encourages insured people to take EPR measures and contributes to disaster relief while also providing behavioral motivation to reduce risk.

Recommendation 4

Nepal Police needs to have Light SAR teams: Nepal Police is a first responder agency during disaster events anywhere in the country. During an emergency, EOCs first contact Nepal Police to request assistance for immediate disaster response, particularly for a small-scale disaster. It is recommended that the Nepal Police establish INSARAG-certified light SAR teams, as per the NDRF 2019.

Recommendation 5

NA and APF need to obtain INSARAG accreditation for Medium SAR teams: In both organizations, the process of obtaining INSARAG certification is already at an advanced stage. The human resources training is nearing completion, but there is a need for government assistance to procure SAR equipment, which will complete the accreditation process. The government must also provide financial assistance for procurement of specialized equipment to both agencies.

Recommendation 6

Different EPR training need to be streamlined: A well planned EPR training not only contributes to saving life and property, it often contributes to resilience and post-disaster recovery by lessening the impacts of disasters. Effective EPR training helps to create and improve preparedness plans, strengthen an early warning system and upgrade the emergency response services. NA, APF, and NP provide EPR training in isolation, and the content and the learning objective of the training might not be consistent between these agencies. Thus, it is recommended to streamline existing training modules with the same content, learning objective and same duration to meet the EPR training standard and consistency in training content.

NDRRMA needs to coordinate with the three security agencies to streamline their EPR training modules. Any technical resources (consultants or firms) or financial resources needed to do this should be provided by NDRRMA. In the long-term, the NDRRMA's role would be to periodically monitor the training modules to ensure consistency among all, and provide technical input or resource as required.

Recommendation 7

Medical First Responder training need to be part of basic training courses of the security forces: Altogether there are approximately 150,000 personnel under the Nepal Army, Nepal Police and APF, and every year thousands of new recruits undergo basic security forces trainings. MFR graduates have the skills and knowledge on personal safety, triage, handling patients with infectious diseases, providing appropriate pre-hospital treatment for respiratory distress and other medical emergencies; and promote the advancement of hygiene practices, and disinfection guidelines. The MFR training need to be integrated into the basic training package of the three security forces given to fresh recruits. Additionally, Traffic Police should also get the MRF training, as scores of road accidents occur in Nepal that result in hundreds of injuries, and lives could be saved if Traffic Police are well trained in MFR.

Recommendation 8

Scouts can be provided with basic first aid and relief training: As of 2018, there are more than 62,000 scouts of different ranks in Nepal. Scouts troops can be mobilized during disasters by coordinating with law enforcement and emergency response agencies and personnel. Scouts and volunteers, in general, remain key stakeholders in disaster response as they often have the human resources and organizational skills to make a difference. Thus, providing first aid and relief training to scouts can be an effective strategy to make useful in post-disaster situations.

Recommendation 9

DRM, medical first responder, and basic EPR training need to be integrated into the general training of security agencies: Multiple general trainings are held regularly by the NA, APF, and Nepali Police under their training courses. Given the importance of security agencies in EPR and DRM, it is critical to incorporate DRM, medical first responder, and at least basic EPR training (similar to CADRE training) into mandatory general training to ensure that all individuals in security agencies can be responders.

Recommendation 10

NRCS representatives to be a member of EOCs: Because the NRCS is a major stakeholder in EPR and there are Red Cross volunteers throughout the county, it is prudent to include NRCS representatives as one of the members of PEOCs, DEOCs, and LEOCs to strengthen coordination among EOCs, NRCS, and other relevant stakeholders, mainly for relief distribution, information collection (Multi-hazard Initial Rapid Assessment), and effective response.

FINDINGS FROM DISCUSSIONS WITH NEPALI ARMY

The Nepali Army is a key responder to the country's emergency preparedness and response system. Although the Nepal Army has been involved in disaster response since its inception, the Disaster Management Directorate was established in BS 2069. (AD 2012). It is led by a Brigadier General and has space for a Full Colonel, two Lieutenant Colonels, and approximately 20 officers, Junior Commissioned Officers, and Non-Commissioned Officers. Other parts of the Nepal Army may be involved in response activities depending on the severity of the hazard and its impact. When necessary, the Engineering Battalions can erect the Bailey bridge and open the road network. The Signal Battalions can set up emergency communication systems in any part of the country. Likewise, the Medical Corps, Aviation Directorate, and Logistic Corps have trained human resources for medical rescue and response, air rescue, and managing large-scale logistics, respectively. During disasters, the Aviation Unit and medical corps also serve as the primary response entities. On the other hand, infantry battalions and companies deployed at the district level across the country have only basic SAR equipment.

Under the directorate, two trained battalions of approximately 850 people each are deployed for various EPR activities; one is stationed in Kathmandu's Sundarijal, and the other in Chitwan's Shaktikhor. Around 1750 people have been trained in various capacities within the two Disaster Management Battalions. In addition, there is approximately 7000 disaster response personnel who have received some form of disaster response training. Since they belong to different units and are marshaled as needed when disaster strikes, a database of these personnel has been kept. The process of mobilizing troops and resources during a disaster is much simpler. The general understanding in the army has been to respond first and report later. Once the disaster occurs in his area of responsibility, the formation and unit commander can deploy his troops. As a result, he will be able to report to his superior. To provide oversight and maintain command control at the headquarters level, the Directorate of Military Operations, which controls troop mobilizations, works in collaboration with the Disaster Management Directorate. The first tier consists of locally deployed units that are mobilized to respond to the disaster. If their capabilities are insufficient, the second-tier resources, such as disaster management battalions, engineering units, and aviation units, are mobilized.

The directorate is particularly strong in Collapsed Structure Search and Rescue (CSSR), Medical First Responder (MFR), firefighting, swift water search and rescue, deep water rescue, heliborne rescue, and high-Altitude SAR. The Nepal Army also allows its personnel to participate in foreign training. Existing foreign training includes firefighting training in India, scuba training in India, the Maldives, and Bangladesh. Furthermore, the Nepali Army and the US Army have signed an MOU to conduct disaster-related activities on a biannual basis. Every other year, DREE (Disaster Response Exercise and Exchange) and EX-Pacific Angle will be held. Two forces are in charge of these programs.

Similarly, the Chinese and Indian armies regularly collaborate with the Nepali armies to conduct disaster-related exercises in the country.

There is a severe lack of modern equipment to deal with the nation's massive disaster risk. There is a lack of equipment in all categories, including Small, Medium, and Heavy-SAR (INSARAG standard). These items must be purchased as soon as possible. Fire trucks capable of responding to fires in high-rise buildings are required for firefighting. Light motorbike fire engines for narrow street fires, high-power water pumps for jungle fires, and advanced BA sets for effective response are also required. Deep water rescue priorities for swift water SAR hovercraft include advanced underwater search cameras, underwater communication, and a pressure gauge.

The Disaster Management Training School is in Gokarna, northeast of Kathmandu. Annually, eight training programs are held, including Urban Search and Rescue, Fire Fighting, Flood Rescue, Deep Water Rescue, Heliborne Rescue, Medical First Responder, and Tactical Level Search and Rescue. In addition, High Altitude SAR training is provided at the Mountain Warfare School in Kaishyang, Mustang. Special Forces and Disaster Management training schools work together to provide heliborne rescue training. The school runs 17 training programs in total, producing nearly 1500 trained human resources.

National Disaster Management Training Academy: Given that one of the key strengths of the Nepal Army is its training system, the Nepal Army proposes to upgrade its emergency preparedness and response training capacity by establishing the National Disaster Management Training Academy. It is proposed that the Academy will run short, medium, and long-term training on various topics for all security agencies and emergency managers/professionals. However, the Executive Committee and the Disaster Risk Reduction and Management National Council must still approve the development before it can be implemented.

Unfortunately, the organization lacks the financial resources to carry out such a broad humanitarian mandate. There is no system in place for obtaining an annual budget from the government to use in disaster management activities. From the regular defense budget, the army purchases SAR equipment conducts DM training and constructs infrastructure. Even formations, units, and sub-units use their welfare funds to carry out humanitarian operations during disasters.
The Army's next goal is to establish an INSARAG-certified Medium SAR team within the organization. Human resource management is nearly complete for this purpose, and necessary training has been provided to identified personnel. Most of the SAR equipment has also been purchased; only some heavy equipment needs to be purchased. It is expected that Nepal Army will have INSARAG accreditation for a Medium SAR team within 2022.

Nepal Army is also the government's strategic partner in rebuilding or erecting bridges and road networks after a disaster. The Army is also expected (and responds) to the opening of the transportation network, which includes road clearing and the construction of the Bailey bridges. Thus, the Army must keep heavy earth moving equipment ready, such as excavators and Bailey bridges.

Today, Bridge Unit is headquartered in Thankot within the Kathmandu Valley which has a few Bailey bridges pre-positioned for immediate deployment. Furthermore, Nepal Army has pre-positioned Bailey bridges in two other locations - Simara and Gajuri. Furthermore, there is a practice of prepositioning air assets in three different locations outside of Kathmandu valley (Itahari, Bharatpur, and Surkhet), particularly during the monsoon season. If the government decides that purchasing this equipment and machinery is too expensive and not a priority, the following alternatives can be considered: a) because excavators are expensive, the government can enter into agreements with private sector companies to use their heavy machinery during a disaster at a pre-specified rate, and b) Bailey bridges can be built in Nepal; thus, the government must identify the supplier and enter into contracts with them to build Bailey bridges.

Aside from these capabilities, the organization has also contributed to the development of disaster volunteers in the communities. To accomplish this goal, a two-pronged strategy has been implemented. One example is the National Cadet Corps training program, which trains high school students in the disaster management discipline. The organization's goal is to produce 7000 such volunteers in the country each year. Another example is the Community Disaster Management Programs that are currently in place in the societies. It is a two-day package program designed to teach locals the fundamentals of disaster management.

Budget and expenditure

While Nepali Army is a major actor among government agencies on disaster issues, there is no separate budget for Nepali Army for DRM activities. The Disaster Management Directorate obtains its budget from the overall budget of the Army for core security functions. On average Rs. 197,272,000 is allocated every year and expenditure on an average per year is 207,024,000 (based on five years of data received from the Nepali Army from F.Y. 2073/73 to 2077/78). The main impediment to the organization is the lack of a dedicated budget for SAR equipment and training. The organization has spent funds from the regular defense budget. As a result, the main shortcoming in the organization is a lack of advanced and modern equipment with sophisticated SAR capability.

FINDINGS FROM DISCUSSIONS WITH ARMED POLICE FORCE NEPAL

Similar to Nepali Army, the Armed Police Force (APF) Nepal is also the government's key disaster response agency. Along with the constitutional mandate the APF Act 2058 has also clearly spoken about the organization's role in disaster management. In 2067 APF established the Central Disaster Management and Operation Division, which was commanded by the Senior Superintendent of Police (SSP). Earlier, APF had established the Disaster Management Section in the headquarters.

APF has one dedicated Disaster Management Battalion (No. 20 Battalion) of the strength of 620 personnel located at Sinamangal, Kathmandu. It is the organization's strategic reserve to deploy during a mega-disaster. The battalion is commanded by the Superintendent of Police (SP). Besides, the organization also has eight companies with the strength of 160 personnel each under the command of the Deputy Superintendent of Police (DSP) deployed at each provincial headquarters. Likewise, other ordinary units and Nepal APF Hospital are also the assets of the organization that have been playing a significant role in SAR and medical assistance.

Figure 29: APF Morang

APF has a specific capacity for CSSR, MFR, Water Rescue, Deep Diving, Rope Rescue, Dead Body Management, Fire Fighting, and Canine SAR. Altogether there are around 1600 trained personnel. The organization does not have effective firefighting capability and thus intends to improve it. Similarly, it is also looking forward to the opportunity to acquire the capability of Mountain Rescue, HAZMAT Disaster Response, Geospatial Information, Early Warning in GLOF, etc. On other hand, currently, the organization does not have a dedicated Disaster Warehouse at its disposal. The four institutional warehouses located at Kathmandu, Sunsari, Mahottari, and Kurintar have shared some of their facilities for disaster response equipment storage purposes. Along with that 33 disaster relief containers in 17 different locations in 14 districts are under APF. Ultimately the organization aims to establish Disaster-related warehouses in all 77 districts. Besides this, APF is also vying to establish Mountain Rescue Training School at Manang. Fundamental construction work such as barrack, mess, classroom, and commandant quarters are going on. Likewise, the Dantakali Special Task training School at Saptari and the additional SAR Training School at Sudur Paschim province under the command of the Training School in Kurintar also need to be upgraded.

APF is also getting training assistance from foreign nations as well in terms of training and equipment support - from Bangladesh, China, India, Indonesia, Mongolia, South Korea, the United Kingdom, and the United States. Altogether 53 personnel have received foreign training so far. In 2012, the WB-funded project procured SAR equipment worth US$ 630,000 which is still being used now.

Various USAID-funded projects have also procured some SAR equipment for training as well as SAR purposes. Like the Nepali Army, APF is also mandated by the government to establish INSARAG certified one medium SAR team. For this, training for identified personnel has been imparted. However, APF needs to procure SAR equipment to receive INSARAG certification.

Similar to the other security agencies, APF is also not getting any dedicated budget from the Government for Disaster Management or EPR purposes.

Budget and expenditure

Similar to Nepal Army, APF is also a major actor among government agencies on disaster issues, however, there is no separate budget for APF for EPR purposes. The Central Disaster Management and Operation Division obtains its budget from the overall budget of the APF. On average Rs. 16,091,998 is expended every year (based on the last four Five Years data received from APF). To date, the internal resources and budget have been mobilized by the organization for procuring SAR equipment, training, and infrastructure development process.

FINDINGS FROM DISCUSSIONS WITH NEPALI POLICE

Unlike Nepali Army and Armed Police Force Nepal, the Nepal Police doesn't possess a kind of standard disaster response capability. In BS 2068 for the first time, a Disaster Management Branch was established in the organization. Later on, the branch was upgraded into a division which was again converted into a Disaster Management Office. Currently, the office is under the leadership of the Senior Superintendent of Police and is the nexus entity of the organization to drive the field of disaster management. They have 7 companies (125 personnel each) that are stationed in each provincial headquarters. Though those units remain under the chain of command of the provincial police force, they are also supervised and assisted logistically by the central disaster management office.

Nepal Police personnel have received training on the following: basic EPR, MFR, CSSR, dead body management, rope rescue, and vehicle extraction. Similarly, the organization also has one fire brigade in the Police Headquarters and one fire brigade in Madhesh Pradesh. Altogether there is only 1010 disaster-trained personnel in the Nepal Police, which is low compared to other security agencies. Out of them, 73 are PEER qualified. In total there are 7 senior officers, 173 are junior officers, and 830 other ranks well trained in disaster management. There are five hospitals under Nepal Police; one is at the central level and four at the province level, their doctors and paramedics are the assets playing a crucial role to provide medical responses to the disaster victims.

Nepal Police severely lacks disaster response equipment. There are only 14 sets of CSSR equipment, 27 sets of firefighting equipment, 5 sets of rock-climbing tools, one set of water rescue equipment, 6 sets of MFR, one set of dead body management equipment, along with a few types of equipment for shoring, lifting, etc.

There aren't any Disaster Management Training Center in Nepal Police; their Disaster Management Office premises in Maharajgunj are being used to conduct basic training. Due to the lack of a dedicated training institute today the training is running on an ad-hoc basis at the Disaster Management Office. Forty-five days of Disaster Management Basic Training comprising eight different response skills is the fundamental training program runs for the rank of inspector and below. Besides the office also runs CSSR Advance Training, MFR and DBM Advance Training, Water Induced Disaster Response Basic Training, Combined SAR Training, Rope Rescue Advanced Training, and Fire Fighting Advanced Training along with disaster-related seminars, and conferences randomly for the officers and other ranks. Five sets of Disaster Management Basic Training programs and one set of Water Induced Basic Training programs are the only regularly running annual programs. From those programs, approximately 180 trained personnel are trained on an annual basis.

Similarly, the organization has also received assistance from Japan, Indonesia, Malaysia, Sri Lanka, Sweden, the Philippines, China, and India in terms of foreign training. Thirty-three officers have received EPR training from abroad.

Similar to the other two security agencies, Nepal Police is also mandated by the government to establish seven INSARAG-certified Light SAR teams but the process has not been smooth. The organization is still struggling to acquire the required equipment and accessories, training, and qualified manpower. There is a need for dedicated support from the government, donors, and other stakeholders for Nepal Police. Nepal Police desperately need high-tech equipment for CSSR, Rope Rescue, Water Rescue, MFR, Fire Fighting, and Dead Body Management. Nepal Police does not have a warehouse for the storage capacity or any logistical support system for disaster response.

Despite these limitations, the organization is determined to develop at least one-tenth (10%) of its human resources as disaster responders in the next ten years. Additionally, Nepal Police wants to establish a fully furnished Disaster Management Training School.
Since Nepal Police has a presence at the local level all over the country, it has played a crucial role in disaster response. Their role is very visible especially during the first hour of the disaster because they reach the disaster area the fastest, and they communicate information quickly. Nepal Police collect firsthand information, rescue victims from the disaster site, give them first aid, and evacuate them to the nearby medical facilities.

Nepal Police has only recently taken steps to improve their emergency preparedness and response capabilities. As a result, it's understandable that they don't have the same facilities, equipment, and human resources as compared to the other two security agencies. However, Nepal Police has a lot of opportunities to meaningfully engage and train communities, especially because they have a presence across the country in some form or another. Nepal Police can serve as a vehicle for imparting SAR training to local people throughout Nepal to build local SAR capacity. If this is to be realized, the Nepal Police needs to have a robust training system that needs to produce hundreds of trainers and thousands of trainees.
In addition to this, Nepal Police intends to set up company-sized Disaster Response Teams at each provincial headquarters.

Budget and expenditure

The Nepal Police have had a separate disaster management office since 2068 B.S. They did not get a separate budget for DRM activities. Similar to Nepal Army and Armed Police Force Nepal, Nepal Police is also not getting any budget for EPR activities and they are using their internal resources for EPR activities. The budget allocation and expenditure for the five fiscal years 2074/75 to 2078/79 is Rs. 23,476,160 and the average allocation and expenditure is Rs. 4,695,232. The majority of this amount goes to office operating costs.

FINDINGS FROM DISCUSSION WITH RED CROSS

नेपाल रेडक्रस सोसाइटी

Today Nepal Red Cross Society (NCRS) is one of the major stakeholders to shoulder the responsibility of saving the lives of the people during a disaster in the country. It is playing an auxiliary role of the government in the front line of the disaster situation. One of the reasons for such capability is the widespread presence of organizational structures throughout the country. Currently, there are four levels of structures in the organization. First is the central committee at the central level. Then there come provincial and district committees. At the lower level, there is a sub-committee. Following the earlier state's structure, there are 1517 sub-committees throughout the country which are required to be reduced to 753 numbers. The subcommittee comprises 13 members, whereas the district committee should have 20 members, the provincial committee members, and the central committee of members. They all are elected bodies. The organization also has a Youth Circle structure in colleges and a Junior Circle structure at school levels. These structures are aimed to produce volunteers to function as humanitarian assistants during the time of disaster and other humanitarian crises.

Primarily, disaster response and capacity building are two responsibilities the NCRS is fulfilling today in the country. There is a DART team of 12 members available at each district that carry out assessment and information collection during disaster situations. Similarly, at the central level, a bigger DART team of 300 personnel is functioning. For SAR and relief operations the CADRE-trained volunteers get mobilized at the local level. It is believed that the NRCS has 90000 such volunteers throughout the country. Besides legally provisioned NRCS district members are also the part of Initial Rapid Assessment team that comprises three persons. Two other members are from the District Administrative Office and Nepal Police's local unit.

NCRS also has a unique capacity for disaster relief management. In Nepal, the organization has established four regional warehouses in Biratnagar, Birgunj, Nepalgunj, and Mahindranagar. They all have a storage capacity of 4000 sets of relief materials at each location. Similarly, there is a central warehouse in Kathmandu that has the storing capacity of 10000 sets of relief materials. Again in Butwal and Pokhara, there are zonal warehouses with a storing capacity of 2500 sets. And at Udayapur, Doti, Baitadi, Lamjung, and Panchthar NCRS has warehouse depots.

They can store 1000 sets of relief materials in each location. But the resource crunch is the most steadfast obstacle in terms of disaster relief management. Since the organization does not have any formal financial resources it fully relied on volunteer contributions from foreign Red Cross Programs which is not entirely sustainable.

NRCS can provide EPR training at the local level if an appropriate budget is given to them. Precisely the organization is running CADRE, MFR, and CSSR training.

Figure 30: Redcross, Bardiya

The CADRE Community Action for Disaster Response) training is purely a community-level training program that is run by local people to produce volunteers. It's a 4 days package that costs around 3 to 5 lakh rupees to run with 24 trainees and 10 instructors. Likewise, MFR and CSSR are given to security forces personnel. For the training purpose, the organization has established a Training Center at Banepa around 30 kilometers east of Kathmandu valley. It's a paid training facility that can be used by any organization. They need to pay Rs 2500 each per day for using that facility.

Chapter 9: Gender, Disability and Social Inclusion

All 5 components need to include gender and disability specific variables and indicators as part of the periodic monitoring and evaluation framework. Gender/caste/ethnicity disaggregated data need to be collected for any program, seminar, conference, meetings, committees formed, public discussions, and training.

One of the way to measure improvement in the EPR system is to measure the change in social mindset regarding gender roles in the context of EPR. This requires collection of baseline data and periodic monitoring and evaluation projects will reflect the change in perspective of gender roles.

Legal and Institutional Framework

Inclusion of women and representatives of marginalized groups in any documents prepared by various GON is important. This ensures the longevity of the document as it would need less amendments in the future to comprehensively address everyone's needs. This has to be true for accountability and authority as well. Inclusion is especially important during financial planning and preparedness.

Information

Any information gathered should have disaggregated data in terms of gender, caste, ethnicity and disability. This will present crucial information regarding the most impacted group of people in a community. Disaggregated data also helps to focus on input of resources within the community. The prevalent practice of providing training to groups should be tallied with the demography of the community. The information should be accessible to everyone, including people with disability. This should include information dissemination in numerous local languages as well.

Facilities

The existing facilities should be upgraded to accommodate people with disability as well as uneducated people. This is especially true for training centers, temporary shelters, public spaces, and public toilets. The facilities should have enough provisions, like lighting, or fencing, to ensure communal harmony and safety to women and people of minority. Segregated bathrooms, nursery for infants and small children are important infrastructures in every facility. There should be communication channels to anonymously raise greivances.

Equipment

Equipment should be gender neutral and useable by anyone at the time of need. SAR trainings should include women volunteers and people of marginalized communities as well. Special equipment needed to cater to people with disability should be made available, such as wheelchairs. Emergency evacuation plans should incorporate the vulnerable population, like the elderly, children, and disabled, as top priority for evacuation.

Personnel

Trainings should be provided to every group of people of a community. Attention needs to be given about the representation of training and drill attendees. Knowledge sharing should be done among the community leaders and representatives of all caste and ethnicity of the community. People of every ethnicity should take up functional role during EPR. The vulnerable population should be prioritized during rescue and relief programs. Medical and Social teams (whose roles come after search and rescue operations) need to have women, because in a community there may be women and children with special needs who feel comfortable requesting support from women (for example, during mensuration, lactating mothers, children separated from family, etc.).

Chapter 10: Proposed work plan for EPR strengthening

All the recommendations made above have been summarize in the table below, and presented in the work plan format:

Components	Timeframe	Activities	Main Responsible Agency	Supportive Agency	Tentative cost	Remarks
Legal and Institutional Framework	Short Term	EOCs need to have permanent staff	NEOC – NDRRMA PEOC – Provincial Government DEOC – NDRRMA LEOC – Respective Palikas	Nepal Police Armed Police Force	n/a	n/a
		Communication protocol and chain of command need to be maintained between NDRRMA and EOCs network	NDRRMA	MOFAGA	n/a	
		Dedicated budgets need to be provisioned to the security agencies	NDRRMA MOF	MOHA	n/a	

Components	Timeframe	Activities	Main Responsible Agency	Supportive Agency	Tentative cost	Remarks
		All the EOC offices need to have a standard operating procedure (SOP)	NDRRMA	MOFAGA (focal ministry for PEOC and LEOC)	NPR 7,500,000	Budget includes SOP preparation through consultations, and drill of SOPs of 4 types of EOCs
		The mandate for Dead Body Management needs to be given to Nepal Police	NDRRMA Nepal Police		n/a	
		A common SOP needs to be prepared for fire brigades	NDRRMA	MOFAGA (focal ministry for fire brigades)	NPR 2,000,000	Budget includes SOP preparation through consultations, and drill of SOPs
	Medium Term	Establish standing agreements	NDRRMA Red Cross WFP Food Management and Trading Company Nepal Warehousing Company MOF		n/a	

Components	Timeframe	Activities	Main Responsible Agency	Supportive Agency	Tentative cost	Remarks
		Nepal Police needs to have Light SAR teams	Nepal Police	NDRRMA MOHA	NPR 10,000,000	Budget includes logistics costs
		NA and APF need to obtain INSARAG accreditation for Medium SAR teams	Nepal Army Armed Police Force	NDRRMA	NPR 18,000,000	
	Long Term	Establish 24-people SAR team in each ward of Nepal	NDRRMA Palikas	Provincial Governments Nepal Police Armed Police Force		Need further discussion
		Capacitate existing community-level structures	NDRRMA Respective Guthis and Community Groups	Guthi Sansthan	n/a	
		Resources need to be shared between different levels of Government	NDRRMA Provincial Governments Palikas	MOF NNRFC	n/a	
Information	Short Term	Disaster Management Information System (DMIS) needs to be consolidated	NDRRMA	MOHA Development Partners		The cost will depend upon which MIS to use, and how much programming is

Components	Timeframe	Activities	Main Responsible Agency	Supportive Agency	Tentative cost	Remarks
						needed to incorporate data and functionalities from other MISs.
		EWS messages need to be widely disseminated	NDRRMA DHM DMG NCELL NTC	Nepal Army Nepal Police Armed Police Force Provincial Government Palikas	n/a	
	Medium Term	SAR Equipment Inventory Management Information System need to be established	NDRRMA	Nepal Army Armed Police Force Nepal Police Red Cross Provincial Governments Palikas Development Partners	NPR 20,000,000	Budget includes design of DB and development of the MIS, training to users, collection of data from different DBs, data upload, maintenance, and ensuring system is up to date for at least 3 years

Components	Timeframe	Activities	Main Responsible Agency	Supportive Agency	Tentative cost	Remarks
		Training Management Information System needs to be established	NDRRMA	Nepal Army Armed Police Force Nepal Police Red Cross NSET Development Partners	NPR 20,000,000	Budget includes design of DB and development of the MIS, training to users, collection of data from different DBs, data upload, annual maintenance for 3 years, and ensuring system is up to date for at least 3 years
		The Common Alert Protocol (CAP) needs to be implemented	NDRRMA DHM DMG	Nepal Telecom Radio (FM/AM) operators TV channel operators Internet Service Providers	NPR 30,000,000	Budget includes design and development of CAP-IT systems in at least 3-4 agencies, data collection, data upload, annual maintenance for 3 years, and ensuring system is up to date for at least 3 years

Components	Timeframe	Activities	Main Responsible Agency	Supportive Agency	Tentative cost	Remarks
		EOCs need strengthened in wireless communication	NDRRMA	MOIC Development partners	NPR 10,000,000	
		Development of the disaster data reporting protocol	NDRRMA	Cluster Lead Agencies Cluster Support Agencies Development Partners	2,000,000	Budget includes confirmation of a disaster data reporting protocol/forms, trainings to staffs of EOC offices, and an disaster-drill
Facilities	Short Term	NDRRMA should provide an infrastructure blueprint for EOCs	NDRRMA	Development Partners	1,500,000	Budget includes consulting cost for preparation of infrastructural blueprint
		Combine EOCs (PEOC, DEOC, LEOC)	NDRRMA Provincial Governments Respective Palikas	Development Partners	n/a	
		Merge EOCs and Fire Brigade	NDRRMA Respective Palikas	MOFAGA	n/a	
		Agreement for use of warehouses	NDRRMA Red Cross	Development Partners	n/a	

Components	Timeframe	Activities	Main Responsible Agency	Supportive Agency	Tentative cost	Remarks
			WFP			
		Create SOP for warehouses	NDRRMA Red Cross WFP	Development Partners	3,000,000	Budget includes SOP preparation through consultation and at least 3 drills of different types of warehouses
	Medium Term	Construction and upgrading of training facilities	NDRRMA Nepal Police Nepal Army Armed Police Force	Development Partners	Approximately NPR 2,400,000,000	Budget is purely tentative; budget needs to be determined based on detailed consultation with security agencies and engineering survey of training facilities.
		EOCs need to be established in independent buildings	NDRRMA LEOC – Palikas DEOC – NDRRMA PEOC – Provincial Government	Development Partners		LEOC's unit cost is approximately NPR 3,000,000 (prefabricated structure). DEOC's unit cost is approximately NPR

Components	Timeframe	Activities	Main Responsible Agency	Supportive Agency	Tentative cost	Remarks
						3,000,000 (prefabricated structure). PEOC's unit cost is approximately NPR 25,000,000 (permanent structure).
	Long Term	Construction of Multi-Agency National Disaster Training Academy	Nepal Army	NDRRMA to manage funds	700,000,000	Only building Cost
		Construction of High-Altitude SAR Training School	NDRRMA		500,000,000	Need to discuss
		Local Palika should have at least one helipad	Respective Palikas	NDRRMA	n/a	Location of helipad needs to be identified by a technical person
Equipment	Short Term	The EOC offices need to be adequately	NDRRMA Provincial Governments (PEOCs)		n/a	

Components	Timeframe	Activities	Main Responsible Agency	Supportive Agency	Tentative cost	Remarks
		equipped and regularly maintained	Palikas (LEOCs)			
		A replenishment policy needs to be formulated and a budget needs to be	NDRRMA	MOF, MOFAGA, Province, Municipalities	NPR 500,000	
		Prepare a guideline for systematic storage of SAR equipment and provide trainings to EOCs and warehouses	NDRRMA	Red Cross WFP Development Partners	NPR 3,000,000	
	Medium Term	Procurement of SAR equipment for security agencies	NDRRMA,	Nepal Army Armed Police Force Nepal Police Development Partners	Approximately NPR 1,800,000,000	Budget is purely tentative; budget needs to be determined based on detailed consultation with security agencies and engineering survey of training facilities.
		Establishment of fire-fighting capability for high-rise building	NDRRMA Palikas	Development Partners	NPR 600,000,000	Budget is for 2 fire-fighting trucks for high-rise buildings

Components	Timeframe	Activities	Main Responsible Agency	Supportive Agency	Tentative cost	Remarks
	Long Term	Prepositioning of SAR equipment at ward level	NDRRMA	MOFAGA	Approximately NPR 6,680,000,000	
		HAZMAT disaster response capability	MOHA. NDRRMA	MOD, MOF, NA, UN Agencies	NPR 100,000,000	.
Personnel	Short Term	Different EPR training need to be streamlined	NDRRMA Nepal Police Armed Police Force Nepal Army NSET Red Cross	Development Partners	5,000,000	
		Scouts can be provided with basic first aid and relief training	MOHA, NDRRMA, MOEST	Province, Municipalities	n/a	
		DRM, medical first responder, and basic EPR training need to be integrated into the general training of security agencies	MOHA, NDRRMA	MOD, NA, APF, NP	n/a	

Components	Timeframe	Activities	Main Responsible Agency	Supportive Agency	Tentative cost	Remarks
		NRCS representatives to be a member of EOCs	MOHA, NDRRMA, MOFAGA	Province, DAO, Municipality, Red Cross Society	n/a	
	Medium Term	Insurance for EPR personnel and volunteers	MOHA, NDRRMA, MOFAGA	MOF, MOD, province, municipality, NA, APF, NP		Insurance premium depends upon the number of volunteers deployed
		Local governments (Palika) need to organize EPR training periodically	NDRRMA Palikas	Provincial Government	NPR 2,697,200,000	Tentative cost of one CADRE training = NPR 400,000

Annex 1: Full Diagnostic Report

Component 1: Legal and Institutional Framework

Criterion 1.1 Legislated Accountability

Indicator 1.1.1 Emergency Management Legislation

Rationale given by the R2R diagnostic: For an emergency preparedness and response system to function well at any government scale, and especially across scales, emergency management legislation and related policy instruments must exist. These instruments must clearly assign accountabilities to specific government departments and ministries to ensure public safety service delivery and resilience.

Nepal has the Disaster Risk Reduction and Management Act and Disaster Risk Reduction and Management Regulation which cover emergency preparedness and response; there is no separate Emergency Management Legislation. Nepal also has the National Strategy for Disaster Risk Management, National Policy for Disaster Risk Reduction, and Strategic Action of Action for Disaster Risk Reduction. While it can be said that broad mandates, roles, and responsibilities of key government and non-government agencies are clarified by these documents, there are still ambiguity and unclarity in the roles and responsibilities of different agencies.

Indicator 1.1.2: Appropriate Delegations-of-Authority

Rationale given by the R2R diagnostic: During disasters and emergencies, decisions must be made more quickly and often by those directly involved in the management of response operations or priority setting for those operations. Clarity about this decision-making process, and how officials are enabled to make decisions that would typically be made at a higher government level, is vital to timely and effective disaster and emergency response.

Appropriate authority is usually delegated to the senior executive, usually the Chief District Officer (CDO) of the district where the incident has taken place. The Mayors of Palikas are also delegated mandate for decision making. However, there are unclarity between the roles, responsibilities and mandates of these two - CDO and Mayor (who is to assume the role of incident commander) - which creates confusion, resulting in delayed and sometimes ineffective actions.

Indicator 1.1.3: Agency-Specific Operational Response Plans

Rationale given by the R2R diagnostic: An operational response plan ensures that government departments with specific accountabilities for ensuring public safety will be able to fulfill those roles despite organizational challenges such as personnel turnover. It also ensures limited overlap with other government departments and, through testing the plan, enables others to become familiar with how each department will fulfill their obligations.

Most of the Palikas in Nepal have endorsed the Palika-level Disaster Risk Reduction and Management Act and has established the Palika-level Disaster Risk Reduction and Management Fund. As per the provision of the Disaster Risk Reduction and Management Act, the Disaster Risk Reduction and Management Committees have been formed at Provincial and Palika-level, headed by Chief Minister of Province or Mayor of Palika. These committees are also responsible for emergency preparedness and response activities. The committees prepare their own emergency preparedness and response plan prior to Monsoon. The response plans have identified responsible clusters for related response activities, their contact details, communication framework, decision hierarchy, and inventory listing of emergency equipment. The plans also include involvement of local committees and city police in the metropolitan cities. In some cases, the response plans have also identified important clusters (i.e., UN cluster system) as well as equipment inventory, contact details, and food logistics. In some cases, Chief Minister of Province and Mayors have decided to give EPR mandates to different clusters and agencies as per their proven expertise in the past - for example, SAR related activities were tasked to APF in some Provinces. Some EOC offices, usually DEOCs have also prepared (district) disaster preparedness and response plans. However, unfortunately, learnings from the past disasters are not integrated into response plans in the future.

Indicator 1.1.4: Critical Infrastructure Assurance Program

Rationale given by the R2R diagnostic: Critical infrastructure is structural backbone of any jurisdiction. It is the core physical presence of any government without which core government and private services could not be provided. Typically, a significant percentage of critical infrastructure is privately owned and operated. As this infrastructure, be it public or private, is of vital economic and public safety importance within the jurisdiction, a well-developed critical infrastructure assurance program should be established across the jurisdiction.

There is no or very little mention of assurance of operations of critical infrastructure in Government documents related to EPR. Nepal does not have a comprehensive list of critical infrastructure, whether public or private. Telecommunication operators and Nepal Electricity Authority have established redundant systems to ensure operations in case of a major disaster. The Department of Roads has a MIS of road assets, but they have not done a critical path assessment of the road network.

Criterion 1.2: Financial Preparedness

Indicator 1.2.1: Appropriate Financial Instruments

Rationale given by the R2R diagnostic: The Government's central role in natural disaster emergency response and recovery involves a large financial burden, which varies based on the government's definition of contingent liability to natural disasters. Contingent liabilities refer to the spending obligations arising from past events that will be incurred in the future if uncertain discrete future events occur. Ex-ante disaster funds provide the government with a pre-defined amount of readily available resources to be used in the aftermath of a natural disaster. This element refers to the financial allocations, budget contingencies, emergency reserve funding mechanisms and insurance instruments that exist to support effective preparedness, response and early recover.

A Disaster Risk Financing Strategy has been prepared by the Government of Nepal which includes contingent financing, contingent credit, risk transfer through different types of insurance products, establishment of disaster risk management funds, etc.; however, the action plan is yet to be implemented. A Catastrophe Deferred Drawdown Option contingent line of credit was established in 2020, and it has been used twice so far; however, this is coming to an end in 2022 and there are no signs of renewal. Government of Nepal has two funds at federal level - Prime Minister's Relief Fund, and National Disaster Risk Reduction and Management Fund. However, there is no scientific formula that is followed to allocate budget to these funds. Insurance products for individual houses, agriculture and livestock are available, but there are only a few takers.

Indicator 1.2.2: Emergency Procurement Systems and Frameworks

Rationale given by the R2R diagnostic: Within disaster relief logistics, procurement accounts for a hefty percentage of total expenditures. Good procurement practices are essential for efficient, effective, transparent and accountable governance and project management in emergency disaster response. Proactive procurement forecasting identifies the goods and services required for effective disaster response by stockpiling and forming vendor partnerships to ensure rapid distribution in emergency situations. Decentralized, fast track response procurement procedures incorporate more flexibility and invoke other mechanisms (such as pre-qualification processes) to minimize serious supply delays, reduce cost and speed up delivery times.

According to the Public Procurement Act 2063 and Public Procurement Regulation 2064 of Government of Nepal, almost all procurement is to be made through competitive or bidding process for goods, works and services to ensure quality and transparency. However, there are some exceptions provided for special, sudden and unexpected circumstances such such as earthquake, flood, landslide, fire, drought, as well as war or internal conflict, as mentioned in the Clause 2 of Act. Regulation's Clause 145 Provisioned Concerning Procurement in Special Circumstances explains it further:

(1) A Public Entity shall, in making a procurement pursuant to Section 66 of the Act, have to prepare written details of the procurement requirements, quality, quantity conditions and period of completion of work and shall procure only the quantity and for the period required to face the contingent circumstances by having a competition made so far as practicable or by concluding negotiations for fair and proper price after receiving written quotation or proposal from a single construction entrepreneur, supplier, consultant or service provider, as the case may be,

(2) Where a procurement has been made pursuant to Sub-rule (1), documents containing the following matters shall have to keep in the records under Rule 149:-

(a) Description relating to special circumstances,
(b) The crisis to be occurred in public security, interest and community health, if procurement is not made immediately,
(c) Reasons and grounds for not adopting the other methods of procurement.

(3) Where a Public Entity has made a procurement exceeding one million Rupees pursuant to Sub-rule (1) it shall have to publish a public notice of the details of the procurement so made and send information thereof to the Public Procurement Monitoring Office.

However, please note that although these financial provisions are made available, they are used very hesitantly by the government agencies in post-disaster situations. This is because whenever direct procurement has been made using these provisions, the officials who authorized the procurement have been reprimanded by the Commission of Investigation of Abuse of Authority (CIAA) citing corruption in the procurement.

Indicator 1.2.3: Public Financial Management Policies and Procedures

Rationale given by the R2R diagnostic: Effective financial management policy outlines and provides guidance on the processes involved in managing response costs during the activation of the emergency response structure and protocols. It outlines those responsible for managing response expenditures for costs incurred during response and recovery as well as the relevant expense authorities and applicable thresholds. Financial management procedures outline the scope, steps and responsibilities for financial tracking of all eligible and approved emergency response costs, authorizations of those expenditures and processing of invoices.

Agency-specific financial policies based on public financial management policies and procedures of the central government are formulated and applied for response expenditure for the functioning of the Disaster Management Fund. Each section (PEOC, DEOC, LEOC, Red Cross, Nepal Police, APF) has its specific policies and procedures for emergency expenditures and works in coordination with the EOC of the municipality. With the increased rights and resources of the local government, the roles of DEOCs have been more of a communication center. Local levels lack directives to use that fund. The budget to operate DEOC has been arranged in the DAO office and the staff gets their salary and benefits from their originally involved organizations like Nepal Police and APF. LEOC lack disaster fund and depends on the municipality for necessary financial support. The threshold for any emergency expenditure has not been well-defined in the central public financial management policies and procedures which creates a lack of clarity among the tiers of the government regarding expenditure disbursement.
Usually, the head of the Palika, with approval from their municipal assembly, decides about the use of the fund at the time of disaster. Some have also made a prior decision about monetary relief during a disaster. For example, at Kanchanrup Municipality, there is an established norm of directly giving Rs. 5100 at the time of the fire incident.

Indicator 1.2.4: Personal Financial Risk Transfer Programs

Rationale given by the R2R diagnostic: An established personal insurance market that is affordable and available in high-risk areas can significantly reduce the financial burden on individuals, families and governments in the wake of disasters and emergencies. In combination with other government risk transfer mechanisms, a robust personal insurance market can significantly reduce government contingent liability while also improving personal accountability and preparedness of individuals and families.

Nepali insurance companies do offer homeowner insurance products against natural hazards, which are affordable. Many of those who were insured under such programs got their insurance payment in the aftermath of 2015 earthquake. The Government has also made it mandatory for homeowner insurance in the case of home mortgage. However, Nepal is one of the least insured countries in South Asia. Some of the reasons for this are the following: i) generally these types of insurance products are offered only in urban areas, ii) these products are not well known to general public, and iii) it is a cumbersome process to complete the due diligence processes which delays receipt of the insurance payments.

Component 2: Information

Criterion 2.1: Community Engagement

Indicator 2.1.1: Program for Local Level Volunteer Emergency Responders

Rationale given by the R2R diagnostic: Local responders are the first to act, however it can become difficult to manage a response if no systems are in place to engage with volunteers in advance of an emergency. It is helpful to engage with volunteer responders early to maximize response effectiveness, significantly reduce response times safely, and encourage individual accountability for personal and family preparedness.

In 2022, the Government of Nepal approved the Disaster Risk Reduction and Management Volunteer Bureau Formation and Mobilization Guidelines which aims to create volunteers at Palika levels for emergency preparedness and response. However, this has not been materealized yet. According to the Red Cross, there are approximately 90,000 Red Cross volunteers that have received basic Red Cross training that includes relief distribution – but they are not CADRE trained and can't be relied upon for SAR activities. Apart from a handful of effort to pre-position SAR equipment at the community level (mainly in Kathmandu Valley and a few other places), SAR equipment has not been pre-positioned at the ward or community level even though people in the communities may have been trained on SAR.

Indicator 2.1.2: Program for Local Level Volunteer Emergency Responders

Rationale given by the R2R diagnostic: Addressing preparedness and response at the local level can raise awareness of specific threats and help communities to prepare and engage in problem solving prior to and during a disaster. Further, these programs ensure communities know what local action to take when warnings are issued and reduce pressure on response services during widespread and/or more intensive disasters and emergencies.

When Government agencies prepare their response plans (for example, the District Disaster Preparedness and Response Plans, Monsoon plans for selected districts or Palikas), this is usually done in a consultative manner involving community leaders' participation. Through this process, community awareness is raised. If funding is available, the Red Cross does emergency simulation and response drills once a year in the district headquarters; these activities help raise awareness. However, there is no separate, centrally funded

and regular awareness raising or educational programs at community level. Some development-partner-funded projects that work on local emergency preparedness and response are less functional (i.e., such campaigns are conducted irregularly).

Indicator 2.1.3: Program to Support Small-Scale, Community-Led Mitigation Works

> Rationale given by the R2R diagnostic: Mitigation of risk at the local level with support from the community helps raise overall risk awareness while reducing the effects of a disaster and promoting rapid recovery following an event. Examples might include retro-fitting irrigation equipment for secondary use in wildland fire suppression, local riverbank stabilization, etc.

There are very few programs organized at the community level for community-led risk mitigation works. And they are not multi-year programs. Among the few, the construction of a gabion wall to strengthen the embankments was observed in Butwal Municipality. Some development-partner funded projects involve community-based risk mitigation works, with technical support also provided by the development partners. In some cases, however, budget and technical expertise is provided by Palilkas. For example, Rajbiraj Municipality supported community-led check-dam building activity to prevent land erosion by the flood in the river. Nationwide, however, such programs do not exist.

Indicator 2.1.4: Education and Tools for Local Leaders

> Rationale given by the R2R diagnostic: Local leaders, elders and community groups have an important role to play in overall disaster risk reduction. Engaging and training the community leadership in proactive risk management can improve the overall effectiveness of the emergency management program in all phases, ensuring integration with all levels of government and establishing a local culture of preparedness.

In 2019, the National Reconstruction Authority provided 3-days DRM trainings to locally elected officials (Mayors, Deputy Mayors, and Ward Chairperson) of the 32 earthquake affected districts – the participation was mixed with some elected officials staying the whole 3-days while others staying for half of the first day only. The Local Development Training Academy, a Federal Government agency that has the mandate to train sub-national governments on different topics, offers DRM trainings to sub-national governments. But both of these trainings were not particularly focused on EPR; rather the overall DRM cycle. Apart from this, whereas there have been some sporadic effort funded by development partners to train locally elected people, there is no multi-year training program for local leaders. Most of the respondents were not convinced of the outcome of the training program, because after receiving such trainings, almost no Palika or Wards have increased their budget for DRM or EPR.

Criterion 2.2: Early Warning Systems Indicator

Indicator 2.2.1: Functioning Monitoring/Surveillance Program

Rationale given by the R2R diagnostic: Local leaders, elders and community groups have an important role to play in overall disaster risk reduction. Engaging and training the community leadership in proactive risk management can improve the overall effectiveness of the emergency management program in all phases, ensuring integration with all levels of government and establishing a local culture of preparedness.

Meteorological and Hydrological Hazards: Various meteorological and hydrological hazards frequently occurring in Nepal include flood, inundation flash floods, landslides, GLOF, rain, drought, forest fire, cold, heatwaves, lightning, snowstorm, windstorm, hailstorm, and air pollution. The Department of Hydrology and Meteorology (DHM) has been monitoring meteorological and hydrological hazards. There are more than 100 automatic hydrological observation stations and approximately another 200 manual observation stations across the country to monitor rainfall and this helps to assess the risk of hydrological hazards related to disaster risk. There are more than 200 automatic weather observation stations and approximately 100 more manual observation stations, bringing the total number of weather observation stations to 300. In addition, there are 11 lightning observation systems, 1 upper air radiosonde system, and 1 X-band radar station while 2 more will be established within 2023. These stations monitor different weather parameters such as temperature, humidity, wind speed and direction, solar radiation, precipitation, atmospheric pressure, visibility, lightning, hail, etc., and create alerts for severe weather events.

Flood Early Warning System (FEWS) exists in 12 major river basins for the downstream communities in Terai. The FEWS is linked to community disaster management groups, which then carry out preventive actions following the alert and warning messages.

The DHM is a member of regional and global mechanisms on weather and climate analysis and has access to regional and global weather information from satellites. Meteorological Departments from South Asian Countries are organized into South Asia Seasonal Climate Outlook Forum (SASCOF), which forecasts climate on a seasonal basis and issues monsoon, post-monsoon, winter, and pre-monsoon seasonal outlooks. Building on the South Asia outlook, the DHM develops a seasonal outlook for Nepal. The DHM provides a regular weather forecasting service, which covers the whole country all the time of year and is issued twice a day – by 6:30 a.m. and 6 p.m. for the next 3 days. However, the weather forecast lacks area and time-specific information. DHM analyzes the river data and different weather parameters and makes forecasts. These forecasts are available through web pages of the DHM and are further amplified by all media including social media. The DHM also issues special weather bulletins if there is the likelihood of an extreme weather event.

To disseminate alerts and warnings if the disastrous event occurrence potential exceeds a threshold level, the DHM has made a unique arrangement with 2 of the biggest mobile operators: Nepal Telecom and NCell, whereby alert SMSs are sent free to charge to mobile phones whose numbers were registered in the areas at risk of floods or severe weather hazards. The country has been divided into 246 areas (polygons) based

on the river, population, exposure to physical and environmental assets, etc. This system can deliver Early Warning messages 8-10 hours in advance for the major river system, 5-6 hours in case of the smaller river system, and 1-2 hours in case of a flash flood.

Seismological hazards (earthquake, landslide): There are 21 short-period seismic stations and 7 accelerometer stations throughout Nepal which are under the Department of Mines and Geology. These stations do not issue early warnings because of the nature of the earthquake hazard (unpredictable and immediate). In some industrialized countries such as Japan, an Earthquake Early Warning System exists with a lead time of around 10-15 seconds which is useful to warn people and stop fast-moving trains and traffic. However, such a system is not applicable in Nepal at this moment, due to the lack of comprehensive seismic observation equipment, and interconnected Artificial Intelligence-enabled IT, communication, and warning systems. The National Earthquake Monitoring and Research Center monitors, records, and makes data on earthquake events public at http://seismonepal.gov.np/earthquakes. The Center provides post-event information on earthquake occurrence including its epicenter and magnitude.

There is no fully operational landslide monitoring system in Nepal. Some projects and agencies have used remote sensing and satellite images to monitor the movement of landmass over a long period. Similarly, some efforts have been made to establish a local landslide monitoring system, for a specific location or an individual slope. A few landslide hazards, as well as risk maps, have also been prepared [reference needed]. However, there is no real-time landslide monitoring system.

Forest fire hazard: Analysis of satellite images has enabled monitoring of fire hazards across the nation, and information is shared with concerned authorities. The Department of Forests and Soil Conservation has been working with ICIMOD to further enhance the fire detection and monitoring system. However, preparedness and response actions such as fire suppression based on fire detection are yet to be implemented.

For many hazards, the feasibility of the EWS is yet to be understood due to the uncertainty and lack of lead time between detection risk and the actual event hitting the community.

Indicator 2.2.2: Sound Data Analysis Program

Rationale given by the R2R diagnostic: The analysis of data gathered by monitoring and surveillance systems is crucial to any early warning system. The data gathered should be analyzed using scientifically and technologically sound methodologies to ensure that the information being disseminated is accurate, useful and timely.

For floods, meteorological and seismological hazards, trained data analysts (hydrologists, meteorologists and seismologists) analyze the hazard data and made hazard-specific forecasts. They use satellite imagery, data, software, modelling techniques, etc., that follow international standards. Lately, the modellers have begun to scan social media and corroborate their findings with media stories. There are also redundant systems in place. In the last 4 years, the quality of hydrological and meteorological forecasts have significantly improved. However, the early-warning system or hazard monitoring systems are not multi-hazard. Furthermore, it must be noted that the number of hazard monitoring stations is very less compared

to the number prescribed by international agencies; for example, Nepal has less than 20% of number of hydrological and meteorological stations prescribed by the World Meteorological Organization. So there are still a lot of gaps in hazard monitoring.

Indicator 2.2.3: Real-Time Warning Messages

Rationale given by the R2R diagnostic: Functional early warning systems deliver clear, simple messages containing useful information to affected or at-risk populations. This empowers individuals and communities to take action and adopt protective behaviors that save lives. Messages need to be straightforward and action-oriented. They should be consistent across multiple media platforms and message delivery systems.

Apart from the hydrological and meteorological forecasts made by DHM, a few projects funded by Government and development partners have distributed some manual hydrological and meteorological observation equipment and sirens as well as given trainings for localized hazard observation. They transmit hazard information to Local Disaster Management Committees, who relay it to local representatives, LEOC and DEOC. Most of the time these are transmitted using mobile phones; sometimes radio (national or local) are also used to warn people.

Indicator 2.2.4: Functional Warning Message Distribution Systems

Rationale given by the R2R diagnostic: Critical early warnings based on sound analysis and quality data are only effective if delivered rapidly to the population at-risk. To be effective in reaching the target population, warning messages must be delivered near simultaneously across multiple media platforms, such as television, radio, social media and mobile phone text message. By ensuring “last mile" connection for early warnings, at-risk populations are able to take lifesaving actions within their community to reduce the consequences of disasters and emergencies.

To disseminate alerts and warnings if the disastrous event occurrence potential exceeds a threshold level, the DHM has made a unique arrangement with 2 of the biggest mobile operators: Nepal Telecom and NCell, whereby alert SMSs are sent free to charge to mobile phones whose numbers were registered in the areas at risk of floods or severe weather hazards. The country has been divided into 246 areas (polygons) based on the river, population, exposure to physical and environmental assets, etc. This system can deliver Early Warning messages 8-10 hours in advance for the major river system, 5-6 hours in case of the smaller river system, and 1-2 hours in case of a flash flood. The EWSs are not sent by NDRRMA and EOCs; they are sent by DHM and NDRRMA and EOCs are receipients of the EWSs. Nepal has not implemented the Common Alert Protocol; and the EWS is manual. Therefore, multi-modal warning distribution system is not existent. When the EWSs are received, only a few communities warn people with sirens or alarms; usually SMS is sent to warn people and community volunteers mobilize themselves to warn people at risk.

Criterion 2.3: Information Management Systems

Indicator 2.3.1: 2.3.1: Functional Information Management System (Score- 1.6/ 5)

Rationale given by the R2R diagnostic: The use of a common disaster management information system (DMIS) by all emergency management personnel improves overall situational awareness, decision making and response coordination. A system based on commercial off- the-shelf (COTS) software, and that is inter-operable with common systems in use by international agencies, can improve overall response and increase training opportunities for personnel across agencies.

There are 3-5 DMISs in Nepal, each with their own functionalities and uses. This creates confusion among general public; there is a need to consolidate the MISs. To the best knowledge of the consultants, all of them have been programmed from scratch and they do not use commercial off-the-sheff software. It is unknown where the data (server) is kept. The DMISs are designed, developed and operated from Kathmandu. The EOCs have access to them, but the staffs in EOCs do not know how to operate the DMISs. The staffs in EOCs, usually Nepal Police staff, do not have access to DMISs or they have not been trained in entering data into the DMISs; thus DMIS is not fully effective.

Indicator 2.3.2: Budget Allocations for Information Systems

Rationale given by the R2R diagnostic: A functional disaster management information system (DMIS) fills a crucial role in supporting situational awareness and organizing information prior to, and during a disaster. It is important to ensure that the system is maintained, updated, and upgraded as necessary in order to ensure that the system functions appropriately and that valid information is available when required.

There is no separate budget allocated for the information management system. So there is no budget for regular training of staffs and system upgrade. Among the devices and equipment available for MISs, most of them have been donated by development partners or I/NGOs. The MISs that are currently operational are still supported by one project or another supported by development partners. Development partners are mostly interested in developing new MIS, and not in covering upgrade and maintenance of existing systems; thus some MISs have been obsolete. Challenges range from purchasing licence for softwares, to procurement of new equipment for system upgrade and repairing and maintaining the current equipment. The prevalent practice is to mobilize personnel from various agencies with training to use the information management system.

Indicator 2.3.3: Integration of GIS-Generated Data in DMIS

Rationale given by the R2R diagnostic: The availability of geo-located information within the DMIS provides superior situational awareness for planning, mitigation, response, and recovery efforts. Real-time update of GIS data, often through the use of mobile and wireless device users, provides current data for disaster and emergency response and recovery planning.

Bipad platform is capable of integrating GIS generated data. However, users of the system have mentioned that it is very difficult to upload data onto the Bipad system. Rest of the MISs do not have functionality to integrate GIS data. None of the DMISs are capable of accepting mobile information. Bipad platform does not have critical facility information.

Indicator 2.3.4: Integration of Early Warning Data in DMIS

> Rationale given by the R2R diagnostic: Early warning systems provide data that is crucial for analyzing the potential impact of an incident. The integration of early warning system data with the DMIS enhances situational awareness and allows for the dissemination of a comprehensive common operating picture for all responding agencies.

Bipad Platform has integrated EWS; other DMISs do not have this functionality. There is not mobile app for any of the MISs. Bipad accepts voluntary incident reports; however, there is no automatic data collection from devices.

Criterion 2.4: Geomatics

Indicator 2.4.1: GIS Capacity

> Rationale given by the R2R diagnostic: GIS can be a powerful tool for planning, preparedness, response and recovery by organizing and making available information on hazards, vulnerabilities, and resources for emergencies. GIS can also be a powerful tool in promoting public risk reduction by helping populations better understand current risks.

GIS capacity (GIS expert) is usually not available in responder agencies, including the security forces and EOC offices. GIS maps have to be prepared by NDRRMA. Bipad platform has a functionality to create dynamic maps of an area of incident; however, it is difficult to upload GIS layers to Bipad platform. The responders on the ground (from individuals to community-level and Palika-level responders) do not have GIS maps when responding.

Indicator 2.4.2: Georeferenced Data Layers

> Rationale given by the R2R diagnostic: Inter-operable GIS improves situational awareness, response efficiency, and can prevent further damage or loss of life. Responding agencies and emergency management personnel should have inter-operable systems based on common baseline data layers. This foundation significantly contributes to the common operating picture and efficient information flow between responders and integrated command agencies as necessary.

Nepal does not have set of geo-referenced data layers. At the national level, it has some hazard maps of some major hazards such as earthquake, floods, landslides, etc. However, localized data does not exist except for those places where extensive research has taken place. There is no vulnerability and exposure datasets of different hazards. Critical infrastructure, private or public, has not been identified and maps have not been created.

Indicator 2.4.3: Standards for Georeferenced Data

Rationale given by the R2R diagnostic: Ensuring that data conforms to a standard lowers overall operating costs for the GIS while ensuring the data quality is maintained. This enables faster processing and interpretation of the data and increases confidence in the models and outputs from the system. These efficiencies lead to more rapid and informed respond operations with higher confidence in decisions.

No comprehensive standard is established for compiling and interpreting geo-referenced data layers. No jurisdictional government standards exist for compiling and managing GIS data of disasters. There is not a common GIS software platform that is being utilized by all agencies involved in EPR. Standards do not exist for interpretation of GIS data including source identification and confidence or reability of data. GIS data and information is not compiled and shared in real-time between agencies in standard formats for interoperability.

Indicator 2.4.4: Standardized and Periodic Process for Updating

Rationale given by the R2R diagnostic: GIS data must be current and reliable in order to have value for emergency management activities. A system of regular updating of the information ensures that the information is useful at all times. As well, ensuring understanding and transparency about how hazardous areas, community vulnerability, etc. are established improves situational awareness for focusing preparedness activities.

No standarized process is in place for updating baseline data layers used in the emergency preapredness and response system. Hazard, vulnerability, and exposure datasets do not exist. There is no database or MIS for EPR (equipment, warehouses, trainings, etc.); thus there is a need to first establish such MISs and then link with existing GIS applications for EPR.

Component 3: Facilities

Criterion 3.1: Emergency Operations Centers

Indicator 3.1.1: Available Emergency Operations Centers

Rationale given by the R2R diagnostic: An emergency operations center (EOC) must be supported by sufficient back-up systems including power, heating and cooling, communications, staff, and operational resources (such as security, break rooms, planning/meeting rooms, media center, etc.). Ideally, an EOC would have a back-up facility that is geographically diverse, and fully capable of operation in the event the primary EOC is not available.

There is one National EOC in Kathmandu. Provincial EOCs have been established in 6 out of 7 provinces; Lumbini Province has a Ministerial Information Center instead of PEOC which mainly looks at collecting data and information on incidents such as law and order, accidents, as well as disasters. Similarly, approximately 100 Palikas have established their own Local Emergency Operations Centers (LEOCs).

Power back up: In most EOCs (PEOC, DEOC, LEOC), there is no provision of an effective alternative power backup system to support the office and signal equipment that lasts for at least a week long. Most of the EOCs are powered by the national grid and there are supposed to be solar panels and inverters as a power backup, but these were missing or not working in many EOCs that were visited. Hence it is required to have a generator (3/5KVA) with a minimum of at least 1000 liters of fuel storage capacity.

Internet facility: Many of the EOCs are receiving internet facilities from DAO, Municipality, and Ministries' offices. EOCs are supposed to be functional during any disaster event, and they need to have alternative provisions for the internet.

Wireless communication and effective repeaters: Wireless communication is a problem in almost all EOCs. Most EOCs lack HF, VHF, or handheld radio sets, and those that do have these sets are unable to communicate with their higher, lower, and flanking EOCs due to a lack of an effective repeater system. Spare batteries have not been provided with the handheld sets.

Competent human resource: The HR plan of EOCs is not uniform. The chief of NEOC is usually an Under Secretary; however, there are no minimum competency or experience criteria for selection. Therefore, the chief of NEOC learns about emergency preparedness and response during the job; this is not ideal because proper preparedness and response require a competent and experienced leader. Furthermore, looking at data from the last 10 years, the chief of NEOC usually stays in the job for approximately 2 years. This situation needs to be changed.

The Deputy CDO is the head of DEOCs; however, usually, the de-facto chief of a DEOC is CDO. Other DAO staff are given partial responsibilities for different functions of DEOC, which is not ideal because the effective running of a DEOC requires dedicated staffing. In some cases, the DEOCs are staffed by Nepal Police and Armed Police Force Nepal signalers (Communication Operators); however, these are temporary appointments determined usually by the CDO and permanent positions do not exist for Nepal Police or Armed Police Force personnel. Furthermore, it is not necessary that the staffs of DEOCs are competent and trained in emergency preparedness and response. The same is the case with PEOCs and LEOCs: there is no standardized HR plan for EOC offices, and those government officers assigned from MOHA, DAO, and Municipality also don't have enough understanding of EPR. Even the Nepal Police and Armed Police Force personnel are appointed temporarily only; there is no provision of permanent staffing of Nepal Police or Armed Police Force for EOCs. Only nominal budget is allocated to EOCs, and this generally does not include capital funding, upgrade of systems, maintenance of equipment, trainings or drills.

Indicator 3.1.2: Mobile Command Post

Rationale given by the R2R diagnostic: Mobile command post facilities typically include space for incident management activities in a controlled environment (secure, sheltered, etc.). Additionally, the ability to accurately communicate site conditions, resource needs, and other information to the EOC is necessary. This requires reliable back up communication capabilities and the ability to operate in a self-supporting mode for some period of time, ideally between 36-72 hours without re-supply.

There is no mobile command post set up anywhere. The use of inverters and battery backups to set up a temporary command post is the closest to establishing a mobile command post. But the setup lasts for 2

days at most. The knowledge about the mobile command post is mixed: most realize the need for it, but the exact nature and purpose of the mobile command post are still not clear to all.

Indicator 3.1.3: Clear Lines of Authority

Rationale given by the R2R diagnostic: Policy and authority must be clear for activation of the EOC and for the required staffing, fiscal authority, and operational responsibilities including the role of elected officials, government staff, NGO's and other supporting entities. How the EOC will function in relation to other governments (federal, territorial, municipal) and potential foreign disaster agencies or corporations should be spelled out in advance of an emergency.

Although the NEOC is mapped under the NDRRMA, in reality, NEOC generally receives instruction from the disaster management division of MOHA; there is already a disconnect between NDRRMA and EOC system at the top of the chain. Similarly, there is a disconnect in the chain of command between NEOC and PEOC, NEOC and LEOC, and DEOC and LEOC; this is because NEOC and DEOCs are under NDRRMA, whereas the PEOCs are under the Provincial Governments and LEOCs are under the Palikas. Thus, LEOCs do not follow the instructions given by NEOC and DEOC. Similarly, PEOCs don't readily follow the instructions given by the NEOC. Although in theory, the EOC offices should follow one chain of command, it is not the case in reality. The NEOC usually instructs DEOCs to be in a state of alert, or to activate it partially or fully; however, there are no set criteria for different levels of activitation and deactivation; at least the respondents of the survey didn't know about the criteria. For PEOCs and LEOCs, it is usually the Provincial Government and Palika Government respectively that decide on activation and deactivation of EOCs. SOP of NEOC and DEOCs exist but these have not been revised for more than a decade, and they do not recognize PEOCs and LEOCs. Except for rare cases, there are no SOPs for PEOC and LEOC.

Indicator 3.1.4: Standardized Process for Social Media and Crowdsourced Data

Rationale given by the R2R diagnostic: Controlling the messaging surrounding an incident must include being able to find out what is being said on social and conventional media, and responding to rumors and incorrect information with an authoritative voice and clear messaging. Collecting, aggregating and analyzing media can help to identify needs for messaging, and can be a valuable tool for analyzing the effectiveness of messaging and overall response.

There is no standardized process in place for the collection, analysis, storing, and maintenance of social media, and crowdsourced data at the EOC level. Staffs of EOCs, however, monitor different social media outlets and also use social media to disseminate information; but this is done independently.

Criterion 3.2: Training Centers

Indicator 3.2.1: Capacity of Training Centers

Rationale given by the R2R diagnostic: A training center will have limited effectiveness unless it has the capacity to meet the needs of the targeted trainees. Dedicated resources for training will help achieve this, including meeting general and specific needs of the training audience.

The security agencies have their training centers in different parts of the country where they conduct disaster and emergency preparedness and response training. Nepal Army and APF have already established their Training School for the disaster management competency building process whereas Nepal Police is on the verge of establishing one. Most of the existing training facilities need repairs and maintenance and capacity expansion. This is because only nomimal budget is provisioned for repair and maintenance of infrastructure. For example, APF Disaster Training School in Kurintar requires capacity expansion: more training facilities, accommodation, resources, and training instructors are required. Furthermore, APF intends to establish two more disaster management training facilities; i) a training school in Barmajiya, Saptari district, and ii) a high-altitude SAR training school in Manang. Nepal Police does not have it's own training facility; it is conducting EPR related trainings in its office premises in Maharajgunj.

Indicator 3.2.2: Options for Multi-agency Training

Rationale given by the R2R diagnostic: multi-agency training centers will allow inter-agency training but will also reduce costs instead of having a training center for specific disciplines. Beyond responders, training centers should also allow public and volunteer accessibility to promote a bottom-up approach to emergency preparedness and response.

No options for multi-agency training centers currently exist. Only when NSET provided PEER training (MFR and CSSR) did all the security forces' personnel were in the same classroom. All three security agencies conduct their own trainings for their respective staffs. There are no agreements between the 3 security forces for exchange of trainees, exchange of instructors, and use of training facilities. This has meant also that there is deviation in training modules and training approach for the same topic. Realizing this gap, Nepal Army is proposing to establish the National Disaster Training Academy. An estimated 10,000 personnel from different agencies are estimated to be trained annually at this academy. Most of the training (from 3 days to 4 months) will be residential. Therefore, the premises and infrastructure of the Academy need to be built accordingly.

Indicator 3.2.3: Utilization and Maintenance of Existing Training Centers

Rationale given by the R2R diagnostic: A strategic plan and operational budget for use of a training site will allow it to be used to its full potential. To ensure facility optimization, engagement with multiple responder agencies and the private sector should be explored and formalized. As well, training centers can function effectively as secondary EOCs or regional command posts for disasters, if properly designed. To ensure this optimization, the facilities must be maintained to a high standard and equipment kept current to the equipment being used in daily operations by rescue and response services.

Nepal Army and APF have their training centers for different types of SAR; Nepal Police does not have a training center for DRM or EPR. Trainings are held at these facilities around the year. However, the training centers need budget for repair, maintenance and expansion because only nominal budget is allocated for regular upkeep of training centers.

Indicator 3.2.4: Geography and Location of Training Sites

Rationale given by the R2R diagnostic: Geography and accessibility are key to training the maximum amount of agency personnel and public volunteers. Exploring partnerships with academic institutions and ensuring proximity and easy transportation access improves usage patterns for training centers, increasing the opportunity for collaborative learning and establishing a culture of preparedness across public, private, non- government and academic sectors.

Existing Training Centers of Nepal Army and APF are in suitable areas. And both of these agencies plan to establish specialized training centers in appropriate places too. These sites are accessible by the staffs of Nepal Army and APF, but not to public because they don't provide trainings to public and professionals, yet.

Criterion 3.3: Logistics Warehouses and Response Stations

Indicator 3.3.1: Entities and Frameworks for Logistic Hubs and Warehouses?

Rationale given by the R2R diagnostic: Logistics management is often a complex process even during non-disaster periods. Due to this complexity, suitable and sustainable networks should be developed and maintained as part of a disaster preparedness plan. Logistics hub networks, including warehousing storage facilities, should be able to work with the private sector, government, and NGOs to successfully coordinate incoming international aid and also distribute it to domestic areas in need.

Frameworks defining the coordination and support of logistic hubs and warehousing mostly does not exist. In the case of a major disaster, the government relies upon Nepal Army, APF or Nepal Police for logistics of goods; they also rely upon private sector, where appropriate. For the cases when the disaster is not big enough to warrant central government's response, generally the Palikas rely on development partner agencies for the logistics management. The EOCs do not have warehouses and keep very few items with them. District and Palika level agencies rely mostly on the local vendors to provide items. In province 1, National Business Initiative (NBI) through donations from various private institutions, supported PEOC of Biratnagar and DEOC of Dhankuta with construction of warehouses and EPR equipment.

NCRS has established four regional warehouses in Biratnagar, Birgunj, Nepalgunj, and Mahindranagar. They all have a storage capacity of 4000 sets of relief materials at each location. Similarly, there is a central warehouse in Kathmandu that has the storing capacity of 10000 sets of relief materials. Again in Butwal and Pokhara, there are zonal warehouses with a storing capacity of 2500 sets. And at Udayapur, Doti, Baitadi, Lamjung, and Panchthar NCRS has warehouse depots. They can store 1000 sets of relief materials in each location.

Indicator 3.3.2: Capacities of Logistic Warehouses

Rationale given by the R2R diagnostic: Beyond having a network of logistic hubs for distribution of goods and materials, operations management and the physical structure of logistic warehouses are key to increased resiliency during disasters. Warehouses must have the size, staffing, budget, and equipment to successfully intake, sort, maintain, store, and eventually distribute both perishable and non-perishable items and other equipment.

Logistics of warehouses were of variable capacities ranging from small rooms to well maintained and spacious large warehouses. However, warehouses do not have food storage facilities. They also do not have amenities for storing shelter-related items. Provincial-level warehouses have sufficient space for storage, but space is limited in other warehouses. Some of the ECOs like DEOC Kailali has sufficiently enough warehouse in size but management is poor. In the case of PEOC of Biratnagar, they have constructed additional warehouses and have tents, SAR equipment, and blankets in the Inaruwa warehouse. They also support DEOC, and LEOC with the necessary equipment in need. DEOC and LEOC also have their warehouses. Usually Nepal Police or APF provide security. In all government warehouses, there is no SOP or manual for proper operation of the warehouse or storage of items. This is a huge gap.

Indicator 3.3.3: Capacities, Resources, and Abilities of Local Response Stations

Rationale given by the R2R diagnostic: Local response services are a critical resource during disaster and will be some of the first responders deployed. While local response stations are primarily for daily emergencies, having regional network of response stations will also provide a resource for responding to disasters until more specialized aid is deployed. Daily emergencies will not cease during disasters and having local response stations continue to respond to their regular duties is key to building a resilient population. Local response stations include resources such as ambulance or paramedic response, firefighters, police and search and rescue.

There are approximately 178 EOCs and X fire brigades. Nepal Police is present in all the Palikas, while Armed Police Force and Nepal Army have their presence in all districts. In most of the cases, the buildings these response agencies occupy are not resilient from earthquake – this was evidenced in the 2015 earthquake when many government buildings include those of responder agencies collapsed or were damaged beyond repair. While it can be said that none of these response agencies are fully equipped for a medium to large scale disaster, they do however have minimum capacity to respond to low-intensity high-frequency emergencies. Usually in case of a medium to large scale disaster, they all work together and complement each other and other authorities.

There exist limited logistics and skilled manpower but response activities often take place in coordination with different authorities. PEOCs have tents, SAR equipment, and covid response equipment. DEOC has minimum equipment inventory. Some LEOCs at Metropolitan/Sub
metropolitan have SAR equipment, a fire brigade, and heavy machinery. The capacity to use the equipment varies. Most of the training and skill needed to operate the machinery is obtained from security forces.

Indicator 3.3.4: Specialized Hazard Response Stations Criteria

Rationale given by the R2R diagnostic: Hazard specific response stations may be housed or designated in the same structure as local response stations with dual trained personnel. However, specialized equipment may be needed to respond to specific disasters or hazards which are typically beyond the capacity of local response stations. Hazard response stations may also be centralized as response situations are less common, however their equipment and trained personnel should reflect local threats and hazards. Local response stations do not typically have the ability to respond to disasters for prolonged periods so specialized teams are required.

Hazard specific response teams exists, for the following disasters: earthquake (CSSR and MFR teams), flood rescue teams and fire brigades. The case of forest fire is not very clear: if the fire is near Kathmandu Valley, the Nepal Army even uses helilopters to try to suppress the fire in addition to security forces being deployed; but if similar fire is elsewhere, only security agencies' personnel are deployed to try to suppress fire. Hazard specific teams get self-activated immediately in case of an emergency.

Criterion 3.4: Shelter and Open Spaces

Indicator 3.4.1: Infrastructure for Emergency Housing and Temporary Shelter

Rationale given by the R2R diagnostic: Temporary shelters and emergency housing are potentially expensive. Pre- existing partnerships to use land and provide shelters helps defer or lower costs while reducing response time. Temporary housing is not meant to be permanent but should provide the basics of sustainable living including protection from the elements, security, and a space for mental well-being. Organizing shelter resources (as opposed to prior) during a disaster is not pragmatic and not likely provide suitable protection to a displaced population.

Some densly populated Palikas have identified disaster-safe open spaces, while less-populated Palikas do not need to do that because of abundance of open spaces. Similarly, some communities or wards in a Palika have identified disaster-safe escape routes. Usually, government schools and public halls are used in an emergency. In some Palikas, private spaces and buidings have also been used in the aftermath of a disaster, particularly for pitching tents. Few municipalities have dedicated shelter houses constructed to be used in emergency situations. There are no agreements between Government (Palikas, NDRRMA, etc.) and private sector for the use of private sector infrastructure in case of a disaster, for example with a hotel or private school which may have open space that can be used during a major earthquake.

Indicator 3.4.2: Designated Open Space for Disaster and Management Operations

Rationale given by the R2R diagnostic: Open spaces such as parks, vacant land, and green spaces are a natural convergence point for displaced peoples. They also may be relatively free of structures or debris after a disaster and be suitable locations for disaster specific operations such as mobile command posts and resource staging areas. Identification and planned use of open spaces will help save time and manage resource deployment during a disaster.

Some densly populated Palikas have identified disaster-safe open spaces, while less-populated Palikas do not need to do that because of abundance of open spaces. These open spaces have not yet been designated for different purposes.

Indicator 3.4.3: Disaster Evacuation Routes

Rationale given by the R2R diagnostic: Designated and safe disaster routes are key for saving lives and evacuating portable economic resources (such as livestock) before or during a disaster. Local population must also know when, where, and how to access evacuation routes through outreach and education.

Disaster-safe evacuation routes are identified in some Palikas, but alternate routes are rarely maintained.

Indicator 3.4.4: Safe, Healthy, and Secure Locations for Temporary Shelter

Rationale given by the R2R diagnostic: While displaced persons may end up in emergency housing for years, the situation should always be viewed as temporary. In the short-term, shelter communities often create added risks through overcrowding, victimization through crime, poor sanitation, and a lack of availability of services that are well- established in permanent communities. The longer the residence in temporary communities, the greater the risk for residents. A realistic timeline for transition to permanent housing should exist which will also help speed the transition

Open spaces have been used time and again in the aftermath of a disaster, particularly after the 2015 earthquake, but the open spaces have not been identified from the perspective of clean water, food, and sanitation needs – these basic things are managed somehow. No particular study/assessment has been conducted on how the Sphere standard has been contextualized or implemented in Nepal. The Camp Coordination and Camp Management Cluster is active in the aftermath of a disaster, but it alone does not ensure the Sphere standards. Nepal Police usually provided security to the temporary camp sites. Community usually also use public schools and other government offices as temporary camping sites; these places have provision of toilets and water.

Component 4: Equipment

Criterion 4.1: Emergency Social Services

Indicator 4.1.1: Medical Responders, Prehospital Health Care, and Medical Transportation Resources for Casualty Care

Rationale given by the R2R diagnostic: Emergency medical care is required during disasters and emergencies. Systems need to be maintained to ensure communication, track and document injuries and patients transported from the field to the hospital from admittance to discharge will ensure continuity of care. Appropriately equipped responders with medical training or environment specific first-aid are the ideal personnel for providing medical patient transportation to higher level medical facilities or hospitals.

Since more than a decade, NSET has been providing MFR and HOPE (Hospital Preparedness for Emergency) trainings to volunteers and medical health workers. In particular, MFR focuses on pre-hospital medical care. Some development partners, particularly USAID, have provided MFR equipment to those who have received MFR training (e.g. Armed Police Force, Nepal Army, etc.). The HEOCs have their own cadre of trained staffs for medical care. While there are some Government hospital owned ambulances, most of the ambulances in Nepal are operated by private sector, red cross or a charity; the ambulances ranges from sophisticated life-saving equipment to bare minimum that merely transports patients. Medical responders, pre-hospital healthcare, and medical transportation resources are generally available in metropolitan cities; and female community health volunteers are available in rural areas who provide pre-hospital care. A few EOCs have prepared roster of emergency responders and rescue personnel and also trained and equipped with first aid and medical care.

Indicator 4.1.2: Disease Prevention and Core Services

Rationale given by the R2R diagnostic: A breakdown in public health and WASH (water, sanitation, hygiene) after disaster and large-scale local emergencies is the largest contributor to disease outbreak. Countries or regions that have underdeveloped public health and WASH services may already have unchecked diseases that only present themselves after a disaster or large-scale emergency in more developed countries. A country with adequate WASH resources during non-disaster periods will recover far quicker after a disaster.

The availability of disease prevention and core services for local emergencies and disasters are not uniformly present. Sustainable and continuous clean water supply resources and equipment are unavailable for emergency deployment – there are only a few portable water cleaning equipment. Sanitation and waste removal services are also unavailable for disaster situations. Similarly, resources and services for washing, cleaning, and maintaining hygiene (food hygiene and personal hygiene) are also unavailable. In the urban areas, there are many generators that can be used for emergency deployment; however, rural areas do not have generators. The availability of FCHVs at the community level has allowed easy relay of information to the community when need be.

Indicator 4.1.3: Social Services Programs

Rationale given by the R2R diagnostic: Vulnerable populations are the most devastated population from a disaster. These include groups like women and children who are often targets of violence and victimizations. Certain populations such as the elderly and those with ongoing mental health illnesses may not have the ability to take care of themselves. Post-disaster contexts can create conditions that may lead to extremism of cultural influences that could either exploit or traumatize specific vulnerable populations.

Usually it is the development partners and UN agencies who provide post-disaster councelling services for emergency and disaster-related mental healthcare and pre-existing mental health issues. There are referral facilities in many districts in Nepal for reporting GBV; these are activated during an emergency situations. There are Mothers' Groups, FCHV and other formal or informal groups that provide gender, elderly and child support services. However, most of these are not funded by the Government of Nepal.

Indicator 4.1.4: Management of Mortality During Emergencies

Rationale given by the R2R diagnostic: Deceased bodies hold minimal physical risk of disease transmission for survivors and responders, although if not dealt with can attract vector and zoological factors that can cause disease separately. Failure to manage local cultural needs for body disposal will slow disaster recovery implementation. Body identification is important if resources permit, as this may be the last time family members have a chance for closure.

In Nepal, all the major religions have strict procedures of handling individual death; so there is no need for a specialized guideline. So the community takes care of the dead body and last rites. However, for mass casualty, the Nepal Police usually takes charge because it involves a lot of administrative procedures. There is a dead-body management guideline in Nepal issued by the Government of Nepal which is followed by Government of Nepal agencies. During the exceptional case of COVID-19 related deaths, the security forces played a critical role in dead body management, in particular Nepal Army who were give special task of handling and final disposal of dead bodies.

Criterion 4.2: Information and Communications Technology

Indicator 4.2.1: Radio Capacity

Rationale given by the R2R diagnostic: Reliable radio communications is critical to carry out effective response since timely communication doesn't only ensure effective response but also remains instrumental to safe life of the victim entrapped in the fissure of life and death. Wireless radios are the most reliable means to establish communication between responders themselves and with their Command center thus such sets have to be reliable and compatible. Modern digital radio sets enhance reliability and provide secure (encrypted) communications often with text and other advanced capabilities to better manage every form of communications.

The radio communication of EOCs is moreover weak in the country. Although most of the DEOCs have been furnished with HF/VHF and hand held radio sets are instead non-functional. They lack repeater stations, maintenance and power back up. Most of the PEOCs and LEOCs void radio sets thus are unable to establish wireless communication. Thus landline/mobile phone, social media (FB chat, viber, whatsapp) and e-mail have been the means of communication for the EOCs which are indeed not reliable during large scale disaster.

Indicator 4.2.2: System Interoperability

Rationale given by the R2R diagnostic: Inter-operable radio communication systems ensure unified response among different agencies and security forces. It helps to maintain wider communication, coordination and cooperation. Ultimately it enhances response efficiency, and prevents further damage and loss of life. Radio systems for responding agencies should be capable of communicating together to ensure efficient information flow between responders, the command post and EOC as necessary.

Wireless communication interoperability among different responding agencies (NA, NP, APF, Red Cross) is merely found in the country. All the agencies use their own institutional radio frequency during disaster preparedness and response thus can't be synchronized and ensured compatibility. To mitigate this challenge there should be provided a specific frequency and the standard radio sets to all agencies so that they remain functional in a single grid at the time of disaster.

Indicator 4.2.3: Broadband Connectivity

Rationale given by the R2R diagnostic: Broadband network connectivity, including connection to the Internet, allows for efficient communication between response and relief agencies, incident command posts, and the Emergency Operations Center. This allows voice, data and video communication that improves situational awareness, provides crucial links to the world outside of the emergency or disaster affected area, and supports use of GIS, incident management systems, and early warning systems technologies.

Most of EOCs do not have their own internet facilities neither have VTC system. They are moreover relied on their respective ministry, district administrative office and municipalities to get the facility which is hardly effective. Due to the reason the EOCs are hardly capable of using web-based information system.

Indicator 4.2.4: Protection and Recover of Communication Infrastructure

Rationale given by the R2R diagnostic: To protect and recover communication infrastructure is critical at the time of disaster since it helps to retain life line of the communities. Thus there should be a system and programs to protection and recovery such facility. Through legislative provision inclusion of all tiers of governmental, security forces and private communication sector this can be ensured.

Although security forces are involved in the protection of communication infrastructure there is no legislative provision in laid down form. In terms of restoring emergency communication during disaster although communication companies (private /public) such as NTC and NCell claim to have Base Transceiver Station (BTS) are hardly effective.

Criterion 4.3: Hazard-Specific Response Capacity

Indicator 4.3.1: Functional Wildland Firefighting Capabilities

Rationale given by the R2R diagnostic: Many jurisdictions, including some heavily urbanized areas, include wildland areas. A functional capacity to prepare for and suppress wildland fires ensures wildland fires are less likely to breach the interface between wildland and built- up areas or communities, causing loss of life and severe economic consequences. As with flooding, wildland fires are often rapid-onset events with little opportunity for evacuation before peak event intensity.

There is no functional capability to safely suppress wildland fires and there are no prevention programs in place. Public awareness and forestry management strategies exist, but they are not followed strictly. Fire bans enforced by law exist in all of the forested areas; but they are often violated that goes unpunished. Satellite images are used to monitor wildfire, but these are expensive and not timely for quick action. There is no specialized Governmemnt agency responsible for wildfire prevention and surpression – "all hands on deck" approach is taken by the Government, that includes local communities, security forces, forest wardens, community forest user groups, etc.

Indicator 4.3.2: Capabilities for Rescue During Floods or Water-Based Emergencies

Rationale given by the R2R diagnostic: Water based rescue is a core response capacity in areas where floods or other water risks are prevalent. Specialized training and equipment are mandatory for safety and risk mitigation in water environments. Water rescue is a separate category from coast guard or ocean based (or other existing large water bodies) rescue and requires extremely rapid response deployment to ensure effective rescue.

There is flood and water rescue (deep water and swift water) capacity available in the three security agencies: APF, Nepal Police, and Nepal Army. While the security agencies have invested in rescue equipment, the investment is little compared to the need at hand. Security agencies need more and specialized equipment, including boats, rafts and motorboats, for both training and actual rescue operation. Some development partners-funded projects have conducted outreach and educational programs that trained local residents in flood prone areas on simple water rescue techniques; but these are sporadic.

Indicator 4.3.3: Does the jurisdiction have rescue capacity for structural collapse and entombed rescue?

Rationale given by the R2R diagnostic: Structural collapse is typified by the victim(s) and their location being buried / not being accessible to the responders. This differs from entrapment rescue in which the victim is being physically held by or trapped inside an item but they are (at least partially) accessible to responders. These two types of rescue disciplines may be present at the same incident and indeed be present with the same victim. In such cases, the rescue is classified as an entombed rescue as the victim(s) are buried and their entrapment is not initially discernable.

NSET has been providing CSSR training to Armed Police Force and Nepal Army for more than a decade, as a part of PEER program. Recently Nepal Police has also received trainings on this. The graduates of the training have knowledge on the use of relevant tools and techniques. However, all these three agencies lack SAR equipment for both training and actual search and rescue activities. This was seen during the 2015 earthquake when all the three security forces did a fantastic job of saving people's lives almost with their bare hands and by improvising equipment. They would have saved more lives had they had proper SAR equipment at their disposal. Of the three security agencies, Nepal Army is the most resourced in terms of light, medium and heavy SAR equipment, followed by the Armed Police Force; both of these agencies have limited interaction with the general public due to the nature of their mandate. Nepal Police does not have much SAR equipment. The specialized disaster management units that are of minimum strength have some SAR technical equipment but those ordinary units that are deployed on the ground and are the first echelon during disaster response are mostly dependent on handheld equipment such as picks and shovels. Pre-hospital medical response training (MFR) and in-hospital trainings have been provided to medical health workers.

Currently, the Government of Nepal does not provide dedicated budget to the three security forces who do most of the EPR-related work. Either NDRRMA needs to provide a budget to the security agencies annually for different types of EPR activities, or the Government needs to provide a budget directly to the security agencies for EPR activities.

Indicator 4.3.4 Rescue Capacity for Structural Collapse and Entombed Rescue

Rationale given by the R2R diagnostic: Hazardous material incidents pose a serious risk to anyone who is not properly protected, including rescuers wearing firefighting equipment. The primary focus at such incidents is to prevent the situation deteriorating and causing greater harm. Rescue may be secondary. Developing an ability to do more than secure the area and evacuate those at risk requires intense investment in equipment and training.

Different types of fuels, chemicals and explosives are among the hazardous materials being utilized in the country in large quantities on a regular basis. They are mostly used in the transport sector, industrial and the development work (for example, explosives are used in tunnel making). Recent trends show that the use of these hazardous materials will increase. Despite this, till date Nepal doesn't have any HAZMAT disaster response mechanism. 2020 Beirut explosion and 2022 Chittagong chemical fire are some recent examples to elucidate how deadly the effect could be. Thus to remain safe from the unprecedented loss and

casualty from chemical hazards, the country should establish a HAZMAT response system. Among the security agencies, Nepal Army is the most apt agency in this regard because they have a separate division that manages explosives.

Criterion 4.4: Urban Firefighting and Technical Rescue

Indicator 4.4.1: Functional Urban Firefighting Capabilities

Rationale given by the R2R diagnostic: Volunteer fire services are an option in rural or less populated areas. However, full time services will tend to respond to greater variety of incidents as their training level increases with time, experience and resources. Equipment and training are a major factor in any fire service's ability to respond. The fire service's tactics will necessarily reflect their equipment capabilities if responder safety has been fully considered.

Functional Urban Firefighting Capabilities exist but aren't updated in terms of technological advancement and certified personnel. Until 5 years ago, many fire-fighting vehicles were donated by different development partners as Government didn't prioritized this (budget-wise). Since the last local elections, Palikas have begun to invest in fire fighting capabilities including procurement of new fire trucks which is very visible. However, all the fire brigades lack proper fire-fighting equipment and personal protective equipment. All the fire brigades face severe budget constraint. Training system for fire fighters still is not systematic. In some municipalities, Government and development partners have also invested setting up some form of basic firefighting capability at the household or community level; but this is sporadic and ad-hoc.

Indicator 4.4.2: Entrapment and Extrication Rescue Capabilities

Rationale given by the R2R diagnostic: Victim entrapment in a damaged motor vehicle is the most common technical rescue worldwide. Removing the vehicle from the patient, and not the patient from the vehicle requires specialized equipment, training and patient care. Such training and equipment may be the basis for responding to other emergency incidents in which a victim or a portion of a victim become trapped inside something (household items, farm equipment, commercial/industrial machines etc.).

The security forces can perform entrapment and extrication rescue. However, the resources are again pooled from various agencies.

Indicator 4.4.3: Functional Rope Rescue Capabilities

Rationale given by the R2R diagnostic: Rope rescue is the base skillset for other technical rescue disciplines (confined space rescue, water rescue, trench rescue etc.) which often require ropes, harnesses, anchor and haul devices etc. to undertake safely. Providing safety regulations for workers will limit death and injury in a high-risk setting.

Only security forces can perform rope rescue. The general population has not been provided training regarding rope rescue. There is scope to use private sector expertise (mountaineers, Sherpas, etc.) for rope rescue.

Indicator 4.4.4: Functional Confined Space Rescue Capabilities

Rationale given by the R2R diagnostic: Confined space rescue is at the very high end of equipment and training requirements for technical rescue. Such rescues are resource and trained personnel intensive. Emergency services able to perform proper confined space rescues are well equipped and trained. As such, this level of emergency service is expensive and considered at the apex of emergency response service delivery.

Only security forces can perform confined space rescue. The general population has not been provided training regarding confined rescue.

Component 5: Personnel and Training

Criterion 5.1: Incident Organization Structures

Indicator 5.1.1: Existing Policy for a Common Incident Organization Structure

Rationale given by the R2R diagnostic: Incident organization structures, such as the Incident Command System or the National Incident Management in the United States, are more successful if the system is directed policy. Formal policy more strongly encourages response agencies to follow a common and standardized system. Without political backing on a common incident organization structure, all response entities will not have the benefits of a comprehensive, jurisdiction-wide, systematic approach to manage incidents. Ideally an incident organization structure is consistent with internationally best practice when forming system standards.

Nepal has the National Disater Response Framework 2013 (revised in 2019) that outlines the roles, responsibilities and mandates of disaster response of different disaster response agencies. It also lists the key activities to be conducted and mentions the timeframe too. It recognizes the role of EOC offices, three security agencies, community, bi-lateral and multi-lateral agencies and I/NGOs including Red Cross. Based on the NDRF, SOPs have been prepared for EOC offices. Some governmental and non-governmental agencies have aligned their strategies and plans based on the NDRF.
However, there are still overlaps in mandates which create confusion, and coordination between the three security agencies as well as between government and non-governmental agencies is still very weak. According to the Disaster Risk Reduction and Management Act 2017 (revised in 2019), the NDRRMA is supposed to be the apex disaster response agency. Although the NEOC is mapped under the NDRRMA, in reality, NEOC generally receives instruction from the disaster management division of MOHA; there is already a disconnect between NDRRMA and EOC system at the top of the chain. Similarly, there is a disconnect in the chain of command between NEOC and PEOC, NEOC and LEOC, and DEOC and LEOC;

this is because NEOC and DEOCs are under NDRRMA, whereas the PEOCs are under the Provincial Governments and LEOCs are under the Palikas. Thus, LEOCs do not follow the instructions given by NEOC and DEOC. Similarly, PEOCs don't readily follow the instructions given by the NEOC. Although in theory, the EOC offices should follow one chain of command, it is not the case in reality. There are still ambiguities in the chain of command and communication flow, and information management is still weak.

Indicator 5.1.2: Flexible and Scalable Incident Organization Structure

Rationale given by the R2R diagnostic: A flexible and scalable response structure allows for emergency incident flexibility and promotes user familiarity through a common structure for multiple incident types. The system should apply to any incident regardless of cause, size, location or complexity. This allows various organizations and agencies to work together in a predictable, coordinated manner.

The incident organizational structure is flexible and scalable based on the disaster context. The structure can expand and contract depending on the size and complexity of the incident – the NDRF has defined the level of response based on the impact or intensity of a disaster. The incident organizations recognizes not only Red Cross, but also bilateral armies and agencies, multilateral agencies, UN agencies, I/NGOs, etc.

Indicator 5.1.3: Training and Implementation Resources

Rationale given by the R2R diagnostic: An incident org structure consistent with internationally recommended practices should be supported by resources including reference materials, training materials, and exercise scenarios that provide responders the opportunity to practice in a consequence-free environment. These reference and training resources should be provided to emergency responders as well as coordinators that may be working in emergency operation centers

NDRRMA was formed in December 2019. The organization took its time to be fully operational which was not easy during the COVID-19 crisis. It still does not have the technological equipment and adequate resource materials such as checklists and forms for each functional role and planning processes. The consultants understand that the NDRRMA is planning capacity building activities for all response agencies in the coming years.

Indicator 5.1.4: Roster of Trained Personnel and Database of Common Response Resources

Rationale given by the R2R diagnostic: Emergency response agencies are trained and equipped to manage a particular threshold for both number of simultaneous events and event complexity/intensity. When these thresholds are exceeded, the responsible agency must have access to additional resources to effectively manage the emergency. To ensure collective preparedness of response agencies, sharing of personnel and resources through a formal process can help manage cost and improve response efficiency. This personnel and resource sharing begins with shared understanding of what supports may be available to responding agencies when they need it the most.

Although thousands of security personnel have received SAR trainings, due to weak information management systems, a systematic and up-to-date database or roster of trained human resources does not exist within the three security agencies. In the district level, while a roster of experts is included in the Disaster Disaster Preparedness and Response Plans, no meetings or discussion programs are organized between the people in the list and no update is done. Therefore, people cannot be actively tracked when needed. NSET and Red Cross have maintained a proper database of the people they have trained and also trainers.

Criterion 5.2: Training and Knowledge Building

Indicator 5.2.1: Training program in place

Rationale given by the R2R diagnostic: Those within an organization who may be involved in planning for and responding to an emergency should be appropriately prepared. This requires a clear understanding of roles and responsibilities and how they fit into the wider emergency preparedness and response system. Training builds capability and capacity for emergency response incidents. Training should also extend beyond those employed by the jurisdiction and include contractors and the staff of voluntary organizations who might be used in support of emergency planning or response.

Under the USAID-funded PEER program, NSET has been providing SAR trainings to security agencies in Nepal for more than a decade. The training program has been continuously improved from evaluation, feedback and review process. Building on this experience, Nepal Army and APF established trainings schools that offer training programs on SAR annually. Nepal Police is on the verge of establishing a training school. The program is tiered and establishes skill sets. In fact, there are many SAR (PEER-certified) instructors great asset of the country from SAR perspective – they have provided trainings to security personnels from other Asian countries.

The courses that are being offered currently by the security forces are: Collapsed Structure Search and Rescue (CSSR) and Medical First Responder (MFR). While these courses are themselves very well designed and the content are comprehensive, the survey respondents have mentioned that there is a need to design and implement advanced SAR courses, such as advanced CSSR, advanced MFR, advanced mountain rescue, advanced rope rescue, advanced fire fighting, and wildfire fire fighting (the list is not exhaustive). A well-researched, evidence-based, comprehensive strategy is needed for SAR-related trainings in Nepal.

Indicator 5.2.2: Availability of Qualified Trainers and Appropriate Training Materials

Rationale given by the R2R diagnostic: A robust training program offers multiple methods of training, including off site, on site, instructor-led classroom training, self-directed, hands-on study, etc. While online training for basic concepts may be easy to deliver for those whose primary role is not emergency preparedness or response, in-person training coupled with workshop activities is the most meaningful and is better absorbed by participants. Having a variety of training methods is important to ensure comprehensive understanding of the material.

Under the PEER program, NSET conduct the Training for Instructors which is a training program to produce trainers or instructors. Under this program, close to a hundred qualified trainers of SAR (PEER-certified) have been produced from the security agencies who have not only provided SAR trainings in Nepal but also in other countries in South Asia. However, there is no up-to-date database of trainers in Nepal.

Indicator 5.2.3: Formal Assessment Program

Rationale given by the R2R diagnostic: Regular program evaluation is critical to ensuring a comprehensive and effective training program. Feedback should be obtained from all participants to determine training and instructor effectiveness and also knowledge or skill acquisition. Analyzing this feedback can identify weaknesses in the training program and aid in closing critical learning gaps that may otherwise compromise effective emergency response operations.

There are formal assessment methods that ensure quality of training delivery, accuracy of materials and tracking of results. Training as well as trainers are evaluated in-class testing and participants feedback/survey.

Indicator 5.2.4: Planning and Tracking of Personnel Development

Rationale given by the R2R diagnostic: Formally and deliberately planning for, and tracking results of, personnel development across responder agencies ensures agency-specific capacity is known. This information provides agencies with heightened awareness and advanced knowledge of when additional resources or special emphasis may be required to ensure it has the capacity to continually meet its assigned accountabilities.

All three security agencies offer SAR-related training programs to its cadres. However, there is no incentive mechanism to encourage personnel to participate in the trainings. Furthermore, there is no comprehensive learning information management system.

Criterion 5.3: Exercises and Drill

Indicator 5.3.1: Comprehensive Exercise Program

Rationale given by the R2R diagnostic: A formal and functional exercise and drill program enables testing of response plans and applications of training in a consequence-free environment. Exercises allow for team building within and amongst responder agencies, especially when exercises and drills are collaboratively designed and delivered. Exercises should reflect appropriate jurisdictional risks and increase in complexity and difficulty as participants and their agencies increase their operational response capacity.

At the federal level, before the COVID-19 onset, the security forces were involved in annual (or even twice a year) disaster response exercise. This has been supported by the US Government. This is multi-agency involving Nepal Army, Nepal Police, Armed Police Force, MOHA, EOCs, and key line ministries and departments involved in response systems (Health, Urban, Information Technology, etc.). This also involves Armies of friendly countries, such as US Army, British Army, Indian Army, Chinese Army, Bangladesh Army, Pakistan Army, among others. This exercise, which started more than 10 years ago, has strengthened the national disaster response systems in Nepal. This exercise does not involve private sector actors.

At the local level the emergency exercises/drills, when done, are coordinated by the District Administration Office with mostly APF leading the exercise. Community volunteers and local NGOs are involved in the exercise. Consultants found none of the LEOCs have conducted drills on their own. They have however participated emergency drills conducted by Red Cross. Even when the drills conducted, there were no assessments carried out to examine the effectiveness of training and drills. Most of the programs are voluntary for participation as well.

Indicator 5.3.2: Collaboration and Coordination

Rationale given by the R2R diagnostic: Collaborative and centrally coordinated exercises that involve multiple response agencies provide opportunity for collective learning that could otherwise only be realized during actual emergencies and disasters. Such exercises, while somewhat more complex, are also more reflective of real-world response operations that involve a variety of sectors and agencies to response effectively to incidents.

At the federal level, before the COVID-19 onset, the security forces were involved in annual (or even twice a year) disaster response exercise. This has been supported by the US Government. This is multi-agency involving Nepal Army, Nepal Police, Armed Police Force, MOHA, EOCs, and key line ministries and departments involved in response systems (Health, Urban, Information Technology, etc.). This also involves Armies of friendly countries, such as US Army, British Army, Indian Army, Chinese Army, Bangladesh Army, Pakistan Army, among others. This exercise, which started more than 10 years ago, has strengthened the national disaster response systems in Nepal. This exercise does not involve private sector actors.

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Indicator 5.3.3: Exercises Designed to Validate Response Plans

Rationale given by the R2R diagnostic: Evaluation is the key to a successful exercise. It is where all lessons learned and gaps are identified. An essential part of a successful evaluation process is ensuring

objectives are developed based on plans and assessed jurisdictional risks. Clear and concise objectives are key factors that form evaluation criteria and performance measures. Developing a post-exercise report on how to implement changes needs to be carefully documented, tracked and used during annual work planning for following fiscal years.

The SOP of EOCs need to be tested or validated at least once a year. While NEOC's SOP is somehow validated (but unfortunately not revised) during the annual disaster response exercise (see above), the SOPs of sub-national agencies have never been validated because emergency exercises/drills are not carried out systematically with improvements opportunities identied and and monitoried. This is mainly due to lack of budget.

Indicator 5.3.4: Robust Exercise and Drill Planning Process

Rationale given by the R2R diagnostic: Exercises can be difficult and timely to develop. If assigned to develop a complex field exercise with multiple stakeholders, along with other duties, exercises may be under-prioritized by design personnel. Significant time and money must be dedicated to develop a robust and useful program. In many cases, large-scale operational exercises have been successful only with year-long planning, a dedicated budget, and experienced exercise planners. Smaller budgets are acceptable as long as the scale of the exercise is equal to that of the budget. For example, a multi-day, multi-stakeholder, 24/7 exercise would be challenging without the support of a dedicated design and delivery team.

At the federal level, before the COVID-19 onset, the security forces were involved in annual (or even twice a year) disaster response exercise. This has been supported by the US Government. This is multi-agency involving Nepal Army, Nepal Police, Armed Police Force, MOHA, EOCs, and key line ministries and departments involved in response systems (Health, Urban, Information Technology, etc.). This also involves Armies of friendly countries, such as US Army, British Army, Indian Army, Chinese Army, Bangladesh Army, Pakistan Army, among others. This exercise, which started more than 10 years ago, has strengthened the national disaster response systems in Nepal.

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Criterion 5.4: International Support Coordination

Indicator 5.4.1: Agency Assigned to Coordinate International Support

Rationale given by the R2R diagnostic: Designating an agency to officially request disaster relief formalizes and streamlines the assistance request process and improves the speed and efficiency of international aid delivery following widespread and/or intensive emergencies and disasters. Improved capability enables the jurisdiction can make the best use of internationally accepted tools and resources. With this capacity, the jurisdiction can complete advanced planning to identify likely disasters and potential aid requirements. It also improves the ability to coordinate with international and humanitarian aid agencies as well as other levels of government.

Indicator 5.4.2: Minimum Standard for Provision of Aid by International Groups

Rationale given by the R2R diagnostic: The accountable agency for coordinating international support should be aware of international standards that ensure service quality and consistency of aid during very complex and difficult times. Such standards provide formal procedures for collaborative decision making, identify best practices, and enable performance monitoring and issue reporting. These standards also typically include minimum standards for documentation, operational framework and oversight to ensure outcomes are being met.

Indicator 5.4.3: Functional Logistics System in Place to Receive International Support

Rationale given by the R2R diagnostic: In a post-disaster environment, tight communication and control will be required in order to carry out effective and reliable disaster relief coordination. The agency coordinating support should have agreements or memorandums of understanding established with warehousing, airports and transportation entities before a disaster to enable expedited and efficient movement of aid resources.

Nepal has the humanitarian staging areas and warehouses in Kathmandu and the 7 provinces, which has been supported by the WFP and managed by the security forces. The consultants understand that there is a general understanding (MOU) between the Government and development partners who supported in the construction of warehouses on the usage of the warehouses. However, no SOPs exist for the warehouses for usage and storate of items, and there is also no trained human resources appointed in the warehouses. For example, in the Provincial warehouse in Biratnagar, the government officials didn't even know who holds the keys to the warehouses and what is stored inside. In the absence of these, the warehouses are not fully functional.

Indicator 5.4.4: Functional Logistics System in Place to Distribute International Support

Rationale given by the R2R diagnostic: The capacity to distribute aid resources that have been cached in advance of a disaster, or received immediately following a disaster, is vital to managing the consequences of the event and transitioning to recovery. In particular, determining how aid will be prioritized for

distribution and identifying redundant distribution channels for remote and/or unreachable areas are important in advance planning.

Nepal has the humanitarian staging areas and warehouses in Kathmandu and the 7 provinces, which has been supported by the WFP and managed by the security forces. In case of a major disaster, the security forces get involved in logistics; in case of medium- to small-scale disaster, logistics is mostly done using private sector operators. There are agreements between the Government and development partners, who supported in construction of the warehouses; but there are no agreements between the Government and private sector. The Government has relief distribution guideline, but this needs revision as the Government as well as some development partners have started distribution of cash directly into the bank account of identified beneficiaries.

[1] https://nrcs.org/nepal-government-endorses-initial-rapid-assessment-ira-and-assessment-and-coordination-team-act-guidelines-the-red-cross-plays-a-vital-role-in-the-process/#:~:text=The%20Initial%20Rapid%20Assessment%20(IRA,effectively%20to%20post%20disaster%20needs.

[2] https://un.info.np/Net/NeoDocs/View/6435

Annex 2: List of places visited by the EPR assessment team

Provinces	Districts	Palikas	EOC type	Other stakeholders visited
Province 1	Morang	Biratnagar Sub Metropolitan City	PEOC, DEOC, LEOC, HEOC, PHSA	Red-cross district chapter, Nepal Police, Nepal Army
	Dhankuta	Dhankuta Municipality	DEOC	Red-cross district chapter
Madhesh	Saptari	Rajbiraj Municipality	DEOC	Red-Cross
		Kanchanrup Municipality	LEOC	
	Rautahat	Chandrapur Municipality	LEOC	Red-Cross
Bagmati	Makwanpur	Bhimphedi Rural Municipality	LEOC	
		Hetauda Sub-Metropolitan city	PEOC, DEOC, HEOC	Red-cross district chapter, Nepal Police, Nepal Army
	Sindhupalchowk	Chautara Sagachowk Gadhi Municipality	DEOC, LEOC	Red-Cross
	Kavrepalanchowk	Dhulikhel Municipality	LEOC	Red-Cross
Gandaki	Lamjung	Besisahar Municipality,	DEOC	Red-Cross
		Kholasothar Rural Municipality,	LEOC	
	Kaski	Pokhara Metropolitan city	PEOC, DEOC, LEOC, HEOC	Red-cross district chapter, Nepal Police, Nepal Army
Lumbini	Rupandehi	Butwal Sub-metropolitan City	HEOC	Red-cross district chapter, Nepal Police, Nepal Army

Provinces	Districts	Palikas	EOC type	Other stakeholders visited
		Siddarthanagar Municipality	DEOC, Province Affairs Information Center (PAIC)	
	Dang	Babai Rural Municipality	LEOC	
		Ghorahi Sub-Metropolitan City	DEOC	Red-Cross
	Bardiya	Rajapur Municipality	LEOC	
		Barbardiya Municipality	LEOC	Red-Cross
		Gularia Municipality	DEOC	
Karnali	Surkhet	Birendranagar Municipality	PEOC, DEOC, LEOC, HEOC, PHSA	Red-Cross
	Jumla	Chandannath Municipality	DEOC	Red-Cross
Sudur Paschim	Kailali	Dhangadi Sub Metropolitan City	PEOC, DEOC, LEOC, HEOC	Red-cross district chapter, Nepal Police, Nepal Army
		Tikapur Municipality	LEOC	

Annex 3: List of key stakeholders consulted by the EPR team

Position or Government Department	Potential Indicators
Ministry of Finance	Accountability and Authority, Financial preparedness, shelters, and open spaces
Ministry of Federal Affairs and General Administration	Accountability and Authority, Financial preparedness, Early Warning Systems, Logistics Warehouses and response stations, Emergency operations centers, international support coordination, Emergency social service, Community Engagement
Specialized Departments	Accountability and Authority, Information management systems, Early warning systems, Geomatics, Shelters, and Open spaces
Ministry of Home Affairs National Emergency Operations Center	Community Engagement; Information Management Systems; Early Warning Systems; Geomatics; Training Centers and Capacity; Logistics Warehouses and Response Stations; Shelters and Open Spaces; Emergency Operations Centers; Incident Organization Structures; Exercises and Drills; Training and Knowledge Building; International Support Coordination; Emergency Social Services; Urban Firefighting and Technical Rescue; Hazard-Specific Response Capacity; Information/Communications Technology
Security Forces – Nepal Police, Armed Police Force, Nepal Army	Community Engagement; Information Management Systems; Early Warning Systems; Geomatics; Training Centers and Capacity; Logistics Warehouses and Response Stations; Shelters and Open Spaces; Emergency Operations Centers; Incident Organization Structures; Exercises and Drills; Training and Knowledge Building; Emergency Social Services; Urban Firefighting and Technical Rescue; Hazard-Specific Response Capacity; Information/Communications Technology

Position or Government Department	Potential Indicators
Fire Fighting Services Ambulance Services	Community Engagement; Information Management Systems; Early Warning Systems; Training Centers and Capacity; Logistics Warehouses and Response Stations; Shelters and Open Spaces; Emergency Operations Centers; Incident Organization Structures; Exercises and Drills; Training and Knowledge Building; Emergency Social Services; Urban Firefighting and Technical Rescue; Hazard-Specific Response Capacity; Information/Communications Technology
Municipalities	Open Spaces; Shelters; Accountability and Authority; Community Engagement; Information Management Systems; Early Warning Systems; Geomatics; Training Centers and Capacity; Logistics Warehouses and Response Stations; Shelters and Open Spaces; Emergency Operations Centers; Incident Organization Structures; Exercises and Drills; Training and Knowledge Building; International Support Coordination; Emergency Social Services; Urban Firefighting and Technical Rescue; Hazard-Specific Accountability and Authority; Community Engagement; Information Management Systems; Early Warning Systems; Geomatics; Training Centers and Capacity; Logistics Warehouses and Response Stations; Shelters and Open Spaces; Emergency Operations Centers; Incident Organization Structures; Exercises and Drills; Training and Knowledge Building; International Support Coordination; Emergency Social Services; Urban Firefighting and Technical Rescue; Hazard-Specific

Annex 4: List of documents studied

NATIONAL DOCUMENTS
1. Constitution of Nepal 2015
2. Guidance Note Disaster Preparedness and Response Planning, 2011, MoHA
3. Disaster Risk Reduction and Management Act, 2074 and Disaster Risk Reduction and Management Rules, 2076, MoHA
4. National Disaster Response Framework (NDRF), 2013, MoHA
5. Disaster Risk Reduction National Strategic Plan of Action 2018 – 2030, MoHA
6. Local Disaster Risk Management Planning Guideline (LDRMP), 2013, MoLD
7. National Policy for Disaster Risk Reduction, 2018, MoHA
8. The fifteenth Plan (Fiscal Year 2019/20 – 2023/24), NPC
PROVINCIAL DOCUMENTS
9. Provincial DRRM act, policy, guidelines
10. Provincial plans and programs
DISTRICT DOCUMENTS
11. District DRRM act, policy, guidelines
12. District DRRM plans and programs, including the District Disaster Preparedness and Response Plan
LOCAL-LEVEL DOCUMENTS
13. Local Government Operation Act, 2074
14. Palika DRRM act, policy, guideline
15. Palika DRRM plans and programs, including the Local Disaster and Climate Resilience Plan
16. Integrated Urban Development Plan (IUDP)/ Rural-Urban Development Plan (RUPD), Risk Sensitive Land Use Plan (RSLUP)
17. Status of DRR/M implementation activities like capacity building, training
18. Palika Disaster Risk Reduction and Management Fund - available resources on local DRR initiatives, DRR/M activities, plans and policies, current budgeted amounts for DRR and CCA, long- and short-term initiation taken by the municipality

Government of Nepal

National Disaster Risk Reduction and Management Authority

2022