



Disaster Risk Management Harmonized Local Adaptation Plan for Action (LAPA)

A Resource Book for Facilitators

ANUKULAN PROJECT 2076



RIMS-Nepal
Development through resource management



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Disaster Risk Management Harmonized Local Adaptation Plan for Action (LAPA: A Resource Book for LAPA Facilitators)

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PREFACE

This resource book is a result of four years of experience and learning gathered during the Anukulan project implementation. iDE led consortium implemented “Building Resilience and Adaptation to Climate Extremes and Disasters (BRACED) project” called Anukulan in Nepal with support from UKAID.

This resource book is prepared based on the lessons from the four years of formulation and implementation of 42 Local Disaster Risk Management Plan harmonized with Local Adaptation Plans for Action (LAPAs). The Anukulan prepared harmonized LAPAs are highly recognized and appreciated approach. In order to draw first-hand experience, the write-up was consulted with experts, local elected representatives, practitioners from the Anukulan consortium and other organizations who are working in climate change and disaster sectors in Nepal.

The proposed principles, methods, tools and procedures in this resource book are aligned with the National Framework of LAPA (MoE, 2067) and Draft Local Disaster and Climate Resilience Plan Guidelines (MoHA, 2074). Likewise, it contains methodologies, processes and tools recommended by the Draft Local Disasters and Climate Resilience Plan Development (LDCRMP) Guideline 2074. It has been advised to consider the six thematic sectors determined by the National Adaptation Programme of Action (NAPA) to Climate Change (MoE, 2010) and local level crucial issues while formulating harmonized LAPA.

This book aims to help local facilitators and practitioners for the formulation of Local Adaptation Plans for Action in harmonization with Disaster Risk Reduction Management Plan and integration of disaster preparedness, response and recovery actions within LAPA. It is anticipated that this resource book will be a useful tool for facilitators, practitioners and researchers working on location adaptation and disaster management planning process.

We would like to extend our heartfelt gratitude to all the experts and organizations for their remarkable contributions that have made this publication possible. We are especially grateful to Sohan Lal Shrestha (Capacity Development Expert, Anukulan Project), and Jhalak Prasad Poudel, Adaptation Specialist from our partner, Rupantaran for their invaluable support in compilation, write-up and editing of this guideline.

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Contents

PART 1: Introduction to Resource Book.....	1
PART 2: Terminology Related to Climate Change Adaptation and Disaster Risk Management	3
2.1 Terms commonly used in climate change adaptation and disaster	3
PART 3 Goal, Objectives and Preparation Process of a Harmonized LAPA	6
3.1 Needs and Rational of DRR Harmonized LAPA.....	6
3.2 Goal and Objectives of a Harmonized LAPA.....	7
3.3 Principles and Approaches of a Harmonized LAPA	7
3.4 Harmonized LAPA preparation process.....	7
3.4.1 Pre Plan Preparation Process	7
3.4.2 Steps of Harmonized LAPA Preparation, Implementation, Monitoring and Evaluation	9
PART 4 Post Harmonized LAPA Preparation Activities for Integrating Disaster Risk Management.....	30
4.1 Orientation and discussion LAPA with LDMC.....	30
4.2 Orientation and capacity building of disaster related taskforces.....	30
Annexes	31
Annex-1: Roles, Responsibilities and Authorities of Local Disaster and Climate Resilience Planning Committee.....	31
Annex-2: Roles, Responsibilities and Authorities of Taskforces/ Subcommittees and Subcommittees ...	32
References.....	34

List of Tables

Table 1. Structure of Rural Municipality/Municipality Local Disaster and Climate Resilience Planning Committee.....	8
Table 2. Support for Rural Municipality/Municipality Structure	8
Table 3. Name of the Subcommittee/Taskforce	9
Table 4. Format of Historical Timeline.....	11
Table 5. Seasonal Calendar Form.....	12
Table 6. Pair-wise ranking of disasters (Ward Level).....	13
Table 7. Format of Pairwise Ranking of Disasters at the Rural Municipality/ Municipality	14
Table 8. Indicators of climate change sensitivity	15
Table 9. Example format of sector impacts (past, present and future)	16
Table 10. Vulnerability assessment of forest and biodiversity	17
Table 11. Vulnerability assessment of agricultural systems.....	18
Table 12. Vulnerability assessment of ecology of water systems	18

Table 13. Scoring of risks and hazards and adaptation initiatives	19
Table 14. Livelihood Assessment Format	20
Table 15. Institutional Information Collection Format	21
Table 16. Format of Livelihoods Assessment.....	22
Table 17. Conclusion from Identification of Vulnerable Settlements	23
Table 18. Vulnerability indicators for ward level categorization	24
Table 19. Wardlevel categorization of Vulnerability	24
Table 20. Basis for household level vulnerability assessment	25
Table 21. Categorization of Vulnerability.....	25
Table 22. Prioritization of adaptation strategies.....	26
Table 23. Example of a harmonized LAPA.....	28

List of Figures

Figure 1. Participatory resources and hazard map, Mainapokhari, Bardiya	15
Figure 2. Force Field Analysis.....	19
Figure 3. Map of vulnerable settlements from Bargoriya Rural Municipality.....	23

PART 1: Introduction to Harmonized LAPA

Nepal is highly vulnerable to climate induced disasters such as floods, landslides, frost, heat waves, drought, fire, pests and diseases, glacial lake outbursts, and earthquakes. In 2004, Nepal was ranked fourth most vulnerable to climate change and third most vulnerable to floods (UNDP/BCPR, 2004). In addition, it is the eleventh most earthquake prone country in the world (UNDP/BCPR, 2004). Therefore, it is urgent that local adaptation plans be identified and implemented early so to help build resilient communities for future events as well as respond to existing adverse impacts and risks posed to social, cultural, economic, natural and physical assets. Realizing the urgency for effective and efficient responses, the Government of Nepal (GoN) has worked to implement policies and practices related efforts at the local, national and international level.

In order to demonstrate solidarity to the global efforts against climate change, Nepal is become a party to the United Nations Framework- Convention on Climate Change (UNFCCC) in 1992 which entered into force in 1994 and has ratified the Paris Agreement, adopted during the 21th session of the UNFCCC. Nepal is also one of the least developed countries (LDCs) that face a proportionately higher risk to climate change despite contributing negligible amount of greenhouse gas (GHG) emissions (0.03%) . Despite this climate injustice, Nepal has already prepared and implemented National Adaptation Programme of Action (NAPA) in 2067 BS. Additionally, the government has made its efforts in disaster preparedness and risk reduction with the preparation of National Disaster Risk Management Strategy 2066 and Disaster Management Act 2074.

In 2011, the GoN promulgated the National Framework on Local Adaptation Plan for Action (LAPA) which captures adaptation plans as provisioned by the NAPA and local communities. Similarly, the GoN has formulated the Disaster Risk Management National Strategy, 2066 and Disaster Act, 2074 which ensures that disaster risk management activities are decentralized and mainstreamed within development policies and practices at all levels of governments- Local, Provincial and Federal. In addition GoN is in process to develop National Adaptation Plan to address the long term adaptation priorities.

Although, LAPA and LDRMP are two separate documents placed at local level but they do have substantial differences in terms of objectives, methods, tools, processes and plans. The LAPA emphasises improving the adaptive capacities of vulnerable communities to the adverse impacts of climate change whereas the LDRMP focuses on the enhance resilience capacities of the disaster vulnerable communities. In given policy framework, planning and implementation of climate change adaptation and disaster management plans follow distinct government policies and institutional arrangements, organization and processes from center to the local level. However, all level stakeholders are realizing that LAPA and LDRMP is need to be integrated and make a single plan. Therefore iDE led consortium has initiated to develop DRR harmonized LAPA under the Anukulan project. This resource book is prepared by iDE led consortium of organisations from the Anukulan project based on the experiences and learnings.

The main objective of the resource book is to help the local facilitators in the preparation and implementation of local government DRR harmonized LAPAs that encompass disaster risk management aspects and ensure clarity among the LDCRMCs in their duties and responsibilities while its implementation. Additionally, it also intended to be a guide for facilitation, implementation and monitoring of LAPAs. Similarly it also supports to integrate in the municipal development planning process and bringing uniformity in harmonized LAPA formulation process.

The guide is mainly for the benefit of field-level facilitators but can also be used by stakeholders such as NGOs, researchers and practitioners working on climate change adaptation and disaster risk management. It should not be regarded as a directive but can be adapted to different contexts.

Facilitators are encouraged to discuss and analyze their own experiences after applying different methods and processes mentioned in the guideline. Everyone's experience will be different and having ownership of the process is important. As a result, this resource book likely will only make up part of the knowledge and information needed to facilitate these processes.

The resource book is divided into four parts. The introduction in Part 1, Part 2 covers a list of specific terms and definition related to climate change adaptation, Part 3 highlights various stages of LAPA preparation process and Part 4 deals on how local adaptation plans can be integrated with local disaster management plans at the local level.

Resource Book Preparation Process and Method

The content of the resource is based on the past experience and learning from Anukulan project along with various other climate change adaptation projects like CARE Nepal/Hariyo Ban program, consultation with district and national level stakeholders such as district coordination committee, local and provincial government in regular meetings and workshops and federal level stakeholders. The following steps were carried out while preparing the guideline:

- Focus Group Discussion and Key informant interview among Anukulan Project Consortium partners on the harmonised LAPA preparation process;
- Collection and review of inputs and suggestions during district and LG level workshops in Anukulan Project area. The workshop included representatives of elected bodies including Mayor and Chairperson, ward chairperson, different line N/GOs, political parties, development partners involved in DRM and climate change adaptation sectors.
- Collection of inputs and suggestions of Anukulan Project implemented Rural Municipality and Municipality during preparation and implementation of DRR harmonised LAPA.
- Learning sharing of field level experiences with district level N/GOs as well as Rural Municipality and Municipality level development partners involved in climate change adaptation and disaster management.
- Sharing of Rural Municipality, Municipality and district level inputs and feedback with Anukulan team at the district, regional and central level Anukulan team followed by the assimilation of their comments and suggestions.
- Review of Nepal Government's guidelines on disaster risk management and climate change adaptation with emphasis on the LAPA Framework 2067 and the draft Local disaster and climate resilience plan 2074.

PART 2: Terminology related to Climate Change Adaptation and Disaster Risk Management

2.1 Terms commonly used in climate change adaptation and disaster

Weather: Daily variation of temperature, rainfall, wind intensity and humidity etc. is termed as climate. It varies daily, weekly and monthly.

Climate: Average weather condition within a period of 30 years is climate and remains constant as per its location and season. Its parameters remain similar to weather i.e. temperature, rainfall, wind intensity, humidity etc.

Green House Gases (GHGs): GHGs are natural and anthropogenic gases which remain in the earth's atmosphere and absorb/emit radiations emitted from the earth's surface, atmosphere and clouds. There are seven kinds of GHGs: Carbon dioxide (CO₂), Methane (CH₄), Nitrous dioxide (N₂O), Hydrofluro Carbon (HFC), Perfluoro Carbon (PFC), Sulphur Hexafloride (SF₆) and Sulphur Trifluoride (SF₃).

Global Warming: Rise of atmospheric temperature as a result to the exponential increase in GHG emission is known as global warming. This phenomenon is responsible for increased heat in the earth's surface.

Climate Change: Climate alteration experienced by humans since thousands of years causing regular imbalance in the earth is known as climate change. IPCC defines climate change as the change in climate occurring within a period of 10 years or more which can be analyzed and measured to an average. Internal natural processes, external forcing and/or anthropogenic activities induce substantial change in the atmospheric structure and land use resulting to climate change.

Hazard: Potential natural and man-made disaster that can harm lives and assets is a hazard. This can include flood, landslide, fire, storms, lightening etc.

Disaster: Natural and man-made hazards which occur and outrun the resources and resilience capacity of a community causing significant damages to human, physical, financial and environmental assets.

Risk: Potential damage that can occur in the lives and livelihoods, health, assets and other goods and services in a community due to the onset of any disaster is regarded as risk.

Vulnerability: The quality or state of an individual or community of being exposed to threats and risks without adequate skills, experience, resources, tools and capacities can be defined as vulnerability. The inability to endure the adverse impacts as well as bounce back to its original state can also be regarded as vulnerability.

Vulnerability = (Exposure x Sensitivity)/ Adaptive Capacity

Kyoto Protocol: Kyoto Protocol is in international treaty adopted in 1997 in Kyoto Japan. This protocol commits the state parties to reduce their GHG emissions to 5.2% by 2012.

Clean Development Mechanism (CDM): CDM is a flexible mechanism defined in the Kyoto Protocol to implement emission reduction projects by stated in developing countries and meet Kyoto standards. Such projects include biogas, solar energy, water and wind mills, micro-hydro, plantation etc.

Mitigation: Mitigation relates to the capture/absorb of GHGs so as to check their increase in the atmosphere. Carbon sequestration by vegetation is an example of mitigation.

Adaptive capacity: The potential and capacity of an individual or community to adapt to emerging and existing impacts of climate change. Adaptation is defined as the response/adjustment to reducing climate change vulnerability.

Sensitivity: It can be defined as a degree to which an individual or a community will respond to climate change. It relates to the measurement of the type and intensity of a shock or stress can occur in the system and provides information on the relative level of required capacity.

Exposure: It is a degree of stress as a result to climate change that can affect humans, livelihood assets etc.

Hazard Mitigation: It is defined as practices carried out to reduce or limit negative impacts of disasters and risks in order to minimize potential damages. E.g. river embankment, construction of gabion walls, retaining walls in landslide prone areas etc.

NAPA: NAPA is a program of action which contains priority activities that respond to urgent and immediate needs to adapt to climate change. Developed countries have vouched to assist Least Development Countries (LDCs) for implementation of their NAPAs. Ministry of Population and Environment (MoPE) has already prepared NAPA in the case of Nepal.

LAPA: LAPA is a local level plan which contains consists of adaptation strategies for adapting to climate change, increasing adaptive capacity of the vulnerable individuals and communities against impacts of climate change. It is implemented so as to address the damages to lives and assets caused by climate induced disasters at the local level.

Early warning system (EWS): It is a system designed to timely predict the onset of natural or human induced disasters to prepare vulnerable individuals, communities and institutions for minimizing potential damages to lives and livelihoods.

Search and Rescue: It is defined as an activity of searching people who are lost or in danger during a disaster and transferring them to safer locations equipped with appropriate medical attention.

Go-Bag (Jhatpat Jhola): A kit that contains essential items such as emergency kit, medicines, light snacks, kept ready for use during an emergency situation such as earthquakes, flood, landslides etc. .

Emergency Fund: It is a fund set aside when a natural disaster destroys one's home and property. It should be made a compulsory part of an individual or community's disaster plan.

Preparedness: It is an activity performed prior to a disaster to reduce damages to livelihood assets, search and rescue of people lost and in danger and conduct relief activity in an organized and efficient manner.

Response: It is a set of decisions and activities conducted during an emergency situation to conduct search and rescue operations and reestablish normality through reconstruction and rehabilitation shortly thereafter.

Rehabilitation: It is a restoration activity shortly after a disaster to return to a normal or near normal situation. It consists of immediate repair and maintenance of damaged homes, reestablishment of social activities etc.

Reconstruction: It is a rebuilding activity after a disaster to return back to its original situation repair & maintenance or remaking of damaged homes and other infrastructure. This operation is carried out taking into consideration potential disasters that can occur in the future.

Disaster Risk Reduction (DRR): It is a systematic approach to reduce exposure and vulnerability to disaster, conduct effective land and environment management and implement effective preparedness.

Disaster Risk Management (DRM): It is a methodical approach of utilizing appropriate administrative directives, institutional mechanisms and practical skills and capacities to implement relevant strategies, policies and adaptive capacity building programs to reduce the negative effects of a disaster and minimize the risk of potential disasters.

PART 3 : Goal, Objectives and Preparation Process of a Harmonized LAPA

3.1 Needs and Rational of DRR Harmonized LAPA

Local governments across Nepal are actively engaged in addressing climate change and disaster risk management and enhancing resilience capacities. However, due to different policies, structures and mechanisms of climate change adaptation and disaster risk management has created ambiguity among officials and local government. As a result, there is increasingly a need for a DRR harmonized LAPA, unified mechanism and method. The rational and needs of DRR Harmonized LAPA as follows;

a. Common Goal of LAPA and LDRMP

Since LAPAs and LDRMPs are complementary in nature. Both plans emphasis to improve the livelihoods and resiliency of poor and vulnerable, the interventions and actions are also similar in nature and focuses to the most vulnerable people and community's needs and priorities. The preparation and implementation of a harmonized LAPA can create an enabling environment for effective and efficient program implementation and resource utilization.

b. Parallel Mechanism and Methodology

LDRMP and LAPA committees consist of similar stakeholders even though these processes are guided by different ministries. Majority of the tools such as historical timeline, seasonal calendar, livelihoods assessment and methods are similar. Likewise the target groups also same. As these mechanisms and plans (LAPA and LDRMP) exist parallel at the local level. Because of parallel mechanism and plan has created a confusion and resource competition among these mechanism. So it is realized for integration of plans and single mechanism for effective and proficient preparation and implementation of the plans.

c. Complementing Each Other

Placing similar nature of committee/mechanism for LAPA and LDRMP at local level questions the fact that these committees can be integrated into a single committee so that a One-Door policy can be implemented for efficient implementation and building a competent institution. This can ease and helpful to gather data/information process which required to formulate plan and an enabling environment for effective implementation.

d. Effectiveness and Strengths

DRR harmonized LAPA helps to create resource leverages, reduce duplication and avoid competition for implementation of the plans. The lessons from this may be important in the formulation of future policies and structures as well as project planning at the national level.

3.2 Goal and Objectives of a Harmonized LAPA

The main goal of a harmonized LAPA is to build an enabling and facilitative environment based on existing policies for implementation of disaster management and climate change adaptation at the local level. Specifically, harmonizing the process involved:

- Facilitating the harmonization of disaster risk management plans into LAPA processes in a coordinated way, and;
- Feeding grass root level lessons and experiences from the harmonized LAPA preparation process to contribute to the formulation of national policies.

3.3 Principles and Approaches of a Harmonized LAPA

Principles and approaches of the harmonized LAPA are mentioned as below:

- Acknowledge existing national LAPA Frameworks as well as other relevant policies, plans and guidelines on adaptation and disaster management
- Stakeholders engagement are ensured for Participation and involvement of all stakeholders will be ensured for sustenance effective implementation of the harmonized LAPA
- Gender and social inclusion (ethnicity and vulnerability) needs to be mainstreamed in all steps of the adaptation planning process and the implementation of disaster mitigation activities that have been identified by the rural municipality for immediate action.
- DRR harmonised LAPA preparation process needs to begin at the ward level particularly by locally elected individuals and, specifically, the ward chairperson.
- Disaster and climate change related activities identified at the rural municipality and municipality level will be prioritized and included in the harmonized LAPA.

3.4 Harmonized LAPA preparation process

The following section outlines in more detail the steps in this process.

3.4.1 Pre Plan Preparation Process

a. Training/orientation on Harmonized LAPA preparation

Harmonized LAPA Facilitators are trained on background, need, objectives, preparation and implementation process to ease field facilitation. Such trainings should be designed based on the needs and capacity of the participants and ideal size of participant for training and orientation is 20-25. An example of a training agenda is included in Annex-1.

b. Awareness/Orientation programme for stakeholders at the local level

A one day orientation programme for local stakeholders at the District, Municipality and Rural Municipality level engaged in climate change disaster management is important. This should include representatives from local NGOs and the programme and should focus on building a common understanding on climate change and disaster, mainstreaming DRR harmonized local adaptation plans into local level planning processes. It should also aim to clarify roles and responsibilities of local institutions in this process. The local government should take a leadership and play a vital role in organization and facilitation of this event which enhance their ownership. The event should be participated by 30-35 individuals with ensuring the participation of women and representatives of vulnerable groups.

Important Points for Facilitators:

Content: Orientation content should be context-based depicting local issues, photographs and activities/practices of local institutions. This will build ownership within the participants.

Ensure participation: Participants should be formally invited to the orientation. Informal visits and meetings to the institutions as applicable should supplement to ensure participation of the line authorities and participants. At least 33% of female representation should be ensured.

Logistics: Required logistics should be completed prior to the orientation event. A checklist of required activities ensures that every activity is covered. Such as hall management (multi-media, banner, cleaning), tea and snacks, meals, attendance and orientation materials.

c. Formation and Strengthening of LDCRC at Local Level

To take responsibility and leadership of planning, implementation, monitoring and coordination of DRR harmonized LAPA Local Disaster and Climate Resilience Committee will be formed and strengthened at local level. The composition and representation of the LDCRC is presented in table-1. For effective mobilization and capacity building of the committee a series of capacity building activities on climate change adaptation and disaster risk management, support in office management and leadership development training will be provided.

Table 1 Structure of Rural Municipality/Municipality Local Disaster and Climate Resilience Planning Committee

SN	Representative	Position	Remarks
1	Municipality Chief /Rural Municipality Chairperson	Chairperson	The structure of the committee can be modified as per need.
2	Deputy-chief/ Vice-chairperson	Deputy-chairperson	
3	Chief Administrative Officer	Member	
4	Ward chairpersons (all)	Member	
5	Sectoral officers from Rural Municipality and Municipality	Member	
6	Chief security personnel	Member	
7	Chief of the local Red Cross Society	Member	
8	3 representatives (at least 1 female) of local/ NGOs as nominated by Rural Municipality and Municipality	Member	
9	Locally resident disaster management experts (2) as nominated by Rural Municipality and Municipality	Member	
10	Chief/Representative of local FNCCI	Member	
11	Chief of Rural Municipality/ Municipality Disaster Management Section	Member Secretary	

Source: Draft Guideline for Harmonized LAPA Preparation, 2074

Table 2 Support for Rural Municipality/Municipality Structure

Capacity Building <ul style="list-style-type: none"> • Orientation on climate change adaptation • Awareness on GESI • Monitoring and Evaluation Processes 	Office management materials <ul style="list-style-type: none"> • Office operating materials • General furniture and sign-board • Meeting stationary
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d. Formation and Capacity building of Subcommittee and Taskforce at the local level

Based on the experience from Anukulan, the structure of the taskforce should be formed according to the guidelines outlined in Table 3. It should consist of 3-5 members, comprising of at least one member from Rural Municipality/Municipality level Local Disaster and Climate Resilience Committee in order to ensure fair representation of the disaster affected communities. The task force should be capacitated by project/ programme and equipped with early warning system, first aid kits and rescue equipment's and materials in coordination with the Local Disaster and Climate Resilience Committee and local government. Appropriate training should be provided for proper and effective use of the equipment/materials (See Box-1).

Table 3 Name of the Subcommittee/Taskforce

SN	Name of the Taskforce	Points to be considered	Duration
1	Information and Early Warning Subcommittee and Taskforce	Members with prior knowledge and experience on relevant duties/responsibilities of the concerned Subcommittee and Taskforce. Representatives from women, Dalits, Ethnic Groups, Differently-abled Groups, Climate change vulnerable as well as Disaster Prone Communities.	The members and coordinators of the Subcommittee and Taskforce will be allotted according to Disaster Management and Climate Change Coordination Committee.
2	Search and Rescue Subcommittee and Taskforce		
3	First Aid Subcommittee and Taskforce		
4	Damage and Need Assessment Subcommittee and Taskforce		
5	Livelihoods and Preparedness Subcommittee and Taskforce		

Box 1. Examples of capacity building activities for the taskforce

Orientation on various capacity building activities and roles/responsibilities of the taskforces were carried out by members of the Anukulan Project. Additionally, necessary equipment/material support was provided to ensure taskforces could function and play their roles and responsibilities effectively

Kinds of trainings/orientations:

- Early warning system (EWS)
- Search and Rescue
- First Aid
- Damage and Need Assessment
- Alternative Livelihoods Trainings

Kinds of equipment/material support

- Hand siren for EWS
- Search and Rescue materials
- First Aid Kit and Medicines
- Damage and Need Assessment Kit

3.4.2 Steps of Harmonized LAPA Preparation, Implementation, Monitoring and Evaluation

The following steps should be taken for planning, implementation and monitoring & evaluation of DRR Harmonised LAPA. In this steps, the National Framework LAPA 2011 will be considered a major guiding documents and followed all recommended tools and process. However, disaster risk reduction concept and approach will be adopted in these LAPA steps tools and method to make disaster risk sensitive.

- i. Sensitization on Climate change and Disaster Risk Reduction
- ii. Climate Vulnerability and adaptation assessment
- iii. Prioritization of adaptation options
- iv. LAPA Formulation in Harmonization with DRR
- v. LAPA Integration into planning processes
- vi. LAPA Implementation
- vii. LAPA progress assessment

i. Awareness Raising on Climate change and Disaster Risk Management

Awareness raising activities play a vital role in sharing information of the past and current impacts of climate change, expected future impacts, challenges and opportunities as well as the possible adaptation strategies that can be adopted at various levels. This can also help to ensure adequate preparation and implementation of an adaptation plan.

Objectives of awareness raising activities should include:

- Dissemination of information on the inter-linkages between climate change adaptation and disaster risk management
- Increased awareness of households, communities and elected representatives of local government on the effects of climate change, disaster risks management along with information about the strategies and measures for reducing vulnerability and adverse impacts.
- Greater level knowledge and skill to integrate climate change adaptation and disaster risk management into the local level planning process.

Points to be considered by Facilitator:

The facilitator should start the awareness activity from the ward, which should include orientation on disaster management along with climate change adaptation. While doing so, ward level mechanisms involved with disaster risk management together with women and climate vulnerable groups must be included in the orientation. This process helps to create a disaster management friendly LAPA and build ownership of the prepared LAPA. Orientation and awareness activities should include active participation of LDMCs to ensure their institutional participation.

ii Assessment of climate change vulnerability and adaptation

Climate change exposure, sensitivity and adaptive capacity of a Rural Municipality/Municipality should be assessed based on the IPCC definition of vulnerability “The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. For this purpose, methods, tools and processes as suggested by the LAPA Framework and LDCRP guideline should be adopted. In this sub steps appropriate systems (Social, Natural, and Infrastructure), technologies and measures should be identified for combating with adverse impacts of climate change so that such adaptation initiatives can be integrated in the local and national planning process. Likewise, most vulnerable communities, household and social groups within household in term of gender, age, caste etc by asking questions to local communities like: *Who are the most vulnerable based on the vulnerability assessment? Why? What kind of systems and measures can assist in reducing their vulnerability?*

a. Analysis of climate change exposure

The climate change exposure state “the nature and degree to which a system is exposed to significant climate variations.” Which means changes in frequency, extent and nature of temperature and rainfall can be defined as the exposure of the location.

Operational Definition of climate change exposure:

Variation in climatic conditions such as temperature and precipitation (rainfall, snow, hail and frost) and the quantity, frequency, magnitude and distribution of the variation is known as exposure of that location (e.g. change in average temperature, rainfall time, quantity and pattern).

a.1. Historical Timeline

The purpose of a historical timeline is to trigger discussions among community members and help to identify the chronological order of climatic and weather events and their impacts at the local level. It should also spark conversations on the adaptation strategies that people have adopted against these events. This can help in the assessment and collection of information on past disasters, extent of damages, impacts & effects of climate change and the response of local government and institutions to cope with disaster. Additionally, this tool can be helpful to identify the impact on livelihoods assets (i.e. physical, social, financial, human and natural) and can be useful to plan future disaster management and climate change adaptation activities as it gives an account of any recurring events and how they were managed. As part of this method, it is also important to analyze the individual impacts of the events on socially excluded groups and marginalized groups such as People with Disability (PWD), women, children and elderly. Particular assistance provided to such groups should also be recorded.

Table 4 Format of Historical Timeline

Disaster	Year	Damage/Impact					Affected ward/ place	Combating measures
		Physical	Social	Financial	Human	Natural		
Flood								

Points to be considered by Facilitator while facilitating Historical Timeline

- Document climate change events within a period of 30 years. Collect information on the damages (physical, social, financial, human and natural) caused by hazard in different years. Cross validate with village elders and key persons.
- Mention the impacts of such events based on the 6 sectors as distinguished by NAPA (Agriculture and Food Security, Forest and Biodiversity, Public Health, Water sources and Energy, Infrastructure)
- Record any positive impacts (if any)
- Document particular impacts on women and their combating measures
- Document actions/measures undertaken to combat the impacts of Hazards
- Present the above mentioned details in a tabular form in a concise manner:
 - Major events/hazards
 - Reoccurrence of events/hazards
 - Events with major damages/impacts
 - Events with comparatively higher impacts on males and/or females
 - Events relatively small scaled and reoccurring annually

Events should include any major environmental and disaster events that significantly impacted community members.

a.2. Seasonal Calendar

The seasonal calendar will help to analyze any climatic changes and their impacts within a period of 30 years. This should be done at the VDC/Municipality-level. Facilitation of this process should involve evoking local experiences, personal learning and realization during community discussions.

Once complete, the calendar will provide information on the variation in timing and patterns of cropping as a result of any changes to local climate conditions. It assesses the variation in temperature, rainfall, crop cycle, diseases and pests, flowering and fruiting as well as behavioral changes in the fauna & fauna within the past 30 years and current stage (within 5 years).

Considerations for the facilitator:

- Timing, quantity, extent of variation in precipitation (frost, snow, rainfall, etc.) at the local level should be analyzed.
- Any changes in the warmer and cooler days of the year over the last 30 years should be recorded (this includes any variation in the length, intensity and impact of events)
- Past, present and future patterns need to be analyzed using GIS technology and results should be triangulated with local perceptions.
- As patterns can vary towards the beginning and the end of a single month, the analysis can be carried out on weekly or fortnightly as well.
- Variation and frequency events such as floods, storms, hail, and drought that have occurred in the Rural Municipality/Municipality should be recorded.
- Variation in livelihood strategies (planting and harvesting of crops) and in crop cycles may also indicate severity of impact and should be recorded.

Table 5 provides an example of how information for the seasonal calendar can be collected.

Table 5 Seasonal Calendar Form

Details	Time	Baisakh	Jestha	Asadh	Shrawan	Bhadra	Asoj	Kartik	Mangsir	Poush	Magh	Falgun	Chaitra	Remarks
Precipitation														
Monsoon rains	Previously													
	Now													
Winter rains	Previously													
	Now													
Snow	Previously													
	Now													
Temperature														
Summer days	Previously													
	Now													

Details	Time	Baisakh	Jestha	Asadh	Shrawan	Bhadra	Asoj	Kartik	Mangsir	Poush	Magh	Falgun	Chaitra	Remarks
Winter days	Previously													
	Now													
Cropping														
Maize harvest- ing time	Previously													
	Now													
Disasters														
Floods	Previously													
	Now													

a.3 Pair-wise Ranking

The historical timeline gives an account of the different disasters that have occurred at the local level. Pair-wise ranking is necessary for assessing the level of impact, frequency and severe of occurrence of disasters at the ward or local level. This method supports to prioritize the hazards/ disaster based on the information of impacts level, frequency and severe. Tables 6 and 7 provide examples of how to conduct pair-wise ranking.

To clarify, in table 6, disasters should be recorded in the horizontal and vertical cells. Number of cells should correspond to the number of disasters identified from the timeline. Furthermore, comparison horizontal and vertical of disasters according to pairwise ranking table in consideration of the level of impacts. The outcome of each ward should be tabulated in line with table 6. The table 6 provide ward level ranking of disaster. Furthermore the top rank of ward level disaster will be analysed by using pair-wise ranking again (see table-7) to identify the most impactful disaster/ hazards at local government.

Table 6. Pair-wise ranking of disasters (Ward Level)

Ward-wise disaster ranking	Disaster					
	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6
1 st	Flood	Flood	Flood	Flood	Flood	Flood
2 nd	Coldwave	Coldwave	Coldwave	Drought	Coldwave	Drought
3 rd						
4 th						
5 th						

Note: Ranking should be done according to the no of wards in the Rural Municipality/ Municipality

Table 7 Format of Pairwise Ranking of Disasters at the Rural Municipality/ Municipality

Disasters	1	2	3	4	5	6	7	8	9
1									
2									
3									
4									
5									
6									
7									
8									
9									
Total									

Criteria for Pair-wise ranking

- Type and level of disaster (to be determined by damages, area of impact and population affected)
- Frequency and probable recurrence
- Damage level due to intensity and distribution of Hazards across local government

Considerations for facilitators:

Disasters identified from the timeline should be recorded per ward. Participants should be free to discuss and prioritize major disasters. It is recommended to remind participants that they should consider the frequency, level of damages impact/effect of the disasters.

b. Climate change sensitivity assessments

IPCC defines sensitivity as the positive or adverse impacts of climate change posed on social, financial, biological and physical aspects of an individual or a community. It is the effect of any variation in temperature and precipitation on natural and human systems. For instance, irregular/ erratic rainfall that affects rain-fed agriculture can impair agri-based livelihoods. This implies that agricultural systems are sensitive to climate change. Climate induced disasters and their recurrence exhibits positive and negative effects on different sectors and in different contexts. For instance, events that lead to a reduction in agriculture production or forest biodiversity loss/gain are an indication of climate change sensitivity. Other examples are presented in Table 8.

Table 8. Indicators of climate change sensitivity

Disaster	Agriculture and Food Security	Forest and Biodiversity	Infrastructure	Water sources and Energy	Public Health
Recurrence of Disaster	<ul style="list-style-type: none"> • Low productivity • Species specific reduction in productivity 	<ul style="list-style-type: none"> • Decrease in forest area • Emergence of new species and disappearance of existing species 	<ul style="list-style-type: none"> • Decrease in physical infrastructures • Migration 	<ul style="list-style-type: none"> • Water unavailability • Reduced water flow affecting hydro-powers generation 	<ul style="list-style-type: none"> • Emergence of new diseases • Spread of pests and waterborne diseases

a. Participatory resource and hazard mapping

Mapping of resources and hazards with a community can provide a picture of various resources and disaster prone areas that can also help in identifying the vulnerability and adaptive capacity of different communities. Such mapping should be conducted in participatory way with direct involvement of local government representatives, communities and other key informants. Resulting maps should depict the location of the community and nearby natural resources such as rivers, springs ponds, agricultural area, drinking water sources, forests, physical infrastructure (e.g. road network, electricity, community buildings, irrigation), and social institutions (e.g. schools, health centers, service centers, rural municipality/ municipality buildings, social groups, safe locations or potential safe locations).

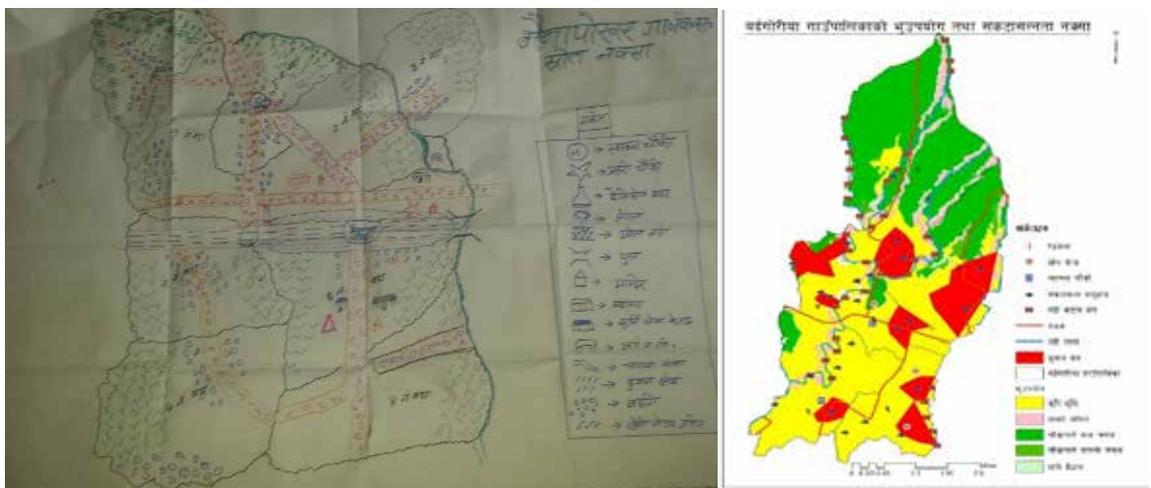
The objectives of disaster and resource mapping are:

- To assist in identifying resources and their effective mobilization
- To ease the identification of safe locations during a disaster

Participatory resource and hazard mapping will be done in participation of the local community.

Figure 1 provides an example of what a resource and hazard mapping may look like.

Figure 1. Participatory resources and hazard map, Mainapokhari, Bardiya



Points to be considered by Facilitator

- Maps should be done to point North and facilitation should begin with the mapping of boundaries and roads,
- Participants should be asked to prepare a map exhibiting physical and natural resources which are critical to secure their livelihoods.
- Natural resources include forest, meadows/pastures, water, minerals, lowland, cliffs, lopes etc.
- Physical resources include trails, road, bridge, drinking water tap, settlement, Mobil network, media (communication), electricity, etc.
- Social resources include temples, monasteries, mosques, churches, mother groups, forest user groups, etc.
- Financial resources include markets, financial institutions such as banks, cooperatives, micro-finance, vegetable collection centers, etc.
- Human resources include schools, health facilities, literacy centers, etc.
- The map should clearly show and provide an information of the past (prior 30 years) and the present (within 5 years) conditions.
- During the mapping exercise, it is also useful to encourage discussions on the sufficiency of different resources. This should include discussions on the state of access and control, different kinds of goods and services that can be attained and whether the supply is satisfactory or not.
- Participants should be asked to prioritize the identified resources.
- Information collected from participants should be triangulated from ArcGIS Map along with Google/base maps, where available.

b. Sectoral Impacts (Past, current and future projection)

During this step, discussion will be carried out between local community and its gatekeepers, sectoral line agency personnel, target groups and other stakeholders on the state of hazards in the past (30 years ago), of present and future in the NAPA identified sectors. Participation of informants having knowledge of details 30 years ago should be assured during this exercise. It is essential that such impacts be analyzed for each sector.

Table 9. Example format of sector impacts (past, present and future)

SN	Sector	30 years ago	Impacts faced at present	Future estimation
1	Agriculture and food security	<ul style="list-style-type: none">• Abundant livestock, conventional farming practiced• Farming of local varieties• Good soil productivity	<ul style="list-style-type: none">• Introduction of modern agriculture• Reduction in number of livestock• Increasing trend of commercial agriculture• Reducing state of soil productivity	<ul style="list-style-type: none">• Commercial agriculture will be established, Construction of collection centers• Improved varieties of livestock will be introduced• Improved wildlife diversity• Reduced soil productivity• Dominant use of hybrid seeds

SN	Sector	30 years ago	Impacts faced at present	Future estimation
2.	Water sources and energy	<ul style="list-style-type: none"> Abundant water sources Use of biofuels (firewood) Use of kerosene lamps 	<ul style="list-style-type: none"> Reduced water availability, Movement towards alternative energy Awareness increase for use of solar energy, improved cooking stoves (ICS) and electricity Electricity and solar power installation increased 	<ul style="list-style-type: none"> Water scarcity will prevail Increase of alternative energy Increased hydropower generation

b.3. Mapping and assessment of ecological vulnerability

This tool was used to understand the impact of climate change in ecosystem especially water, forest and agriculture. This step involve discussion with local community and stakeholders to identify climate change impacts on ecology of forest and biodiversity, agriculture and water resources and to analyze potential adaptive strategies. Further, risks and hazards should be prioritized as high, medium and low, based on the analysis needs to be done for the change in the supply of forest, agriculture and water based goods and services.

It involves the assessment of change in supply of forest condition and biodiversity (species variety, forest services (soil and water conservation) and goods (forest products supply) due to variation in temperature and precipitation. Discussion should also revolve around the potential scenario in the future if such conditions continue. Disaster with the highest impact on forest and biodiversity should also be identified.

Table 10 Vulnerability assessment of forest and biodiversity

SN	Disaster	Alteration of forest species (1-3)	Alteration in Wildlife (1-3)	Forest Condition / Quality (1-3)	Connectivity	Change in ecological services	Total
1	Flood						
2	Storms						
3	Drought						
4	Coldwave						
5	Fire						
6	Invasive species						
7	Hail						
	Average						

While assessing the impacts of disasters brought about by variation in temperature and rainfall on agricultural systems, it is vital to evaluate the changes in cropping system, change in organisms and insects found in agricultural land, productivity and goods and services from agro-ecological systems. Table 9 presents an example of the assessment.

Table 11 Vulnerability assessment of agricultural systems

SN	Disaster	Alteration of cropping system (1-3)	Alteration in soil organisms (1-3)	Quality of agricultural productivity (1-3)	Change in agro-ecological services (1-3)	Total
1	Flood					
2	Storms					
3	Drought					
4	Coldwave					
5	Fire					
6	Diseases/pests					
7	Hail					
	Average					

Similarly, impacts and potential risks from climate change on water systems and water biodiversity can also be identified, assessed and categorized with the help of this method.

Table 12 Vulnerability assessment of ecology of water systems

SN	Disaster and potential risks	Alteration aquatic species	Alteration in aquatic organisms	Water condition/quality	Change in aquatic ecological services	Total
1	Flood					
2	Storms					
3	Drought					
4	Coldwave					
5	Fire					
	Average					

The afore-mentioned assessments and their scores are used for distinguishing the most sensitive and vulnerable systems.

b.4 Assessment of hazards and adaptation

Assessment of exposure and sensitivity provides the level of potential hazards and scoring of strategies and capacities maintained at the local level, which is beneficial in identifying future strategies. This also provides the community an opportunity to ponder upon existing hazards and status of adaptation initiatives and a chance to strategize for the future. Force Field Analysis is conducted to analyze the status of hazards and adaptive capacity of the community in a pictorial format by utilizing the scores achieved from Table 11:

Table 13 Scoring of risks and hazards and adaptation initiatives

SN	Risk/Hazard	Sector affected	Impacts	Score	Adaptation initiatives	Score
1	Flood	Agriculture, Physical infrastructure, Forest and Biodiversity, Water sources and Energy	Reduced rice production, Flooded settlements, differently abled people affected	2	<ul style="list-style-type: none"> Plantation of bamboo and Salix Food storage in higher places 	1
2	Diseases and Pests (Agri- and livestock)	Agriculture and Food security	Reduced productivity mainly in potatoes, rice, and maize. Infestation of parasites (roundworm and tapeworm) in livestock	3.5	<ul style="list-style-type: none"> Usage of chemical fertilizers and pesticides/ insecticides IPM initiated in Rural Municipality land 	1.5

Table 13 analyses the level of impacts from risks and hazards against the adaptive capacity to combat with the adverse impact by the community. The findings are presented in the Force Field Analysis (FFA) pictorially. Picture 2 gives an example of such FFA.

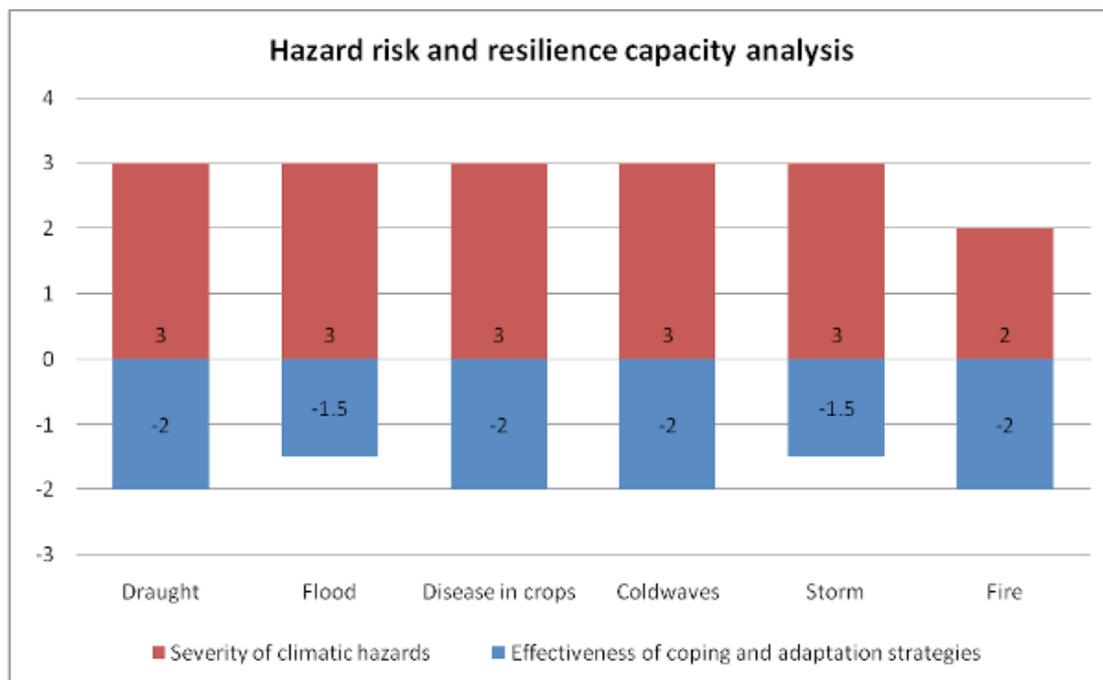


Figure 2 Force Field Analysis

c Assessment of adaptive capacity

The ability of an individual or a community to cope or manage a change in climatic condition is termed as adaptive capacity. It consists of a definite sets of knowledge, skills, physical capability, access to information and services etc. It can also be understood as the ability to mobilize the existing resources, services, capacities, knowledge, skills and techniques to adapt against the impacts of climate variability. If a community possesses diverse livelihood strategies, they are meant to have higher level of adaptive capacities.

Assessment of livelihood assets along with Institutional Mapping and Service providers' analysis are LAPA tools employed to identify adaptive capacity, which provides detailed information regarding the disaster and relevant institutions engaged. As a result, information on prevalent adaptive capacity of the community and the state of service providers are gathered, which eases the adaptation plan preparation process.

c.1 Assessment of Livelihood Assets

It involves a qualitative and quantitative analysis of livelihood assets in a participatory manner by taking into account status and quality of existing resources at the local level. It should encompass assessment on goods and services generated from each livelihood asset, quality and location of such resources. The deduced information provides information on impacts of climate change and disaster risks on existing assets and their flow in the future, which further supports the vulnerability and adaptation analysis.

Table 14 Livelihood Assessment Format

Livelihood assets and resources	Status	Service Flow and other relevant information
Natural (forests, pastures/meadows, water, soil, land etc)		
Physical (road, electricity, communication, energy, bridge, community building)		
Social (institutions, farmers' groups, groups and networks)		
Financial (market, cooperative, bank, crop insurance)		
Human (skill, art, employment, education, literacy)		

Points to be considered by Facilitator for resource analysis and checklist for resource analysis:

Human resource:

- Population and number of households
- Population of children, elderly, people with disability, women
- Education and literacy status
- Awareness level regarding climate change, its impacts and need for adaptation

Physical resource:

- Enduring capacities of the existing structures to climate induced disasters
- Types of services provided by electricity, communication and others
- Potential post disaster safer locations

Natural resource:

- Trend of natural resources supply, self-sufficiency and community access and control over natural resources during the past 30 years
- Status, availability, quality and productivity potential of forest, land, water, mineral etc
- Rights of the community for resource access and potential resource conflicts

Financial resource:

- Types of livelihoods sources and major sources of income
- Range of incomes and average annual income of a family
- Types of financial institutions and access of the community to such financial services
- Existing remittance and crop and livestock insurance options

Social resource:

- Institutions involved in the welfare of elderly, adolescents, children and women
- Number, types, scope, services and accessibility of social institutions
- Names and roles played by various institutions during disaster

c.3. Institutional mapping and assessment of service providers

This involves mapping of various institutions and organizations involved in climate change and disaster risk management at the rural municipality and municipality. It is very helpful in assessing types of organizations, nature and scope of their work, coordination level with relevant line agencies for adopting an integrative approach to prepare and implement a comprehensive adaptation plan at the local level. The following table can be used to gather information for the purpose of this activity:

Table 15 Institutional Information Collection Format

Name and address of the organization	Service sector/area
Rural Municipality/ Municipality	
District Coordination Committee	
CDO, DDRC	
Private sector	
Security establishment	
NGOs , Programmes	
Local bodies and Cooperatives	
Local Disaster and Climate Change Enhancement Committee	

d. Vulnerability Assessment

Pair-wise ranking is performed amongst wards based on the findings of exposure, sensitivity and adaptive capacity assessments. Further, household vulnerability assessment is performed based on status of financial, physical, social, human and natural resources, household location and their adaptive capacity followed by household categorization into very high, high, medium and low categories.

d.1 Identification of vulnerable settlements and vulnerability assessment

It can be difficult to give a correct assessment of vulnerability in an individual in case of big rural municipality and municipality. Therefore, households should be categorized based on the disasters recurring in the area, which should then be followed by vulnerability assessment of the vulnerable settlements in all wards of the rural municipality/municipality.

Table 16 Format of Livelihoods Assessment

Ward	Name of Vulnerable Settlement	Major hazards	Details of affected household						
			Gender		Vulnerable HHs				
			Female	Male	Total HHs	Low	Medium	High	Very high
1									
2									
3									
4									

As all the vulnerable settlements are, their locations should be depicted in a GIS map. It should be followed by participatory discussions and analysis of secondary information for prioritizing vulnerable settlements based on their exposure, adaptive capacity and sensitivity. This further adds on to the collective effort in preparedness of vulnerable settlements against disasters and climate change.

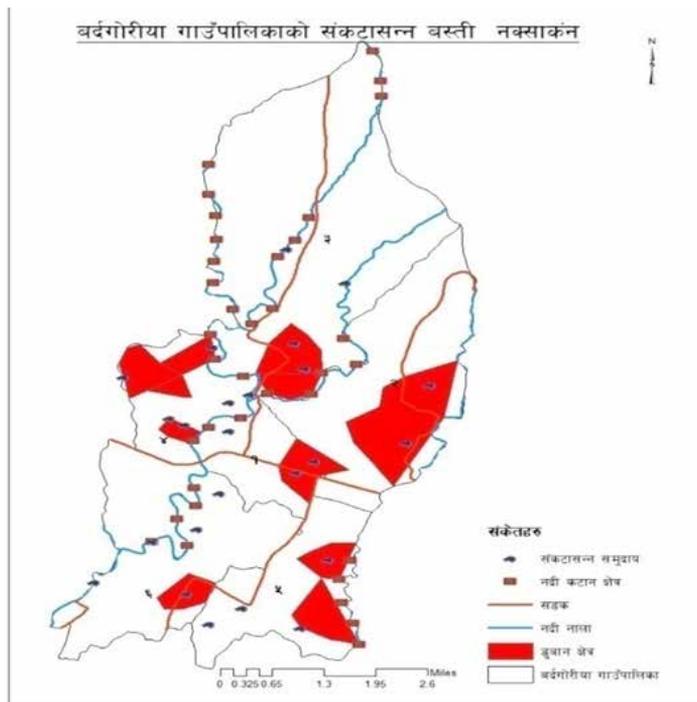


Figure 3 Map of vulnerable settlements from Bardagoriya Rural Municipality

Table 17 Conclusion from Identification of Vulnerable Settlements

Ward Vulnerability	1		2			3			4			5				6							
	Kattipur	Bauniyabajaar	Kumbhiya	Dodhara	Butkauwa	Jhala	Ranikunda	Jareithada	Purbamuktitol	Pureinatal	Tallo Mukti shibir	Mudabajaar	Dodharpur/Sundarpur	Nimabojhi	Beluwa	Thakurwar	Charaahi	Purba bhuruwa	Raniban	Sugarkhaal	Baaskoti	Tulsipur	Rajipur
HHs	700	250	500	140	300	50	300	25	300	400	135	150	365	400	250	40	85	20	30	130	26		60
Very High									✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
High	✓								✓	✓	✓	✓											
Medium		✓		✓	✓		✓																
Low	=		✓			✓		✓															

The settlements were thus categorized as Very High, High, Medium and Low vulnerability based on the recurrence of disasters in the vulnerable wards.

d.2 Ward-wise vulnerability assessment

Vulnerability assessment of wards should be based on their exposure, sensitivity and adaptive capacity. As adaptive capacity, exposure and sensitivity varies with the geographical locations and micro climate of the wards in a Rural Municipality or Municipality, following criteria should be referred to identify vulnerable areas. However, criteria can be devised according to the specifics of an area.

Table 18 Vulnerability indicators for wardlevel categorization

Area and basis for categorization	Vulnerability indicators
Adaptive capacity	<ul style="list-style-type: none"> • Public services such as road, communication and information, sanitation, access to healthcare, drinking water, access to irrigation and electricity • Safer locations and evacuation routes • Availability of relief material • Access to financial services (insurances) • Literacy, knowledge and skills about climate change and disaster risk management • Access to early warning system networks • Goods and services from natural resources such as forest and land resource
Climate exposure	<ul style="list-style-type: none"> • Erratic rainfall and precipitation (hail, dew, snow and frost) • Temperature variations • Extreme weather events- frequency, distribution and intensity of hazards occurrences
Sensitivity	<ul style="list-style-type: none"> • Positive and negative impacts of climate change in agriculture and food security, forest and biodiversity, water sources and energy, human health and infrastructure • Disasters and their frequency

Table 19 Wardlevel categorization of Vulnerability

Ward No	1	2	3	4	5	6	7	8	9
1									
2									
3									
4									
5									
6									
7									
8									
9									
Total									

d.4. Vulnerability assessment of households

It is very important to assess the vulnerability of households to climate change and categorize accordingly into very high, high, medium and low categories. Household categorization is carried out based on the type, quantity, quality and locations of livelihood capitals (financial, social, human, natural and physical). Facilitators should consider past disasters occurred and damages.

Table 20 Basis for household level vulnerability assessment

Livelihood capital	Basis for Categorization	Disaster
Social	<ul style="list-style-type: none"> Engagement with social groups and institutions Neighbors and relatives 	<ul style="list-style-type: none"> Potential help/assistance that can be received during a disaster and its aftermath
Human	<ul style="list-style-type: none"> Literacy, knowledge about climate change Family health condition, access to quality health services 	<ul style="list-style-type: none"> Access to Early Warning System
Natural	<ul style="list-style-type: none"> Extent, quality and location of farmland Access to public goods and services such as forest, water and medicinal plants and their quality 	
Physical	<ul style="list-style-type: none"> Housing type and its location Amount of and access to fixed asset (Gold, silver) Access to market, road network and communication/information system and its quality 	<ul style="list-style-type: none"> Nearby landslide prone area, gully, gorge etc
Financial	<ul style="list-style-type: none"> Access to financial services (saving, credit, insurance and remittance) Income sources 	

Following table is for the information for use during local adaptation plan preparation. Various graphs can be used for easy interpretation of the information and presented in LAPA.

Table 21 Categorization of Vulnerability

Ward No	Highly Vulnerable (V4)	Highly Vulnerable (V3)	Medium Vulnerable (V2)	Low Vulnerable (V1)	Total
1					
2					
3					
4					
5					
6					
7					
8					
9					
Total					

iii. Prioritization and selection of adaptation opportunities

The prime objective of this guideline is to prepare adaptation plan that will be integrated in the planning process of a Rural Municipality or Municipality. Hence, ward level vulnerability and adaptation assessment is conducted. Prioritization is carried out based on a multiple criteria protocol such as effectiveness, potentiality, economic, gender responsible and target group oriented. Prioritization is then performed by categorizing according to level of resilience to disasters (high, medium and low) and scoring accordingly. Higher scores demonstrate higher priority and vice versa. Eventually, the adaptation interventions are designed based on prioritization. This procedure calls for a participatory approach for identification of selection criteria. Discussions should be led on identifying climate change and disaster reduction measures in the community and activities for incorporating in the harmonized LAPA.

Table 22 Prioritization of adaptation strategies

Disaster	Adaptation interventions	Effectiveness (1-3) A	Economical (1-3) B	Potentiality (1-3) C	Target Group (1-3) D	Gender sensitive (1-3) E	Total (A+B+C+D+E)	Remarks (Prioritization)
Flood	Embankment							
	Water outlet system (Sewage)							
	Training and materials for relief activity							
	Emergency Fund establishment							
Diseases and Pests in crops and live-stock	Vaccines for livestock							
	Shed improvement							
	Off-season vegetable production training and support							
	IPM Training							
	Seeds storage building							
	Training on changing crop calendar							
	Training on home-garden/ kitchen garden							
	Awareness about crop insurance							
	Crop calendar exhibition							
	Vegetable collection centers							
Awareness about seeds, seedlings, pesticides and fertilizer use								

Disaster	Adaptation interventions	Effectiveness (1-3) A	Economical (1-3) B	Potentiality (1-3) C	Target Group (1-3) D	Gender sensitive (1-3) E	Total (A+B+C+D+E)	Remarks (Prioritization)
Drought	Boring installation							
	Training on drip irrigation							
	Plantation							
	Sunflower pump							
	Improved canal							
	Recharge pond							

Suggestions to the Facilitator

Ample examples should be provided for identifying potential adaptation strategies. Facilitators should stay informed about different technologies that address to the impacts of climate change such as rain water harvesting, drip irrigation, multiple use of water (MUS), plastic ponds, alternative energy (improved cooking stoves, biogas), agri-crop diversification, IPM, conservation agriculture, tunnel farming, solar pump etc. Occasionally discussion regarding prioritization can go off the topic, facilitators during those moment should divert the discussion wisely. A common understanding should be reached in cases of equal scores. Facilitators should never score and prioritize the interventions themselves; they should only facilitate the process.

iv Formulation of Harmonized LAPA

Harmonized LAPA formulation process involves integration of finding from awareness/sensitization, vulnerability assessment and assessment of adaptive capacity at the ward after it has been shared and discussed upon during Rural Municipality/ Municipality level LAPA preparation workshop. The workshop will be actively attended by Local Disaster and Climate Change Enhancement Committee, where they will discuss on the various impacts of climate impacts and disaster risk reduction and management before finalizing the harmonized LAPA process. Adaptation interventions will be prioritized based on the climate change impacts, disaster, its sectoral impact and reduction measures. Adaptation interventions which include activities that can be implemented prior to, during and post climate change and disasters will be included in the harmonized LAPA. Effectiveness of the prioritized interventions by considering questions regarding type, timing, mode, method and venue for implementation.

river and rainfall monitoring units and vulnerable communities

vi. LAPA Implementation

Local Disaster and Climate Change Enhancement Committee plays a vital role in effective implementation and coordination of LAPA after endorsement by Rural Municipality/Municipality. Interventions will be carried forward in the field by working groups, institutions, clubs and user groups present in the community. Activities related to infrastructure development will proceed after cost estimation by relevant technicians as required. Local facilitators can be mobilized for harmonized LAPA implementation and will be involved in social mobilization and implementation facilitation activities. Services of Rural Municipality and Municipality level organizations will be purchased for mobilization and management of the local facilitators with regular backstopping from national level organizations specializing in climate change and disaster risk management. Rural Municipality/ Municipality level multi-stakeholder mechanisms will exercise on acquiring assistance from other stakeholders. Budgeting, contracting and agreements between user committees and groups as well as clubs will be completed prior to LAPA implementation. Transparency will be maintained on income and expenditure heads as well as other records. Feedback from beneficiaries and relevant stakeholders will be collected and incorporated to ensure effectiveness of harmonized LAPA implementation.

vii LAPA Progress Assessment

The Monitoring and Evaluation Committee at the Rural Municipality/Municipality level will be mobilized for collection of information and progress assessment of harmonized LAPA. Regular monitoring will be done of the activities under implementation. Annual planning and review workshops will be conducted in participation of all the stakeholders.

On site evaluation will be organized by local stakeholder mechanism to ensure excellent quality of LAPA implementation. Review workshop and on-site evaluation of LAPA implementation provides valuable learning and experience, which should be shared during various district level interactions between relevant mechanisms. This ensures effectiveness of LAPA implementation as well as conducts periodic health check for possible modification of adaptation interventions as required.

PART 4 : Post harmonized LAPA preparation activities for integrating disaster risk management

Following tasks need to be completed post LAPA preparation, which can reduce confusion between LDRMP and harmonized LAPA and assist in creating a harmonized LAPA in the true sense.

4.1 Orientation and discussion LAPA with LDMC

Participation of LDMC representatives should also be encouraged throughout the LAPA preparation process. They should be oriented on types of disaster risk management activities that have/have not been incorporated in LAPA, distribution of responsibilities for those activities as well as appropriate placement of such activities in one of the plans. This helps in reducing redundancy and confusion in activity implementation as well as ensures effectiveness.

4.2 Orientation and capacity building of disaster related taskforces

It is essential to orient various disaster related taskforces on harmonized LAPA. Additionally, capacity building activities should be organized for such taskforces, to ensure their active existence and effectiveness.

Annexes

Annex-1: Roles, Responsibilities and Authorities of Local Disaster and Climate Resilience Planning Committee

Planning Committee

- Facilitate in identifying vulnerable community and location during the LAPA preparation process in the presence of local stakeholders
- Identify necessary interventions upon identification of climate change impacts on the local community
- Identify and prioritize local adaptation and disaster management activities and facilitate their integration in LAPA
- Facilitate and/or exercise on mainstreaming of LAPA
- Communicate with stakeholders for collaboration and coordination to effectively implement LAPA
- Review selection, implementation and progress evaluation of local level activities and provide essential feedback and suggestions to concerned line agencies
- Play a significant role in building coordination between the project, service providers and local community
- Evaluate LAPA implementation progress at the local level and provide feedback accordingly
- Conduct necessary actions at the local level for implementing LAPA implementation

Annex-2: Roles, Responsibilities and Authorities of Taskforces/ Subcommittees and Subcommittees

a. Preparedness and Relief

1. Information and Early Warning System Taskforce		
Prior to disaster	During a disaster	Post disaster
<ul style="list-style-type: none"> • Collect prior information and warnings from media and other relevant sources • Coordinate with DCC, Rural Municipality/ Municipality and Water-induced Disaster Control Division Office for establishing an Early Warning System (EWS) • Protect the established EWS • Provide accurate disaster related information to relevant stakeholders • Conduct regular community level discussions and submit reports to LDMC • Share information with media, journalists and their networks • Collect appropriate information materials for climate change adaptation and disaster risk management and share with the community • Prepare and provide all taskforce members with a list of emergency telephone numbers • Collect sensitization/awareness materials from districts and center and conduct related campaigns 	<ul style="list-style-type: none"> • Provide Search and Rescue Taskforce information about the disaster first and foremost • Provide such information to security establishments such as local police, district police, Nepal army, Nepal Red Cross Society, Rural Municipality/ Municipality, DCC and DDRC for gathering collective assistance • Provide disaster information to DCC and DDRC through LDMC • Inform media and journalists about disaster 	<ul style="list-style-type: none"> • Gather information regarding damage status and measures undertaken by Damage Assessment Taskforce • Assess post disaster impacts on lives and additional vulnerability created after a disaster • Continue preparedness activity based on the impacts posed on local lives and livelihoods
2. Search and Rescue Taskforce		
<ul style="list-style-type: none"> • Identify safer locations/evacuations sites • Coordinate and receive rescue assistance from local police, Nepal army, DDRC • Coordinate with Nepal Red Cross Society for rescue operations • Maintain a contact list of community members, who can be potential rescue workers • Coordinate with NGOs, Nepal Red Cross, police and army for search and rescue trainings to rescue workers 	<ul style="list-style-type: none"> • Stay alert for search and rescue during disaster occurring seasons • Evacuate most vulnerable families based on the information provided by Information and EWS Taskforce • Protect and rescue assets and livestock of such families • Prepare and share a roster of women, elderly, pregnant and new mothers with the main committee and keep them under highest priority for evacuation 	<ul style="list-style-type: none"> • Prepare and provide main committee with a list of evacuees, their assets and livestock • Prepare and provide a list of disappeared or dead people and domestic animals to security forces and Rural Municipality/ Municipality through the main committee • Return rescue materials to their respective locations

1. Information and Early Warning System Taskforce		
Prior to disaster	During a disaster	Post disaster
3. First Aid, Health and Sanitation Taskforce		
<ul style="list-style-type: none"> • Maintain a complete First Aid kit • Assure expiration dates of medical supplies and replace expired ones • Demand essential medical supplies from local health posts • Maintain up-to-date ambulance (if applicable) service and ready for disposal during a disaster • Create health and sanitation awareness among the general public by organizing campaigns about epidemics and health issues prior to and post disaster • Ask for support of District Public Health Office and other related organizations about sensitization/awareness activities • Orient volunteers on disaster and post disaster epidemics 	<ul style="list-style-type: none"> • Visit affected areas along with rescue team for providing medical assistance to the hurt • Provide first aid and send them to secondary medical facilities as per need 	<ul style="list-style-type: none"> • Dispose garbage accumulated after a disaster • Conduct regular sanitation and hygiene in evacuation sites • Stay alert for post disaster epidemics and report timely information to the relevant agency • Increase awareness about health and sanitation
4. Damage and Need Assessment Taskforce		
<p><u>Damage Assessment</u></p> <ul style="list-style-type: none"> • Estimate and assess potential damages prior to a disaster • Prepare a potential damage assessment format • Train volunteers on damage assessment • Keep volunteers ready for any potential damage assessment 	<ul style="list-style-type: none"> • Identify assistance needs after assessing the damages caused • Ask assistance of concerned organizations through Local Disaster and Climate Change Enhancement Committee 	<ul style="list-style-type: none"> • Collect information for in-depth damage assessment • Evaluate the actions undertaken for future improvement

1. Information and Early Warning System Taskforce		
Prior to disaster	During a disaster	Post disaster
5. Livelihoods and Preparedness Taskforce		
<ul style="list-style-type: none"> • Identify and conduct livelihood and income generating options (e.g. vegetable farming, cultivation of medicinal plants, entrepreneurship etc) for vulnerable groups, provide marketing support for ensuring sustainability • Reduce livelihood vulnerability by identifying resources for alternative livelihood options • Establish an emergency fund and mobilize it for preparedness • Coordinate with Local Disaster and Climate Change Enhancement Committee for maintaining an up-to-date LAPA • Coordinate with Local Disaster and Climate Change Enhancement Committee concerned stakeholders and seek their assistance in building capacities of Subcommittees and Taskforces. 	<ul style="list-style-type: none"> • Protect and relocate livelihoods interventions to safer areas based on the information from Information and EWS Taskforce • Mobilize Emergency Fund based on the extent of damage and need 	<ul style="list-style-type: none"> • Regain and continue livelihood and income generating activities • Identify interventions from LAPA for implementation and identify and include new activities in LAPA for future implementation • Audit the expenses from the Emergency Fund and increase it for potential disasters in the future

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