Rapid Need Assessment for Designing Disaster Preparedness Programme

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Executive Summary

The constitution of Nepal has provisioned a shift of power from the Federal to the provincial and municipal levels of government and authorized the local governments for disaster management and its preparedness. The Constitution set the course for a major shift of power from the Federal to the Provincial and Municipal levels of government with the responsibility for disaster management with local governments. Early preparedness for rescue, relief and rehabilitation is on the concurrent list of three tiers of the government with formulation of Disaster Risk Reduction and Management Act, 2017 and the Local Government Operation Act, 2017. It is the forefront of disaster response and recovery for provincial and local governments based on the resource availability.

Sudurpaschim Province is one of the least developed provinces of Nepal with a low human development index and high vulnerability to climate change and climate-induced disasters. It faces a number of disasters and affects livelihood severely due to the lack of adequate preparedness, poverty, accessibility and well-being. Sudurpaschim Province has had seismic and hydrometeorological vulnerability, while recently, hydrometeorological disasters, such as landslides and floods have claimed more lives and caused damage to houses, land and other assets. Similarly, the recent earthquake on 9 November of 2022 caused severe damage in the 2/3 rural/urban municipalities of the Doti district. It has caused the death of six people, eight injured and fully damaged more than 28 houses in the Purbichauki Rural Municipality. Similarly, Mahakali River has caused serious damage in the Darchula district; Rangoon, Pantura rivers are also causing erosion, river bank cutting and sedimentation in the Dadeldhura district. Settlements close to rivers in the hill and mountain district are exposed to floods. Landslides are most common in all hilly districts including Chure/Siwalik range mostly during the monsoon period. While dry landslides are also common in many parts of the hilly districts, i.e., Baitadi, Dadeldhura and Doti; and mountain districts, i.e., Bajhang and Darchula.

The Oxfam has conducted a "Rapid Need Assessment (RNA)" to identify and understand the risk and analyse current situations on local disaster risk management governance for risk-based preparedness and anticipatory actions in the Sudurpaschim Province. This study also aims to analyze current situations and identify opportunities to link early actions and shock responsive social protection in disaster preparedness plans for synergies amidst humanitarian actors and three-tiers of governments. A total of five districts out of nine districts of the Sudurpaschim Province were assessed for rapid need assessment using integrated approaches. The risk knowledge, capacity, disaster investment, and preparedness of the target districts is not uniform, where there are more gaps between urban and rural municipalities. The rural municipalities in the each studied districts has a relatively well understanding of the risk and preparedness compared to the rural municipalities. Most of the urban municipalities have formulated DRRM act, guideline, plans and standard operating procedure, and others are about to formulate in future, however, most of the rural municipalities are yet to form the DRRM act and related guidelines. Although, it is a mandatory provision made by the federal government to form the DRRM related policies for the local government, however, due to different priorities it is missing in many LGs. Local governments follow the acts, plans, guidelines and procedures where they exist, otherwise they make a decision in the

meeting to conduct disaster related works. It is, therefore, necessary to build up the institutional structures, differentiate the roles and responsibility of the different structures of the governmental bodies. Such governance and institutional setup in the each rural/urban municipalities is positioned them for better preparedness to the anticipated disasters.

The LGs can immensely enhance the preparedness and response capacity for risk sensitive development activities if their structure is established as provision made by DRRM Act and DRRM regulations. This can be more productive if they are aware about their roles and responsibilities according to legal and policy documents, and an adequate budget is available to run the DRRM programs within the local level. The coordination mechanism key to manage the disasters, which need to be established among governmental, non-governmental, NCRS, Humanitarian and other concerned organizations. The rural and urban municipalities of all districts need to do the following for effective local disaster risk management, strong governance incorporating different gender, age, disability, and relevant diversity groups.

1. Identify and prepare checklist of preparedness in participatory wat to direct volunteers, local government and district for preparedness actions; conduct capacity building training for personal development of volunteers like computer, entrepreneurship, agriculture or others.

2. Strengthen the capacity of representatives of the LGs, their staff in terms of building DRRM related legislations, conducting multi-hazard risk assessment, developing multi-hazard risk maps, LDCRP, RSLUP and preparation of guideline for risk mapping on the basis of existing tools in LDCRPs, DPRPs, LAPAs.

3. Institutionalize emergency operation centers at local, district and province level with defined roles and responsibilities of the involving organizations and with effective coordination mechanism. Also link existing and newly formed community level organizations/institutions including CDMCs, WEC or other functional DRRM internalized organization at vulnerable areas with EOCs.

4. Strengthen the governance system of the Chief Minister's disaster relief fund at Province, district relief fund at district and LG disaster relief fund at local level.

5. Integration of DRRM Resource Platform at province, district and local levels by establishing DRR training center, landslide and flood risk management centers at province level; and preparation of shelter for the emergencies.

6. Support to establish and strengthen a basket fund for emergency preparedness and response at community level and mobilize risk-sensitive investment by the public and private sectors with the provision of the risk-informed budget planning.

7. Expanding the existing network of early warning system with regular maintenance facilities and provide data access to LGs for delivering forecast and warning message for early action/anticipatory and EWS respectively at community level. Similarly, multi-hazard simulation conduction is required in each ward of the LGs.

8. Promote diverse livelihood for building resilience through regulation and incorporate risk transfer/insurance systems at community level. Prepare volunteer group for DRR preparedness and response and DRR volunteer network at local level.

9. Develop masons and certified electrician for house construction as a part of preparedness and recovery facilitation; support equipment in sharing approach to vulnerable communities and organization of preparedness fair at local level.

10. Promote dignified early action and relief packages through digital platforms by promoting financial institutions and their services, local market development, awareness among vulnerable communities and stakeholders in wider scale by mobilizing capacitated DRRM structures.

11. The status of the environment in Sudurpaschim Province with detailed environmental study, climatic trend, climate-induced disaster and strategic environment management plan for waste management, environmental study, regulating infrastructures that may have adverse impacts on environment.

12. For sustaining the DRRM initiatives at LGs, technical personnel should be appointed to assist DRRM focal person with differential engagement by analyzing the stage of knowledge transfer.

13. It is important to know about the governance structures, capacity currently exist at the local level for risk reduction and mitigation, preparedness and response with detailed needs and capacity assessment.

Abbreviation

ADPC	Asian Disaster Preparedness Center
APF	Armed Police Force
AWS	Automatic Weather Station
BES	Brief Environmental Examination
BIPAD	Building Information Platform Against Disaster
BOP	Border Out Post
CBO	Community Based organization
CBS	Central Bureau of Statistics
CBEWS	Community based Early Warning System
CDO	Chief District Officer
CC	Climate Change
CCA	Climate Change Adaptation
CDMC	Community Disaster Management Committee
CDO	Chief District Officer
CFUG	Community Forest User Group
COVID-19	Novel coronavirus SARS-CoV2
DDMC	District Disaster Management Committee
DEOC	District Emergency Operations Centre
DG-ECHO	Director General for Humanitarian Aid and Civil Protection
DHM	Department of Hydrology and Meteorology
DLMC	District Lead Support Agency
DM	Disaster Management
DMG	Department of Mines and Geology
DPNet	Disaster Preparedness Network
DPRP	Disaster Preparedness and Response Plan
DRR	Disaster Risk Reduction
DRRM	Disaster Risk Reduction and Management
EMP	Environment Management Plan
EOC	Emergency Operation Center
ERP	Emergency Response Plan
EWS	Early Warning System
FGD	Focus Group Discussion
FNCCI	Federation of Nepal Chamber of Commerce and Industry
GDP	Gross Domestic Product
GLOF	Glacial Lake Outburst Flood
GoN	Government of Nepal
HDI	Human Development Index
HHs	Households
IWRM	Integrated Water Resource Management
KII	Key Informant Interview
LAPA	Local Adaptation Plan of Action
LDCRP	Local Disaster and Climate Resilience Plan
LDMC	Local Disaster Management Committee
LEOC	Local Emergency Operation Center
LG	Local Government
LGOA	Local Government Operation Act
MoFAGA	Ministry of Federal Affairs and General Administration

MoFE	Ministry of Forest and Environment
MoHA	Ministry of Home Affairs
MoIAL	Ministry of Internal Affairs and Law
MoITFE	Ministry of Industry Tourism Forest and Environment
MPI	Multidimensional Poverty Index
MW	Mega Watta
NBC	National Building Codes
NDRF	National Disaster Response Framework
NDRNet	Nepal Disaster Resilient Network
NDRRMA	National Disaster Risk Reduction and Management Authority
NEOC	National Emergency Operations Centre
NGO	Non-Government Organization
NPC	National Planning Commission
NRCS	Nepal Red Cross Society
NRs	Nepalese Rupees
NSAP	National Strategic Action Plan
NSC	National Seismological Center
PDMEC	Provincial Disaster Management Executive Committee
PEOC	Provincial Emergency Operations Centre
PWD	Persons with Disability
RNA	Rapid Need Assessment
RSLUP	Risk Sensitive Land Use Plan
SOP	Standard Operating Procedure
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
VCA	Vulnerability and Capacity Assessment
WASH	Water Sanitation and Hygiene
WDMC	Ward Disaster Management Committee
WEC	Women Empowerment Center

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Chapter 1. Background

1.1 Provincial Circumstances

Sudurpaschim Province is located in the western-most part of Nepal (**Figure 1**). The province borders the Tibet Autonomous Region of China to the north, Karnali Province and Lumbini Province to the east, and the Indian states of Uttarakhand to the west and Uttar Pradesh to the south. The physiographic division of the Sudurpaschim comprises the High Mountain, Middle Mountain, Hill, Siwalik and Terai region (**Figure 2**). It is the second smallest province of Nepal comprising 13.27% (19,539 km^2) of the total area of the country. Administratively the province is divided into nine districts and 88 local levels with one sub-metropolitan city, 33 municipalities and 54 rural municipalities. The details of the local levels and their administrative boundaries is presented in **Figure 3**. The principal crops grown in this province are wheat, rice, mustard, maize, and cotton. The major trade centers of this province are Dhangadhi, Dadeldhura, Mahendranagar, and Dipayal. As the province shares its border with India in the west and south, and Tibet (China) in the north thus, the region has the good potential of external trade.

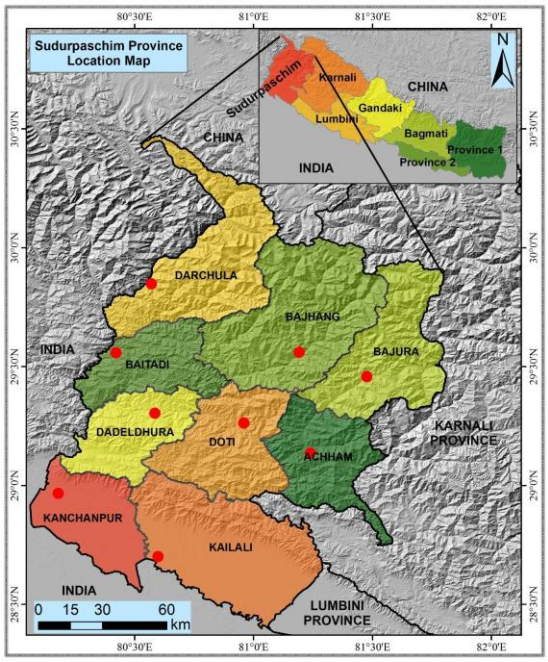

Figure 1. Location map of Sudurpaschim Province showing headquarters of districts.

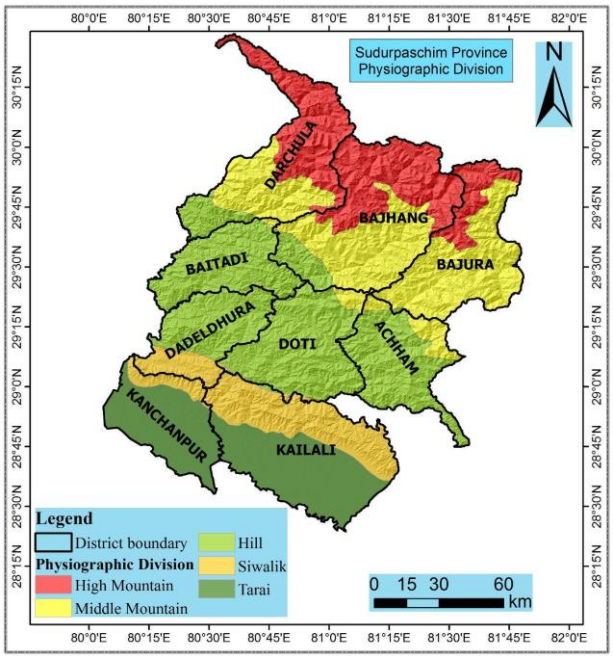

Figure 2. Physiographic Division of Sudurpaschim Province.

The province is remote and developmentally challenged. Some 44% of people in the Far West Hills and 49% in the Himalayan districts live below the poverty line. The province has limited access to basic services. It has complex socio-economic structures and there are both widespread gender- and caste-based discriminations.

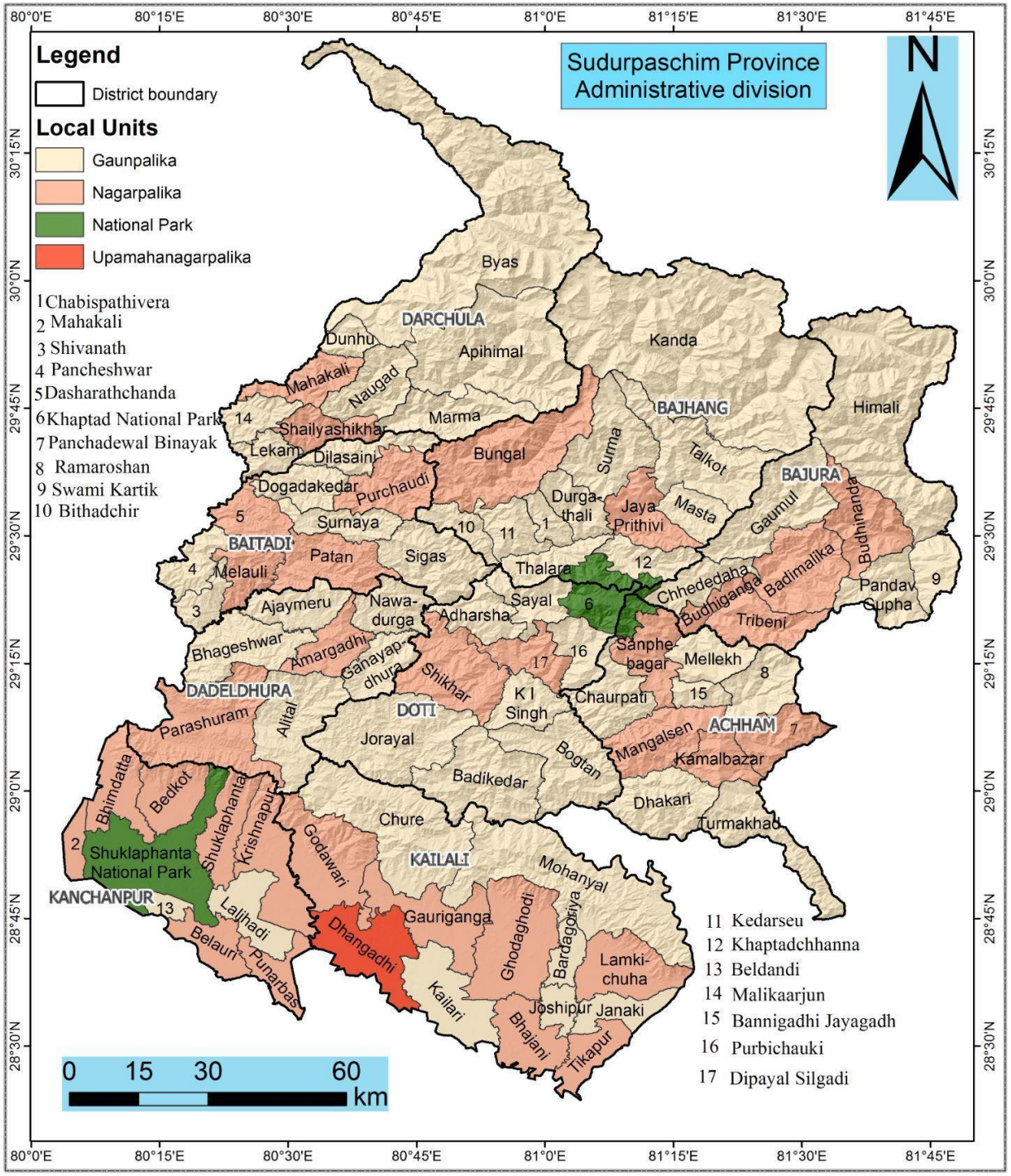

Figure 3. Administrative division of the Sudurpaschim Province.

The Human Development Index (HDI) of Nepal is 0.587, while Sudurpaschim Province has 0.547, third lowest among the seven provinces after Madhesh and Karnali Province (NPC, 2021). The HDI of the Sudurpaschim is lower than the average of the whole rural area of Nepal indicates that Sudurpaschim Province has poor standard of living and healthy life. Similarly, Multidimensional Poverty Index (MPI) also showed that Sudurpaschim Province ranked third with MPI value of 0.105

in terms of multidimensional poverty and ranked second in terms of incidence of poverty with incidence value of 2.3%. **Table 1** presents economic and social indicators of Sudurpashchim Province.

Table 1: National and provincial economic and social indicators

Indicators	Nepal	Sudurpaschim
Administrative and demographic status[1]		
Number of local levels	753	88
Population (percentage)	100	9.6
Density per km^2		131
Area (percentage)	100	13.3
Economic and social sectors		
Economic growth rate (at the basic price) percentage	2.3	4.1
Provincial contribution to GDP (at the basic price)	100	7.2
Number of registered industry[2]	8212	115
Hydropower (MW)[3]	1233.1	52.4
Local road network (km)[4]	61395	4818
No. of unemployed persons (Thousand)	908	59
No. Schools[5]	35520	4208
Financial Sector: [6]		
Number of branches of bank and financial institutions	9640	699
Population per branch	3072	7902
Share of province in total deposit (percentage)	100	2.08
Share of province in total loan (percentage)	100	2.9

[1] *Central Bureau of Statistics, 2076*
[2] *Ministry of Industry, Commerce and Supply, 2076*
[3] *Ministry of Energy, water and Irrigation, 2076*
[4] *Ministry of Federal Affairs and Local Development, 2076*
[5] *Ministry of Education, Science and Technology, 2076*
[6] *Nepal Rastra Bank, 2076*

1.2 Disaster Scenario in Province

Nepal is one of the most vulnerable countries exposed to multi-hazards risk and ranks 4th in terms of climate risk according to the Global Climate Risk Index. Also, the country ranks 30th in terms of flood risk and 11th in terms of global risk for earthquake occurrence and impact (Maplecroft, 2011; BCPR, 2004). The country stands at the top 20th list of the most multi-hazard prone countries in the world (UNDP/BCPR, 2004). Every year, the country suffers great loss of human lives and damage of properties. In the majority of the districts of Nepal, more than 90 % of the populations are living at high-risk of multiple hazards, which include earthquakes, drought, floods, landslides, extreme temperature, and glacier lake outburst floods (GLOFs). Climate and frequent disaster events are impacting people of Nepal as well as the economy of the country, which have low adaptive capacity and lack adequate funds. Climate change, as the threat multiplier, exacerbates existing social, economic and environmental risks and pushes people further into poverty. Due to its topography, Nepal is highly vulnerable to different types of disasters such as earthquake, floods, landslides, fire, cold wave etc. The impacts of these disasters are further accelerated by unplanned settlements, population growth, weak public service provision and infrastructure, lack of regulatory standards, and low literacy rates. COVID-19 has disproportionately impacted the most marginalized groups' income, food security and livelihoods and health among others.

Every year the Sudurpaschim Province suffers from recurring disasters like flood, landslide, thunderbolt that caused significant loss of lives and massive damage to property and ecosystem. Beside these disasters, earthquakes, though not frequent, had caused significant damage to lives and property in the past, e.g., the Bajhang earthquake of 1980. According to the Ministry of Home Affairs (MoHA), 3,115 disaster events have been recorded between 2010 and 2019 in this province. The types of disasters in this province are flood, earthquake, landslides, lightning, drought, avalanche, snowstorms, windstorms, fire, road accidents, pandemic and others. In total 998 people have lost their lives, 785 injured, 171 lost during this period. Similarly, 1,379 houses have been damaged completely and 6,941 damaged partially. According to the DRR portal[7] of the MoHA, the most frequent disaster events are fire, landslides, pandemic, flood, windstorms, cold wave, hailstorms, road accidents and earthquakes, respectively. As a result, the province is losing its hard-won development every year. The Disaster Preparedness and Response Plan (DPRP) report of districts of Sudurpaschim ranked their local units according to risk of multiple hazards, which is presented in Figure 4.

According to the MoFE (2021) hill and mountain districts of the Sudurpaschim province are highly sensitive to the effects of climate change. Most districts have very low adaptive capacity and are extremely vulnerable. Similarly, it is projected that extreme events will increase immensely in Nepal including Sudurpaschim Province. Sudurpaschim Province has the highest number of high-risk municipalities, while Achham, Bajhang and Bajura districts of the province have high levels of social vulnerability (GIIS, 2021).

[7] http://drrportal.gov.np/

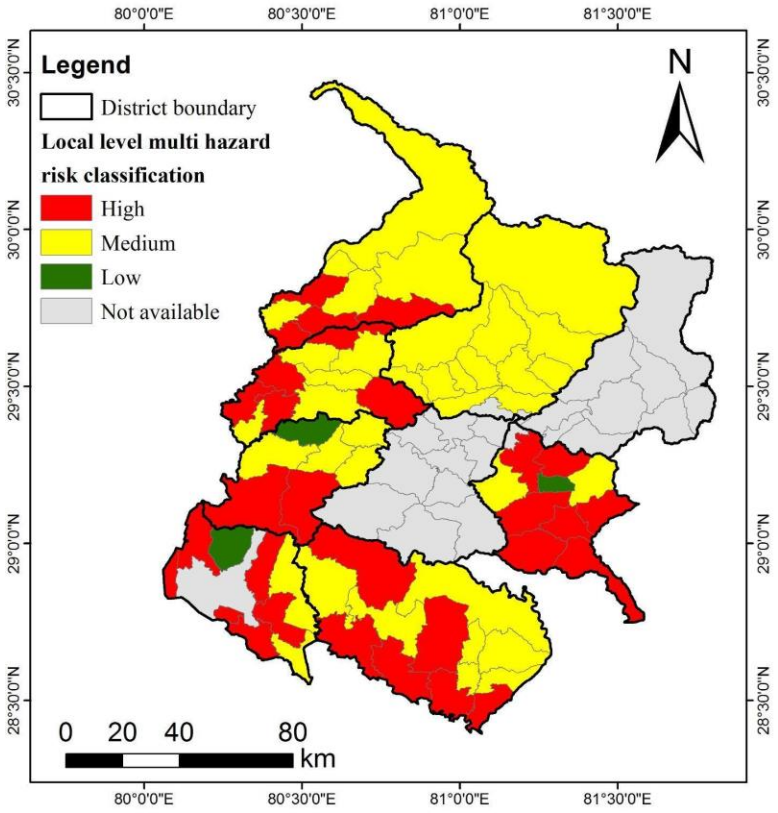

Figure 4. Ranking of local levels of Sudurpaschim based on DPRP (MOIAL, 2021).

1.3 DRRM (Disaster Risk) Governance

Nepal's current landscape of disaster governance is guided by its Constitution (2015 AD) and the Disaster Risk Reduction and Management (DRRM) Act (2017 AD). Under the policies of protection, promotion and use of natural resources, the Constitution of Nepal has set the policy of early warning, disaster preparedness, rescue, relief and rehabilitation for preventing water-induced disasters, developing sustainable and reliable irrigation caused by natural hazards. The Natural Calamity (Relief) Act, 1982 established the Ministry of Home Affairs as a central agency for coordinating the activities to protect life and property through post-disaster rescue and relief. The spirit of the constitution suggests that LGs shall do as much as they can on their own, and where they cannot, provincial and federal governments shall provide back-up or lead DRRM. The DRRM Act 2017 sets out formal structures, roles and responsibilities at federal, provincial, district, and local levels (Figure 5). At the federal level there is provision for a DRRM National Council, Executive Committee, and National Disaster Risk Reduction and Management Authority (NDRRMA). The NDRRMA is established to coordinate and implement DRRM-related functions in the country. The First Amendment of the DRRM Act, 2019 AD also includes a provision for a Province Disaster Management Council and further specifies the structure and functions of Provincial Disaster Management Executive Committees.

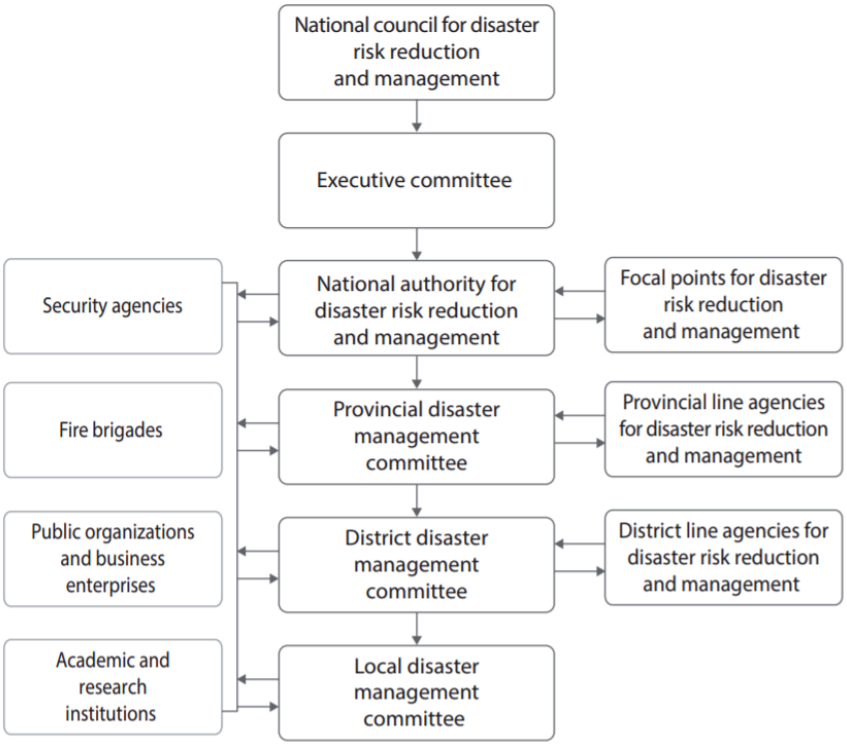

Figure 5. Institutional structure for disaster risk governance as per the Disaster Risk Reduction and Management Act 2017

The Act also stipulates a structure (Disaster Management Committee) and DRRM functions for each LGs. LGs are also guided by the Local Government Operationalization (LGO) Act 2017, which established disaster management structures and functions for LGs and their ward units. The DRRM Regulations 2076 BS further elaborate the functions of different government decision-making mechanisms in line with provisions of the DRRM Act 2017 AD. The Government of Nepal (GoN) has endorsed a National Strategy for Disaster Risk Management, 2009 (AD), where the government set a vision of "Disaster Resilient Nepal" in line with the Hyogo Framework (2005-2015). National DRRM Policy 2075 BS and Disaster Risk Reduction National Strategic Action Plan 2018-2030 AD, which provides a comprehensive planning framework for DRRM in Nepal, encompassing different priority areas and guiding government actors and stakeholders to achieve targets by adopting appropriate processes.

Disaster risk on the other hand is guided by international initiatives such as; Hyogo framework, 2005 and Sendai Framework for Disaster Risk Reduction (SFDRR), 2015-2030 AD. Nepal's overarching framework for disaster risk reduction is guided by the (UNDRR, 2015) based on its four priority actions to prevent new disasters and reduce existing disaster risks, are: (i) Understanding disaster risk; (ii) Strengthening disaster risk governance to manage disaster risk; (iii) Investing in disaster reduction for resilience, and; (iv) Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction. Aligning with the principles and framework of the SFDRR, the GoN endorsed the National Policy on DRRM 2018 and the Disaster Risk Reduction National Strategic Action Plan (2018-2030). The Sustainable Development

Goals (SDGs) have been designed to be a blueprint to achieve a better and more sustainable future for all'. In Nepal, the Ministry of Home Affairs (MoHA) via NDRRMA leads on DRRM, whereas, the Ministry of Forests and Environment (MoFE) is the focal point of UNFCCC for climate change. Likewise, the Ministry of Federal Affairs and General Administration (MoFAGA) coordinates the development of guidelines for the integration of Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR) into the planning process. Further to this, there exists different policies like; National Strategic Action Plan (NSAP) for DRRM: 2018-2030, DRRM policy and strategies (2018 AD) and District and Local Disaster Risk Reduction Planning guidelines. Environment Friendly Local Government Framework (2078 BS) have also considered climate change and disaster risk management as one of the core areas of interventions. The fifteenth periodic plan of Nepal (2076/77-2080/81 BS), has envisioned for both disaster risk management and climate change. The vision for disaster risk management is; 'Resilient Nepal safe from disaster risks' and the vision for climate change is 'Building a climate-resilient society'.

The Disaster Risk Reduction National Strategic Action Plan (2018-2030) proposes priority actions for 2018 to 2020 in the short-term, 2018 to 2025 in the medium-term, and 2018 to 2030 in the long-term, assigning responsibilities within relevant federal, provincial and local governments. However, the Plan does not address the roles based on disaster intensity and impact. Similarly, the Local Government Operationalization Act (LGOA) 2074 lists different disaster management functions, including the management of DRRM funds, formulation of policies, rescue and relief operations. Even so, it fails to address how and when the local government needs to seek support from the provincial and federal level for disaster management.

There is some clarity on the roles of agencies for hazards monitoring and forecasting. For instance, the Department of Mines and Geology (DMG) is responsible for monitoring earthquakes in Nepal. This department has established an Optimum Seismic Monitoring System within the National Seismological Centre (NSC) linked with the National Emergency Operation Centre (NEOC), under MoHA. Forest fire and air pollution are monitored through departments under the Ministry of Forest and Environment (MoFE). The Department of Hydrology and Meteorology (DHM) has developed a 3-day flood forecasting system and provides weather forecasts and flood early warnings. Similarly, the Department of Water Resource and Irrigation, the Department of Hydrology and Meteorology (DHM), and the DMG have put together hazard maps for different parts of the country. However, there is no clarity on how any of this information will be used by local, provincial or federal level for disaster management.

The impetus from the Gorkha earthquake led to the revision of Nepal's National Building Codes (NBC; DUDBC, 2015). The Codes are primarily implemented by local governments, including use of authority to ensure that both public and private sectors are adhering to them. Provincial and federal agencies are also responsible for following these codes in their programmes and projects. Lastly, the National Disaster Response Framework - NDRF (MoHA, 2019) was revised, building on the experience of the earthquake response. The NDRF provides some guidance for an effective and coordinated national response. However, this response framework also fails to clearly assign roles amongst agencies. For example, as per the NDRF, the leading responsible agencies for relief

distribution are simultaneously local governments and District Disaster Management Committees (DDMC). This creates overlapping roles and ambiguity in accountability.

1.4 DRRM (Disaster Risk) Governance in the Sudurpaschim Province

In the context of Sudurpaschim Province, Sudurpaschim Province Disaster Risk Reduction Act, 2075 BS is formulated. The act has provisioned a Province Disaster Management Council in the chairmanship of the Chief Minister. The major functions of the council are formulation of policy and plans for disaster management, DRRM related program implementation, management, supervision, coordination and monitoring. The act has further provision for Executive Committee, Provincial Disaster Management Fund, etc to mobilize the emergency fund during the natural and other disasters in the province. Further to this, the province has formulated Provincial Disaster Management Plan (2075 BS), Provincial Emergency Fund Act, 2075 BS. Provincial disaster management and relief distribution guideline, 2076 (BS) also formulated by the Sudurpaschim Province based on the Sudurpaschim Province Disaster Risk Reduction Act, 2075 BS. The guideline mentioned about the relief distribution, management, inspection and evaluation of disaster data. In this guideline, roles and responsibilities of Provincial Disaster Management Executive Committee (PDMC), Ministry of Internal Affairs and Labour (MoIAL) and Emergency Operations Center have been outlined. Likewise at District and LG level, committees like; DDMC, LDMC, DEOC, LEOC are formulated and plans like; DPRP and LDCRP, School Safety Plans have been formulated. The provincial government formulated an Air Rescue working procedure in 2076 BS to rescue the people in accidents and emergencies using air missions. For managing the COVID-19 in the Sudurpaschim Province, it has formulated a criterion for Coronavirus Lockdown and relief for Sudurpaschim Province in 2076 BS.

Preparation of district level DPRPs is well practiced in the Sudurpaschim Province and DPRPs are formed in line with the revised DPRP guideline 2076 BS. Likewise Local Adaptation Plan of Action (LAPA), Local Disaster and Climate Resilient Plan (LDCRP), Emergency Response Plan (ERP), Monsoon Preparedness Plan, Disaster Contingency Plan are also being formulated at the different local levels of the province. Likewise, Sudurpaschim Province under the Ministry of Internal Affairs and Labor has conducted a study on risk identification of all districts of the province using consultation and hazard modeling. The ministry has identified the number of households at risk, ranking of the local municipalities based on available DPRPs of the individual district and consultation with municipalities.

1.5 National practice in categorizing disasters

Nepal's National Emergency Operation Centre's Standard Operating Procedures (NEOC SOP) 2072[8] has outlined its procedures, depending on levels of a disaster event. It classifies disasters into 4 levels. If the nature and effect of a disaster is limited to certain localities, it is categorized as Level 1. At this level, the Centre's leadership is to be the Chief of the NEOC (Under Secretary), who works under guidance from the Joint Secretary of the respective Division of the Ministry. If the nature and

[8] MoHA (2072 BS). Standard Operating Procedures of National Emergency Operation Centre 2072. Ministry of Home Affairs. Kathmandu

effect of the disaster is at district level, the Joint Secretary of the Division is normally head of the NEOC, and the Secretary of MoHA actively guides the NEOC Team (Level 2). If the nature and effect of the disaster is of regional nature (i.e., expanding to multiple districts), the Secretary of MoHA leads the NEOC, and the Home Minister actively guides the NEOC team (Level 3). However, there was no difference in function during the 2015 earthquake when there was no federalism and during the 2017 floods when there was federalism.

Level 4 is a national emergency situation. The Chief Secretary of Nepal Government leads the NEOC Centre and the Cabinet guides the NEOC Team, although this reflects a bureaucratic hierarchy over functional differences in operation of the NEOC. The deputation of leadership may change as the NEOC is managed under the Chief Executive of the NDRRMA. However, the levels of disasters provide an emerging picture of how to categorize disasters and how to scope disaster management leadership.

The above classification of disasters used for NEOC operationalization focuses on the geographic coverage of disasters and scope of command. However, it does not define other characteristics such as the level of disasters and does not provide differentiated roles and responsibilities for disaster management. MoHA has used another classification of disasters in its disaster database management system (BIPAD[9]). The categories are: "minor, major, severe and catastrophic." (Table 2). The purpose of categories is to alert the country about the scale and potential consequences of disasters, based on internal discussions in MoHA. The categorization is described as follows:

Table 2. Disaster categories used in BIPAD

Label of Disaster	Indicators
1. Minor	When there is an event with no human death (but has probable impact on human injuries, missing persons and economic loss)
2. Major	Human death count between 0 to 10
3. Severe	Human death count between 10 to 100
4. Catastrophic	Human death counts greater than 100

Source: National Emergency Operation Center (NEOC)

1.6 Responsibility of different tiers of government

Bhandari et al. (2020) pointed out the role of different tiers of government in Nepal following the constitution of Nepal 2072, for better management of disaster.

[9] BIPAD is a Disaster Management Database Software System developed by the Government of Nepal, Ministry of Home Affairs. Kathmandu. https://bipad.gov.np/.

Federal Government

- Federal government's ultimate responsibility is to mainstream DRRM and establish harmonized policies and institutional support systems.
- Federal agencies are responsible and accountable for Level-3 disasters and need to provide demand-driven support to the provinces and local governments.
- Federal government should hold residual responsibility for coping with unprecedented hazards, such as COVID-19 and other large-scale disasters.
- Federal agencies must assume responsibility for seismic, meteorological and hydrological monitoring systems and advanced forecasting and early warning systems.

Provincial Government

- Provincial governments should manage Level-2 scale disasters without federal support, must collaborate with federal agencies for Level 3 disaster management, must support local governments preparedness activities and backstop disaster response efforts.
- They should rapidly assess the disaster impact and recommend to the federal government whether to declare a localized or province-wide emergency.
- They are accountable for providing overall guidance to local governments on their capacity building.

Local Government

- Local governments should be responsible for having enough resources and logistics facilities in anticipation of Level 0 and 1 disaster.
- They must prepare to manage Level - 2 and 3 disasters by themselves before external help is able to reach them.
- They must develop the capacity to assess immediate relief needs using nationally endorsed tools and methods. They ought to establish and manage relief distribution points and manage databases of vulnerable populations, vulnerability profiles, and disaster risk profiles.

1.7 Local government mandates on Disaster Risk Reduction and Management

Within local governments' authority provided by jurisdiction, as a minimum, the Federal Acts - DRRM Act 2074 and LGO Act 2074 - assign them specific roles on DRRM. **Table 3** below gives a synopsis of these roles. Section 11(2) of the Local Government Operation Act (LGOA) lists the following disaster management-related functions of local government:

Table 3. Local government capacity provisions by jurisdiction

Local Government Operationalization Act	Disaster Risk Reduction and Management Act
Mobilization of municipal police for (1) Protection of public land, buildings, heritages and resources; and (2) Disaster management related search, rescue, relief, reestablishments	Prepare and implement disaster management plan in harmony with integrated and sectoral policy, plans and programmes approved by Executive Committee or Provincial Executive Committee
Baseline data collection and database management	Direct concerned local level to allocate budget for disaster management
Safe settlement development and implementation	Manage disasters mobilizing NGOs, private sector, NGOs, local volunteers and other actors
Formulation and implementation of policy, laws and regulations to disaster management	Provide training to local government members, staff, volunteers, and communities to DRRM
Local level disaster preparedness and response plan, early warning systems, search and rescue, pre-stocking of relief materials, coordination and distribution of relief materials	Implement National Building Codes and concerned rules in building physical infrastructures
Flood and landslide risk mitigation, flood plain management and land use management	Formation of disaster preparedness and response committees to community awareness, disaster preparedness and response planning and programming, and disaster response
Assessment and mapping of risk and vulnerability	Organize mock-drill exercises to disaster response.
Coordination and collaboration with provincial government, communities, NGOs and private sector	Organize rescue and relief in disaster affected areas
Establishment and operationalization of DRRM fund	Monitor to ensure private and business sector are following disaster risk reduction rules
Monitoring and evaluation of community based DRR programs	Develop and operationalize early warning system at local level
Rehabilitation and Reconstruction	Establish and operationalize Local Emergency Operation Centre
Local level disaster related data collection, research and innovation	Update database of lost and damaged documents
Local level emergency operation	Identify disaster affected families, determine level of effect and provide identity cards
Community-based disaster risk management programs	Keep disaster response equipment like fire-fighting engines ready to use
Others related to disaster management	Carry out disaster management following Executive Committee, Province Executive Committee and DDMC directions
Establish & operationalize emergency fund	Other work as directed

Chapter 2. DRRM Need Assessment in Sudurpaschim Province

2.1 Introduction

Over the past two decades, the nature of humanitarian crises has gradually become more protracted, unpredictable and complex. As the humanitarian landscape has changed, past agreements and framework of disaster risk management have redefined the international community's commitment towards reducing disaster risk, fighting climate changes and improving the effectiveness and efficiency of humanitarian action. In the changing humanitarian landscape, there are four global priorities set for targeted preparedness actions for the 2021-2024 funded by the Directorate General for Humanitarian Aid & Civil Protection, European Commission (DG ECHO) dedicated budget. All priorities are interconnected and mutually reinforcing as activities implemented under one priority benefit the other priorities. The priorities are as follows:

a. Risk-based and anticipatory actions;
b. Preparedness in conflict and fragile settings;
c. Climate and environmental resilience;
d. Urban preparedness

Both 'mainstreaming' and 'targeted preparedness' actions are based on a comprehensive risk assessment. Similarly, risk assessment is key to the design of effective anticipatory actions. This assignment for Rapid Need Assessment (RNA) of communities, people's institutions, and governments with respect to disaster preparedness and response focusing on landslide and flood, and other natural hazards induced disasters in the Sudurpaschim Province and way forward for effective disaster management. The need assessment aims to understand the climatic and environmental risks, identify and map existing preparedness measures, identify opportunities to link anticipatory actions and shock responsive social protection in disaster risk reduction and management, identify vulnerabilities and capacities for different gender, age, disability, and relevant diversity groups for mainstreaming them in preparedness in the target areas. Conducting RNA in the selected district of the Sudurpaschim Province will be helpful to understand the risk of various disasters and analyse the existing situation of federal, provincial and LG in terms of disaster preparedness and local disaster risk management governance. This study may help humanitarian actors to prepare their plan and support governments of three different levels (more specifically Sudurpaschim Province) in identifying threats, hazards, vulnerabilities and capacities for different gender, age, disability, and relevant diversity groups for mainstreaming them in disaster preparedness. This also can play role to integrate risk informed planning process at the local government (LG) level, integrating the DRRM and Climate Change Adaptation (CCA) into local policies and capacitate LG for increasing investment in DRR and CCA, ultimately supporting in the implementation of LG policies and strategic action plans on DRRM and adaptation to impacts of disaster and fragility risk.

2.2 Objectives

The main objective of the assignment was to conduct a rapid need assessment of communities, people's institutions, and governments with respect to risk informed approach, disaster preparedness, urban preparedness and provide inputs for proposal writing.

The specific objectives were;

- To identify and understand climatic and environmental risks in the study areas
- To identify and map existing preparedness measures in the study areas
- To identify opportunities to link anticipatory actions and shock responsive social protection in disaster risk reduction and management
- To identify vulnerabilities and capacities for different gender, age, disability, and relevant diversity groups for mainstreaming them in preparedness

2.3 Study Area

In this study Bajhang, Baitadi, Dadeldhura, Darchula and Doti districts of the Sudurpaschim Province were selected to capture the rapid needs of communities, people's, institutions, and governments with respect to disaster preparedness and response focusing on earthquake, landslide and flood, and other natural hazards induced disaster. Identified stakeholders from Bajhang, Baitadi, Dadeldhura, Darchula and Doti districts were considered for field-based consultations for this assignment. The study area map of the Baitadi, Bajhang, Dadeldhura, Darchula and Doti districts is provided in Annex 1.

2.4 Methodology of the Rapid Need Assessment

The study team adopted integrated, multi hazard focus, multi sectors, participatory, GESI focus, sectoral portfolio balance approach to conduct need assessment in the selected districts of the Sudurpaschim Province. The methodology applied for this assignment broadly comprises desk review, semi-structured interviews (KII), FGD, stakeholder consultation and field observations for rapid need assessment of communities, people's institutions, and governments with respect to risk informed approach, disaster preparedness, urban preparedness. The assignment broadly incorporated data information related to climatic and environmental risks, identify and map existing preparedness measures, identify opportunities to link anticipatory actions and shock responsive social protection in disaster risk reduction and management, identify vulnerabilities and capacities for different gender, age, disability, and relevant diversity groups for mainstreaming them in preparedness in the target areas. Brief methodology for this assignment includes;

a. **Inception meeting:** An inception meeting with the thematic lead for resilience and climate justice at Oxfam and its partners was conducted immediately after award to revisit and discuss on ToR, thematic discussion, outline of assessment and study area, etc.

b. **Desk review:** Intensive review of existing plans, policies, acts, and guidelines related to DRRM of federal, provincial, and local governments of the target area and review information obtained

from Oxfam and other agencies working on the disaster field was conducted for this rapid need assessment. The following legal and policy documents were reviewed for the understanding the legal framework: Disaster Risk Reduction and Management (DRRM) Act 2017 (amended in 2019); DRRM Regulations 2018; the revised Disaster Preparedness and Response Plan Formulation Guideline (2019); DRR National Strategic Plan of Action (2018-2030); the Fifteenth Plan (2019/2020-2023/2024); the Local Government Operations Act 2017; Local DRRM Act (2018); guidelines for preparing the Disaster Preparedness and Response Plan (2019); Standard Operating Guidelines for Emergency Operation Centres (2018); the Disaster Management Fund Mobilization Guidelines (2018); Sudurpaschim Province Disaster Risk Reduction and Management Act (2075 BS), draft Guidelines for Preparing the Local Disaster and Climate Resilience Plan; local level and district profiles. Similarly, review of the other relevant documents and reports prepared by Oxfam and other agencies working on disaster fields in the Sudurpaschim province. Need of districts and local levels to effectively manage DRRM activities were identified for the assessment from desk study. The desk study and literature review were helpful to understand the existing governance structure of national, provincial and LGs and identify the gaps and need for better DRRM.

c. Field consultations and observations: Based on discussion on inception meeting and review of relevant documents, a checklist/ semi-structured questionnaire with relevant questions were developed in advance for primary data collection to administer through FGDs, KIIs and meetings so as to lead the study in the right direction. The detailed work plan, finalized tools and methodology and list of potential respondents were shared with the Oxfam team before field mobilization. Planned FGDs, KIIs and meetings were conducted based on the checklists/ questionnaires developed by the consultant's team.

- The key stakeholders for KII are representatives from government, non-government and private sector stakeholders working disaster preparedness and response including DRR Focal Person, Mayor/LDMC Chair, NRCS representatives and so on (Annex 9).
- The main approach for collecting information from the relevant stakeholders will be key informant interviews and informal consultations with different stakeholders. The relevant stakeholders were CDMC, WDMC, CBOs and vulnerable communities of affected areas. About 8-12 inclusive participants were involved in the discussion, and the help of the Oxfam partner team sought to inform the FGD participants.
- The consultant team also collected information based on the direct observation of conditions in the field. Informal interviews and discussion were conducted during the field visit. The observation notes maintained by the team members enrich the study report. Field observation was helpful to triangulate information shared by respondents during FGDs and KIIs. Records of FGDs, KIIs, and meetings were transcribed, compiled, and labeled according to the participant type. Photographs were taken during the field visits ensuring the prior informed consent.

d. Data analysis, synthesis and presentation of results

The collected information (mainly quantitative data) was edited, cleaned, and entered into a spreadsheet, which was analyzed, and the results were presented in figures and tables. While the qualitative information was summarized and grouped in a tabular and descriptive form.

Based on the study findings, a draft report on need assessment with recommendations for future program development was produced and shared with the Oxfam in Nepal Team. The team has also incorporated the information, statistics and observation from the past need assessment report that was conducted last year for the Oxfam Nepal. The constructive feedback when received back from the relevant reviewers was incorporated in the final report.

2.5 Findings of Assignment

a. Risk assessment

According to a vulnerability assessment report of the Ministry of Forest and Environment out of five selected districts, three districts, i.e., Baitadi, Darchula, Bajura are facing a substantial increasing trend of warm spell duration. Similarly, the report categorized Darchula and Bajhang as high landslides hazard districts; and Baitadi and Doti are categorized as moderate landslide hazard districts. Based on the overall impact of climate induced disasters, Doti is categorized as very high, Achham and Baitadi as moderate impact districts, while others districts have either low and very low impact. The sensitivity is very high in Bajhang, high in Darchula and Baitadi; moderate in Doti; and low in Dadeldhura district. There is very low overall adaptive capacity in Darchula and Bajhang; and low in Baitadi, Dadeldhura and Doti districts. Based on exposure, sensitivity, exposure and risk, Baitadi, Darchula and Bajhang districts have very high overall vulnerability while Doti and Dadeldhura have high vulnerability.

In case of earthquake, Baitadi, Darchula and Doti are the among five districts with the highest percentage of permanent houses exposed to a very high hazard zone under the 500-year return period of Earthquake (ADPC, 2010). Similarly, Baitadi, Darchula, Dadeldhula, are the among top five districts with the highest percentage of permanent housing exposed to a high hazard zone area. Recent earthquake on 9 November of 2022 caused severe damage in the 2/3 rural/urban municipalities of the Doti district. It has caused the death of six people, eight injured and fully damaged more than 28 houses in the Purbichauki Rural Municipality. The District Administration Office of Doti has proposed the declaration of the Highly Earthquake Affected rural municipality to Purbichauki and Sayal.

According to the risk area classified by the ADPC, the highest high risk area of earthquake induced landslides is located in Darchula district (65%) and followed by the Bajhang (58%) and Baitadi (43%) districts (**Table 4**). Similarly, the highest high risk area of precipitation induced landslides is also located in Darchula, Bajhang and Baitadi districts. The landslide susceptibility map of five districts of the Sudurpaschim Province is provided in the **Annex 2**.

Table 4. Landslide risk area in the selected five districts of the Sudurpaschim Province (Source: ADPC)

District	Earthquake Induced Landslide (Area)			Precipitation induced landslide (Area)		
	Low	Medium	High	Low	Medium	High
Darchula	23.96%	2.63%	64.55%	26.46%	46.29%	14.76%
Dadeldhura	37.60%	0.28%	3.36%	45.14%	25.82%	3.93%
Baitadi	42.91%	5.26%	43.34%	29.36%	48.78%	11.83%
Doti	45.77%	6.72%	7.28%	49.76%	17.53%	5.28%
Bajhang	28.29%	2.72%	58.19%	34.16%	46.32%	13.18%

Historical disaster events in the target districts of the Sudurpaschim Province

According to disaster risk reduction portal of the Ministry of Home Affairs (MOHA), there are multiple disasters occurs frequently in the Sudurpaschim province The number of total disaster events, number of death caused by the disasters, number of landslides events and number of floods is presented in the Table 5 where highest number of disaster events recorded in the Dadeldhura district (135), highest number of death caused by those events is recorded in the Doti district (48).The highest number of landslides and floods are recorded in the Darchula (40) and Bajhang (22), respectively. In order to normalize the number of disaster events according to the population (CBS, 2022) of the district, the ratio was estimated to understand the proportional hazard and risk in each district (Table 6).

Table 5. Number of disaster events from 2010 to 2020 (Source: MOHA).

District	Population (2078)	No. of total disaster events	Total no. of death	No. of landslides	No. of floods	Area*
Baitadi	250898	83	27	17	11	1519
Bajhang	195159	129	39	26	22	3422
Dadeldhura	142094	135	20	12	13	1538
Darchula	133274	106	28	40	9	2322
Doti	211746	108	48	13	6	2025

Table 6. Ratio of number of disaster events and population of all districts of the Sudurpaschim Province.

District	Population (2078)	Total no. of events (ratio*1000)	No. of deaths (ratio*1000)	No. of landslides (ratio*1000)	No. of flood (ratio*1000)
Baitadi	250898	0.33	0.11	0.07	0.04
Bajhang	195159	0.66	0.20	0.13	0.11
Dadeldhura	142094	0.95	0.14	0.08	0.09
Darchula	133274	0.80	0.21	0.30	0.07
Doti	211746	0.51	0.23	0.06	0.03

Climatic trend

The climatic risk in the Sudurpaschim Province is analyzed using information from published reports of the Department of Hydrology and Meteorology (DHM), MoFE and others. The data showed that the maximum temperature is in increasing trend in all target districts, where the highest increasing trend is found in the Darchula district (0.087 degree celsius per year) and followed by the Bajhang (0.084 degree celsius per year) as shown in **Table 7**. The minimum temperature is in decreasing trend in most of the district except in the Dadeldhura district.

Table 7. Maximum temperature trends in the selected districts of the Sudurpaschim Province (Source: DHM, 2017)

Districts	Maximum Temp trend	Minimum Temp trend
Baitadi	0.062	0.000
Bajhang	0.084	-0.018
Dadeldhura	0.047	0.003
Darchula	0.087	-0.016
Doti	0.052	-0.003

The precipitation data analysis showed that, precipitation pattern is found heterogeneous in all districts, where it is increasing in Baitadi, Dadeldhura and Doti and decreasing in the Bajhang and Darchula districts (**Table 8**). The pattern of precipitation is different in different seasons, while it is

increasing in the monsoon season in all districts. The analysis of climatic extremes also suggested that different indices such as warm days, warm spell duration, cold spell duration are increasing in all target districts, while other indices are heterogeneous in different districts (**Table 9**).

Table 8. Precipitation trend in the selected districts of the Sudurpaschim Province (Source: DHM, 2017)

District	Winter	pre-monsoon	Monsoon	Post-monsoon	Annual
Baitadi	0.01	-0.69	2.21	-0.23	1.30
Bajhang	-0.20	-1.27	2.67	-0.28	-0.49
Dadeldhura	0.08	-0.50	0.44	-0.17	0.64
Darchula	-0.28	-0.86	1.13	-0.38	-1.03
Doti	0.29	-0.44	3.47	-0.33	1.95

Table 9. Trend of extreme climate indices in the selected districts of the Sudurpaschim Province (Source: DHM, 2017)

Districts	Rainy Days	Consecutive dry days	Very wet days	Warm days	Warm spell duration	Warm nights	Cold spell duration
Baitadi	0.1	0.0	0.1	1.2	0.4	0.9	0.3
Bajhang	0.1	0.1	0.0	1.6	0.3	0.0	0.3
Dadeldhura	0.1	-0.1	0.0	0.7	0.3	0.8	0.0
Darchula	-0.1	0.3	0.0	1.7	0.4	0.1	0.2
Doti	0.1	-0.1	0.0	0.8	0.3	0.3	0.3

The detail of the earthquake risk in target districts of the Sudurpaschim province is provided in **Table 10**.

Table 10. Earthquake risk in Sudurpaschim Province (Source: ADPC, 2010)

District	Earthquake risk			
	Under 500 year return period	Under 250 year return period	Under 100 year return period	Under 5o year return period
Baitadi	Baitadi is one of 29 districts with very high earthquake risk	About 18% of the area is under very high earthquake risk and 82% of the area is at high earthquake risk.	About 69% of the area is under high earthquake risk and 31% of the total area is under medium risk.	About 4% area under high risk and 95% area is under medium risk.
Bajhang	About 96% of the area is at very high earthquake risk and 4% of the area is under high earthquake risk	About 58% of the total area is under very high risk and 40% of the area under high earthquake risk.	About 7% area is under high risk and 93% are under medium risk.	About 46% of the area is at high earthquake risk and 54% is at under medium earthquake risk.
Dadeldhura	About 99.85% of the area is at very high earthquake risk and 0.15% of the area is under high earthquake risk	About 81% of the total area is under high risk and 13% of the area under medium risk.	About 7% area is under high risk and 93% are under medium risk.	About 99% of the area is at medium earthquake risk
Darchula	About 99.85% of the area is at very high earthquake risk and 0.15% of the area is under high earthquake risk	About 35% of the area is at high earthquake risk and 65% of the area is under very high risk.	About 13% of the total area is under medium risk and 87% of the area under high earthquake risk.	About 53% is under medium risk and 45% area under high risk.
Doti	About 98% of the area is at very high earthquake risk and 2% of the area is under high earthquake risk	About 10% of the total area is under very high risk and 90% of the area under high earthquake risk.	About 36% is under high risk and 64% area under medium risk.	About 3% of the area is at high earthquake risk and 97% is at under medium earthquake risk

The number of disaster incidents, number of deaths, injures, affected family and houses destroyed in the target districts of the Sudurpaschim Province is presented in the Annex 3a, 3b, 3c, 3d and 3e for Baitadi, Bajhang, Dadeldhura, Darchula and Doti district, respectively. Similarly, the number of HHs at risk of earthquake, flood, landslide, wind storm heavy rainfall and fire in different municipalities of target districts given in the Annex 4a, 4b, 4c, 4d and 4e, respectively for the Baitadi, Bajhang, Dadeldhura, Darchula and Doti districts.

b. Gap and need assessment

The rapid assessment conducted in selected areas of the Sudurpaschim Province has identified some gaps and need for disaster preparedness and response in the province. The gaps and needs identified by the respondents/stakeholders and observed by study team are presented herein;

Gaps

- Local level DRRM legislations like; DRRM Act, DM Fund Mobilization Guideline, SOP for LEOC, Guidelines for Cash Transfer, Relief Distribution Regulation for COVID affected Peoples, and others are lacking in many LGs. Whereas, among LGs having such legislations, updating with newly elected local representatives and implementation is lacking.

- DEOC and LEOC are established in most of the districts and LGs but are not fully functional. LGs having LEOC are lacking accessories, necessary legislations and trained human resource and sufficient space for office operations.

- Most LGs have formed LDMC and WDMCs but such structures are not well capacitated to be functional as per roles and responsibilities provisioned in the LGOA and DRRM Act.

- Representatives at LGs, staff, community members are lacking adequate knowledge, awareness and information on disaster risks and preparedness.

- Defined and well-structured coordination mechanisms are not established among state agencies, development partners, humanitarian organizations and other stakeholders. Likewise, coordination among District and LG representatives has some gaps. In most of the cases, LG representatives participate less in DDMC meetings due to hierarchical issues.

- Most LGs have allocated a budget in 'Emergency Funds, (but limited)' although they do not have clear procedures/guidelines to manage and mobilize emergency funds and its proper utilization is not optimized due to lack of capacity.

- Risk identification has been done at the province level, however, detailed multi-hazard assessment has not been carried out at local level.

- DPRPs and LDCRPs were prepared in many LGs but their implementation is lacking.

- Lack of proper and user-friendly documentation and data management of disaster risk, capacities like trained human resources, equipment and materials for response etc, detail of loss and damages during any incident.

- The relief distribution, recovery and reconstruction mechanisms are poor. Mostly affected people have to build their housing infrastructures and livelihood assets on their own due to delay in rescue and relief, inconsistency between the need of the affected people and delivery of services and poor governance.

- Poor infrastructure development hinders rescue and relief works during emergency (eg. Fire brigade, Ambulance, relief material distribution is largely affected by narrow roads and road inaccessibility).

- The practice of using Government/Public Schools as an emergency shelter for disaster events and Quarantine /Isolation centers in case of COVID-19 and other disasters is common in all LGs. This causes damage to public infrastructures and hampers regular school operation and finally impacts on education of students.

- Over-exploitation of river bed materials from rivers is done everywhere, which ultimately increases the possibility of riverbed cutting, flood, soil erosion, and landslide, in adjacent areas.

- Hydrological and meteorological monitoring networks linked with EWS in the Province are inadequate, poor functioning and mostly located in lower elevations, some of them require upgrading and maintenance works. Such networks are not spatially distributed and available at more than 3000 m.a.s.l. elevation. For example, the hydrological station at Dattu, Darchula is not functioning currently.

- Application of weather and climate data (to the extent available) are still lacking for DRRM planning and implementation by stakeholders.

- There is a sharp gap on DRR education at local levels including schools. No education materials related to disasters and hazards are available. Volunteer group formation and mobilization for DRRM awareness is sharply lacking.

- Cryospheric hazards are less considered in current DRRM practices. Glaciers, glacial lakes, snow and permafrost in the upstream region are yet not studied from a disaster point of view.

- Environmental law enforcement capacity of the Province and LGs is poor. Provincial Ministry of Industry Tourism Forest and Environment, Sudurpaschim Province lacks Environment Subject Experts in the Environment Section. Likewise, most of the LGs are lacking Environment Officers at local level.

- Systematic sanitary landfill sites are lacking in most LGs. Solid waste, particularly waste generated from plastic materials, haphazardly thrown plastics (used in various food/drink products and others packaging), bottles, etc. are major challenges in rural and urban areas.
- The humanitarian and development programs have duplication in some areas whereas there is no presence of such support programs.

Needs

- Strengthen technical capacity of provincial and local authorities for DRRM legislation development and law enforcement, disaster risk information and database management, and rapid communication system to inform concerned actors for any disaster incidents.
- Develop and strengthen communication mechanisms among LGs, provincial government and federal ministries and departments, security force and humanitarian organizations for DRRM.
- Strengthen governance system of Chief Minister's disaster relief fund, district disaster relief fund and LG disaster relief fund. Increase the amount of relief funds available at different levels.
- Support to link Province, District, Municipalities/Rural municipalities and communities as per the meaning of DRRM Act and provision of constitution of Nepal.
- Strengthen capacity and governance of DEOC and LEOC.
- Strengthen cluster approach at province, district and local level and identify focal person within the organizations to coordinate response.
- Federal and provincial counterparts and stakeholders has to provide technical support to LGs to enhance multi-hazard risk assessment, develop multi-hazard risk maps, DPRP, LDCRP, RSLUP and update them at regular intervals.
- Support LGs to implement DPRP, LDCRP, RSLUP, EMP.
- Formulate emergency preparedness plan at all levels, establish monitoring and evaluation system for DRM. Strengthen capacity for mock drills at different levels for different groups including women, children, elderly people, people with disability and marginalized communities.
- Strengthen preparedness for emergency response including provision of safe shelter, rescue centers, safe places, warehouses, stockpile adequate relief and rescue materials with market survey for relief items.

- Establish and enhance EWS for critical hazards, enhance existing flood EWS based on long range (seasonal and 10-15 day) weather forecast and expand to all river basins of the province with continuous maintenance facilities. LGs should have full access to all data useful for delivering their EWS.

- Considering resources and ownership of community based early warning focusing upstream- downstream linkage should be promoted in Mahakali and Seti river basin.

- Support DHM to establish Automatic Decision Support System for regular hydro-meteorological forecasts and automatic generation of alerts in an alarming situation with scope for extending to multi-hazards warnings. Warning messages need to be usable for physically impaired and illiterate persons. Nepali language should be preferred.

- Districts impacted by floods, landslides, fires, windstorms, and hailstorms, among other hazards, have experienced a very high impact from climate-induced disasters. Therefore, context-specific and transformational adaptation options are needed to deal with the differential impact, risk, and vulnerability in respective sectors targeting different age groups and social groups.

- Empower and ensure access, representation and meaningful participation of women, children, elderly people, people with disability and marginalized communities in DRRM.

- Develop local volunteers at community level and strengthen their capacity to support DM structure before, during and after disaster following the volunteer related guideline developed by NDRRMA/MOHA.

- Emphasize on formation and capacity development of community structures like; disaster task force, volunteers, Women Empowerment Center (WEC), CFUGs, Women Groups, child clubs at local level for their mobilization on wider awareness and capacity development programs.

- Strengthen capacity of LGs to take early action for evacuation, rescue and relief, rapid assessment, rehabilitation works immediately after disaster event.

- Engage local NGOs for disaster preparedness, response and recovery capacity development and program implementation.

- Promote diverse livelihoods for building resilience through development of regulation for risk transfer/insurance (crop and property insurance, micro-finance, micro-insurance, short-term loan, conditional cash transfer, contingency fund, low-interest credit scheme, Cash and Voucher Assistance, employment guarantee etc.).

- Resettlement of the people from high risk areas to safer areas (Duhun and Naugad RM of Darchula, Ward 7 of Aalital RM Dadeldhura).

- Develop guidelines to engage the private sector in DRRM at all LGs and promote private sector engagement.
- Support in mainstreaming DRR into development planning (particularly in housing, private and public infrastructure, social sectors (health and education), and livelihood).
- Mobilize risk-sensitive investment by the public and private sector with risk-informed budget planning by allocating an adequate budget for DRR in each sector at all levels (national, sub-national, local) in a sustainable funding mechanism.
- Promote environmental assessment before construction of physical infrastructure development.
- Establish an efficient transport and logistics management system and enhance access to remote areas of the district.
- Develop status of the environment in the province with detailed environmental status and strategic environment management plan.
- LGs should prioritize solid waste management practices
- Develop policies for 'river management' based on Integrated Water Resources Management (IWRM) principles.
- Enhance multi-hazard risk awareness, develop public awareness programs on DRR (Audio-visuals, radio programs, TV programs etc.). Strengthen collaboration with media partners in information collection, sharing and dissemination.
- Integrated DRRM Resource Platform is required at Province, District and local levels with establishment of Provincial DRR Training Center, landslide risk management center and flood management center at province level.
- Promote research in DRR in collaboration with academia, research centers and researchers.

c. Resource assessment

Governance

In the context of Sudurpaschim Province, all districts have prepared a DPRPs and most of them are updated each year. Local Disaster Risk Reduction and Management Act, Disaster Management Guidelines, Disaster Management Fund Operating Procedure and other disaster related policies are formulated in few local governments, while most of them are lacking such policies and legislation. Most of the urban municipalities have formulated such policies, and others are about to formulate in future, however, most of the rural municipalities are yet to form the DRRM act and related guidelines. The capacity development in each LGs still needs to be functional and well-structured DMCs. Although, it is a mandatory provision made by the federal government to form the DRRM related policies for the local government, however, due to different priorities it is missing

in many LGs. Local governments follow the acts, plans, guidelines and procedures where they exist, otherwise they make a decision in the meeting to conduct disaster related works. It is, therefore, necessary to build up the institutional structures, differentiate the roles and responsibility of the different structures of the governmental bodies. The structure and functions of disaster related institutions and related legislations still need to be enhanced with adequate coordination between governmental and non-governmental agencies. In the district, most of the immediate disaster related works are conducted based on the decision made by the DDMC. The details of the legislations formulated by different LGs of the five districts of the Sudurpaschim Province are presented in Annex 5a to 5e.

EWS and Hydro-Meteorological stations

Hydro-meteorological stations have been provisioned as critical infrastructure to generate information for functioning EWS. These hydro-meteorological stations are operated by the DHM, GoN. DHM have their own structure for data generation and appointed gauge readers from the local area to observe the station of the respective area. During the field visit, the study team also introduced with gauge readers of some stations where they used to record rainfall, temperature and river discharge status at their location everyday (three times a day). Besides, DHM also provides real-time forecasting of flood risk for more than 12 rivers, mainly in the Terai region. In Sudurpaschim province, the real time forecasting of floods is available for Karnali River, Mahakali River, Mohana River, Kandra River, Rangoon Khola and Khutiya Khola. Through radio, television, online news portal and social media, every local level has access to the DHM weather forecasts. Since the EWS has to build on an end-to-end system, the local level's main role is to act on available information and organize effective response actions. Forecasting from the DHM is only one of the means to save lives through EWS. In recent days, vulnerable and associated communities used to practice the EWS in water-induced and climatic disasters via exchange of hydro-meteorological data among district and community level DRR actors like DDMC/DEOC, LDMC/LEOC, associated security forces and vulnerable communities. Although there are additional interventions needed to connect DHM information, gauge reader, disaster management committees/Emergency Operation centers and vulnerable communities.

In Sudurpaschim province, there are a total of 69 weather and climate stations; including Agro-Meteorological Station-1, Rain Gauge Station-41, Rain Gauge Station with AWS-3, Rain Gauge Station with rain gauge with Tipping Bucket Station- 5, Synoptic Weather Station -9, Weather Station-16 are established and operated in different areas of the province. Of which one Weather Station at Chainpur Bajhang (Index No. 202) is temporarily closed currently. Besides permanent staff at different offices under DHM, gauge readers/ observers are deployed in each station on contract basis (temporary) for record keeping. A total of 75 Weather observers are deployed in different weather and climate stations. A detailed list of Hydro-Meteorological Stations at Sudurpaschim Province and list of Weather Observers at different stations is presented in Annex 6.

Financial Institutions

There are more than 897 financial institutions in Sudurpaschim Province. The financial institutions include commercial banks, development banks, finance companies, microfinance companies and insurance companies. At least one financial institution is available at each local level. Besides these, there are a number of cooperatives available at local levels. There are 34 financial institutions available in Darchula district. At least one financial institution is available in all local levels of the district. Highest number of financial institutions (20) are available at Mahakali Municipality. Likewise, there are 54 financial institutions available in Doti. At least one financial institution is available in all local levels of the district. Highest number of financial institutions (32) are available at Dipayal Silgadhi Municipality. Detail of availability of financial institutions in all local levels of Sudurpaschim Province is presented in Annex 7.

Telecommunication service

Nepal Telecom, NCELL, UTL, Smart Cell, etc. are major telecommunication service providers for telephone services in Sudurpaschim Province. All of the above are providing mobile and internet services, whereas Nepal Telecom is also providing landline phone service as well. The network coverage of above service providers is good in most of the region but limited in some hilly areas and high altitude areas of Bajhang, Doti and Darchula districts.

Transportation

All district headquarters of the Sudurpaschim Province are connected with road networks. Also, the government has prioritized linking local level headquarters through road networks. Kailali, Kanchanpur, Dadeldhura, Baitadi and Darchula districts are connected with the open borders of India. Likewise, Darchula, Bajhang and Bajura are connected with China but access to the Chinese market is not available. Dhangadhi is connected with Kathmandu via airway. Likewise, airway is also available to some hill and mountain districts of Sudurpaschim (periodic basis).

Market system (Physical)

Khalanga Bazar and Gokuleshwor are the key markets within the Darchula district. Along with the above market center, a number of local markets are also available at different places of Darchula district for supply of goods and services in the district. Darchula district is not connected by air, however, is connected by road to Baitadi and Indian Market. Khalanga Bazaar is close to the Indian border and has easy access to the Indian market (Dharchula). In Darchula district there is a mixed type of market containing wholesale, retail shops, while manufacturing industries are not available and community markets are mostly retail. In the case of Doti district, Dipayal and Silgadhi are key markets, while few small local markets are also available at different places of the district for supply of goods and services. Doti is connected by road to its surrounding district and by air to Dhangadhi, Kailali. Seti Highway begins in Dipayal Silgadhi, linking it to Amargadhi, from where the terai region of Nepal including Dhangadi can be reached on Mahakali Highway. In case of Dadeldhura district, Bagbazar, Pokhara, Syaule, Jogbudha, Katal, Parigaon, Godam, Gharelu, Buder, Bagarkot and Gaira etc are the major market of Dadeldhura districts, while there are other settlements where few

shops in tea stalls are available to purchase daily needed items. These may be developed as markets in future by linking with major road networks.

In the case of the Baitadi district, Gothalapani, Sailek, Patan, Dehimandou, Khodape are key markets and while other small local markets are available in each local rural/municipalities of the district. Dashrath Chand Municipality and Pancheshwar Rural Municipality are connected with nearby Indian markets. In case of the Bajhang districts, the small market centers are Kanda, Talkot Khaula, Dantola, Sunikot, Dhmena, Masta, Bhatekhola, Rilu, Khattad Bazar, Dungri Bazar, Ghachaya, Chainpur, Doulichour, Simkhet, Tamil, Wakil Bazar, Suweda, Laltin Bazar, Malumela, Bhande, Bagargaun, Golai, Hemnatawada, Choughanpata, Matela, Mouribagar, Jayaprithiwinagar, Khatigaun, pasalbagar, Majhi Gaun, Kalukheti, Gadraya, Pauwagadhi, Sainsdanda Bazar, Jhanana, Choudhari, Lekgaun, Jhota, Bhairawnath, Deura Rayal, Thalara Khali, Kotbhairab, Madukatne, Regam Bazar, Dahabagar, Khirtadi, Jhapa Pipalkot, Kaphalseri, Deulekh, Sunkuda, Bagthala, Withthad, Lim and Suilek. These markets are developing as centers in different wards of the district as road connectivity in the district is increasing.

The above-mentioned markets are a mixed type of market containing wholesale and retail etc. But the community markets are mostly retail. Now, most of the local levels and their settlements of districts are well connected with roads, all markets are easily accessible except during some extreme events of flooding and landslides. Similarly, there is good connectivity with neighboring markets too in case of any crisis. The price might be controlled by the concerned authorities and traders in each district. District price management committee exists in each district which fixes the price of the construction materials but food and nonfood item prices are especially controlled by the traders through their association. In conclusion local markets seem to easily operate the CVA modalities with minimum support.

Labor market

As per the consultation with the local NGOs in the target districts, skilled and unskilled labor in the construction sector is concentrated mainly in district headquarters from other parts of the district. As per the discussion with the representative districts, skilled and unskilled labor in the construction sector are concentrated in major market areas from the other part of the district and few from neighboring cities of India. Most of the local residents of the target districts migrate to the different cities of India for employment opportunities and other districts of the Sudurpaschim Province. Trinagar Bhansar/border (Kailali), Gaddachauki (Kanchanpur) are one of the major transit borders of Nepal-India in the western region, while there are several other transit borders in the districts such as Darchula and Dadeldhura district. Every day hundreds of the workers from Nepal crosses the border. Most of the local residents engaged in the agriculture for subsistence farming, however, modern agricultural techniques are lacking. Agriculture sector is not yet commercialized in Sudurpaschim Province and most of the work is done by the farm owners themselves but in many places, Indians workers are doing the commercial vegetable farming by taking the land on lease. Present market status and the available labor can easily functionalize the CVA modalities as per requirement.

Demand and supply

Markets in Sudurpaschim Province are quite stable and well connected with each other as it is able to supply the goods and services at any time in required quantity and quality, if the market system did not disturb for a long time (like COVID-19, floods, landslides and other disasters) and disturbances in critical infrastructures like road, electricity. Based on informal discussion during study, even in crisis situations goods and services are available but price seems quite high. Interactions and observations showed that financial institutions also provided their service during COVID-19 crisis in a different way than regular. High demand during the crisis can cause lowing the quality of the goods and services. Cash flow during the crisis is not badly affected during the COVID-19 situations but definitely medium and lower classes and most vulnerable peoples were badly affected by high prices.

E-transfer mechanism (mobile and other services)

Most of the commercial and development banks are providing mobile and internet banking service nowadays. Youths and educated customers in urban areas are using such services. Telecommunication service providers like Nepal telecom and NCELL are the major means for using mobile banking services. Major market places in each district are also practicing online payment systems in limited places. Social protection schemes using financial institutions can have potential in the Sudurpaschim Province. Although, there was a problem of cash withdrawal in a disaster scenario to reach the market for their basic needs.

Chapter 3. Designing Disaster Preparedness and Response Programme

3.1 Intervention area and beneficiary

Rapid assessment was conducted to understand the need of communities, people's institutions, and governments with respect to risk informed approach, disaster preparedness, urban preparedness in Sudurpaschim Province of Nepal. So Sudurpaschim (Farwest) Province is selected as the project intervention site, which is located in the far western region (Refer Figure 1). The assessment has identified some most vulnerable and disaster-prone areas within the province where disaster preparedness and response interventions are most required. Brief information of suggested places for proposed HIP project intervention is presented in Table 11.

Table 11. Suggested places for anticipated project intervention

Country	Nepal
Region/Province	Sudurpaschim Province (Farwest Region)
Districts	Rural/Urban Municipalities
Darchula	Mahakali Municipality Naugad Rural Municipality Dunhu Rural Municipality
Baitadi	Dasharthchand Municipality Dilasaini Rural Municipality Pancheswor Rural Municipality
Dadeldhura	Parashuram Municipality Alital Rural Municipality Bhageshwor Rural Municipality
Doti	Dipayal Silgadi Municipality Shikhar Municipality Purbichauki Rural Municipality
Bajhang	Talkot Rural Municipality Masta Rural Municipality

The proposed HIP project will target the most vulnerable groups including PWDs, children, elderly and single women headed HHs. The action will also address the diverse needs of men and women, elderly, and PWDs; by reflecting on their issues in sectoral mainstreaming and emergency response plans. Gender and Social inclusion (GESI) is the core value of all the members and therefore, will promote effective participation of women with informed choice of decision making.

Table 12. The distribution of potential proportion of beneficiaries identified in the Sudurpaschim Province

Groups	Estimated % of target group	% Female (F)	% Male (M)
Infants & young children (0-59 months)	10	53	47
Children (5-17 y)	22	53	47
Adults (18-49 y)	50	53	47
Elderly (≥ 50 y)	18	53	47

Table 13. Number of potential beneficiaries of the proposed project in the Sudurpaschim Province.

District	Municipality	Population				Sex/Age distribution of beneficiaries, years					
		Total	Male	Female	HIP coverage	Female	Male	< 5	5 to 17	18 to 49	>50
Darchula	Mahakali	24,572	12072	12500	7200	3663	3537	720	1584	3600	1296
	Naugad RM	16,434	7988	8446	2400	1233	1167	240	528	1200	432
	Duhun RM	9,912	4580	5332	2400	1291	1109	240	528	1200	432
Baitadi	Dashrathchand Muncipality	31,786	15053	16733	3600	1895	1705	360	792	1800	648
	Dilasaini RM	23,233	11347	11886	3600	1842	1758	360	792	1800	648
	Pancheshwar RM	17,780	8130	9650	3600	1954	1646	360	792	1800	648
Dadeldhura	Parashuram Municipality	35,748	16833	18915	6000	3175	2825	600	1320	3000	1080
	Alital Rural Municipality	18,125	8773	9352	3600	1858	1742	360	792	1800	648
	Bhageshwor Rural Municipality	13,112	6290	6822	2400	1249	1151	240	528	1200	432
Doti	Dipaly Silgadi Municipality	36,906	17884	19022	3600	1856	1744	360	792	1800	648
	Shikhar Municipality	30,294	13307	16987	4800	2692	2108	480	1056	2400	864

	Purbichauki Rural Municipality	21,263	9089	12174	3600	2061	1539	360	792	1800	648
Bajhang	Talkot Rural Municipality	11,858	5454	6404	2400	1296	1104	240	528	1200	432
	Masta Rural Municipality	13,584	6518	7066	2400	1248	1152	240	528	1200	432
	Total	304,607	143318	161289	51600	27322	24278	5160	11352	25800	9288

The proposed HIP project is more focused on strengthening the governance system. The project will benefit selected communities of the proposed local governments covering 304607 population and the project will more specifically reach out to about 51600 population in target areas. More detailed statistics and exact number of populations under the project will be collected during the initial months of the action.

Besides sectoral government offices in each target Rural/Urban Municipalities (Agriculture, Health, Education, Security forces, Women and Children), DDMC, Provincial ministries with sectoral focus in line with various cluster will benefit and involved through participation in various trainings, workshops, consultation and preparation of anticipatory and early action plans and municipal emergency response plan. DHM gauge readers will be provided with refreshers and sensitization to enhance the communication flow during pre-monsoon.

3.2 Suggested possible interventions

a. Common Activity

- Prepare guideline for risk mapping on the basis of existing tools in LDCRP, DPRP, LAPA

In each district general categorization of local units has been done based on the historical timeline of the disaster events. From observation of practice, it is necessary to prioritize local units on site specific risk assessment. The ranking of local unit overall risk has not been properly addressed. So, districts are seeking appropriate and concise tools of risk mapping. For example, most districts have updated Disaster Preparedness and Response Plan (DPRPs) on one side but during field consultation there are few discrepancies upon asking for the most vulnerable local unit of respective districts. The proposed guideline will direct the district to prioritize vulnerable local units and local units to prioritize vulnerable wards and communities. The methodology to develop this guideline should be participatory and this guideline should adopt the tools and techniques prescribed in LDCRP, DPRP and LAPA guidelines of the federal government.

- Prepare checklist of preparedness in participatory way to direct volunteers, local level, district for preparedness actions

Generally, preparedness plans are prepared as well as activities are implemented. However, there is a gap in tracking the status of preparedness plans and activities implemented at the local and district level to reflect the status of preparedness in real time scenarios. Therefore, developing a checklist for recording each step of implemented activity along with the ongoing activity of preparedness will provide the sharp demarcation of real time progress of preparedness in local and district level. The recording of status preparedness is only possible with the participation of volunteers, security personnel, local and district level. Preparing the particular user-friendly checklist with specific indicators which volunteers, local and district level personnels can easily understand and can apply in the respective scope. User friendly checklist can also help local people to understand the tracking status of preparedness. For preparing this checklist, we can use the forum created during guideline preparation.

- Media mobilization

Observing the news related to the disaster, we can only find the news during the disaster only. These news coverages are focused more on occurrence of disaster events and particular loss and damage from those disasters. In order to leverage the contribution of the media in disaster preparedness and hence spread the culture of preparedness in wider areas, the media should be mobilized. Nowadays social media are very popular from town to village and are accessible to everyone, so social media can play an important role to disseminate information of preparedness and awareness about preparedness.

b. Province level

- Mobilize DRR focal person and associated personnel of MOIAL, PDMEC representatives, Council representative to project area.

In order to enhance the coordination and linkages of province, district and local level government for coordinated effort in DRRRM, proposed activity has been proposed. MOIAL and other province level government during district level and local level events can facilitate policy provision of government from province level. During orientation they can also get the opportunity to realize ground reality. So that Province government may play a supportive role in upcoming days. Further, district and local level representatives and respective DRR focals, Emergency Operation Center (EOC) can informally update their problem and expectation from the province government. This activity can also contribute to making EWS effective for vulnerable areas.

- Develop linkages among PEOC, DEOC, LEOC and locally developed volunteers

In order to strengthen the disaster database and reduce the discrepancies in the data at different levels of government followed by effective response during disaster, the preparedness project will also intervene on linking PEOC, DEOC and LEOC by analyzing the gaps. Project can enhance the i linkages through joint programs on common scope of work like information flow, database keeping, implementation of DPRP, implementation of response framework etc. Further to this we have to link local volunteers as well to support and get support from LEOC during disaster.

- Support to update DPRP

In most of the district DPRP updating is as a part of regular job of DDMC and they are improving day by day. But at province level we found the monsoon preparedness and response plan only. Although from the verbal statement of DRR focal, we are also practicing the preparedness and response for other disasters as well by the same institutional setup of clusters and stakeholders provisioned in the DRM plan of the province. So, to regularize the DPRP culture, this event was planned. From HIP Preparedness perspective, we can check and monitor the capitalization of our community to district level initiatives at province level as well during the DPRP preparation process. .

- Joint simulation exercise on Province DPRP

The simulation exercise has been designed to improve humanitarian response capacity of the province disaster management executive committee (PDMEC) in line with core humanitarian principles and standards, Sphere and Code of Conduct. The simulation exercise will be organized at province level in coordination with PDMEC and other humanitarian actors. The duration of the workshop will be one day and held in the premises of the MOIAL engaging PEOC as center of coordination. This is the participatory work where all the members including cluster leads, humanitarian agencies, district, local level, community people and media persons will be engaged in the exercise.

This activity also contributes in enhancing the linkages of DEOC, LEOC, volunteers' network with PEOC and PDMEC.

c. District level

- Strengthening DEOC

DEOC is a key for coordination and a real time database of the disaster event. For DEOC functioning there was provision of SOP preparation and implementation guided by MoHA/ NDRRMA. Due to the uncertainty of disaster, the Emergency Operation Center (EOC) has mandated 24/7 operation. But limited resources with government and no budget head especially defined for DEOC strengthening hindered strengthening DEOC as expected. So, as a key point of coordination, this project was envisioned to strengthen DEOC by supporting the necessary equipment. The nature of support is slightly different for different districts because the status in each proposed district is different. During project implementation, rapid gap assessment study conducted by project staff followed by the DDMC meeting will direct the specific need for each district.

For now, in the proposed project district, DEOC is lacking a backup system, poor communication (phone and internet), lack of refill of equipment, poor hygiene and unsafe residence of DEOC workers etc. Besides this in technical part, DEOCs need to update the communication channel, DEOC Sop focused simulations, team building and capacity building among gauge readers, volunteers, DHM representatives and stakeholders etc.

- Strengthening capacity of DDMC through DLSA mobilization

Although there is presence of DDMC and District Lead Support Agency (DLSA) at district level, proper functioning was not observed. So, our observation revealed that the DLSA appointed at district should be capacitated based on the responsibility of DLSA provided in the DPRP guideline. In the district, projects have to advocate and support to mobilize DLSA so that DDMC can also be benefited properly. In the current situation, the DLSA appointed also seems poor to take their responsibilities because of limited resources (related projects, internal disaster management fund, fear of getting support from likeminded organizations).

- District level DRR Preparedness fair participating Local government

Organization of District level DRR Preparedness Fair will create a common forum where local people, representatives of local government, stakeholders and other implementing partners will gather to share the status of preparedness along with the learnings as well as challenges they faced during the implementation of DRR related interventions. This common platform will also help to make common understanding of DRR interventions and can help to solve the problems with discussions.

In these fairs we can also create a nexus between the academia, practitioner, government and community to move forward in a coordinated way. Most of the research done so far is only limited to a certain level of people and institutions only. This forum creates opportunities at the local and community level also to reach those findings.

- District level Risk Mapping and identification of safe shelters including other resources

Based on exposure, sensitivity and adaptive capacity as defined by using risk mapping toolkit/guideline considering consensus on indicators for each parameter at district a precise risk mapping has been proposed. This risk mapping can also facilitate and contribute to DPRP, further local level ranking for disaster susceptibility and preparedness initiatives of districts for each local level. In the same way, during risk mapping as a part of capacity, the following resources inventory will also be done.

  - ❖ List of Helipads
  - ❖ List of Roads
  - ❖ List of DRRM Trained Personals
  - ❖ List of DRR Resources Person
  - ❖ List of Emergency operation Groups
  - ❖ Preparation of Disaster management Information Diary
  - ❖ Resources/Equipment inventory Preparation and support
  - ❖ List of Different Reporting Forms

- Develop District level volunteer's network

Networking is important for sharing information faster and joining hands for the implementation of DRR intervention especially preparedness related intervention in mass. Therefore, a district level volunteer's network will be formed with the participation of most of the volunteers where the functioning of this network will make DRR interventions smoothly with the facilitation of volunteers

as well as helpful for tracking the status of interventions along with the exchange of knowledge in the network dissemination of information.

- Develop linkages of volunteers with associated security personnel's so that they can jointly perform anticipatory action

Based on communication with security personnel and CDO of districts, they do also have trained human resources on disaster and show the way for their linkages through commitment of providing facilitators. In preparedness and response related competencies they are providing trainings in adhoc basis. Which they want to capitalize through joint effort.

- Train and Equip response team for effective response

In district level, due to geographical linkages especially Darchula, Dadeldhura and Dadeldhura most of the flood vulnerable communities are nearby to APF BOP (Border out Post) and hence getting response services during disaster. Based on CDOs suggestions, they want to prioritize capacity building of local level and community first followed by some equipment support like boat, rope, spade and other equipment to BOP nearby community or either to BOP.

- Conduct district level simulations in half yearly basis

The simulation exercise has been designed to improve humanitarian response capacity of the DDMC in line with core humanitarian principles and standards, Sphere and Code of Conduct. The simulation exercise will be organized in each project district in coordination with DDMC and other humanitarian actors. The duration of the workshop will be one day and held in the premises of the District Administration Office. This is the participatory work where all the DDMC members including cluster leads, humanitarian agencies, local level, community people and media persons will be engaged in the exercise.

This exercise would not only enable key staff to work together on tasks for emergency preparedness and response but also would serve to test and revise current preparedness and response plan of the district and then subsequently enable participants to work on Contingency Planning processes in a way that was more realistic and engaging.

Under the project, two events of simulation were proposed for each district each year. For cost effectiveness and logistics arrangement we can further define the modality of simulation after discussion with DDMC.

- Orient on Environment protection Act and regulation to monitor the project activities at their respective territory

Rapidly growing population, urbanization and changing lifestyle of people is an ongoing process and is unstoppable. These sorts of activities definitely bring changes in our community as well. In order to combat the adverse impact of such development activities, the Government of Nepal provisioned the conduction of environmental studies based on the nature and volume of the project. In the case of the proposed project area as well, there are many projects related to road construction

and other infrastructure development etc. Past history also witnesses some of the landslides due to the unplanned road construction. On the other side, the micro to mega projects are practicing environmental study as a compliance document. In environmental study as well there is provision of the environment management plan (EMP), which is mostly implemented by proponents of the project. These EMPs consist of many mitigation measures during particular project implementation. So this activity assumes that, if we orient DDMC members on EMP, they can monitor the development project activities to suggest them for the implementation of mitigation measures against the adverse impact of the project.

- Support to update DPRP

Based on risk and resource mapping, the project is envisioned to support updating DPRP. As described above in mobilization of DLSA, DLSA should be mobilized for supporting DPRP update. Project advocate to mobilize DLSA to update DPRP effectively.

- Develop volunteer's profile

In order to get an update of volunteers and possibility of mobilization of volunteers on preparedness campaign, response etc. During profile preparation, volunteer networks will be engaged and mobilized.

d. Local level

- Support in Preparation of demo shelter at any selective municipality in coordinated and collaborative approach

In support of project and other local resource leverage, a demo shelter house is provisioned to be constructed for demonstration purposes in any two municipalities of two different districts for demonstration. For example, there is a possibility at Baitadi district because of DDMC proposing to construct a safe shelter at one Local level leveraging resources from each local level of Baitadi.

- Orient LDMC and associated WDMC on their roles and responsibility and prepare action plan for two months (bi-monthly knowledge exchange meeting supportive)

Local level institutional mechanism i.e LDMC has been formulated/developed to facilitate overall coordination; strategies decision making, monitoring and linkage as well integration DRR plans into local development planning process. Name of such institution mechanisms will be either the DRR committee or as per the decision of local level or align with the guideline enforced by the concerned Ministry. It is needed to strengthen/ establish that will drive local disaster risk reduction and management planning, implementation, monitoring and updating. Composition of the institutions comprises as per the guideline circulated by the concern line ministry.

In order to execute the role and responsibility of LDMC, they will be capacitated in different DRRM related orientations and training. This capacity building activity was envisioned for effective operation and sustainability of LDMC. Orientation activity may range from DRRM orientation to

mainstreaming. In order to develop the culture of risk sensitive development DRR mainstreaming orientations/workshops has been also proposed under orientation. Basically, while reviewing budget and DRR activity most of the staff and representative thought that it is a business of only the Environment and Disaster sectoral committee, DRR focal per or DRRM section/department.

In such events, observing the enthusiasm DRR mainstreaming LDMC can invite other sectoral committee representatives, section/department representatives, DRR focal or other stakeholders as well.

- Participatory risk mapping/VCA and support to develop/update LDCRP, DPRP

Prior to LDCRP, DPRP it is necessary to understand (i) Who are the most vulnerable communities, and where they live? (ii) Why are they vulnerable? And (iii) What approaches and interventions will reduce their vulnerability. Therefore, municipal level vulnerability and capacity assessment is needed. Based on the risk mapping/VCA, LDCRP and DPRP will be updated or formulated. This risk mapping will also inform about the resource inventory required during the DRRM. Ultimately, plans developed like LDCRP and DPRP will direct the LDMC and other stakeholders for implementation of activities and selection of communities where we have to focus. This activity will follow the Risk Mapping guideline developed under the project.

- Support to prepare and update DM fund management procedure/guideline

Most of the LGs have been practicing the disaster fund establishment realizing the needful support during the disaster. From these funds, LGs are practicing to support the disaster affected peoples in their territory on the basis of meeting minutes. Nowadays, realizing the role and responsibility allocated in local government operation Act and Disaster risk reduction and management act, they are wishing to broaden the area of fund utilization. But lack of proper guidelines restricts them from utilizing their allocated fund. So to make the effective utilization of funds, fund mobilization guidelines/procedures are necessary.

- Multi-hazard simulation conduction

The simulation exercise has been designed to improve humanitarian response capacity of the LDMC in line with core humanitarian principles and standards, Sphere and Code of Conduct. The simulation exercise will be organized in each project district in coordination with LDMC and other humanitarian actors. The duration of the workshop will be one day and held in the premises of the District Administration Office. This is the participatory work where all the LDMC members including cluster leads, humanitarian agencies, local level, community people and media persons will be engaged in the exercise.

This exercise would not only enable key staff to work together on tasks for emergency preparedness and response but also would serve to test and revise current preparedness and response plan of the district and then subsequently enable participants to work on Contingency Planning processes in a way that was more realistic and engaging.

Under the project, two events of simulation were proposed for each year. For cost effectiveness and logistics arrangement we can further define the modality of simulation after discussion with LDMC.

- Prepare volunteer group for DRR preparedness and response and DRR volunteer network at local level

After identifying the vulnerable community, projects enter into the community through WEC/CDMC. At the same time there were other ongoing activities at the local level following the endorsement from DDMC. The bitter truth for DM observed in the proposed area, there is no possibility of mobilizing all the trained people and staff from the government of Nepal. So, to work as a first responder during a disaster, volunteers will be formed in each municipality considering the guidelines developed by NDRRMA/MoHA. Besides guidelines, municipalities and stakeholders try to ensure the availability of volunteers in the community by adding up a few indicators. In order to be a volunteer, selected volunteers should be provided with necessary training like social mobilization, DRRM related (technical), GESI and response related (Skill based eg. search and rescue, community based Early warning system (CBEWS), First Aid, Assessment, etc.).

Observing the geographical area and associated infrastructure developed under the Department of Hydrology Meteorology, volunteers network can support the establishment of upstream-downstream linkages for community based early warning systems among vulnerable groups across Mahakali River and Seti River through inter district communication of volunteer network.

After volunteer development, a similar network to district level DRR volunteer network will be formed. However, this network is confined to municipalities (local level) acting in respective municipalities for the preparedness intervention, problem solving, facilitating communities and tracking preparedness activating along with updating records in real time.

- Develop masons and certified electrician for house construction as a part of preparedness and recovery facilitators

Construction of DRR resilience infrastructure is very important for the preparedness by reducing damage to houses and buildings. The development of skilled mason will facilitate local people and construct disaster resilience houses and other infrastructures which will reduce the risk of damage and also helpful in recovering the damaged houses after the disasters. Similarly, development of certified electricians will conduct wiring of houses in a planned way in order to reduce the risk of fire hazard caused due to short circuit and reduce electric shock as well.

- Day celebration including IDDR day, earthquake safety day, environment day etc.

At municipality/RM level projects need to celebrate some peculiar day to enhance awareness among beneficiaries and stakeholders. The day celebration project focuses on demonstration of earthquakes through a shake table or other means, municipal wise competitions, simulations, campaigns for DRRM etc. During the day celebration as well volunteers developed so far will also be engaged.

- Piloting of retrofitting at selected schools/community building/vulnerable house

Proposed working area is susceptible to the earthquake, among them the Purbichauki Rural municipality of Doti faced casualty of its five (5) people and damaged houses fully and partially. So to make people aware of earthquake preparedness, piloting of retrofitting will be proposed. For this activity the process of selection of buildings will be participatory one following the LDMC meeting.

- Support equipment to local level and vulnerable community in resource sharing approach with local government

Basically, this activity is basically focused on disaster response and response related preparedness. Based on the document review and consultation municipality/RM and vulnerable communities are lacking basic equipment necessary for local government and community. For the same, consulting the local government revealed that they do have some shorts of funds in the disaster sector but the knowledge gap compelled them to move ahead for procurement of such equipment. So based on the actual status of the local government project will support the local government through direct equipment or by guiding them technically.

- Organize preparedness fair at local level participating vulnerable communities

Similar to the District level preparedness fair, local level preparedness fair is also a common forum for the municipality or rural municipality where volunteers, local people, vulnerable communities will participate for sharing knowledge, problems of preparedness and areas for focusing good practices of intervention and planning for the preparedness as well as for the recovery action after the disaster effect.

- Bimonthly knowledge exchange meeting among DRRM volunteers and stakeholders in order to update the progress, emerging risk and added up resources

This is a regular meeting to update the community level initiatives through volunteers associated with the WDMC/CDMC/community group formed during project implementation.

- Orient on Environment protection Act and regulation to monitor the project activities at their respective territory

Rapidly growing population, urbanization and changing lifestyle of people is an ongoing process and is unstoppable. These sorts of activities definitely bring changes in our community as well. In order to combat the adverse impact of such development activities, the Government of Nepal provisioned the conduction of environmental studies based on the nature and volume of the project. In the case of the proposed project area as well, there are many projects related to road construction, riverbed material mining and other infrastructure development etc. Past history also witnesses some of the landslides due to the unplanned road construction. On the other side, the micro to mega projects are practicing environmental study as a compliance document. In environmental study as well there is provision of the EMP, which is mostly implemented by proponents of the project. These EMPs consist of many mitigation measures during particular project implementation. So this activity

assumes that, if we orient LDMC members and stakeholders on environment protection act, environment protection regulation and environment management plan, they can monitor the development project activities to suggest them and also advocate for the implementation of mitigation measures against the adverse impact of the project.

Besides above mentioned, local level do also have provision of approving upto Initial Environment Examination and Brief Environment Study from their administration, which also facilitate local level to initiate some preparedness activities from effective implementation of Environment Protection Act.

- Conduct capacity building training for personal development of Volunteers like computer, entrepreneurship, agriculture or others

Volunteers are most likely to communicate with the local people, stakeholders, implementing agency and local government. The skilled volunteers will communicate information clearly and will be able to facilitate the community easily in different situations in different areas which may differ from each other. So, conduction of capacity building training for personal development of volunteers like computer, entrepreneurship, agriculture or others will make effective mobilization of volunteers for the preparedness. The alternative source of income will add a big support for improving economic conditions which will ultimately contribute to preparedness and response. Thus, capacity building training of different sectors such as computer, sewing, crafting, entrepreneurship, agriculture, agroforestry and other to the local people will develop skilled human resources (local people) which will be involved in other (alternative) business for the earnings.

- Support local level to implement DRR intervention at local level through well trained resource person (resource sharing staff appointed at local level) including small scale mitigation for piloting purpose

For piloting purposes based on the risk and need during risk assessment / VCA peculiar sites will be selected. After selection, those sites will be endorsed by LDMC and implementation will be processed for Landslide Risk mitigation Scheme, Flood Risk mitigation Scheme, fire safety mitigation etc.

- Develop psychosocial counselors and deploy them to motivate community people and stakeholders

In many cases, people forget to remember or have less priority in disaster risk reduction and management. So to motivate the community people, disaster management institutions, and other stakeholders for disaster preparedness. Psychosocial counselors were proposed. These counselors mostly work on preparedness motivation but upon some disaster they can also support the community people to recover from shock and stress.

e. Community level

- Capacity building training

Community is always the first responder during any disaster. Community performs best during disaster events. Under this activity community people from selected vulnerable areas were selected and nominated based on the criteria of volunteer provisioned by NDRRMA and consensus of a multi stakeholder forum representing LDMC, community leader, community based other institutions at local level. These volunteers will be capacitated and equipped to perform the task of light search and rescue, first aid, early warning system and hazard specific preparedness at community. Besides training, selected vulnerable communities will be provided with basic equipment necessary for effective response in coordination and collaboration with respective local governments. Further volunteers groups under certain CDMC can also leverage certain equipment from cooperatives, Community forest users committee, private sector etc.

- Community level multi-hazard simulation

In leadership of community volunteers, the project will support the conduct of mock drills following the hazard calendar of specific communities to inform the community on preparedness and response. These drill events motivate volunteers to memorize the tools and techniques received from different capacity building training and also they do use the equipment supported in the community. Further, these drills/simulations facilitate spreading messages in the community to be prepared for any unexpected disaster event through role play.

- Mobilize volunteer of respective area developed by local level in disaster preparedness activity

Till time we found many volunteers developed in the community are more specific towards response during the disaster. From the field observation, communities need to be aware of preparedness against prevailing and susceptible disasters. In order to sensitize and practice preparedness in the community, volunteers representing different sectors will be mobilized through approaches like demonstration, pair education, session delivery during regular programs of CFUG, agriculture group, Women empowerment center etc. in the same volunteers representing educational institution may disseminate the preparedness messages to community through extra-curricular activities at schools by engaging students. Ultimately students are also used as a change agent to amplify the preparedness knowledge upto their community.

- Monthly knowledge exchange and coordination meetings among DRRM volunteers and stakeholders

As we provisioned the multisectoral representation during volunteers' selection, volunteers may be busy in their other regular jobs along with some community events of preparedness, representation of community in other forums, some of them may receive certain training in between etc. So, to update the knowledge of the community on disaster preparedness, a monthly meeting will be organized at community level comprising DRRM volunteers and stakeholders. Based on the consensus developed with the local disaster management committee during project implementation, this meeting may be organized and led by WDMC formed as a part of DRRM Act.

- Orient on Environment management Plan to monitor the project activities at their respective territory

Rapidly growing population, urbanization and changing lifestyle of people is an ongoing process and is unstoppable. These sorts of activities definitely bring changes in our community as well. In order to combat the adverse impact of such development activities, the Government of Nepal provisioned the conduction of environmental studies based on the nature and volume of the project. In the case of the proposed project area as well, there are many projects related to road construction and other infrastructure development etc. Past history also witnesses some of the landslides due to the unplanned road construction. On the other side, the micro to mega projects are practicing environmental study as a compliance document. In environmental study as well there is provision of the EMP, which is mostly implemented by proponents of the project. These EMPs consist of many mitigation measures during particular project implementation. So this activity assumes that, if we orient WDMC members and community volunteers on EMP, they can monitor the development project activities to suggest them and also advocate for the implementation of mitigation measures against the adverse impact of the project.

Considerations

- Volunteer should be local resident and engaged in any business at local level and have assurance of availability at community
- Volunteers may represent multiple groups/institutions in the community including farmers group, youth club, associated with Nepal Red Cross Society, Community forest users group etc.
- Support volunteers in capacity building of community, reporting practices, minuting practice, sharing of deeds template during different forums (Reflect approach).

3.3 Project implementation approach

Proposed HIP project will be implemented for the duration of 2 years. The proposed project can be implemented in following steps;

Step 0: Preparatory, coordinating, sharing project at province

Step I: District level coordination, inception, project Kick off and continuation of other district level activities

Step II: District level risk mapping and endorsement of 2-3 vulnerable local levels

Step III: Coordination with local levels and implementation of project activities including respective local level risk mapping following identification of vulnerable 2 to 6 most vulnerable wards considering multi-hazard.

Step IV: Community level inception and implementation of community level interventions

3.4 Probable stakeholders

Considering the nature and scope of interventions recommended, a multi-stakeholder engagement approach has to be considered to implement the project. Following key stakeholders are identified at different stages of the project. However, detailed capacity assessment of each stakeholder has to be conducted before implementing the project.

Government agencies

- Federal Government - NDRRMA, MoHA, MoFAGA
- Provincial Government: Provincial Emergency Operation Center (PEOC), Ministry of Internal Affairs and Law (MOIAL)
- District: District Administration Office (DAO), District Emergency Operation Center (DEOC)
- Local Governments- Rural/Urban Municipalities
- Department of Hydrology and Meteorology
- Security Forces
- Government line agencies (Sectoral Offices)

Other stakeholders

- Local NGOs of target areas - project implementation partners at district level
- Nepal Redcross Society district/sub chapters
- WEC or CDMC - Probable community entry point
- Community based organizations - Youth clubs, Schools, Community forest/water, sanitation, agriculture User's Group
- Financial institution (Banking/Cooperative/MFIs)
- Media personnels
- Private sectors
- Other groups as available

Chapter 4. Conclusion

The rapid need assessment study has been carried out in the Sudurpaschim province to understand the vulnerability of the selected districts and identify the needs of the local governments. The study focused on identifying gaps, opportunities, and activities of intervention for disaster risk reduction and management and improving the livelihood of the local people. Sudurpaschim province is one of the highly vulnerable provinces and is currently facing an increased frequency of climate-induced disasters due to change in climatic indices. Based on the level of vulnerability, exposure, and adaptive capacity of the districts, five districts of the province are selected for the rapid need assessment for proposal development of ECHO HIP. The risk due to earthquake, landslides and floods are considered to select the districts and 2-3 local governments from each district are proposed for the future project intervention.

During Rapid need assessment, province to local level is facing challenge of coordinated action, insufficient human resources at respective institutions, lack of risk knowledge among institutions and individual of the community, gap in capitalizing efforts done so far, less priority of local government in disaster preparedness, lack of institution and proper budgeting for emergency operation center, inactive LDMCs, lack of database and record keeping system at local level. Besides local level DAO also supports local government in disaster response, especially rescue by mobilizing security forces and providing relief as mandated in government provision and other relief material in coordination with stakeholders. Despite its humanitarian heart and mandate, DAO is also seeking rescue equipment for effective response. DAO wishes to see functional LDMC and LEOC with community level volunteers for enhancing preparedness for each stage of disaster management as directed by DRRM Act 2074 and Local Government Operation Act 2074. Further to this, district and local level experience also realized the gap in implementation of the environment management plan during infrastructure which triggers the disaster like landslide. Even in some municipalities duplications of activities were also noticed. For example, in Parashuram Municipality of Dadeldhura district vulnerability capacity assessment was found duplicated. Similarly, local governments sometimes have a dilemma about what activities have been going on due to lack of knowledge in particular subject matter at local level and gap in monitoring.

Therefore, for responding to the gaps identified in the proposed districts and municipalities, preparedness activities should be implemented sequentially layering in each layer of government up to the community in a coordinated approach. This assessment proposes to develop a risk/ vulnerability assessment guideline followed by its implementation at district level and local level to rank municipalities and communities under respective areas. After risk assessment to respond to the associated risk due to multi hazards of vulnerable communities, well established institutions and networks institutionalization with proper training and equipment along with some mitigation activities are prioritized. The assessment also made the initiatives through proposing project sustainable activities associated with mainstreaming and personal skills for alternative/sustainable local livelihood is provisioned. Simultaneously, the assessment found the need to enhance the environment conservation, resource leverage from respective proponents of the project and complement the mitigation measure for respective probable disaster triggers introducing all the

levels with an environment management plan, environment conservation act and regulation with orientation and monitoring provisions for concerned stakeholders. In all the activities, there is some opportunity to link the province government (PEOC, PDMEC), federal government (NEOC, DEOC, DAO, Security forces), local government (LDMC, LEOC) and community (WDMC, CDMC, Volunteers group) to ensure the sole and shared responsibility of local government, province government and federal government guided by annexes of constitution of Nepal for disaster preparedness. At the end other relevant stakeholders are also addressed in this project by realizing *'Disaster management is not a job that a single person or institution can do'*.

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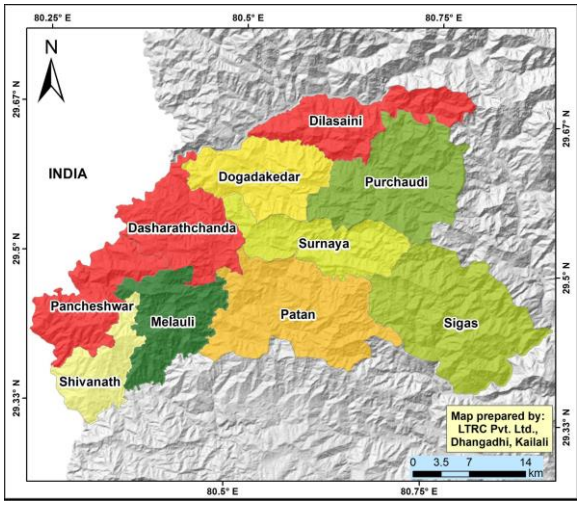
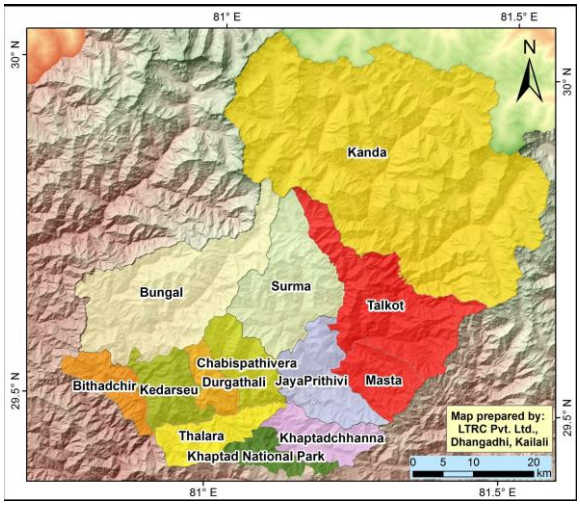
Annexes

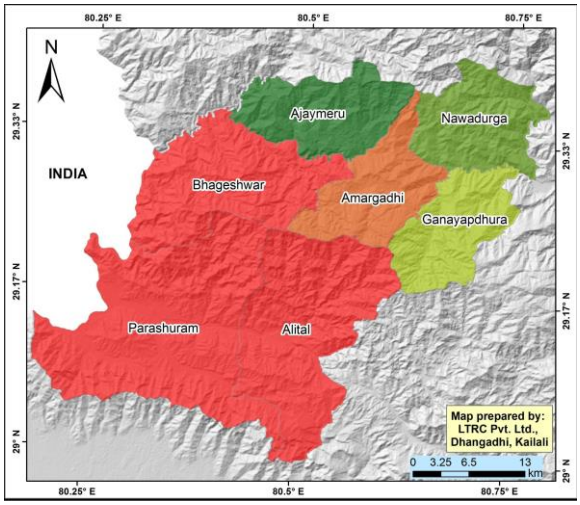
Annex 1. Map of target districts in the Sudurpaschim Province



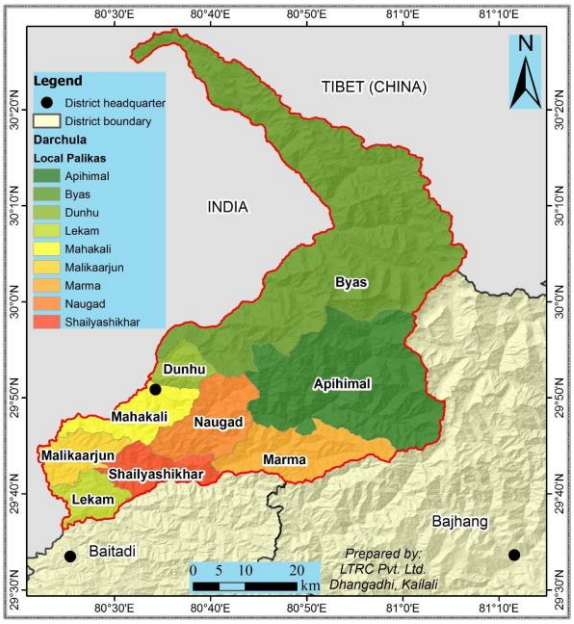
Baitadi district showing Local Governments



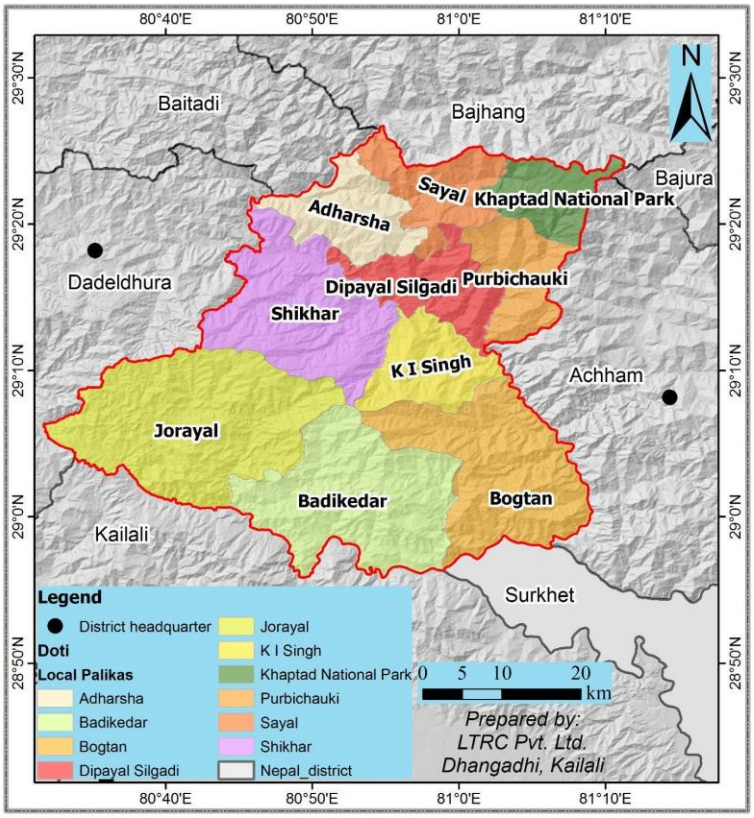
Bajhang district showing Local Governments



Dadeldhura district showing Local Governments

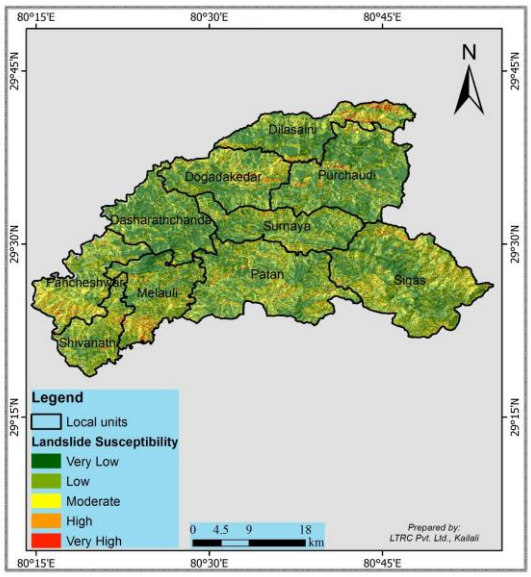


Darchula district showing Local Governments

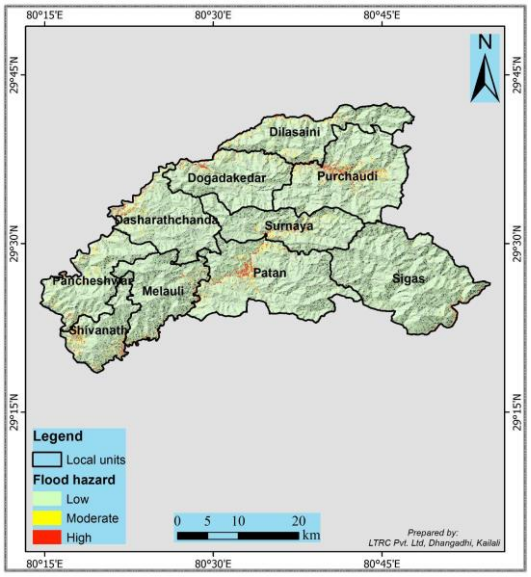


Doti district showing its local levels

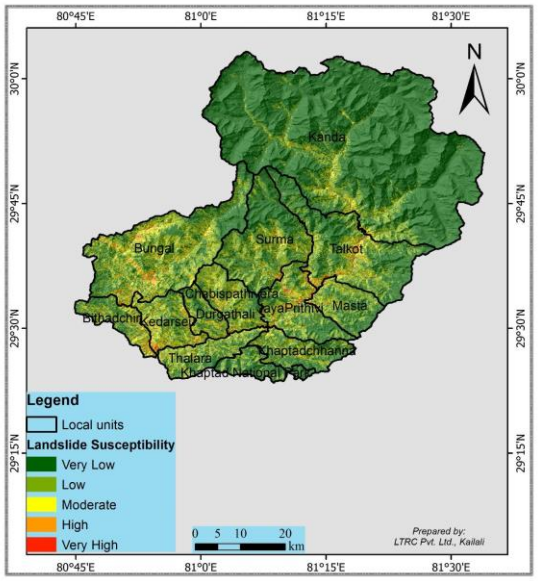
Annex 2. Landslides and Flood Susceptibility maps of the target districts of the Sudurpaschim Province



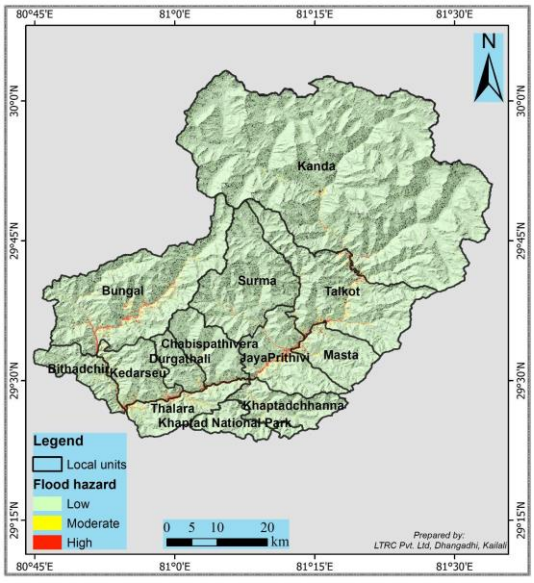
Landslide Susceptibility map of the Baitadi district



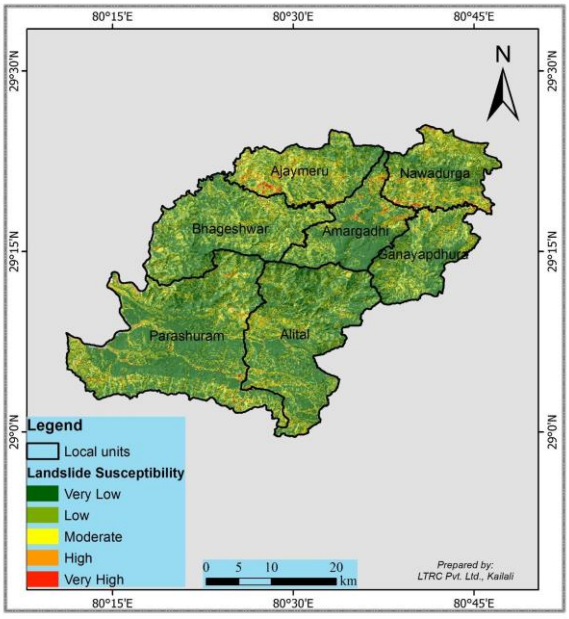
Flood Susceptibility map of the Baitadi district



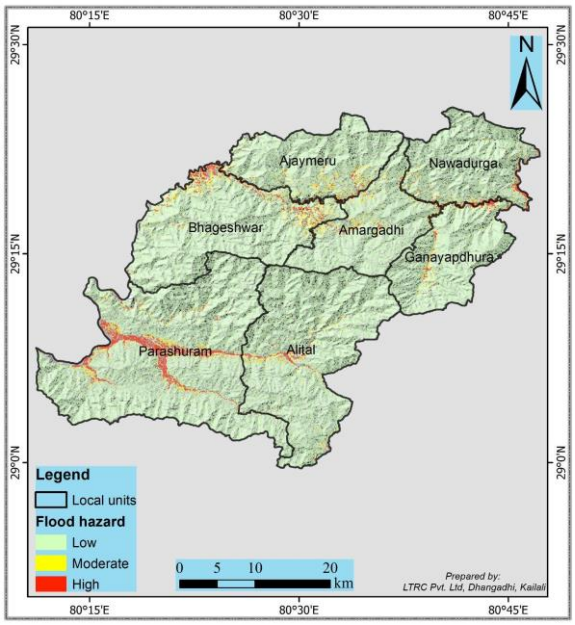
Landslide Susceptibility map of the Bajhang district



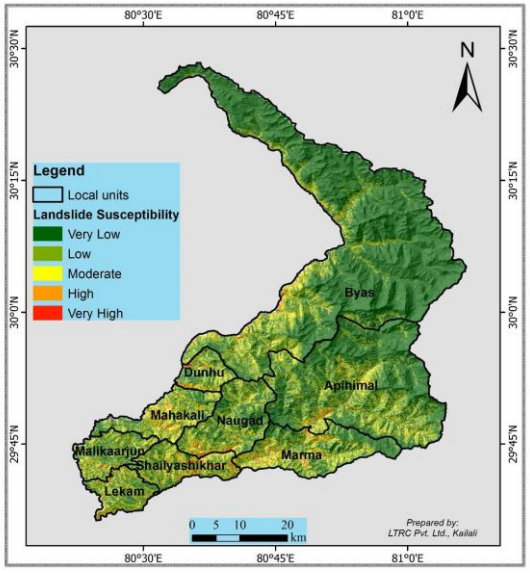
Flood Susceptibility map of the Bajhang district (Source: MOIAL)



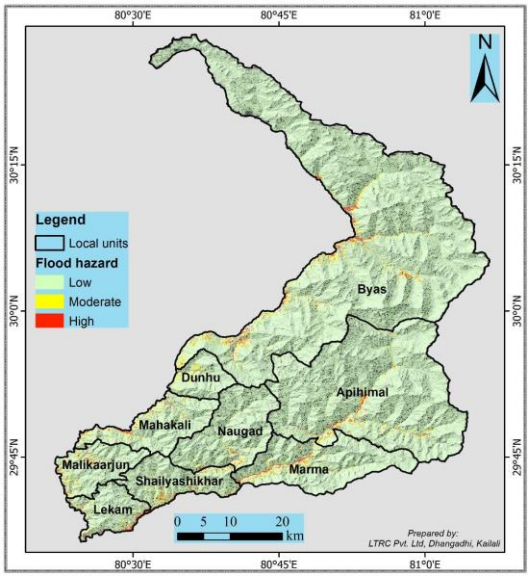
Landslide Susceptibility map of the Dadeldhura district



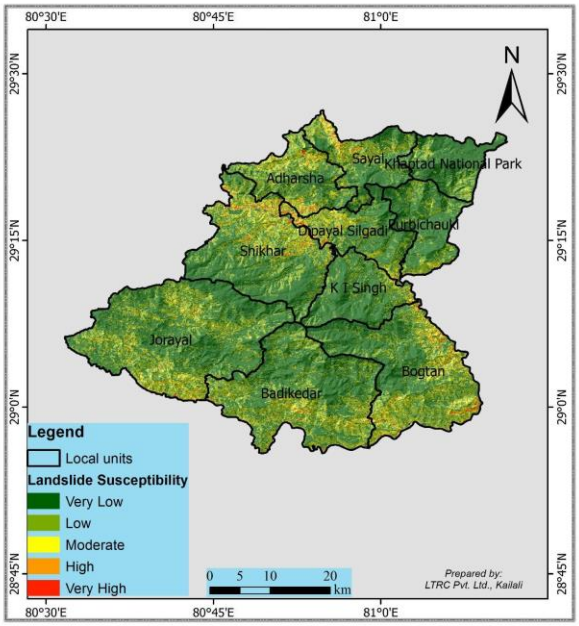
Flood Susceptibility map of the Dadeldhura district



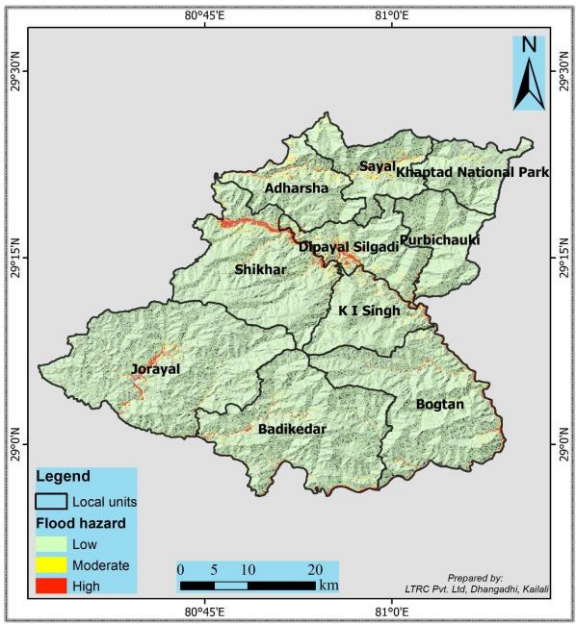
Landslide Susceptibility map of the Darchula district



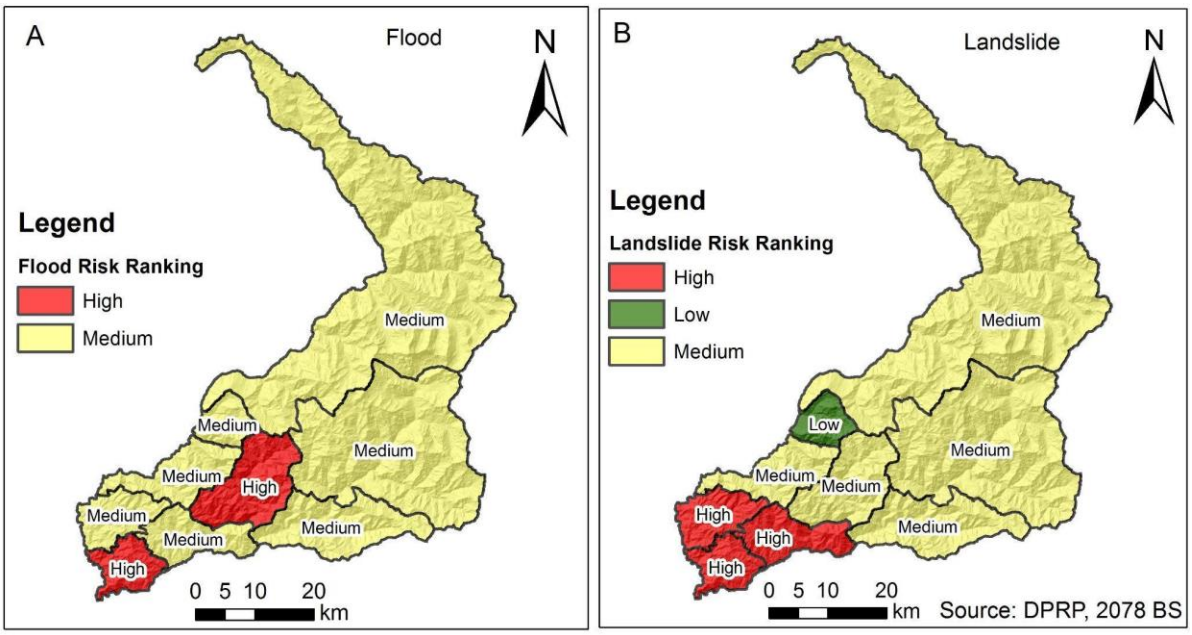
Flood Susceptibility map of the Darchula district
Source: MOIAL, 2021



Landslide Susceptibility map of the Doti district



Flood Susceptibility map of the Doti district
Source: MOIAL, 2021



Flood (A) and Landslide (B) Risk Ranking of the local levels of the Darchula district.

Annex 3(a). Type and number of disaster events in Baitadi district in the last 10 years

Hazard	No. of incident	No. of Death	Injured	Affected family	Houses destroyed	
					Fully	Partial
Flood	11	4	0	6	0	1
Fire	20	5	0	16	8	4
Landslide	17	10	5	78	18	4
Wind storm	1	0	0	0	0	0
Thunderbolt	19	3	56	38	0	1
Heavy Rainfall	2	2	0	1	1	0
Boat Capsize	1	0	0	0	0	0
Animal Incidents	9	2	7	9	0	0
Snake Bite	1	1	0	1	0	0
Earthquake	1	0	0	0	0	0
Other	1	0	1	1	0	0
Total	**83**	**27**	**69**	**150**	**27**	**10**

Annex 3(b). Type and number of disaster events in Bajhang district in the last 10 years

Hazard	No. of incident	No. of Death	Injured	Affected family	Houses destroyed	
					Fully	Partial
Flood	22	15	2	55	21	0
Fire	40	3	6	32	9	8
Landslide	26	17	12	54	29	0
Wind storm	1	0	0	0	0	0
Thunderbolt	17	2	24	13	1	0
Heavy Rainfall	14	0	0	13	14	1
Animal Incidents	5	0	3	5	0	0

Earthquake	1	0	0	0	0	0
Avalanche	2	1	0	0	0	0
Other	1	1	0	1	0	0
Total	**129**	**39**	**47**	**173**	**74**	**9**

Source: http://drrportal.gov.np/

Annex 3(c). Type and number of disaster events in Dadeldhura district in the last 10 years

Hazard	No. of incident	No. of Death	Injured	Affected family	Houses destroyed	
					Fully	Partial
Flood	13	6	1	7	31	0
Fire	28	3	2	51	22	26
Landslide	12	2	0	23	0	19
Wind storm	6	2	0	31	0	31
Thunderbolt	18	5	47	29	1	2
Heavy Rainfall	52	0	3	13	0	54
Boat Capsize	0	0	0	0	0	0
Epidemic	0	0	0	0	0	0
Animal Incidents	4	1	7	10	0	0
Earthquake	1	0	0	0	0	1
Other	1	1	0	1	0	0
Total	**135**	**20**	**60**	**165**	**54**	**133**

Annex 3(d). Type and number of disaster events in Darchula district in the last 10 years

Disaster	No. of events	No. of Death	Injuries	Affected Families	House damages	
					Fully	Partial
Flood	9	0	0	413	142	94

Fire	15	0	1	13	6	2
Landslide	50	19	25	61	47	18
Lightning	26	3	31	34	2	1
Heavy rainfall	7	2	1	17	9	3
Wildlife attack	2	0	2	2	0	0
Snake bite	1	1	0	1	0	0
Earthquake	2	1	0	0	0	0
Avalanche	1	0	0	0	0	0
Tuin chudera	1	0	0	0	0	0
Others	2	3	3	3	0	0
Total	**106**	**28**	**63**	**544**	**206**	**118**

Source: http://drrportal.gov.np/

Annex 3(e). Type and number of disaster events in Doti district in the last 10 years.

Hazard	No. of incident	Death	Injured	Affected family	Houses destroyed	
					Fully	Partial
Flood	6	0	0	68	1	0
Fire	34	6	6	50	29	6
Landslide	13	13	9	10	3	2
Hailstone	2	0	0	0	0	0
Thunderbolt	18	8	31	14	0	1
Heavy Rainfall	3	5	5	5	2	1
Epidemic	15	15	0	0	0	0
Animal Incidents	11	0	11	11	0	0
Snake Bite	3	0	3	3	0	0
Earthquake	1	0	0	0	0	0
Other	2	1	1	2	0	0
Total	**108**	**48**	**66**	**163**	**35**	**10**

Source: http://drrportal.gov.np/

Annex 4 (a). Number of HHs at risk of earthquake, flood, landslide, wind storm, heavy rainfall and fire in different municipalities of Baitadi district

Name of local Level	Earthquake				Flood				Landslide				Wind storm				Heavy rainfall				Fire			
	VH	H	M	L	VH	H	M	L	VH	H	M	L	VH	H	M	L	VH	H	M	L	VH	H	M	L
Dashrathchanda Municipality	0	2371	806	0	0	0	496	0	0	2998	499	0	0	0	1362	0	0	0	0	0	0	0	750	0
Patan Municipality	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Melauli Municipality	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Purchaudi Municipality	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Surnaya RM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sigas RM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shivnath RM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pancheswor RM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dogadakedar RM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dilasaini RM	0	0	0	0	345	99	8	0	1689	92	16	0	251	69	60	0	0	0	0	0	32	0	10	0

Source: MOIAL, 2021

Annex 4 (b). Number of HHs at risk of earthquake, flood, landslide, wind storm, heavy rainfall and fire in different municipalities of Bajhang district

Name of local Level	Earthquake				Flood				Landslide				Wind storm				Heavy rainfall				Fire			
	VH	H	M	L	VH	H	M	L	VH	H	M	L	VH	H	M	L	VH	H	M	L	VH	H	M	L
Jayeprithibi Municipality	0	0	0	0	443	927	0	0	425	555	0	0	0	0	782	0	0	0	0	0	0	0	812	0
Bungal Municipality	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Talkot RM	0	0	0	0	460	181	0	0	881	0	0	0	0	351	0	0	0	0	0	0	14	17	6	0
Masta RM	100	248	170	0	230	255	70	0	882	0	0	0	0	0	397	0	0	0	0	0	0	85	99	0
Khaptad Chhanna RM	0	0	0	0	406	182	123	0	0	0	0	0	0	0	235	0	0	0	0	0	0	0	0	0
Thalara RM	135	958	0	0	0	0	434	0	236	1200	0	0	0	0	574	0	0	0	349	0	0	0	396	0
Bitthhadchir RM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Surma RM	0	958	0	0	0	246	109	0	0	0	0	0	0	0	203	0	0	0	151	0	0	0	243	0
Chhabis pathivera RM	0	911	0	0	0	0	434	0	615	526	0	0	0	455	0	0	0	0	164	0	0	0	292	0
Durgathali RM	1659	0	0	0	0	391	259	0	0	706	160	0	0	0	466	0	0	0	199	0	0	0	0	0

Kedarseun RM	0	1461	0	0	0	0	312	0	737	573	0	0	0	0	571	0	0	0	379	0	0	0	378	0
Saipal RM	0	371	0	0	0	0	80	0	0	0	65	0	0	0	371	0	0	0	371	0	0	56	0	0

Annex 4 (c). Number of HHs at risk of earthquake, flood, landslide, wind storm, heavy rainfall and fire in different municipalities of Dadeldhura district

Name of local Level	Earthquake				Flood				Landslide				Wind storm				Heavy rainfall				Fire			
	VH	H	M	L	VH	H	M	L	VH	H	M	L	VH	H	M	L	VH	H	M	L	VH	H	M	L
Ammargadi Municipality	0	778	504	0	0	0	374	0	0	861	297	0	0	0	665	0	0	0	506	0	0	0	663	0
Parshuram Municipality	4380	0	0	0	430	193	301	0	897	705	534	0	0	0	280	0	0	0	0	0	0	0	389	0
Aalital RM	0	650	54	0	65	54	149	0	0	230	37	0	0	208	15	0	0	0	51	0	0	481	0	0
Bhageswor RM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nawadurga RM	0	1029	0	0	0	0	388	0	536	465	0	0	0	0	516	0	0	0	77	0	0	0	308	0
Ajayameru RM	0	1304	0	0	0	0	494	0	0	690	0	0	0	0	380	0	0	0	0	0	0	0	352	0
Gannyapdhura RM	0	0	0	0	99	25	25	0	62	105	0	0	0	0	0	0	0	0	0	0	0	45	0	0

Source: MOIAL, 2021

Annex 4 (d). Number of HHs at risk of earthquake, flood, landslide, wind storm, heavy rainfall and fire in different municipalities of Darchula district

Name of local Level	Earthquake				Flood				Landslide				Wind storm				Heavy rainfall				Fire			
	VH	H	M	L	VH	H	M	L	VH	H	M	L	VH	H	M	L	VH	H	M	L	VH	H	M	L
Mahakali Municipality	0	15	0	0	0	131	0	0	0	68	0	0	0	69	0	0	0	0	0	0	0	0	444	0
Saileshikhar Municipality	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Malikaejun RM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apihimal RM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Duhun RM	0	1830	0	0	0	0	0	0	350	180	50	0	0	0	0	0	0	0	0	0	0	0	0	0
Naugad RM	0	0	718	0	0	250	0	0	0	310	35	0	0	1330	0	0	0	550	260	420	0	0	400	0
Marma RM	0	350	787	0	0	0	502	0	0	463	265	0	0	1381	51	0	0	0	0	0	0	0	426	0
Lekam RM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Byans RM	0	0	0	0	40	130	0	0	420	18	0	0	0	50	0	0	0	0	0	0	0	20	0	0

Source: MOIAL, 2021

Annex 4 (e). Number of HHs at risk of earthquake, flood, landslide, wind storm, heavy rainfall and fire in different municipalities of Doti district.

Name of local Level	Earthquake				Flood				Landslide				Wind storm				Heavy rainfall				Fire			
	VH	H	M	L	VH	H	M	L	VH	H	M	L	VH	H	M	L	VH	H	M	L	VH	H	M	L
Dipayal Silgadhi Municipality	0	0	400	0	0	220	425	0	0	800	936	0	0	610	388	0	0	0	0	0	0	351	415	0
Shikhar Municipality	0	2241	0	0	1539	150	827	0	554	588	122	0	0	0	660	0	0	0	0	0	835	200	5	0
Purbichauki RM	0	0	8	0	337	108	36	0	370	239	85	0	0	0	0	0	0	0	0	0	0	0	7	0
Badikedar RM	0	0	0	0	0	0	0	0	379	132	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Jorayal RM	0	677	0	0	164	167	45	0	301	268	35	0	0	0	347	0	0	0	0	0	0	150	73	0
Sayal RM	0	0	0	0	0	184	0	0	303	0	0	0	0	47	0	0	0	0	0	0	0	196	0	0
Aadarsha RM	0	1300	0	0	0	165	149	0	475	615	96	0	0	0	153	0	0	0	0	0	0	0	120	0
Ke Aai Singh RM	0	0	0	0	203	66	20	0	304	167	0	0	0	0	0	0	0	0	0	0	130	0	0	0
Boktan RM	0	869	0	0	0	200	89	0	413	235	35	0	0	0	177	0	0	0	0	0	0	60	46	0

Source: MOIAL, 2021

Annex 5(a). List of local level legislations at different LGs of Baitadi district.

SN	Name of Local Level	Documents Prepared
1	Dasharath Chand Municipality	Local Disaster and climate resilience Plan 2074, Disaster and climate resilience fund Operation and Management guideline 2074
2	Patan Municipality	N/A
3	Melauli Municipality	Brief Environmental Study and Initial Environmental Examination Procedure 2078, Environment and Natural Resources Conservation Act 2077, Disaster Fund Management Procedure 20075, Disaster Risk Reduction and Management Act 2075, COVID Lockdown Relief standards 2076.
4	Purchundi Municipality	Disaster Preparedness and Response Plan, 2079
5	Surnaya Rural Municipality	Disaster Risk Reduction and Management Act, 2074
6	Sigas Rural Municipality	N/A
7	Shivnath Rural Municipality	Disaster Management Procedure 2075
8	Pancheshwor Rural Municipality	Disaster Preparedness and Response Plan, 2078
9	DogadaKedar Rural Municipality	Local Disaster and Climate Resilience Plan 2077
10	Dilashaini Rural Municipality	Disaster Preparedness and Response Plan, 2078

Annex 5(b). List of local level legislations at different LGs of Bajhang district.

SN	Name of Local Level	Documents prepared
1	Jayprithvi Municipality	N/A
2	Bungal Municipality	Disaster Risk Reduction and Management Act 2075
3	Talkot Rural Municipality	Environment Protection Act 2077, Rural Road construction guideline 2076
4	Masta Rural Municipality	Disaster Risk Reduction and Management Act 2075,
5	Khaptad-Chhanna Rural Municipality	Environment and Natural Resource Management 2078
6	Thalara Rural Municipality	Environment Protection Act 2078, Brief Environmental Study and Initial Environmental Examination Procedure 2076, Disaster Risk Reduction and Management Act 2075
7	Bitthadchir Rural Municipality	N/A
8	Surma Rural Municipality	Disaster Risk reduction and Management Act 2075, COVID-19 prevention and treatment Fund Operation Procedure 2076
9	Chhabishpaathibhara Rural Municipality	N/A
10	Durgathali Rural Municipality	Environment and Natural Resource Conservation Act 2077, Disaster Management Fund Operation Procedure 2076, Disaster Risk Reduction and Management Act 2076

Annex 5(c). List of local level legislations at different LGs of Dadeldhura district.

SN	Name of Local Level	Documents prepared
1	Amargadhi Municipality	Environment and Natural resource Conservation Act 2078
2	Parashuram Municipality	Local emergency Operation Center 's Standard Operation procedure 2076, Disaster Management Fund Operation Procedure 2076, Brief Environmental Study and Initial Environmental Examination Procedure 2077, Environment and Natural Resource Conservation Act 2076, Disaster Risk Reduction and Management Act 2076, Road and building code Management Act 2076
3	Aalitaal Rural Municipality	Disaster Risk Reduction and Management Act 2077, COVID presentation, control, management fund operation guideline 2076, Economic Support and relief distribution Procedure 2078, Brief Environmental Study and Initial Environmental Examination Procedure 2077
4	Bhageshwor Rural Municipality	Disaster Risk Reduction and management Act 2075, Disaster Management Fund Operation Procedure 2075
5	Navdurga Rural Municipality	Brief Environment study and Initial Environmental Examination Procedure 2077, Environment and natural Resources Conservation Act 2076, Hazard, rescue and relief Fund Operation Procedure 2074, Emergency Fund Act 2074
6	Ajaymeru Rural Municipality	Environment and Natural Resource Conservation Act 2077, building code, building construction approval related procedure 2077
7	Ganyapdhura Rural Municipality	Environment and Natural resources conservation Act 2077, Disaster Risk Reduction and Management Act 2075, Disaster Management Fund Operation Procedure 2075

Annex 5(d). List of local level legislations at different LGs of Darchula district.

SN	Name of Local Local Level	Available Legislation (s)
1	Mahakali Municipality	Special Disaster Management Guidelines 2076 BS- Identity card distribution Directive for flood victims-2076 BS Ambulance Operation Guideline 2077, Disaster Management Fund Operation guideline 2076, Urban Planning and building construction Procedure 2078
2	Saileshikhar Municipality	Disaster Management Fund Operating Guideline (Directive)-2075/76 Shailyashikhar Municipality's Forest Act 2078
3	Mallikarjun Rural Municipality	NA
4	Apihimal Rural Municipality	Disaster Risk Reduction and Management Act-2075 Environment and Natural Resource Conservation Act-2077 CORONA Virus infection prevention and treatment Fund Operating Procedure-2076
5	Duhun Rural Municipality	Disaster Risk Reduction and Management Act-2075
6	Naugad Rural Municipality	Disaster Risk Reduction and Management Act-2076
7	Marma Rural Municipality	NA
8	Lekam Rural Municipality	NA
9	Byans Rural Municipality	Solid Waste Management Act 2074

Annex 5(e). List of local level legislations at different LGs of Doti district.

SN	Name of local Level	Available Legislation(s)
1	Dipayal Silgadhi Municipality	SOP for LEOC
2	Shikhar Municipality	NA
3	Purbichauki Rural Municipality	Disaster Fund mobilization and management regulation 2076 SOP for LEOC
4	Badikedar Rural Municipality	Disaster Risk Reduction and Management Act-2075
5	Jorayal Rural Municipality	Disaster Risk Reduction and Management Act-2075 Working Guideline for CASH distribution to COVID victims-2078 Disaster Management Fund Mobilization Working Guidelines-2075
6	Sayal Rural Municipality	NA
7	Aadarsha Rural Municipality	SOP for LEOC
8	Ke Aai Singh Rural Municipality	Environmental Study and Initial Environmental Examination working Guideline-2077 Environment and Natural resource Conservation Act-2077
9	Boktan Rural Municipality	NA

Annex 6. List of Hydro-Meteorological Stations at Sudurpaschim Province and Field Staffs at Stations

क्र. स.	ज्यालदारी कर्मचारीको विवरण				केन्द्रको विवरण			कैफियत
	नाम	पद	ठेगाना	सम्पर्क न	इन्डेक्स न.	नाम	किसिम	
1	योगेन्द्र बहादुर चन्द	मौसम अब्जरभर	गोकुलेश्वर- ३ बैतडी	9803252830	101	काकर पाखा	बर्षामापन	
2	माधवी देबी मट्ट	मौसम अब्जरभर	दशरथ चन्द-५ रिचपला बैतडी	9848988478	102	गोठापानी	हावापानी केन्द्र	
3	प्रतापदत्त भट्ट	मौसम अब्जरभर	पाटन -११ नगरबाटा बैतडी	9749501300	103	पाटन	हावापानी केन्द्र	AWS
4	बिशाखा जैरे	सिनप्टिक अब्जरभर	डडेल्धुरा	9806452190	104	डडेल्धुरा सिनप्टीक केन्द्र	सिनप्टीक केन्द्र	
5	लक्ष्मी प्रसाद अबस्थी	सिनप्टिक अब्जरभर	डडेल्धुरा			डडेल्धुरा सिनप्टीक केन्द्र	सिनप्टीक केन्द्र	
6	लक्ष्मी सुनार	आंशिक चौकिदार	डडेल्धुरा			डडेल्धुरा सिनप्टीक केन्द्र	सिनप्टीक केन्द्र	
7	तिर्थ बहादुर डगौरा	मौसम अब्जरभर	भेटके।ट -९ लालपुर कञ्चनपूर	9848763244	105	महेन्द्रनगर	कृषि-हावापानी केन्द्र	
8	लिलाप्रसाद अधिकारी	मौसम अब्जरभर	बेलौरी-६ शान्तिपूर कञ्चनपूर	9812797709	106	शान्तिपूर, बेलौरी	बर्षामापन + TPB	
9	जनकराज अवस्थी	मौसम अब्जरभर	अपी-१२ दार्चुला	9868466352	107	खलङ्गा	हावापानी केन्द्र	AWS
10	भाष्कर देव भट्ट	मौसम अब्जरभर	गुरुखोला -९ श्रीखण्ड बैतडी	9865651757	108	सतबाझ	बर्षामापन + TPB	
11	खड्गसीं ठगुन्ना	मौसम अब्जरभर	गुल्जार -१ लुम्थी दार्चुला	9749568992	109	लुम्थी	बर्षामापन	
12	लालसीह सितौली	मौसम अब्जरभर	खार- १ दल्लेखधार दार्चुला	9749578722	110	दल्लेखधार दार्चुला	बर्षामापन	
13	भुपेन्द्र बहादुर चन्द	मौसम अब्जरभर	शकरपुर -४ धरमपानी दार्चुला	9749540840	111	धरमपानी दार्चुला	बर्षामापन	

14	काशी चन्द	मौसम अब्जरभर	अमचौर - ९ विनायक बैतडी	9805747957	114	बिनायक बैतणी	बर्षामापन	
15	हिरादेबी भट्ट	मौसम अब्जरभर	शिध्दपुर-४ हतास बैतडी	9868802778	115	शिध्दपुर बैतडी	हावापानी केन्द्र	
16	लक्ष्मी देबी जोशी	मौसम अब्जरभर	रुपाल -३ नौतडी डडेलधुरा	9862653269	116	रुपाल डडेलधुरा	बर्षामापन	
17	नरेश बहादुर देउवा	मौसम अब्जरभर	असीग्राम-१ साहुखर्क डडेलधुरा	9810681455	117	साहुखर्क डडेलधुरा	बर्षामापन + TPB	
18	शेर बहादुर साउद	मौसम अब्जरभर	पसुराम -१२जोगबुडा डडेलधुरा	9868467746	118	जोगबुडा डडेलधुरा	बर्षामापन	
19	रत्न बहादुर शाह	मौसम अब्जरभर	बेदकेट-३ हनुमान नगर कञ्चनपूर	9868722033	119	हनुमाननग, कन्चनपुर	बर्षामापन	
20	प्रेम बहादुर महत	मौसम अब्जरभर	कृष्णपुर— २ खल्लागोठ कञ्चनपुर	9848764323	120	खोलागोठ कन्चनपुर	बर्षामापन	
21	बिसन बहादुर मानन्धर	मौसम अब्जरभर	दोधारा चादनी -६ दोधारा कञ्चनपूर	9806465462	121	दोधारा कन्चनपुर	बर्षामापन	
22	dGbf]b/L राना	मौसम अब्जरभर	शकरपुर -९ कञ्चनपूर	9812705346	122	पर्सिया कंचनपुर	बर्षामापन	
23	टेक बहादुर बिष्ट	मौसम अब्जरभर	रैकवार-६ बिचवा कञ्चनपूर	9749007522	123	विचवा कंचनपुर	बर्षामापन	
24	जय बहादुर बिष्ट	मौसम अब्जरभर	झलारी-९ कञ्चनपूर	9848715668	124	झलारी कंन्चनपुर	बर्षामापन	
25	सुनिता भट्ट बिष्ट	मौसम अब्जरभर	गोकुलेश्वर-९ नायल दार्चुला	9860103515	197	गोकुलेश्वर दर्जुला	हावापानी केन्द्र	
26	कलावती अवस्थी	मौसम अब्जरभर	अपि -१२ दार्चुला	9849542768	198	दार्चला नया	हावापानी केन्द्र	
27	जनकराज भट्ट	मौसम अब्जरभर	पाटन -११ चैराह बैतडी	9749501300	199	पाटन नया	हावापानी केन्द्र	AWS
28	बीर बहादुर सिंह	मौसम अब्जरभर	पिपलकोट - ३ पदमाली बझाङ्ग	9749019427 9868584292	201	पिपलकोट बझाङ्ग	बर्षामापन	
29	रत्नलाल जोशी	मौसम अब्जरभर	चैनपुर बझाङ्ग		202	चैनपुर	हावापानी केन्द्र	अस्थाई बन्द
30	अमिरमान श्रेष्ठ	मौसम अब्जरभर	सिलगडी-१ शैलेश्वरी डोटी	9848250013	203	सिलगडी डोटी	हावापानी केन्द्र	

31	बीरु रावत	मौसम अब्जरभर	वडिमलिका - १० मार्तडी बाजुरा	9868436222	204	मार्तडो बाजुरा	हावापानी केन्द्र	
32	दान बहादुर बोहोरा	मौसम अब्जरभर	सीमचौर - २ काँटे डोटी	9749048209 9749045209	205	काटे डोटी	बर्षामापन	
33	दिपक बहादुर बि.सी	मौसम अब्जरभर	भैरवथान -४ असाराघाट अछाम	9748030537	206	आसराघाट अछाम	बर्षामापन	
34	चमेली पुन मगर	मौसम अब्जरभर	टिकापुर कैलाली	9867737289	207	टिकापुर कैलाली	हावापानी केन्द्र	
35	गोमा कुमारी बिनाडी	मौसम अब्जरभर	घोडाघोडी-७ साडेपानी कैलाली	9759001838	208	साडेपानी कैलाली	बर्षामापन	
36	ladn rf}w/L	सिनप्टिक अब्जरभर	अत्तरिया कैलाली		209	अत्तरीया सिनप्टीक केन्द्र	सिनप्टीक केन्द्र	
37	अमित चौधरी	सिनप्टिक अब्जरभर	अत्तरिया कैलाली			अत्तरीया सिनप्टीक केन्द्र	सिनप्टीक केन्द्र	
38	देवेन्द्र बुढा	आंशिक चौकिदार	अत्तरिया कैलाली			अत्तरीया सिनप्टीक केन्द्र	सिनप्टीक केन्द्र	
39	नर बहादुर साँउद	मौसम अब्जरभर	बलाता - ३ अछाम	9749086421	210	बाङ्गा अछाम	बर्षामापन	
40	कृष्णदत्त अवस्थी	मौसम अब्जरभर	खप्तड राष्टिय निकुन्ज डोटी		211	खप्तड डोटी	बर्षामापन	
41	छोटी राम चौधरी	मौसम अब्जरभर	पवेरा -७ मनिकापुर कैलाली	9811660462	212	सितापुर कैलाली	बर्षामापन	
42	दशरथ बोहोरा	मौसम अब्जरभर	सरश्वतीनगर-२ कोलागाँउ डोटी	9848980615 9811635607	214	कोलागाँउ डोटी	बर्षामापन	
43	मदनराज भट्ट	मौसम अब्जरभर	गोदावरी-८ कैलाली	9848515581	215	गोदावरी कैलाली	हावापानी केन्द्र	
44	जितेन्द्र ब. शाह	मौसम अब्जरभर	मंगलसेन - ५ अछाम	9884006269 2	217	मंगलसेन अछाम	हावापानी केन्द्र	
45	;lt; v*\sf	सिनप्टिक अब्जरभर	दिपायल डोटी एयरपोर्ट		218	सिप्टिक केन्द्र दिपायल	सिनप्टीक केन्द्र	

46	भक्त बहादुर साउद	सिनप्टिक अब्जरभर	दिपायल डोटी एयरपोर्ट			सिप्टिक केन्द्र दिपायल	सिनप्टीक केन्द्र	
47	झाकु साउद	आंशिक चौकिदार	दिपायल डोटी एयरपोर्ट			सिप्टिक केन्द्र दिपायल	सिनप्टीक केन्द्र	
48	सोभा गुरुङ	मौसम अब्जरभर	कर्नाली चिसापानी कैलाली	9746047534	219	चिसापानी कैलाली	हावापानी केन्द्र	
49	चन्द्रादेबी बिष्ट	मौसम अब्जरभर	वलीगाँउ -९ पट्कानी अछाम	9848691646	220	पटकानी अछाम	हावापानी केन्द्र	
50	राज कुमारी सिंह	मौसम अब्जरभर	मेलबिसौना - २ आग्र बझाङ्ग		221	आग्र ,मेलविसौनी	बर्षामापन	अस्थाई बन्द
51	दिपक बहादुर वोहरा	मौसम अब्जरभर	दौलिचौर -७ बझाङ्ग	9749090514	222	रैसल्ली बझाश्ग	बर्षामापन	
52	धीर बहादुर जाग्री	मौसम अब्जरभर	व्यासी - ३ थलरा बझाङ्ग	9749004095	223	थलारा बझाश्ग	बर्षामापन	
53	केशबनाथ योगी	मौसम अब्जरभर	वडिमालिका - ५ ओलेना बाजुरा	9868475228	224	ओलेना बाजुरा	बर्षामापन + TPB	
54	गणेश बहादुर मल्ल	मौसम अब्जरभर	बगल - ८ बागथाला बझाङ्ग	9749065090	225	सुनकुडा वागथाला	बर्षामापन	
55	श्यानु कुमारी मल्ल	मौसम अब्जरभर	रायल - १ बझाङ्ग	9741172871	226	रायल बझाश्ग	बर्षामापन	
56	भीम बहादुर कार्की	मौसम अब्जरभर	कोल्टी - २ बाजुरा	9744900827 6, 9868075062	227	कोल्टी, बाजुरा	बर्षामापन	
57	उध्दव बहादुर थापा	मौसम अब्जरभर	कैलाशमाण्डु - ६ मौर्य बाजुरा	9749018571	228	कैलाश माण्डौ बाजुरा	बर्षामापन + TPB	
58	प्रेम बहादुर साउद	मौसम अब्जरभर	बगलेक-२ झिङ्गराना डोटी	9749002134	229	झिङ्गराना	बर्षामापन	
59	सुरत बहादुर साउद	मौसम अब्जरभर	कुसकोट - ९ गोलाघाट अछाम	9868414192	230	गोलाघाट अछाम	बर्षामापन	
60	जयलक्ष्मी गिरी	मौसम अब्जरभर	कालुखेती -३ बझाङ्ग	9741096267	231	कालुखेती, बझाश्ग	बर्षामापन	
61	नरबहादुर कुँवर	मौसम अब्जरभर	साफेबगर - ४ अछाम	9865605300	232	साँफेबगर अछाम	बर्षामापन + AWS	

62	प्रताप सिह वोहरा	मौसम अब्जरभर	घण्टेश्वर -२ गैरा डोटी	9749533551	233	गौरा डोटी	बर्षामापन + AWS	
63	नरेन्दर ब शाही	मौसम अब्जरभर	तिखातर-६ डुम्राकोटी डोटी	9848421491	234	डुम्राकोटी डोटी	बर्षामापन	
64	भक्त बहादुर ऐडी	मौसम अब्जरभर	सुतार -८ अछाम	9868740810	235	सुतार अछाम	बर्षामापन	
65	मन्दिरे बुढा	मौसम अब्जरभर	साप्पाटा - ६ बाजुरा	9749112800	236	साप्पाटा बाजुरा	बर्षामापन	
66	बिर्ख बहादुर थापा	मौसम अब्जरभर	बस्ती - ६ बुढाशैन अछाम	9749086057	237	बस्ती अछाम	बर्षामापन	
67	चन्द्रदेब भट्ट	मौसम अब्जरभर	बछ्यन-६चिउरी डोटी	9749081554	238	चिउरी डोटी	बर्षामापन + AWS	
68	सीतादेबी चौधरी	मौसम अब्जरभर	मालाखेती-2 कठकुवा कैलाली	9848404059	239	मालाखेती कैलाली	बर्षामापन	
69	फुनीराम चौधरी	मौसम अब्जरभर	चौमाला -३ कैलाली	9848483925	240	चौमाला कैलाली	बर्षामापन	
70	बीरबहादुर खत्री	मौसम अब्जरभर	सुगुरखाल - ९ मेलडाडा कैलाली	9848518662	241	गोगनपानी कैलाली	बर्षामापन	
71	भिमबहादुर देउवा	मौसम अब्जरभर	गर्भा दरबार कैलाली	9868721911	242	गर्मा दरबार	बर्षामापन	
72	सुमित्रादेबी सुनार	मौसम अब्जरभर	बगै।रा -५ बलिया कैलाली	9848430793	243	बलिया कैलाली	बर्षामापन	
73	फुलाराम चौधरी	मौसम अब्जरभर	पडरीया -४ भजनी कैलाली	9868465332	244	भजनी कैलाली	बर्षामापन	
74	नगरपालिका स्टाफ	मौसम अब्जरभर	कमलवजार नगरपालिका		245	कमलवाजार अछाम	बर्षामापन	कमलबजार न.पा. बाट तलब खाने
75	संतोषी कुमारी रोकाय	मौसम अब्जरभर	जयप्रीथ्वि - ७ बझाङ्ग	9848619733	299	चैनपुर बझाग एयरपोर्ट	हावापानी केन्द्र	

Source: *Department of Hydrology and Meteorology, Hydrology and Meteorology Office, Kohalpur*

Annex 7: Financial Institutions in Sudurpaschim Province

District	Name of Local Level	No. of Financial Institutions	District	Name of Local Level	No. of Financial Institutions
Bajura	Badimalika Municipality	15	Darchula	Mahakali Municipality	20
	Tribeni Municipality	3		Shailyashikhar Municipality	4
	Budiganga Municipality	5		Malikarjun Rural Municipality	2
	Gaumul Rural Municipality	1		ApiHimal Rural Municipality	2
	Pandabgupha Rural Municipality	0		Duhun Rural Municipality	1
	Swarmik Kartik Rural Municipality	1		Naugad Rural Municipality	1
	Chhededaha Rural Municipality	3		Marma Rural Municipality	2
	Himali Rural Municipality	1		Lekam Rural Municipality	1
	Budhinanda Municipality	3		Vyas Rural Municipality	1
	Total	32		Total	34
Bajhang	Jai Prithivi Municipality	24	Baitadi	Dashrath Chand Municipality	22
	Bungal Municipality	3		Patan Municipality	9
	Talkot Rural Municipality	1		Melauli Municipality	2
	Masta Rural Municipality	1		Puchaundi Municipality	2
	Khaptad Chhanna Rural Municipality	2		Surnaya Rural Municipality	1
	Thalara Rural Municipality	1		Sigas Rural Municipality	1
	Bitthadchir Rural Municipality	3		Shivanath Rural Municipality	1
	Surma Rural Municipality	1		Pancheshwor Rural Municipality	2
	Chhabis Pathibhara Rural Municipality	1		Dogadakedar Rural Municipality	1
	Durgathali Rural Municipality	1		Dilasaini Rural Municipality	1
	Kedarsyun Rural Municipality	3		Total	42
	Total	41	Dadeldhura	Amargadhi Municipality	45
	Dipayal Silgadhi Municipality	32		Parashuram Municipality	10

Doti	Shikhar Municipality	5		Aalital Rural Municipality	2
	Purbichouki Rural Municipality	2		Bhageshwor Rural Municipality	1
	Badikedar Rural Municipality	1		Nawadurga Municipality	1
	Jorayal Rural Municipality	7		Ajaymeru Rural Municipality	1
	Sayal Rural Municipality	1		Ganyapdhura Rural Municipality	3
	Adarsha Rural Municipality	1		**Total**	**63**
	K.I. Singh Rural Municipality	4	Kanchanpur	Bheemdatta Municipality	73
	Bogtan Rural Municipality	1		Punarbas Municipality	19
	Total	**54**		Bedkot Municipality	9
Achham	Mangalsen Municipality	14		Dhodhara Chadani Municipality	12
	Kamal bazar Municipality	4		Shuklaphanta Municipality	21
	Sanphebagar Municipality	17		Belauri Municipality	29
	Panchdebal Binayak Municipality	4		Krishnapur Municipality	6
	Chaurpati Rural Municipality	2		Beldandi Rural Municipality	6
	Mellekh Rural Municipality	2		Laljhadi Rural Municipality	3
	Bannigadhi Rural Municipality	3		**Total**	**178**
	Ramaroshan Rural Municipality	3	Kailali	Bhajani Municipality	13
	Dhakari Rural Municipality	3		Godawari Municipality	58
	Turmakhand Rural Municipality	2		Gauriganga Municipality	27
	Total	**54**		Janaki Rural Municipality	13
Kailali	Dhangagdi Sub Metropolitan City	107		Bardagoriya Rural Municipality	21
	Tikapur Municipality	53		Mohanyal Rural Municipality	2
	Ghodaghodi Municipality	34		Kailari Rural Municipality	17
	Lamki Chuha Municipality	43		Joshipur Rural Municipality	9
	Chure Rural Municipality	1			
	Total 398				

Source: https://www.financialnotices.com/bank-location/state-7.bank

Annex 8. List of respondents during field consultations

1. *Mohan Raj Joshi, CDO - DAO Dadeldhura*
2. *Janak Upadhyay DSP - APF, Dadeldhura*
3. *Draupadi Bhattarai - Community people of Ward7, Dadeldhura*
4. *Prakash Bhat, Journalist - NTV, Dadeldhura*
5. *Amar Saud, ED - RUWDUC, Dadeldhura*
6. *Dan Bahadur Saud, DRR Focal - Amargadhi Municipality*
7. *Suresh Panthi, CDO - DAO Baitadi*
8. *Deepak bahadur Bam, Chairperson - Purchudi RM*
9. *Meena Dhanuk, Vice-chair - Purchudi RM*
10. *Bir Bahdur Nepali, CAO - Purchudi RM*
11. *Krishna Bahadur Bohara, CAO - Pancheshwor RM*
12. *Govind Raj Joshi, ED - RUDES Baitadi*
13. *Dirgha Raj Upadhyaya, CDO - DAO Darchula*
14. *Hemanti Saud, Assistant CDO - DAO Darchula*
15. *Ramraj Pant, DRR focal - DAO Darchula*
16. *Ram Datta Joshi , Chairperson - Lekam RM*
17. *Rajendra Singh Samant, Community people - Mahakali Municipality ward 7*
18. *Chanda Samant, Farmer group chair*
19. *Lilawati Samant, WEC member*
20. *Janaki Samant, WEC Member*
21. *Pushpa Dhami, WEC Member*
22. *Dhauli Dhami, WEC member*
23. *Gayatri Samant, Student*
24. *Dewaki Samant, WEC Member*
25. *Lila Samant, WEC Member*
26. *Harish Samant, Community representative, Mahakali-7*
27. *Ramesh Raj Pant, Community Member- Pasti, Malikaarjun*

Annex 9. Photographs from field

Dadeldhura DAO with CDO and DSP of Dadeldhura district

FGD team at DAO, Baitadi

FGD with community people representing agri-groups, WECs, local teachers etc.

Discussion with CDO and Assistant CDO of Darchula

Synoptic weather station at Mahakali River, Darchula

Observation of Retrofitting model house at Amargadhi -7, Dadeldhura

Discussion with CDO and DSP of Dadeldhura