Climate Resilience Alliance

MERCY CORPS

BUDGET TRACKING AND ANALYSIS OF INVESTMENT IN CLIMATE CHANGE ADAPTATION (CCA) AND DISASTER RISK REDUCTION AND MANAGEMENT (DRRM) IN SUDURPASCHIM AND MADHESH PROVINCE OF NEPAL

A CASE STUDY

Oxford Policy Management

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PREFACE

Over the past decade, important strides have been made in institutionalizing budget tracking mechanisms in Nepal. Tools like the Climate Change Budget Code and the Sub-National Treasury Regulatory Application (SuTRA) represent significant progress toward improving transparency and prioritizing climate-sensitive expenditures. However, our experience on the ground reveals persistent gaps in how funds are allocated, utilized, and monitored, particularly at the provincial and local levels where climate and disaster risks are most deeply felt.

Led by Mercy Corps Nepal and commissioned under the Zurich Flood Resilience Alliance with support from Oxford Policy Management, Aasaman Nepal, and NEEDS Nepal, this study is a vital step toward demystifying how public finances flow, or fail to flow, into climate adaptation and disaster risk reduction efforts at the subnational level. It challenges assumptions, scrutinizes gaps, and draws attention to two pivotal yet overlooked drivers of impact: the growing influence of the private sector and innovative financing models.

It is in this context that this report gains significance. The findings inform actionable steps for federal ministries to reform fiscal transfer mechanisms, enables provincial agencies to align development planning with climate risk data, and guides local governments to institutionalize participatory, risk-informed budgeting practices. It also speaks directly to donors, investors, and private sector actors, calling for coordinated investments that are inclusive, scalable, and contextually grounded.

As we navigate this critical decade of climate action, this report emerges not merely as a technical exercise, but as a foundational tool for transformative adaptation. It is our collective responsibility to ensure that the findings here do not remain on paper, but translate into policies, projects, and partnerships that bring resilience to life.

Let this be both a mirror and a roadmap.

Suraj Sigdel
Country Director
Mercy Corps Nepal

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LIST OF ABBREVIATIONS

ADB	Asian Development Bank
AF	Adaptation Fund
AFS	Agriculture and Food Security
BSO	Breeding Seed Orchards
C-ARCD	Cross-cutting: Awareness Raising and Capacity Development
CBOs	Community Based Organizations
CC	Climate Change
CCA	Climate Change Adaptation
C-CFM	Cross Cutting: Climate Finance Management
CPF	Climate Policy and Finance
C-RTDE	Cross-cutting: Research, Technology Development and Expansion
CSOs	Civil Society Organizations
DAC	Development Assistance Committee
DEOC	District Emergency Operation Centre
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DRRM	Disaster Risk Reduction and Management
EIA	Environment Impact Assessment
EWS	Early Warning System
FAO	Food and Agriculture Organization
FBWC	Forest, Biodiversity and Watershed conservation
FCGO	Financial Comptroller General Office
FUGs	Forest Users Groups
GCF	Green Climate Fund
GEF	Global Environment Facility
GESILG	Gender Equality and Social Inclusion, Livelihood and Governance
GIS	Geographic Information System
GLOF	Glacial Lake Outburst Flood
HDWS	Health, Drinking Water and Sanitation
IPs	Indigenous Populations
ITPI	Industry, Transport and Physical Infrastructure

LEED	Leadership in Energy and Environmental Design
LEOC	Local Emergency Operation Centre
LDCRP	Local Disaster and Climate Resilience Plan
MCN	Mercy Corps Nepal
MoALD	Ministry of Agriculture and Livestock Development
MoF	Ministry of Finance
MoFAGA	Ministry of Federal Affairs and General Administration
MoFE	Ministry of Forest and Environment
NAP	National Adaptation Plan
NDC	Nationally Determined Contribution
NPC	National Planning Commission
NRB	Nepal Rastra Bank
OECD	Organization for Economic Cooperation and Development
OPM	Oxford Policy Management
PEOC	Provincial Emergency Operation Centre
P-LMBIS	Provincial Line Ministry Budget Information System
R&E	Research and Evidence
REDD+	Reducing Emissions from Deforestation and forest Degradation
REET	Rare, Endangered, Extinct and Threatened
RSLUP	Risk Sensitive Land Use Plan
RUS	Rural and Urban Settlements
SEA	Strategic Environmental Assessment
SEZ	Special Economic Zones
SuTRA	Sub-National Treasury Regulatory Application
TNCH	Tourism, Natural and Cultural Heritage
ToRs	Terms of Reference
UNDP	United Nations Development Programme
VRA	Vulnerability and Risk Assessment
WASH	Water, Sanitation and Hygiene
WRE	Water Resources and Energy

EXECUTIVE SUMMARY

1. Context

Nepal is highly vulnerable to climate change and disaster risks due to its varied topography and fragile ecosystems. Between 2018 and 2024, the country experienced over 32,000 disaster events, resulting in 3,672 deaths and NPR 23.6 billion in economic losses (MoHA, 2024). These disasters include floods, landslides, droughts, earthquakes, fires, and Glacial Lake Outburst Floods (GLOFs). Nepal has developed a robust legal and policy framework to address Climate Change Adaptation (CCA) and Disaster Risk Reduction and Management (DRRM), including the Constitution of Nepal (2015), the DRRM Act (2017), Climate Change Policy (2019), and the National Adaptation Plan (2021–2050). These frameworks mandate integration of DRRM and CCA into governance across all three tiers, federal, provincial, and local.

Despite clear policies and dedicated mechanisms like the Disaster Management Fund and climate budget coding, the translation into effective action remains limited. While the Sixteenth National Development Plan (2024/25 – 2028/29) has targeted increasing the climate-relevant budget from 6% to 20 % in the next five years and the Disaster Risk Reduction Strategic Action Plan (2018–2030) requires each development sector, such as agriculture, health, and infrastructure, to allocate at least 5% of its annual budget for disaster risk reduction, challenges persist in fund allocation, utilization, and accountability. Recognizing these gaps, Mercy Corps Nepal commissioned this study to assess how public funds are planned, allocated, and used for DRRM and CCA at provincial and local government levels. The study, under the Zurich Climate Resilience Alliance (The Alliance), aims to inform improvements in resilience programming and financing at subnational levels in Nepal.

2. Objectives and scope

The primary objective of this study is to analyze the budget allocation and expenditure for CCA and DRRM at the provincial and local government (LG) levels in Nepal. Specifically, the study aims to understand the integration of climate and disaster risks into financial planning, assess the scale and focus of budget allocations, explore barriers to effective budget integration, examine the impact of allocations on vulnerable communities, and evaluate opportunities for innovative financing and private sector involvement.

The study focuses on two provinces and seven LGs, analyzing budgets across Fiscal Years (FYs). It relies on government budget data from the Sub-National Treasury Regulatory Application (SuTRA) and the Provincial Line Ministry Budget Information System (P-LMBIS). The study employs criteria based on

the National Adaptation Plan (NAP- MOFE, 2020) for budget tagging and excludes off-budget and off-treasury financing and pandemic or earthquake response budgets to avoid skewing results. It addresses key questions around budget sources, prioritization, efficiency, alignment with community needs, and potential for innovative financing mechanisms in Nepal's CCA and DRRM landscape.

3. Methodology

This study employed a mixed-methods exploratory design to assess how CCA and DRRM are integrated into subnational planning and budgeting processes in Nepal. The assessment focused on seven LGs: Dodhara Chandani Municipality, Paroha Municipality, Katahariya Municipality, Tilathi Koiladi Rural Municipality, Dhankaul Rural Municipality, Krishnapur Municipality and Mahadewa Rural Municipality and at the provincial level in Madhesh and Sudurpaschim Provinces.

The methodology combined both qualitative and quantitative approaches. A comprehensive review of national and subnational (province and LGs) policies, laws, periodic and annual plans, budget documents, and audit reports was conducted. A budget tagging tool was developed using criteria from national guidelines, including the Climate Change Budget Code, to classify and analyze 471 qualifiers across 12 strategic areas.

Budget and expenditure data from the SuTRA and the P-LMBIS were used to examine how CCA and DRRM priorities are reflected in public financing. Field consultations included key informant interviews and group discussions with officials from federal, provincial, and local governments, along with representatives from the private sector and development partners. These consultations helped identify planning, budgeting, and implementation gaps, and examined access to innovative financing mechanisms such as the Green Climate Fund and Adaptation Fund.

The study also included case studies of ten projects across the selected municipalities and provinces to assess the effectiveness, efficiency, and impact of public investments in CCA and DRRM.

Quantitative analysis, using Excel, applied this tagging framework to calculate the percentage and volume of CCA and DRRM-related allocations. This allowed for an evidence-based understanding of how risk-informed planning and climate resilience are being translated into budgets and public investments.

4. Results and findings

Policy, planning, and budgeting

Nepal has developed a conducive policy and legal framework for CCA and DRRM, including the DRRM Act, National Adaptation Plan (NAP), National Climate Change Policy, Local Disaster and Climate Resilience Plan (LDCRP), and the National Disaster Risk Reduction and Management Strategic Action Plan (2018–2030). However, implementation remains weak. Climate and disaster risks are often addressed in isolation and not well integrated into sectoral policies, annual plans, or budgets. The seven-step planning process intended to guide local governments in risk-informed planning is inconsistently followed.

At the provincial level, mobilization of disaster management (DM) funds is hampered by delayed decisions, fear of fund misuse, poor coordination across ministries, and weak communication between government tiers. As a result, the government heavily relies on development partners during medium- and large-scale disasters, leading to chronic underfunding for preparedness and response. Additionally, federal budget cuts to provinces and local governments, often without justification, have weakened their capacity to implement risk-reduction measures.

Consultations at the subnational level revealed further barriers: political interference, uncertain and inadequate funding, coordination gaps, limited technical capacity, and the absence of systematic risk assessments or integrated data systems.

Private sector engagement in CCA and DRRM remains minimal due to the absence of clear mandates, coordination platforms, and incentives. Their involvement is largely ad-hoc, focused on relief rather than long-term risk reduction. Without targeted policies and financing mechanisms, subnational governments struggle to integrate private sector efforts into broader risk-informed planning and budgeting processes.

Budget analysis

The analysis of CCA and DRRM budgets across provincial and LGs revealed several challenges in effective allocation and utilization. Budget tagging across sectors such as agriculture, forestry, energy, health, water, sanitation, and disaster risk reduction showed that allocations for CCA and DRRM activities ranged from 0.6% to 10.2% of total annual budgets, with actual expenditures varying widely, from as low as 21.3% to as high as 98.5%. In most cases, allocations remained below 1%, though in select sectors, they occasionally reached 5.9%. These proportions are insufficient to meaningfully address climate and disaster risks.

Many sectoral budgets either lacked any allocation for CCA and DRRM or had negligible amounts, highlighting critical gaps. Key activities like developing climate-resilient crops, training, disease control, drinking water access, and mobilizing disaster management funds for relief were funded, but often inadequately. Cross-cutting areas such as awareness-raising, capacity building, research, technology development, and climate finance management received minimal attention. These are essential for improving knowledge, innovation, and long-term resilience. Allocations for gender equality, social inclusion, livelihood, and governance (GESILG) were also insufficient, limiting the capacity to support marginalized and vulnerable groups who face disproportionate climate and disaster impacts. Similarly, sectors like tourism, natural and cultural heritage, important for local economies and biodiversity, received little to no CCA and DRRM funding.

Funding sources showed notable variation. At the local level, conditional and equalization grants were key sources, while contributions from special and complementary grants were limited. Local governments relied heavily on current budgets, restricting investment in resilient infrastructure. In contrast, provincial budgets reflected higher capital investment in CCA and DRRM but still lacked consistency.

Overall, there was no clear trend in CCA and DRRM budget allocation and expenditure across subnational governments. The limitation due to insufficient strategic approach, inconsistent prioritization, and rigid adherence to sectoral tagging criteria limited financing for CCA and DRRM. A more coherent and forward-looking budgeting approach is essential to reduce vulnerabilities and strengthen resilience across all sectors.

Effectiveness and efficiency of the public investment on CCA and DRRM

The effectiveness and efficiency of selected CCA and DRRM public investments at the provincial and local levels showed mixed results. The selected projects included irrigation, embankments, tube wells, and shallow and deep boring systems for drinking water and irrigation. Most public investments allocated by the sub-national government yield positive socioeconomic impacts. They contributed to timesaving, increased income, and improved food and nutrition security for children. These investments also led to improved educational and health outcomes. However, many of these investments focused on short-term solutions to climate and disaster risks. At the local level, financial constraints often necessitate prioritising irrigation and drinking water facilities without thorough assessments of groundwater availability. As a result, many of these investments suffered from groundwater shortages due to declining water tables. For example, annual floods and sedimentation frequently damage the river water irrigation canal in Saptari, and the system was rehabilitated multiple times without taking technical advice on proper risk reduction measures.

Innovative financing mechanism

The private sector's role in utilising innovative financing sources and instruments for CCA and DRRM is emerging and growing. The government has introduced policies and frameworks to promote the private sector's role. The green finance taxonomy (2024) is expected to encourage private sector involvement in scaling climate and disaster action through the environment, social, and governance (ESG) framework. Legal provisions, such as the Corporate Social Responsibility (CSR) framework, require industries to allocate funds for community projects, environmental initiatives, and DM. Private-sector investments can reduce government response costs during disasters. Examples of innovative financing include climate-smart agriculture, renewable energy projects, and green bonds. Challenges include a lack of standardized metrics to measure outcomes, and the perceived high risk associated with resilience investments. However, successful examples, such as insurance for flood-prone areas, digital financing in the dairy sector, parametric insurance in agriculture, investment in renewable energy, etc., demonstrate the potential for private sector involvement in resilience.

4. Recommendations

At the federal level, the government should:

Strengthen Policy and Financial Frameworks: Move from policy formulation to mandatory implementation by rolling out simplified guidelines for local governments, institutionalizing climate and disaster budget tagging, and making it a core part of the national planning process.

Ensure Predictable, Risk-Based Financing: Earmark a fixed percentage of the national budget for resilience, informed by vulnerability assessments. Integrate climate risk into fiscal transfer formulas and link funding to performance to incentivize effective action.

Build National Capacity and Data Systems: Launch large-scale capacity-building programs on risk-informed planning for all government tiers. Develop a national digital platform that links risk data (from BIPAD) to budget and expenditure systems (SuTRA, P-LMBIS) to ensure transparent, evidence-based decision-making.

Enable Private Sector Engagement: Drive private investment by operationalizing the Green Finance Taxonomy, creating clear incentives, and promoting bankable, climate-resilient projects in key sectors like renewable energy, tourism, and resilient infrastructure.

At the provincial and local levels, governments must:

Enhance Risk-Informed Planning and Budgeting: Integrate DRRM and CCA priorities into all sectoral plans and budgets, ensuring a minimum allocation of 5% for disaster resilience and aiming for 20% climate-relevant spending as per national targets. Balance budgets between capital and recurrent expenditures to build long-term resilience.

Improve Data Use and Prioritization: Utilize risk maps and vulnerability data to guide investments, particularly for marginalized groups and critical sectors like GESI. Use public finance systems to rigorously track the allocation and impact of resilience funding.

Mobilize and Regulate Private Sector Investment: Establish local investment authorities to create pipelines of bankable, climate-resilient infrastructure projects. Strengthen oversight to ensure all public and private projects meet high standards for quality, sustainability, and risk mitigation.

Promote Inclusive Governance: Institutionalize participatory planning mechanisms to ensure that the needs of vulnerable communities are central to all resilience-building efforts, fostering a whole-of-society approach to drive climate-resilient development from the ground up.

Overall, Nepal is making notable progress toward climate resilience and green development through strong policy commitments, private sector engagement, and institutional reforms like budget tagging and risk management guidelines. Tools such as checklists and climate-smart planning are enhancing CCA and DRRM financing. However, challenges persist, including low sectoral allocations, weak integration into planning, and limited technical capacity. Private sector involvement remains marginal despite its potential. Strengthening data use, early warning systems, and cross-sector collaboration is essential. With aligned financial flows, inclusive strategies, and local ownership, Nepal can mainstream CCA and DRRM into development, paving the way for a resilient and equitable future.

1. INTRODUCTION

1.1 Background

Nepal's vulnerability to climate change and disaster risks, due to its diverse topography and fragile ecosystems, is well known. Nepal ranks 69th on the Climate Risk Index (2025), ranking based on publicly available historical data set on the impacts from the extreme weather events between 1993 and 2022 (Lina, et. al, 2025). An analysis of recorded disasters in Nepal between July 2018 and July 2024 indicate 32,375 small and large-scale disaster events, which claimed the lives of 3,672 people, with at least 446 reported missing and caused an economic loss of NPR 23.60 billion (MOHA, 2024). Climatic and non-climatic disasters in Nepal primarily include earthquakes, floods, droughts, landslides, heat and cold waves, hail and snowstorms, fires and Glacial Lake Outburst Floods (GLOF).

To reduce the risks and overall impact of climate change and disasters, the country has made significant strides in creating a conducive legal framework and policy environment. The Constitution of Nepal (2015) decentralizes power and resources to all three tiers of government[1] to mainstream Climate Change (CC) and Disaster Risk Reduction and Management (DRRM). National Disaster Risk Reduction and Management Act (2017) drives the country's DRRM governance as it proposes structural arrangements at federal, provincial and Local Government (LG) levels. This Act provisioned the establishment of National Disaster Risk Reduction and Management Authority (NDRRMA) as the apex body to oversee all DRRM activities. The National Disaster Risk reduction (DRR) Policy (2018) and the National DRRM Strategic Action Plan (2018-2030) further guide developing, promoting and implementing relevant policies, plans and actions on Climate Change Adaptation (CCA) and DRRM interventions. The Climate Change Policy (2019), the National Adaptation Plan (2021-2050), guidelines for preparing Local Disaster and Climate Resilience Plan (LDCRP), and periodic plans such as the sixteenth National Development Plan (2024/25 – 2028/29) are the key federal policies and plans that inform development and implementation of relevant laws, policies and plans at all levels of government in the country.

1.2 Context for the study

Various plans, policies, guidelines, and frameworks underscore the critical importance of adequately resourcing and effectively operationalizing CCA and DRRM interventions across the country. The mere existence of legal and policy documents is insufficient to build resilience or enhance the capacity of communities and the nation to adapt to or mitigate the impacts of climate change and disasters. The

1 The three tiers of the government in Nepal include: Federal, province and Local Government (LG). LGs include Metropolitan City, Sub-metropolitan City, Municipality and Rural Municipality (RM).

Climate Change Budget Code (2013), Climate Change Financing Framework (2017), National Adaptation Plan (NAP), Disaster Risk Reduction and Management (DRRM) Act, National Disaster Risk Reduction Policy, National Disaster Risk Reduction and Strategic Action Plan, and the Disaster Management (DM) Fund Operation Guideline (2021) provide key strategies, targets and activities for adequately planning, allocating budget and implementing CCA and DRRM interventions. Specifically, the Sixteenth National Development Plan targets increasing the climate-relevant budget from six percent to 20% by the end of this planning period. Likewise, the DRRM Act and Rules provision the establishment of the Disaster Management (DM) Fund at all levels of government, intended solely for DM and relief operations where federal ministries, provinces, and LGs can request funds from the (NDRRMA). The DM Fund Operation Guideline provisions a minimum amount of fund to be maintained at all levels of government. The National Disaster Risk Reduction Policy directs federal, provincial, and local governments to integrate DRRM activities into development planning by allocating a specific portion of their annual budgets for disaster and climate risk financing. The Strategic Action Plan requires each development sector, such as agriculture, health, and infrastructure, to allocate at least five percent of its annual budget for DRRM.

Despite these provisions for CCA and DRRM -related planning and budgeting, and the positive changes in risk reduction with adequate investments, numerous studies highlight persistent gaps in the availability and utilization of funds for CCA and DRRM interventions and emphasize the need to evaluate the effectiveness and impact of these initiatives (OPM, 2022 MCN, 2019; WB, 2019; USAID, 2020; and ADB, 2023). Against this backdrop, Mercy Corps Nepal commissioned this study to assess and analyze the allocation and expenditure of public funds for CCA and DRRM at the provincial and LG levels in Nepal. The study is part of the multiple climate hazard resilience programming under Zurich Flood Resilience Alliance[2].

2 The Zurich Flood Resilience Alliance (the Alliance) is a consortium of nine organizations, including international NGOs, the private sector and research organizations, who have come together with the support of the Z Zurich Foundation to influence funding, policy and practice at the international, country and community level to reduce the negative impact of climate hazards, in particular floods, on people and communities' ability to thrive.

2. OBJECTIVES AND SCOPE

2.1 Objectives

The key objective of the study is to conduct qualitative and quantitative analysis of budget for CCA and DRRM in provinces and LGs in Nepal. The specific objectives of the study are illustrated in Figure 1.

1. Understanding legal and policy frameworks on risk informed planning and budgeting at all levels of government
2. Analysing quantitatively and qualitatively the proportion of funds on CCA and DRRM at province and local government level in the last five years
3. Identifying factors affecting risk-informed planning and budgeting on CCA and DRRM
4. Assessing socio-economic impact of CCA and DRRM-related budgeting in building community resilience to climate change and disasters at selected provinces and local governments
5. Identifying and reviewing innovative financing mechanisms and the role of private sector investments in supporting CCA and DRRM initiatives at provincial and local government level

Figure 1: Specific objectives of the study

The findings from the first objective provide insights into the foundational framework for integrating climate and disaster risks into financial planning procedures. Information from the second objective offers a clearer picture of how much of the budget, by revenue sources, capital and current budget, and sectors, is focused on addressing these risks. The third objective explores the challenges and barriers that hinder the integration of climate and disaster risk considerations into provincial and local budgets. The fourth objective evaluates how budget allocations influence vulnerable communities and contribute to resilience-building against climate and disaster risks. The final objective assesses the potential of innovative financing mechanisms to complement public funding and identifies opportunities to increase private sector engagement in resilience-building efforts.

2.2 Scope and limitations of the study

This study covers two provinces and seven LGs of Nepal. See Figure 2 for the map of study locations.

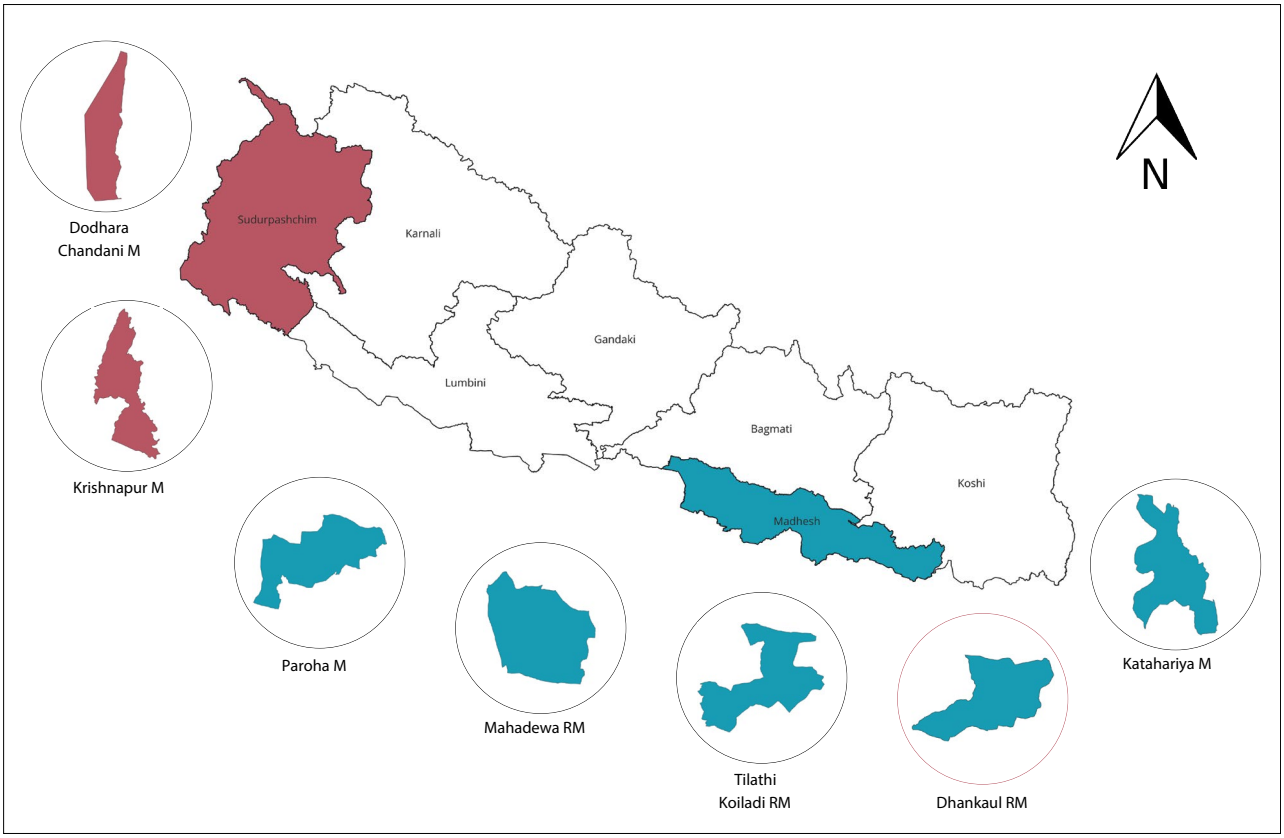


Figure 2: Map indicating the locations of provinces and LGs where the study focuses

In order to examine the budgets on CCA and DRRM, the study considers two Fiscal Years (FYs): FY 2077/78 Bikram Sambat (BS) and FY 2078/79 BS at province level and Five FYs at LG level: FY 2076/77 BS to FY 2080/81 BS1.

The study primarily considers the analysis of the use of public funds for CCA and DRRM initiatives focusing on budget allocation and expenditure trends, using data from Sub-National Treasury Regulatory Application (SuTRA) for LGs and Provincial Line Ministry Budget Information System (PLMBIS) for provinces. SuTRA and PLMBIS are both web-based systems for planning, budgeting, accounting and reporting financial procedures in a structured way.

For budget analysis, the study utilizes ex-post analysis of set criteria for budget tagging relevant to CCA and DRRM at the province and LG level. The criteria is primarily derived from sectoral actions proposed under the NAP.

The study does not include off-budget and off-treasury investments made in CCA and DRRM activities funded by international organizations, non-governmental organizations, civil society groups, the private sector, or other donors. The analysis also excludes an analysis of budget expenditures related

1 In Nepal, government's FY starts and ends in mid-July of Gregorian Calendar Year. BS refers to Bikram Sambat and is a national calendar of Nepal. It is approximately. 56 years, eight and half months ahead of AD. The report includes dates in BS, particularly for laws, policies and FYs considering the actual month of enactment and endorsement exclude day and months to translate to AD.

to pandemic and earthquake response and recovery efforts. This scope and limitation avoid inflating the CCA and DRRM-related budget and reduces biases.

Specifically, the study responds to different study questions (See Box 1) in line with the objectives of the study.

BOX 1: Study questions

- How do policies and legal frameworks influence Nepal's CCA and DRRM budget mobilisation and allocation?
- What are the significant sources of funding for CCA and DRRM initiatives in Nepal? What are the province's and targeted local funding trends in the past 5 years? (allocation of budget for CCA and DRRM to latest published expenditure or audited report)
- What is the current allocation of the national, targeted provincial and local budget for CCA and DRRM? How are DRM-CCA budgets allocated at different levels of governance (2 provinces and selected municipalities) and across various sectors (e.g. infrastructure, health, education, agriculture)? What are the key factors influencing decision-making?
- How do different levels of governance prioritize their CCA and DRRM budgets, and what are the reasons for these priorities?
- How effectively and efficiently is the budget for CCA and DRRM utilized? What are the impacts and outcomes of the budget allocation on vulnerable communities? To what extent are the budget allocations aligned with the priorities and needs of communities, especially women and girls? How do these budgets contribute to communities' resilience and adaptive capacity in those hazard-prone areas?
- What obstacles and challenges are faced in budget execution, implementation, and monitoring of CCA and DRRM programs?
- Are there any discrepancies between budget allocation and the actual needs for CCA and DRRM initiatives?
- What innovative financing mechanisms are being implemented in Nepal to fund CCA and DRRM initiatives? How successful are they, such as climate funds, insurance schemes, public-private partnerships etc.., in enhancing CCA and DRRM efforts?
- What are the best practices and lessons learned from stakeholders in Nepal and other countries in the region that have successfully implemented innovative financing mechanisms for CCA and DRRM?

3. METHODOLOGY

3.1 Design

This study adopted a mixed-methods exploratory research design to comprehensively examine the integration of CCA and DRRM into risk-informed planning and budgeting processes across different levels of government. The design combined both qualitative and quantitative approaches to address five interrelated objectives as indicated above. The mixed-methods design enabled a holistic understanding of both the enablers and barriers to effective climate and disaster resilience planning and financing in Nepal.

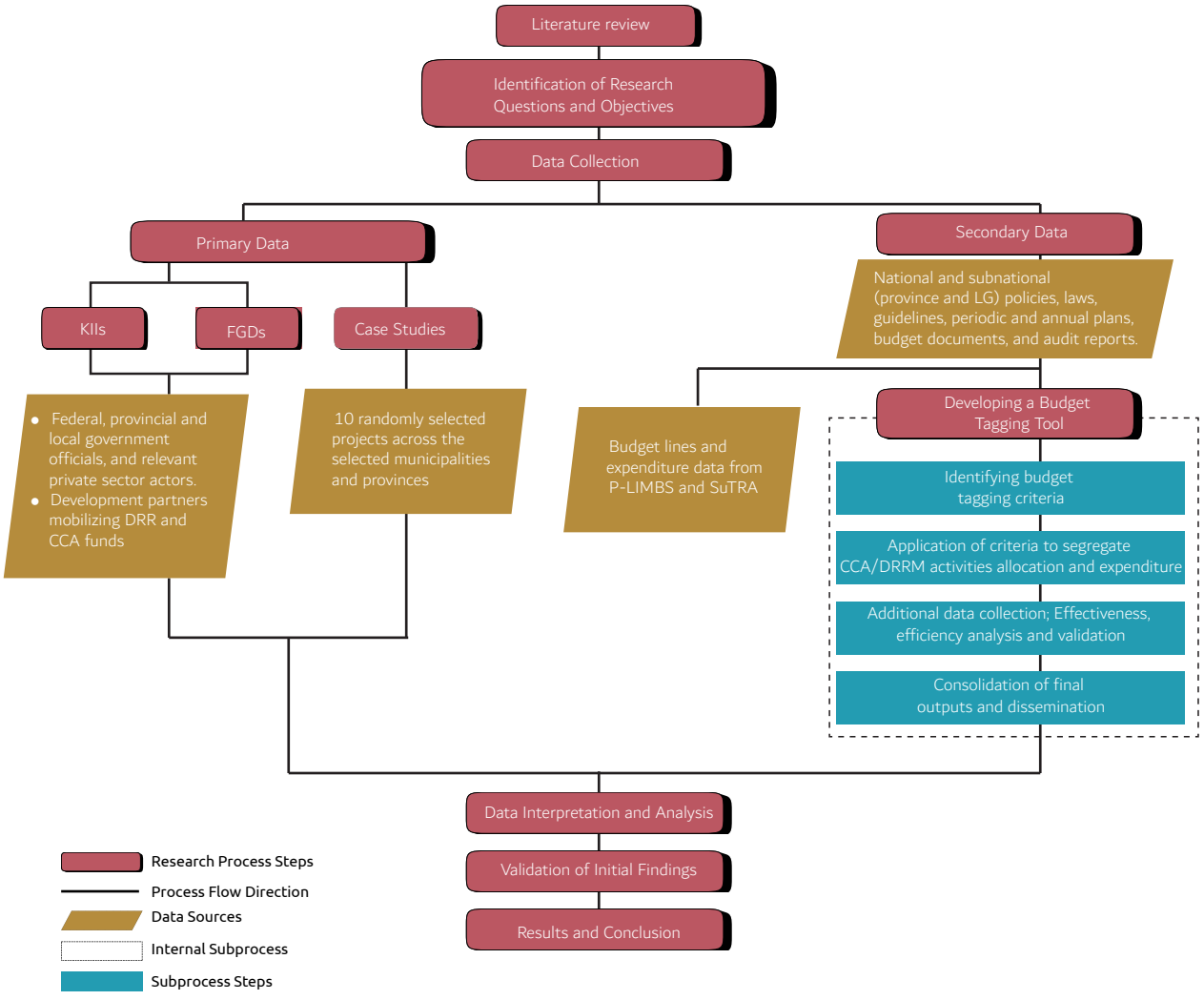
3.1.1 Literature review

The study considered the review and analysis of a number of documents of various levels of government to understand the context of province and LGs prioritising CCA and DRRM, including the revenue and expenditure. These documents that were reviewed included policies, laws, regulations, and plans, sector policies, laws, regulations, and plans, budget speech and statements, financial statements, and audit reports as well as Guidelines for Local-Level Planning (NPC, 2018). Other documents studied included the annual budget allocation and expenditure for selected provinces and LGs using information extracted from the SuTRA and P-LMBIS systems. The review of budget lines provided insights for the budget analysis and development of criteria for tagging of the budget on CCA and DRRM. Various legal and policy documents are mentioned in different sections of methodology as well as on the Results and Findings section of the report.

3.1.2 Consultations with key stakeholders

The study identified the planning and budgeting gaps in CCA and DRRM-relevant budget activities through Key Informant Interviews (KIIs) and Group Discussions (GDs). It conducted federal-level consultation meetings, both physical and virtual, with relevant public and private sectors, including development partners that have been mobilizing CCA and DRRM funds at subnational levels. The identification of relevant entities to access Green Climate Fund (GCF), Adaptation Fund (AF), and other funding sources was useful in understanding the engagement in the Madhesh and Sudurpashchim provinces. This helped assess and understand innovative financing mechanisms implemented in Nepal to fund CCA and DRRM initiatives. Consultations enabled the collection of information on successful cases and the potential to scale up and leverage additional sources of innovative financing instruments to enhance CCA and DRRM efforts. Discussions were also held with federal-level private sector actors to understand opportunities and challenges in financing resilience initiatives, focusing on investments in the studied provinces.

Once the preliminary analysis of the results was completed, the study team further consulted the provinces and LGs to validate the initial findings. Field consultations included visits to two selected provinces and seven LGs, and discussions with local authorities and elected representatives. These visits provided opportunities to share the initial findings and collect feedback, as well as to review the local-level planning processes to understand how CCA and DRRM-related priorities are aligned with annual planning and budgeting. Field consultations also facilitated the collection of annual programs and audited reports to verify the initial findings, while also supporting the evaluation of the effectiveness of public investments at the provincial and LG levels through field inspections and community consultations. Feedback from the consultation meetings assisted in exploring the role of the private sector, which also provided additional perspectives on innovative financing mechanisms, such as public-private partnerships and climate finance, to support CCA and DRRM at the provincial and LG levels.



3.1.3 Case studies

The study assessed budgeted activities related to CCA and DRRM implemented at the provincial and local levels through case study approach. Overall, the case studies generated evidence of the performance of CCA and DRRM investment and its impact on the poor and vulnerable. More specifically, the key case studies analysed

- Socioeconomic impact of public CCA and DRRM public investment.
- Positive impact of investments on community living conditions and resilience;
- Measurable outcomes that indicate the effectiveness of these investments in reducing vulnerability;
- Factors determine where resources for CCA and DRRM investment investments are allocated;
- Key areas for improvement in the current budget proposals for CCA and DRRM investments investments, and
- Any gaps or inefficiencies in the current mechanisms that must be addressed.

Information on the 10 projects that the study team assessed are provided in Table 1.

Table 1: List of projects assessed for case study on effectiveness and efficiency of impact of CCA and DRRM related public investment on communities

Province	District/LG	Project Name	Project level
Madhesh	Rautahat District	Buniyad Irrigation Project	Provincial
Madhesh	Rautahat District	Sulav Irrigation Project	Provincial
Madhesh	Saptari District	Dhudhula Irrigation	Provincial
Madhesh	Paroha Municipality	Boring for Agriculture Irrigation	Local
Madhesh	Tilathi Koiladi Rural Municipality	Sriram Janaki Agriculture Group	Local
Sudurpaschim	Kanchanpur District	Chaudhar River Control	Provincial
Sudurpaschim	Kanchanpur District	Suda Nala Embankment	Provincial
Sudurpaschim	Kanchanpur District	Integrated agriculture and livestock program	Provincial
Sudurpaschim	Dodhara Chandani	Dhamitol Pathar Nala Embankment Construction	Local
Sudurpaschim	Dodhara Chandani	Purchase of Motor Bore	Local

3.2 Tools and Analysis

3.2.1 Budget tagging tool

Drawing on a review of existing CCA and DRRM priorities outlined in legal and policy documents, the study considered a set of criteria to analyze budget sources, allocation processes, and expenditure patterns at both the provincial and LG levels. The analysis applied an ex-post review of FY budgets, employing sector-specific criteria to tag CCA and DRRM-related allocations and expenditures. This approach enabled a more accurate identification of targeted CCA and DRRM investments while minimizing the risk of misattribution within the overall provincial and LG's FY budget frameworks. The tagging tool thus served to isolate and assess budget items specifically aligned with CCA and DRRM objectives. Figure 3 presents the step-by-step process for tagging CCA and DRRM-related budgeted activities.

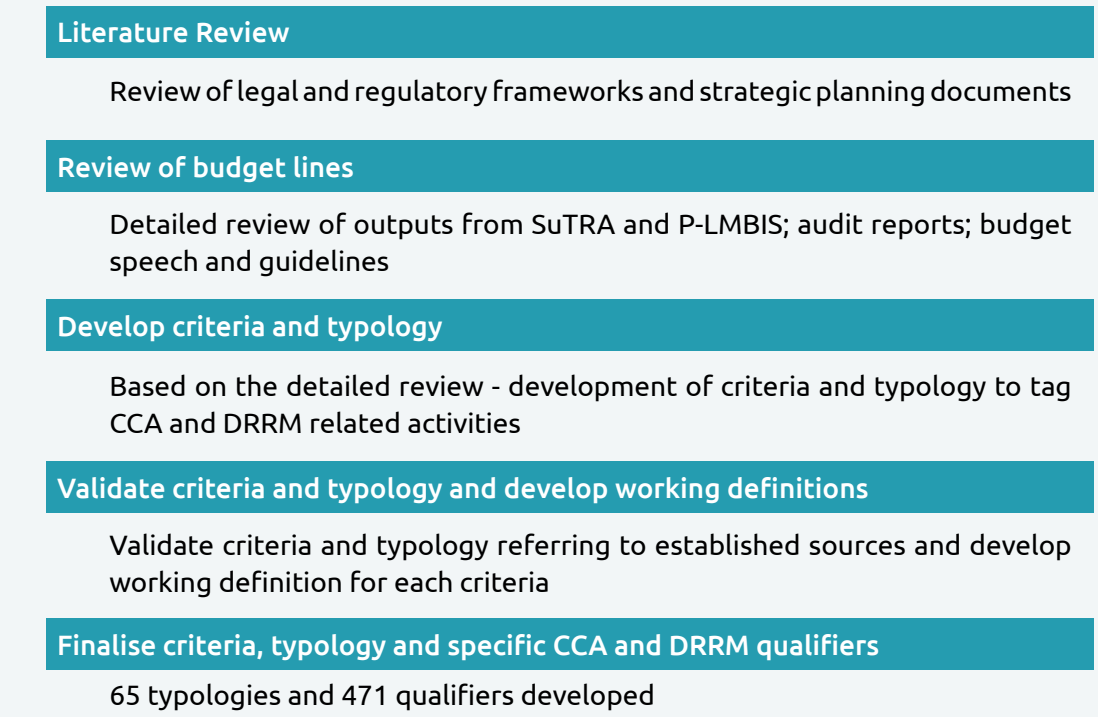


Figure 3: Step-by-step process for developing budget tagging criteria on CCA and DRRM

The budget tagging criteria were developed using a combination of plan-based and activity-based typologies to identify and assess CCA- and DRRM-relevant public expenditures. These criteria were then applied to distinguish allocations and expenditures specifically related to CCA and DRRM activities. Following this, the criteria were used to assess and systematically tabulate CCA and DRRM-related budget allocations and expenditures across provinces and LGs. A comprehensive review of relevant policies, plans, budgets, and expenditure reports supported the identification of additional data needs and informed the assessment of the effectiveness and efficiency of these expenditures. This was further strengthened through consultations and validation meetings with key stakeholders. The information collected, analyzed, and shared provided a structured and evidence-based approach to budget tagging for CCA and DRRM.

3.2.2 Criteria finalisation and its application for budget tagging

The study initially drafted criteria and typology to tag CCA and DRRM-related activities taking the primary reference to strategic priority sectors articulated in the National Climate Change Policy. The key guiding document referred for climate change coding was Climate Change Budget Code, which included 11 broader criteria as indicated in Box 2. Other guiding documents that informed the criteria and typology included planning and budgeting guidelines for agriculture (MoALD, 2019) and forestry sectors (MoFE, 2020), National Disaster Risk Reduction and Management Strategic Plan of Action, National Disaster Risk Financing Strategy (2021) and key actions proposed in NAP and Nationally Determined Contributions (NDCs; GoN, 2020), along with the NDC Implementation Plan (2023-2030) (MoFE, 2023) and Draft Green, Resilient and Inclusive Development Strategy and Action Plan (2024-2034).

CCA and DRRM typology developed from the review and analysis is Included in Annex A

The study also ensured to integrate findings and suggestions from prominent globally researched sources, including the proposal to establish a policy marker for DRR in the OECD/DAC credit or reporting system (OECD, 2017). Key documents such as the Nepal Disaster Risk Reduction and Management Public Expenditure and Institutional Review (ADB, 2023) and the Enabling Environment for Disaster Risk Financing in Nepal Country Diagnostics Assessment (ADB, 2019) provided critical insights. Additionally, documents from the UNDP Sustainable Finance Hub on climate budget tagging (UNDP, 2019) and the World Bank's 2021 review, Climate Change Budget Tagging: A Review of International Experience (WB, 2021), were instrumental in refining the typologies and criteria.

BOX 2: Existing criteria defining climate change relevant programmes according to Climate Change Budget Code (2012)

1. Sustainable management of natural resources and greenery promotion.
2. Land use planning and climate resilient infrastructures.
3. Prevention and control of climate change induced health hazards.
4. Prevention and control of climate change induced hazards to endangered species and biodiversity.
5. Management of landfill site and sewage treatment for GHG emissions reduction.
6. Sustainable use of water resources for energy, fishery, irrigation and safe drinking water.
7. Plan/programmes supporting food safety and security.
8. Promotion of renewable and alternative energy, technology development for emission reduction and low carbon energy use.
9. Preparedness for climate induced disaster risk reduction.
10. Information generation, education, communication, research and development, and database.
11. Preparation of policy, legislation and plan of action related to climate change.

Based on a review of these documents, the study suggested the comprehensive criteria with the typologies and specific CCA-DRRM qualifiers under each of the twelve strategic priority areas. Altogether, this resulted the development of 65 typologies and 471 qualifiers for assessing the CCA and DRRM- relevance of public fund activities in the selected provinces and LGs. Table 2 summarises the strategic priority areas, the number of typologies within each area, and the specific CCA and DRRM activity qualifiers.

Table 2: Summary of typology and its qualifiers to tag budget under each strategic Priority			
S.N.	Strategic priority areas	Number of typology	Number of CCA and DRRM activity qualifiers
1	Agriculture and Food Security (AFS)	9	65
2	Forest, Biodiversity and Watershed Conservation (FBWC)	11	90
3	Water Resources and Energy (WRE)	8	61
4	Rural and Urban Settlements (RUS)	3	41
5	Industry, Transport and Physical Infrastructure (ITPI)	5	23
6	Health, Drinking Water and Sanitation (HDWS)	7	54
7	Tourism, Natural and Cultural Heritage (TNCH)	8	39
8	Disaster Risk Reduction and Management (DRRM)	7	48
9	Gender Equality and Social Inclusion (GESI), Livelihood and Governance (GESILG)	4	33
10	Cross-cutting: Awareness Raising and Capacity Development (C-ARCD)	1	7
11	Cross-cutting: Research, Technology Development and Expansion (C-RTDE)	1	6
12	Cross-Cutting: Climate Finance Management (C-CFM)	1	4
	Total	65	471

3.2.3 Analysis of existing CCA and DRRM priorities

The analysis of budget allocation and expenditure data from the FYs considered for the analysis from P-LMBIS and SuTRA of the Madhesh and Sudurpaschim Provinces and seven LGs respectively helped to determine the budgets relevant to CCA and DRRM activities in each budget line of provinces and LGs. A cross-tabulation and percentage by pertinent categories were created based on the activity line items tagged as per the criteria. To identify line items relevant to CCA and DRRM, the study considered working on quantitative analysis using Excel sheet available on the annual budget allocation and expenditure for data analysis. This process included applying the CCA and DRRM criteria to allocating and spending budget activities and estimating and analysing the final results.

As an illustration, Table 3 indicates the codes and qualifiers used for tagging DRM and CCA-relevant activities in the Water Resources and Energy (WRE) priority areas. It has eight codes to define the qualifier under the WRE 26 typology Climate-Resilient Flood Control to Protect Livelihoods and Assets at Risk from Climate-Induced Flooding.

Table 3: An example of codes and qualifiers for budget tagging within Water Resources and Energy Strategic Priority Areas	
Code	Qualifiers
WRE.26.1	Identify vulnerable settlements and devise resettlement plan and training activities to safeguard vulnerable communities.
WRE.26.2	Promote traditional knowledge, use locally available materials, and incorporate bio-engineering and green belts along the river for blanketing and sustainable management of rivers.
WRE.26.3	Promote small to medium storage for lowering flood peak.
WRE.26.4	Undertake climate and disaster risk assessments to understand the river catchment areas' susceptibility to different hazards such as landslides and soil erosion.
WRE.26.5	Conserve river catchment areas through people's participation and building of networks of upstream and downstream communities to forge collaboration.
WRE.26.6	Undertake study and research on river sediment, soil erosion and debris flow to determine the health of the check dams.
WRE.26.7	Extract aggravated riverbed materials to maintain river channels and sustain the life of the check dams.
WRE.26.8	Construct multiple use check dams that enable the various uses of the water, including for irrigation and hydropower generation.

Codes and qualifiers allowed for an objective assessment of the activity line under the proposed annual program of the province and LG for budget tagging. For example, while taking an example from Dhankaul Rural Municipality using SuTRA data for the budget activity "Bagmati Embankment West Culvert Construction", this activity was assessed against the eight qualifiers under typology 26, and it objectively aligned with qualifiers WRE.26.6 and WRE.26.8. The table below illustrates an example of the actual tagging of the budget activity with similar method for tagging for provincial and LG level.

Table 4: Sample of budget activity tagging for Bagmati Embankment West Culvert Construction activity of Dhankaul Rural Municipality														
Province	District	Name of LG	FY	Broad sector	Sector	Sector activity	Strategic priority	Budget source	Typology	Qualifier	Revenue item	Support type	Total budget	Expenditure
Madhesh	Sarlahi	Dhankaul RM	2076 /77	Governance and interrelated sector	Disaster Management	Bagmati embankment west culvert construction	Water and Resources and Energy	Federal government	26	WRE 26.8 or 26.6	Equalization grant	cash grant	600000	600000

4. RESULTS AND FINDINGS

4.1 Legal and policy frameworks on planning and budgeting on CCA and DRRM interventions

4.1.1 Laws, policies and planning documents at federal level

The existing legal and policy frameworks at the federal level provide a robust and enabling environment for planning and budgeting CCA and DRRM interventions across all tiers of government. This finding is based on the identification, collection, and analysis of key legal and policy documents related to CCA and DRRM. The list of these key legal and policy documents, most of which are mentioned in previous sections, are provided in Box 3.

Notably, the Constitution of Nepal explicitly recognizes DRRM as both an exclusive right of LGs and a concurrent responsibility shared among all levels of government, thus fostering a cooperative approach to building resilience. Provinces and LGs are empowered to formulate their own policies and legal instruments in alignment with national frameworks, ensuring vertical coherence and reinforcing integrated CCA and DRRM efforts throughout the country.

BOX 3: List of CCA and DRRM-related laws, policies and planning documents at federal level[1]

The Constitution of Nepal (2015); Local Government Operation Act (2017); Environment Protection Act (2019); Climate Change Policy (2019); National Disaster Risk Reduction Policy (2018); Disaster Risk Reduction and Management Act (2017); Disaster Risk Reduction and Management Rules (2019); Climate Resilient Planning Tools (2011); Climate Change Budget Code (2012); Climate Change Financing Framework (2017); Disaster Risk Reduction National Strategic Plan of Action (2018–2030); National Adaptation Plan (2021); Sixteenth National Development Plan (2024/25–2028/29); National Climate Change Mitigation and Adaptation Implementation Plan (2024–2030); National Framework for Local Adaptation Plans for Action (2019); Second Nationally Determined Contribution (GoN, 2020); Local Level Planning Guideline (2019); and Provincial Planning Guideline (2019).

1 These and other federal laws, policies, plans, strategies, guidelines and frameworks are available for downloads from the official websites of ministries, relevant departments, National Planning Commission, etc.

4.1.2 Laws, policies and planning documents at province and LG level

Provinces and LGs have formulated various CCA and DRRM-related legal and planning documents as guided by federal laws and policies. These policies and legal and planning frameworks ensure that climate resilience, adaptation, and DRRM are systematically integrated into planning processes at province and LGs, supporting sustainable development goals. However, some of these laws and policies have distinct gaps in terms of prioritizing CCA and DRRM at province level. This study documented and analysed various legal and planning documents at province level as indicated in Table 5.

Table 5: CCA and DRRM-related laws, policies, and plans in provinces[1]

Province	Relevant laws, policies and plans
Madhesh Province	✦ Forest Management Act, 2077 BS exists but it has no provision for CCA and DRRM considerations. ✦ Province Emergency Fund Mobilization Act, 2075 BS is developed to be operationalized to manage emergencies from earthquakes, floods, landslides, fires, and pandemics. ✦ Province Disaster Management Act, 2078 BS is comprehensive for the management of all phases of disaster cycles. It also has provisions for the DM fund. ✦ Provincial Disaster and Climate Risk Reduction and Management Policy 2019 envisions developing a disaster- and climate-resilient province. However, this policy has not been mainstreamed into the sector policies and laws of provinces. ✦ Provincial Disaster and Climate Risk Reduction and Management Action Plan 2020-2030 requires sector ministries and local levels to integrate this comprehensive strategic action plan in their plans.
Sudurpaschim Province	✦ Sudurpaschim Province Environmental Protection Act 2018 includes environmental fund and environment expert group provisions. However, there are specific provisions for promoting CCA. ✦ Provincial Disaster Management Plan 2020 proposes targets and indicators for short-term, mid-, and long-term periods. It sets the targets for preparedness over a period of six months to three years. However, there has been no review and evaluation of the plan, indicating the need for its effective roll-out. ✦ Province Disaster Risk Reduction and Management Act 2016 provides a legal framework on DRRM. However, its implementation is reported to be hindered mainly due to resource scarcity, capacity and inter-agency coordination failure.

1 These laws, policies and plans are available for downloads from the provincial government's official websites.

The study also documented and analysed various legal and planning documents at LG level as indicated in Table 6.

Table 6: CCA and DRRM-related laws, policies, and plans in LGs[2]	
Paroha Municipality	✦ Local Disaster Risk Reduction and Management Act, 2080 BS ✦ Local Disaster Management Fund Mobilization Guideline 2080 BS ✦ Child Rights Protection and Promotion Guideline 2079 BS ✦ Girl Child and Inclusive Education Network Formation and Operational Guideline, 2079 ✦ Local Health Service Act, 2077 BS ✦ Local Disaster and Climate Resilience Plan, 2078 BS
Katahariya Municipality	✦ Municipality Disaster Risk Reduction and Management Act, 2077 BS ✦ Health and Sanitation Act, 2077 BS ✦ Municipality level Local Market Management Act, 2077 BS ✦ Municipality Education Rules, 2078 ✦ Municipality level Environment and Natural Resource Conservation Act, 2077 BS ✦ Municipal Land Management Act, 2076 BS ✦ Municipality Agriculture Act, 2076 BS
Tilathi Koiladi Rural Municipality	✦ Municipality Disaster Risk Reduction and Management Act 2075 BS ✦ Risk profile ✦ Municipality profile
Mahadewa Rural Municipality	✦ Annual Policy and Program 2081/2082 BS ✦ Gender Equality and Social Inclusion Mainstreaming Strategic Plan 2080 BS ✦ Disaster Risk Reduction and Management Act, 2075 BS ✦ Education Guideline, 2075 BS ✦ Disaster Management Fund Operation guideline, 2075 BS
Dodhara Chandani Municipality	✦ Disaster Risk Reduction and Management Act, 2075 BS ✦ Disaster Preparedness and Response Plan, 2081 BS ✦ Disaster Management Fund Operation guideline, 2077 BS ✦ Anticipatory Disaster Preparedness and Early Action Guideline, 2080 BS ✦ Natural Resource Conservation Acts 2079 BS ✦ Gender Equality and Social Inclusion Strategy, 2079 BS ✦ Agriculture and Livestock Development Program Operation Directives, 2077 BS ✦ Guideline for Extraction of Materials from Water Sources, 2077 BS ✦ Child Fund Operation Guideline, 2079 BS

At federal level, the Sixteenth National Development Plan's target to increase climate-relevant budget allocation from six percent to 20%, and the Disaster Risk Reduction Strategic Action Plan's mandate to sectors such as agriculture, health, and infrastructure to allocate at least 5% of their annual budgets to DRRM are notable provisions. Aligning to the federal provisions, some of laws and policies mentioned in Table 6 include provisions for allocating budget for CCA and DRRM interventions.

2 These laws, policies and plans of LGs are available in their official websites. Hard copies of some of these documents were collected during the field visit.

Financing for CCA and DRRM remains poorly integrated across governance levels due to ineffective implementation of planning tools, fragmented policies, limited risk-informed budgeting, and inadequate institutional and technical capacities. A review of existing policies, legal frameworks, and planning documents, including the Local Disaster and Climate Resilience Plan (LDCRP), indicates that financing for CCA and DRRM is expected to come from annual federal, provincial, and local government budgets, as well as from development partner funding. However, despite the formal adoption of the seven-step planning process[3] at the local level, its implementation remains weak in effectively integrating CCA and DRRM priorities, including those explicitly outlined in the LDCRP.

A central requirement of this planning process is the mainstreaming of forest management, environmental sustainability, and disaster risk considerations at every stage. However, insufficient government attention to these priorities has resulted in critical gaps in systematically incorporating risk information into development planning. Furthermore, provincial and LG budget analyses and stakeholder consultations point to significant shortcomings in the implementation of fiscal policies, legal provisions, and action plans related to CCA and DRRM. This disconnect weakens efforts to reduce climate and disaster vulnerabilities, leaving communities exposed to increasing risks.

Although the government has designated "Forest, Environment, and Disaster" as a key thematic area in the budget, actual financial allocations for CCA and DRRM remain minimal. Budget planning processes are not adequately connected to risk-informed priorities. For instance, the Equalization Fund, a major fiscal transfer mechanism for provincial and local governments, does not account for climate or disaster risk when allocating resources. Development budgets, while aimed at promoting sustainable growth, often are not successful to incorporate risk-sensitive criteria, thus undermining the resilience and long-term sustainability of development outcomes.

At the provincial level, governments have not yet institutionalized localized risk assessments as a basis for budget allocation. This has left many vulnerable communities without adequate support to cope with the impacts of climate change and recurring disasters. Instruments such as the Climate Budget Code and the Climate Change Financing Framework (CCFF), which are designed to guide climate-responsive budgeting, remain advisory in nature. Their non-binding status further limits their effectiveness in influencing budgetary decisions at the local level.

The fragmentation of CCA and DRRM provisions across multiple laws, policies, and plans, combined with insufficient integration into sectoral strategies, continues to hinder progress. While policy commitments exist, they have not translated into coherent and effective implementation. Relatively weaker inter-sectoral coordination, inadequate leadership from responsible authorities and elected representatives in prioritizing investments on CCA and DRRM, and limited vertical alignment between federal, provincial, and local levels have further contributed to unintegrated efforts in harmonizing CCA and DRRM initiatives. Mainstreaming CCA and DRRM into development planning is also constrained by limited technical capacity for risk assessments, inadequate access to reliable risk data and tools, and insufficient institutional coordination mechanisms across government tiers. Additionally, overlapping mandates, program duplication, and hesitation in decision-making, often driven by fears of accusations related to misuse of authority, have further obstructed progress. As a result, risk-informed planning and budgeting remain inconsistent, leaving province and LGs not efficiently equipped to build resilience against the growing threats of climate and disaster risks.

3 Nepal's seven-step planning process promotes inclusive, participatory local governance by aligning development with the SDGs. It emphasizes shared understanding, capacity building, and stakeholder engagement, including marginalized groups, women, youth, and persons with disabilities, to ensure equitable planning and budgeting at the local government level.

4.2 Analysis of the funds for CCA and DRRM at the provincial and LG level

The proportion of CCA and DRRM-related budget varies depending on the context, such as vulnerability to climate and disasters and available resources. There is no universally fixed percentage; 5-10% of the government's annual budget is generally considered a good and recommended share for CCA and DRRM, particularly for regions and areas vulnerable to climate and disaster risks. The United Nations Environment Program (UNEP) and other organizations suggest that developing countries allocate between 1% and 5% of GDP annually for climate adaptation and disaster resilience (UNEP, 2024). This assessment of the budget analysis at the LG levels shows that many local governments allocate insufficient funds for CCA and DRRM-related activities, often due to reasons as analysed above.

4.2.1 Analysis of CCA and DRRM-related allocation and expenditure

LGs allocate a small and inconsistent share of their annual budgets to CCA and DRRM, falling short of the scale required to address growing climate and disaster risks. An analysis of budget allocations over the past five fiscal years across seven local governments revealed that spending on climate change adaptation (CCA) and disaster risk reduction and management (DRRM) ranged from as low as 0.6 percent to a maximum of 10.2% of total annual budgets. The highest allocation was observed in Dodhara Chandani Municipality (Sudurpaschim Province) in FY 2079/80 BS, while the lowest was recorded in Mahadewa Rural Municipality (Madhesh Province) in FY 2077/78 BS.

In most cases, allocations averaged below 5 percent, reflecting a limited prioritization of climate and disaster resilience in local budgeting processes. Given the increasing exposure and vulnerability to climate-induced hazards, these allocations are insufficient to meet local adaptation and risk reduction needs. The data indicate that CCA and DRRM are not yet fully mainstreamed into local planning and budgeting frameworks. A consistent spike in budget allocation in certain year was mainly attributed to occurrence of disaster in previous fiscal year and more influence from the bureaucracy during election year. A summary of the budget allocations is presented in Figure 4, with detailed data available in **Annex B.**

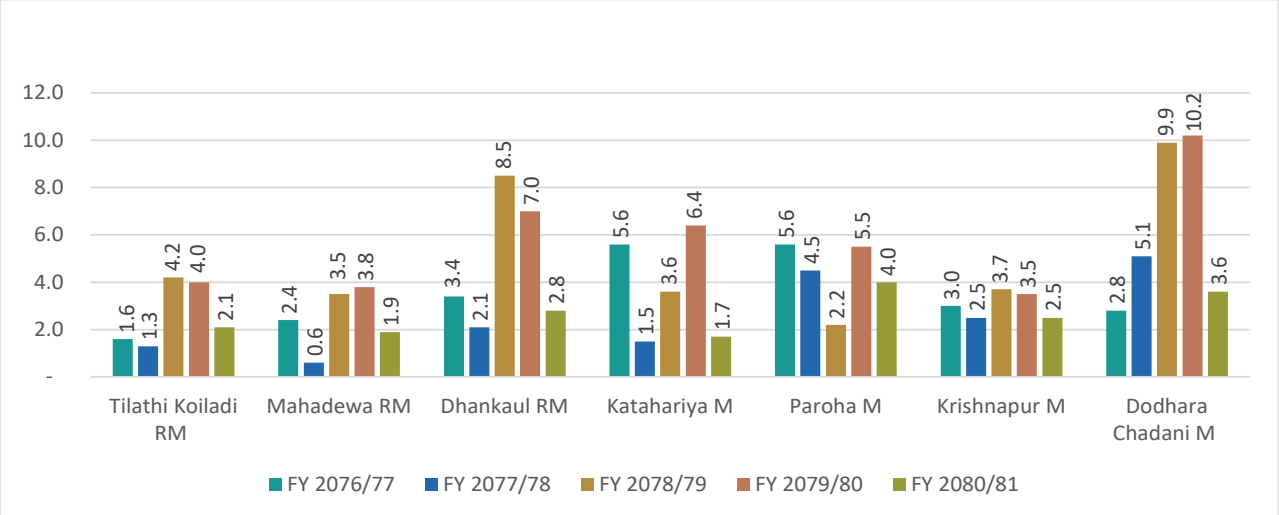


Figure 4: Percentage of CCA and DRRM-related allocations in the annual budgets of LGs across different FYs

This underfunding underscores the need for practical tools and checklists to help align local budgets with climate and disaster resilience priorities. While frameworks like the Local Adaptation Plan of Action (LAPA) and the LDCRP offer valuable guidance for annual budget allocation on CCA and DRRM, consultations with local authorities reveal that these documents are often overlooked or insufficiently integrated into local planning processes. To address this gap, targeted orientation sessions will be important to help integrate LAPA and LDCRP priority actions across key sectors such as agriculture, infrastructure, and social development. Furthermore, local political leaders and planning committee members should receive regular capacity-building support to ensure that climate and disaster resilience actions are mainstreamed into the annual planning and budgeting cycle.

On average, the expenditure capacity of CCA and DRRM-related budgets at the local government level has been relatively high. For instance, Paroha Rural Municipality utilized up to 98.5% of its allocated budget in FY 2078/79 BS. In contrast, Katahariya Municipality spent only 21.3% of its allocation in FY 2079/80 BS. Overall, Dodhara Chandani Municipality, Krishnapur Municipality, and Paroha Rural Municipality demonstrated stronger budget utilization. However, in certain fiscal years, Tilathi Koiladi Rural Municipality, Mahadewa Rural Municipality, and Katahariya Municipality exhibited lower levels of expenditure. Figure 5 below illustrates the proportion of CCA and DRRM -related budget expenditure compared to the allocated budget across LGs in Madhesh Province.

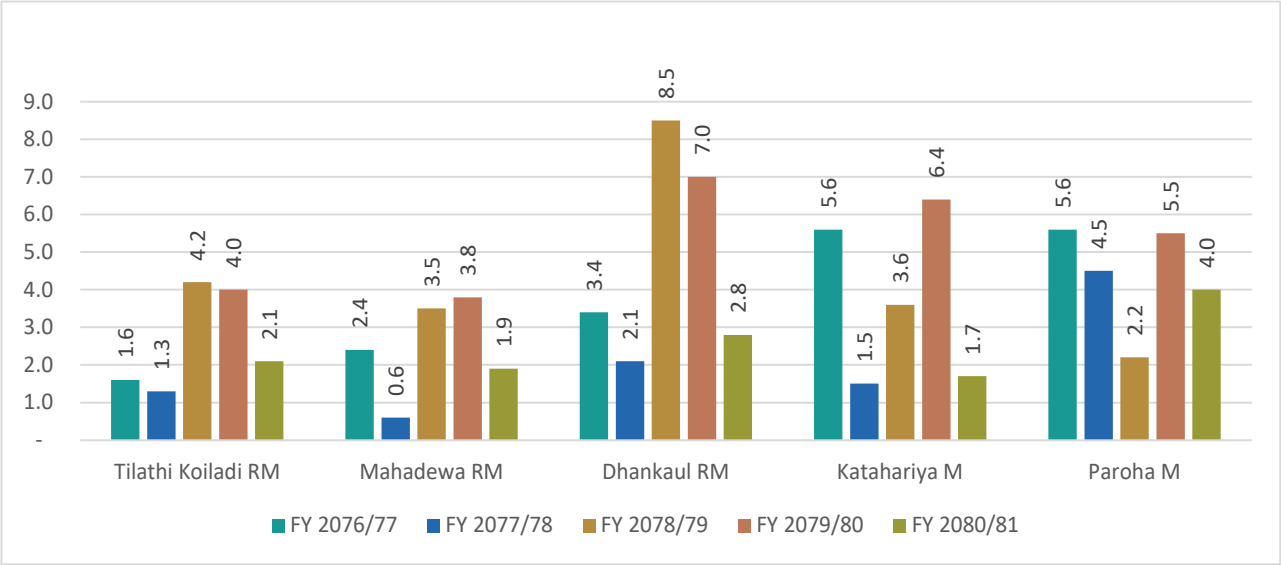


Figure 5: Percentage of CCA and DRRM-related budget expenditure compared to the allocated budget across LGs in Madhesh Province

Figure 6 below illustrates the proportion of CCA and DRRM-related budget expenditure compared to the allocated budget across LGs in Sudurpaschim Province.

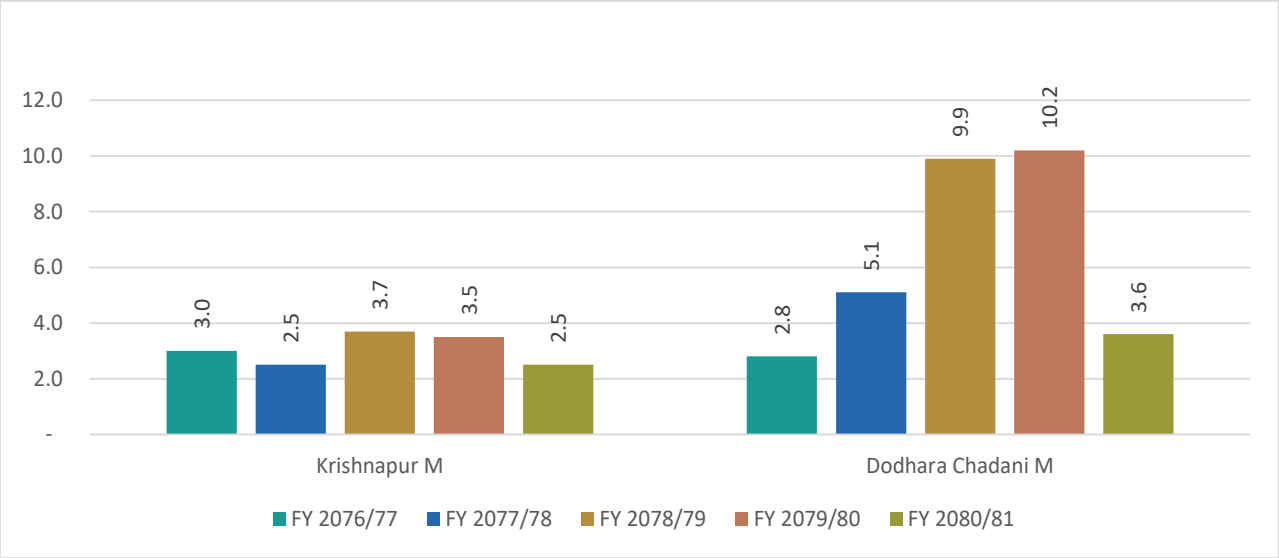


Figure 6: Percentage of CCA and DRRM-related budget expenditure compared to the allocated budget across LGs in Sudurpaschim Province

The analysis of the above data and consultations with various stakeholders indicate that improving the allocation and expenditure of DRM-CCA budgets requires enhanced technical support for LGs, particularly in conducting accurate risk assessments. Risk mapping helps identify high-risk areas and guides resource prioritization. Building the capacity of local planners through training and orientation enables better integration of climate and disaster risks into budget processes. Embedding risk assessments within planning frameworks can lead to more actionable and fundable plans, improving both resource mobilization and expenditure efficiency to deliver tangible resilience outcomes.

Current inefficiencies, such as Katahariya Municipality's low expenditure rate of 21.3% in FY 2079/80BS, highlight the need for practical, transparent, and accountable budgeting tools. LGs require tailored support to adopt these mechanisms effectively. Strengthening partnerships with provincial and federal authorities, as well as development partners, can provide access to additional resources and technical expertise. Promoting participatory budgeting, especially through adherence to the government's seven-step planning process, ensures that community priorities are reflected in budget decisions. Ultimately, improved financial planning and monitoring can significantly enhance the long-term sustainability and impact of CCA and DRRM initiatives at the local level.

4.2.2 CCA and DRRM- related sectoral budget allocation at the LGs

The analysis of CCA and DRRM budget allocations across seven local governments over five fiscal years reveals inconsistent alignment between local priorities and nationally recognized climate/disaster sector typologies and qualifiers. The study finds that LG's prioritization of climate and disaster-sensitive sectors often does not fully correspond with the sector typologies and qualifiers outlined in national climate and disaster laws, policies and action plans. This misalignment underscores the urgent need to localize and contextualize national climate/disaster strategies at the local level. Among the 65 typologies assessed across 12 strategic priority areas, only 32 (50%) were tagged, and merely 59 activities (12% of potential qualifiers) were found to be relevant and tagged appropriately (see Table

7). In some strategic sectors, no related plans or budgets were prioritized at all. This gap signals the need for a thorough review and integration of climate and disaster resilience considerations within local planning and budgeting processes.

Table 7: Number of CCA and DRRM-relevant typologies and qualifiers tagged in budget allocations across priority areas in the seven LGs

S/N	Strategic Priority Areas/Sectors	Typology		Specific CCA and DRRM activity qualifiers	
		Proposed	Budget tagged	Proposed	Budget tagged
1	Agriculture and Food Security (AFS)	9	6	65	17
2	Forest, Biodiversity and Watershed Conservation (FBWC)	11	7	90	8
3	Water Resources and Energy (WRE)	8	3	61	15
4	Rural and Urban Settlements (RUS)	3	3	41	2
5	Industry, Transport and Physical Infrastructure (ITPI)	5	0	23	0
6	Health, Drinking Water and Sanitation (HDWS)	7	4	54	4
7	Tourism, Natural and Cultural Heritage (TNCH)	8	2	39	2
8	Disaster Risk Reduction and Management (DRRM)	7	5	48	9
9	Gender Equality and Social Inclusion (GESI), Livelihood and Governance (GESILG)	4	1	33	1
10	Cross-cutting: Awareness Raising and Capacity Development (C-ARCD)	1	1	7	1
11	Cross-cutting: Research, Technology Development and Expansion (C-RTDE)	1	0	6	0
12	Cross-Cutting: Climate Finance Management (C-CFM)	1	0	4	0
	Total	65	32	471	59

Overall, the analysis highlights an over-reliance on a few sectors, while others, such as industry, tourism, GESI, and cross-cutting areas, remain significantly underfunded. This imbalance hampers a holistic approach to resilience-building and suggests that a more inclusive and systematic alignment with national frameworks is essential for effective local climate and disaster governance.

The following sections provide detailed insights into CCA and DRRM-related budget allocations across different LGs and GYs, categorized by strategic priority areas or sectors.

1. The Agriculture and Food Security

This sector consistently attracted relatively higher allocations among the assessed priority areas, reflecting its critical importance in climate and disaster resilience. Notable increases were observed in municipalities such as Paroha (2.55% in FY 2080/81 BS) and Tilathi Koiladi (1.1%), indicating growing recognition of its relevance (see Table 8). An analysis of local government plans against the 9 nationally identified typologies for this sector revealed that only 6 were directly addressed in current annual plans, while 3 typologies remained unlinked. This gap highlights the need for more deliberate integration of CCA and DRRM strategies within agriculture planning and budgeting processes. Strengthening this alignment is crucial for safeguarding food systems, enhancing livelihoods, and building long-term resilience at the community level.

Table 8: Annual share (%) of CCA and DRRM-related allocations in the Agriculture and Food Security sector relative to the total annual budgets of LGs

Name of the LG	FY 2076/77 BS	FY 2077/78 BS	FY 2078/79 BS	FY 2079/80 BS	FY 2080/81 BS
Tilathi Koiladi	0.19	0.55	0.43	0.81	1.1
Mahadewa	0.99	0.11	0.45	0.83	0.69
Dhankaul	0.03	0.21	1.58	3.15	0.15
Katahariya	-	0.13	0.41	0.46	0.09
Paroha	0.13	0.08	0.48	1.72	2.55
Krishnapur	0.85	0.89	1.4	1.13	0.63
Dodhara Chadani	0.49	2.71	5.31	0.97	1.59

The review of the types of CCA and DRRM plans tagged under agriculture and food security indicates that it was linked most with typology 4, *Enhancing Agriculture productivity through Building Climate-Resilient Water Management Systems.* Among these, the significant investment by LGs was directed towards water-saving adaptation technology in the Tarai: micro irrigation (sprinkler, drip, subsurface and shallow tube-well). The linkage in order of prioritized typologies in this sector is presented Box 4.

Under the Agriculture and Food Security sector, the existing plan and budget of LG are not observed to be linked with essential aspects of the typology 1: *National Capacity Building of Agriculture and Livestock Institutions on Climate Change Adaptation Research, Planning and Implementation,* typology 2: *Strengthening Climate Services and Agriculture Information System,* and typology 8: *Development of Insurance, and Community and Peasant-Friendly Climate Induced Risk Sharing Model and Expansion in both Agriculture and Livestock.*

BOX 4: Typologies in order of prioritized linkage for CCA and DRRM in Agriculture and Food Security sector

- Typology 4, *Enhancing Agriculture productivity through Building Climate-Resilient Water Management Systems.* Among these, the significant investment by local governments was directed towards water-saving adaptation technology in the Tarai: micro irrigation (sprinkler, drip, subsurface and shallow tube-well);
- Typology 9, *Climate Smart Collective Agriculture Promotion in Hills and Mountains,* where local governments investments are directed toward promoting pocket areas for agricultural commodities and products and expanding collective farming in each of the specialized areas and climate-smart agriculture practices (organic agriculture, permaculture, climate-smart farm/village, hydroponics, apiculture, etc.);
- Typology 5, *The Genetic Resource Conservation and Development Programme for Climate-Resilient Agriculture, where dominant* investment is directed toward developing climate stress-tolerant varieties and breeds;
- Typology 3, *Integrated Soil and Nutrient Management for Resilient Agriculture,* with a focus in scaling up green manure, using and promoting biological pest management approach;
- Typology 6, *Programme on Sustainable Agriculture, Food and Nutrition Security and Climate Resilient Health and Hygiene* with investments in promoting suitable climate-resilient agriculture crops across agro-ecological zones; and
- *Typology 7, Commercial Animal Husbandry for Climate-Resilient Rural Livelihoods* with investment to construct climate-resilient sheds for model commercial livestock farming communities

2. Forest, Biodiversity, and Water Conservation

Under this sector, it is found that allocations remained minimal, rarely exceeding 0.3%, except in Dhankaul. Table 9 below indicates annual share (%) of CCA and DRRM-related allocations in this sector relative to the total annual budgets of LGs

Table 9: Annual share (%) of CCA and DRRM-related allocations in the Forest, Biodiversity and Water Conservation sector relative to the total annual budgets of LGs

Name of the LG	FY 2076/77 BS	FY 2077/78 BS	FY 2078/79 BS	FY 2079/80 BS	FY 2080/81 BS
Tilathi Koiladi	-	-	-	0.03	-
Mahadewa	0.12	-	-	0.66	0.11
Dhankaul	0.14	0.13	0.11	0.26	0.3
Katahariya	-	0.1	0.1	-	0.17
Paroha	0.39	0.3	0.28	0.24	0.1
Krishnapur	0.05	0.11	-	0.15	0.06
Dodhara Chadani	0.18	-	-	-	0.00

The analysis of seven LG plans with respect to 11 typologies under the Forest, Biodiversity, and Water Conservation sector found that the current annual plans are linked with 7 typologies directly, and 4 typologies are not linked. Findings from the review of the types of CCA and DRRM plans tagged

under forest, biodiversity and water conservation, the frequent allocation in the LG plans is seen in typology 14. The linkage in order of prioritized typologies in this sector is presented Box 5.

The current LG's plans were not found to be tagged in the following typologies under the Forest, Biodiversity and Water Conservation: typology 10, *Forests Fire Preparedness, Prevention and Control;* typology 11 *Karnali Watershed Management Programme for Reducing Climate Risks and Vulnerabilities and Promoting Irrigation Facilities in the Downstream;* typology 15, *Promotion of Multiple Uses of Protected Areas and Natural Heritage and Generation of Climate Adaptation Services;* typology 16, *reduce the Impact of Climate-Induced Disasters and Extend Forest Networks for Resilient Ecosystems;* and typology 19, *Integrated Green Economy Promotion through Sustainable Forests Management and Non-Timber Forest Products Management, and Circular Economy in the Hills and Mountains.*

BOX 5: Typologies in order of prioritized linkage for CCA and DRRM in Forestry, Biodiversity and Water Conservation sector

- Typology 14, *Improvement of Forest Health and Restoration of Rare, Endangered, Endemic, and Threatened Species for Building Resilient Forest Ecosystem* with investment to encourage afforestation in degraded forest patches;
- Typology 13, *Integrated Sub-watershed Management for Climate Resilience* with investment focused to support for climate-resilient infrastructure (embankments, dikes) to prevent flooding to secure agricultural land;
- Typology 20, *Upland Conservation and Climate-Resilient Livelihoods Programme in High Mountains* with focused to support capacity building of local communities to conserve, promote, and increase the use of high-value forest products;
- Typology 18, *Wetland Development and Conservation along the Chure* with investment focused to support for the protection of springs in the Chure range;
- Typology 12, *Restoration of Habitats and Strengthening Ecological Connectivity for Wildlife and Biodiversity* with investment focused to identify and manage climate refuges for threatened wildlife, plants and other species; and
- Typology 17, *Conserve and Restore Ponds/Lakes in Community-managed Forests for Climate-Resilient Biodiversity (One Community-managed Forest-One Wetland)* with investment focused to encourage plantation campaigns in degraded areas of the community-managed forests.

3. Water Resources and Energy

This sector showed sporadic spikes, particularly in Dhankaul (5.92% in FY 2078/79) and Dodhara Chadani (5.7% in FY 2079/80 BS). Table 10 indicates annual share (%) of CCA and DRRM-related allocations in the Water Resources and Energy sector relative to the total annual budgets of LGs.

Table 10: Annual share (%) of CCA and DRRM-related allocations in the Water Resources and Energy sector relative to the total annual budgets of LGs

Name of the LG	FY 2076/77 BS	FY 2077/78 BS	FY 2078/79 BS	FY 2079/80 BS	FY 2080/81 BS
Tilathi Koiladi	0.39	0.13	0.14	0.48	0.5
Mahadewa	0.47	0.19	0.43	0.17	0.3
Dhankaul	0.48	0.18	5.92	1.26	0.83
Katahariya	0.29	0.76	0.14	0.4	0.15
Paroha	0.22	0.14	0.14	0.27	0.16
Krishnapur	0.51	0.49	0.63	0.42	0.47
Dodhara Chadani	1.08	1.17	2.53	5.7	0.75

The analysis of seven local LG Plans with respect to 8 typologies under the Water Resources and Energy sector found that the current annual plans are linked with 3 typologies directly, and 5 typologies are not linked. While reviewing the types of CCA and DRRM plans tagged under the water resources and energy sector, the frequent allocation in the local government plans was seen in typology 25. The linkage in order of prioritized typologies in this sector is presented Box 6.

The current local government plans were not found to be tagged for CCA and DRRM allocation in the following typologies under the water resources and energy sector: typology 21, *Promoting Climate-informed Decision Making and Developing Climate-Smart Design and*

BOX 6: Typologies in order of prioritized linkage for CCA and DRRM in Forestry, Biodiversity and Water Conservation sector

- Typology 25, *Promoting Climate-Resilient Renewable Energy in Rural Vulnerable Settlements and Institutions* with investments focused on promoting non-conventional energy (biogas, solar energy, wind energy and hydropower), and fuel-efficient technologies to reduce firewood demand and enhance energy resources and establishment of biogas plants, distribute clean cooking stoves, and establish solar power mini-grids in off-grid areas with the possibility of grid integration;
- Typology 26, *Climate-Resilient Flood Control to Protect Livelihoods and Assets at Risk from Climate-Induced Flooding* with investments focus on promoting traditional knowledge, using locally available materials, and incorporating bio-engineering and green belts along the river for blanketing and sustainable management of rivers; and
- Typology 22, *Promoting Energy Mix Systems for Industrial Sustainability and Climate-Resilient Livelihoods with investment* focused on establishing biogas plants, distribute improved cooking stoves, establish solar power mini-grids in off-grid areas and promoting the use of non-conventional energy sources to increase the share of non-conventional energy in the national energy system.

Guidelines for Water Resource Infrastructure; typology 23, *Reduce Glacial Lake Outburst Flood (GLOF) Risks in Gandaki, Koshi and Karnali River Basins; typology 24, Promoting Water Pumping Technologies in Water Scarce Areas;* typology 27, *Sustainable Run-of-River Systems at Feasible Locations Supported by Reservoir Systems;* and typology 27, *Clean and Efficient Energy Technology Development, and Build Resilient Systems and Infrastructure.*

4. Rural and Urban Settlements

Rural and urban settlements sector is found to have inconsistent allocations, with Katahariya and Dodhara Chadani showing relatively higher proportions in some years. **Table 11** indicates annual share of CCA and DRRM-related allocations in this sector relative to the total annual budgets of LGs.

Table 11: Annual share (%) of CCA and DRRM-related allocations in the Rural and Urban Settlements sector relative to the total annual budgets of LGs

Name of the LG	FY 2076/77 BS	FY 2077/78 BS	FY 2078/79 BS	FY 2079/80 BS	FY 2080/81 BS
Tilathi Koiladi	0.98	0.19	1.79	1.61	-
Mahadewa	-	-	2.28	1.49	-
Dhankaul	-	0.6	0.67	1.28	-
Katahariya	0.68	-	2.11	4.09	-
Paroha	-	-	0.69	2.52	-
Krishnapur	0.07	-	1.31	1.12	0.69
Dodhara Chadani	0.23	0.71	1.5	1.78	0.62

The analysis of seven LG plans with respect to three typologies under the Rural and Urban Settlements sector found that the current annual plans are linked with all three typologies directly. While reviewing the types of CCA and DRRM plans tagged under the rural and urban settlements sector, the frequent allocation in the local government plans was seen in typology 31. The linkage in order of prioritized typologies in this sector is presented **Box 7.**

BOX 7: Typologies in order of prioritized linkage for CCA and DRRM in Settlements sector

- Typology 31, *Upgrading and Promoting Climate-Resilient Building Designs, Codes, Practices and Construction Technologies, and National Capacity Building for Implementation* with investment *focused on exploring and identifying* innovative building technology for climate-resilient buildings;
- Typology 29: *Promoting Circular Economy for Sustainable Urban Development* with investment focused on promoting rooftop farming, aquaponics, hydroponics, roadside plantations, and vertical agriculture in urban centres and establishing accessible multipurpose open spaces and community centres at the settlement level; and
- Typology 30, *Developing Integrated Settlements and Urbanization Models for Climate Risk Reduction and Supplying Climate Adaptation Services through Nature-based Solutions* with investment focused to establish emergency holding centres in cities and prepare Integrated Urban/Rural Development Plans emphasizing low carbon and climate-resilient urban and rural settlements in all municipalities.

5. Tourism, Natural, and Cultural Heritage

This sector is found to have received negligible or no allocations for CCA and DRRM interventions at most LGs. **Table 12** indicates annual share of CCA and DRRM-related allocations in this sector relative to the total annual budgets of LGs.

Table 12: Annual share (%) of CCA and DRRM-related allocations in the Tourism, Natural and Cultural Heritage sector relative to the total annual budgets of LGs

Name of the LG	FY 2078/79	FY 2079/80	FY 2080/81
Krishnapur	0.12	0.11	0.13
Tilathi Koiladi	-	-	-
Mahadewa	-	-	-
Dhankaul	-	-	-
Katahariya	-	-	-
Paroha	-	-	-
Dodhara Chadani	-	-	-

The analysis of seven LG plans with respect to 8 typologies under the Tourism, Natural and Cultural Heritage sector found that the current annual plans are linked with 2 typologies directly, and 6 typologies are not linked, suggesting additional significant efforts are needed to prioritise CCA and DRRM action in planning and budgeting processes. While reviewing the types of CCA and DRRM plans tagged under this sector, the frequent allocation in the LG plans was seen in typology 37, *Climate-Resilient Tourism for Ecological Sustainability and Economic Prosperity* with investment directed to promote local customs and traditions to link the local economy to the tourism industry; and typology 41 *Diversifying and Promoting Alternative Tourism Destinations and Products for Climate-Resilient Tourism Business* with investment to promote traditional knowledge, use locally available materials, and incorporate bio-engineering and green belts along the river for blanketing and sustainable management of rivers.

The current LG plans are not found to be tagged in the following typologies under the Tourism, Natural and Cultural Heritage sector (see Box 8).

BOX 8: Untagged typologies for CCA and DRRM in Tourism, Natural Resources and Cultural Heritage sector

- Typology 38, *Climate Risk and Tourism Information System for Resilient, Safe and Sustainable Tourism;*
- Typology 39, *Develop Climate-Resilient Infrastructure, and Explore and Enhance Knowledge and Capacities for Resilient Mountain Tourism;*
- Typology 40, *Promotion of Community-based Adaptation through Eco-and Cultural Tourism and Indigenous and Traditional Knowledge;*
- Typology 42, *Establishment and Operation of Emergency Relief and Rescue Services in Adventure Tourism;*
- Typology 43, *Building Capacity for Resilient Tourism in Nepal,* and
- Typology 44: *Promotion of Climate-Resilient 'One Local Level-One Tourism Destination'*

6. Health, Drinking Water, and Sanitation

Allocations under this sector for CCA and DRRM are found to have varied, with Paroha and Dhankaul generally leading, peaking at 1.56% in FY 2080/81 BS for Dhankaul. Table 13 indicates annual share of CCA and DRRM-related allocations in this sector relative to the total annual budgets of LGs.

Table 13 : Annual share (%) of CCA and DRRM-related allocations in the Health, Drinking Water and Sanitation sector relative to the total annual budgets of LGs

Name of the LG	FY 2076/77 BS	FY 2077/78 BS	FY 2078/79 BS	FY 2079/80 BS	FY 2080/81 BS
Tilathi Koiladi	0.02	0.05	1.01	0.31	0.09
Mahadewa	0.48	0.01	0.08	0.43	0.3
Dhankaul	0.24	0.96	0.24	0.81	1.56
Katahariya	0.26	0.46	0.6	0.82	0.69
Paroha	1.68	0.95	0.45	0.76	1.03
Krishnapur	0.16	0.68	0.17	0.19	0.29
Dodhara Chadani	0.14	0.06	0.14	1.27	0.38

The analysis of LG's plans with respect to 7 typologies under the health, drinking water, and sanitation sector found that the current annual plans are linked with 4 typologies directly, and 3 typologies are not linked. While reviewing the types of CCA and DRRM plans tagged under the health, drinking water, and sanitation sector, the frequent allocation in the local government plans was seen in typology 50. The linkage in order of prioritized typologies in this sector is presented **Box 9.**

The current local government plans were not found to be tagged in the following typologies under the Health, Drinking Water, and Sanitation sector: typology 47,

BOX 9: Typologies in order of prioritized linkage for CCA and DRRM in Health, Drinking Water and Sanitation sector

- Typology 50, *Promotion and Conservation of Water Sources along with Watershed Management for Sustainable Water Supply Service* with investment directed to conserve and promote existing and traditional water harvesting techniques, and sources;
- Typology 46, *Strengthening Climate Sensitive Disease Surveillance Systems with Emergency Preparedness and Response* with investment directed to strengthen the integrated surveillance system for climate-sensitive diseases (vector-borne, waterborne, food-borne, other infectious);
- Typology 49, *Development of Climate Resilient and Inclusive WASH Service and Facilities through Building Capacities, Developing Institutions and Systems, Adopting Innovative Technologies and Extending Collaboration* with investment focused on to build climate-resilient and inclusive sanitation service facilities focusing on gender, children, youth, and overall social inclusion and
- Typology 45, *'Health Promoting Cities': Health, Environment and Life (Heal)* with investment focused on to designate areas for open spaces and parks to promote healthy behaviours.

Research, Innovation and Development of Climate Resilient Preventive Measures/ Technologies/ Approaches for Water Supply, Sanitation and Health System; typology 48, Capacity Building of Health and Hygiene Service Providers and Professionals (Institution and Personnel) on Climate-Resilient Health Hygiene Service Planning and Implementation; and typology 51, *Integration and Implementation of Climate Change Adaptation in the Health and WASH sector through Policy Reform, Strategy Development and national-level awareness.*

7. Disaster Risk Reduction and Management

Katahariya and Paroha are found to have started strong in FY 2076/77 BS but have showed declines in subsequent years, indicating reduced focus. Table 14 indicates annual share of CCA and DRRM-related allocations in this sector relative to the total annual budgets of LGs.

Table 14: Annual share (%) of CCA and DRRM-related allocations in the Disaster Risk Reduction and Management sector relative to the total annual budgets of LGs

Name of the LG	FY 2076/77 BS	FY 2077/78 BS	FY 2078/79 BS	FY 2079/80 BS	FY 2080/81 BS
Tilathi Koiladi	0.02	0.38	0.79	0.72	0.44
Mahadewa	0.35	0.32	0.23	0.21	0.46
Dhankaul	2.49	-	-	0.26	-
Katahariya	4.4	0.02	0.2	0.66	0.56
Paroha	3.19	2.98	0.18		0.16
Krishnapur	1.36	0.32	0.06	0.43	0.22
Dodhara Chadani	0.68	0.46	0.45	0.53	0.3

The analysis of seven LG's plans with respect to 7 typologies under the DRRM sector found that the current annual plans are linked with 5 typologies directly, and 2 typologies are not linked. While reviewing the types of DRRM plans tagged under the sector, the frequent allocation in the local government plans was seen in typology 53. The linkage in order of prioritized typologies in this sector is presented Box 10.

The current LG plans were not found to be tagged in the following

BOX 10: Typologies in order of prioritized linkage for CCA and DRRM in Disaster Risk Reduction and Management sector

- Typology 53, *Strengthening Adaptive Social Protection/ Shock Responsive Practices for Transferring Climate Risk* with activities focused enhancing coordination among stakeholders that are part of the social protection and disaster response to ensure equity and coverage to the communities most in need;
- Typology 52, *Building Climate Resilience by Developing and Harmonizing DRRM and Climate Change Adaptation at Federal to Local Levels through Policy Reforms (Integration of DRR in Local Adaptation Plans)* with activities focused on to strengthen local levels the capacity to develop a circular economy based integrated climate adaptation and DRR planning and implementation;

typologies under the DRRM sector: typology 56, *Promote Culture of Safety and Build Climate Resilience through Climate Risk Sensitive Land Use Plan (RSLUP) Guideline and Standards;* and typology 57: *Developing Federal and Provincial Strategies and Action Plans on Control of Climate-Induced (primarily water-borne) Disasters in the Forest Areas of Nepal and Phase-wise Implementation under the Leadership of Forest Authorities.*

- Typology 54: *Maintaining and Strengthening Early Warning Systems and Multi-Hazard Monitoring Systems to Facilitate Climate Adaptive Function of Key Economic Service Sectors* with activities focused on to establish and strengthen real-time/forecast-based early warning systems including monitoring, and efficient and people-centric communication channels through an appropriate medium (e.g., radio, television, briefing notes, SMS and social media) and use of local language(s);
- Typology 58, *Education sector disaster risk reduction and resilience building* with focus on support for the establishment of hazard safety plans and training drills in academic institutions; and
- Typology 55, *Developing a Regulatory Framework and Implementation Strategy for Domestic and Industrial Fire Control and Mitigation, and Build National Capacities* with activities focus to develop response plans and early warning systems.

The budget analysis reveals that allocations related to CCA and DRRM are either absent or significantly low across several critical areas outlined in the typologies and qualifiers of national strategic priority frameworks **(See Box 11).** This highlights persistent gaps in sectoral integration and strategic planning. Notably, underfunded sectors such as rural and urban settlements pose a substantial risk to long-term resilience, as they lack investment in infrastructure crucial for disaster preparedness and adaptive capacity. Although national guidelines recommend allocating at least 5% of the annual budget to risk reduction across all sectors, current allocations reflect a predominantly reactive approach, prioritizing short-term responses over proactive, comprehensive resilience-building strategies.

BOX 11: Key typologies with clear budget allocations gaps for CCA and DRRM

- Typology 32-36: Industry, Transport and Physical Infrastructure (ITPI)
- Typology 50-62: Gender and Social Inclusion and Livelihood and Governance (GESILG)
- Typology 63-65: Cross-cutting: Awareness Raising and Capacity Development; Research, Technology Development and Expansion and Climate Finance Management

The disparities in funding distribution between better-resourced and less-resourced municipalities further compound local vulnerabilities, limiting the ability of some local governments to effectively manage climate and disaster risks. Additionally, the limited consideration of cross-cutting issues such as gender and social inclusion, as well as the minimal focus on economic diversification, undermines efforts toward inclusive and sustainable resilience. Fluctuating and inconsistent budget trends across fiscal years also raise concerns about the sustainability of planning processes and the degree to which local budgeting aligns with national CCA and DRRM frameworks. These findings underscore the urgent need for improved budget tagging, sectoral balance, and long-term planning to ensure that climate and disaster resilience is mainstreamed effectively at the local level.

4.2.3 Analysis of LG's budget according to funding sources and nature

The budget allocation analysis reveals significant variability in the sources of funding for CCA and DRRM-related activities across local governments. Conditional and equalization grants consistently account for the largest share of funding, while contributions from internal revenues remain minimal in most localities. Matching and special grants are often negligible or entirely absent from the annual budgets of local governments. The dominance of conditional grants, especially in municipalities such as Tilathi Koiladi and Mahadewa, underscores a heavy reliance on externally earmarked funding for targeted interventions. In contrast, municipalities like Dhankaul and Paroha demonstrate comparatively greater self-reliance by allocating a higher share of their CCA and DRRM budgets from internal revenues. However, this often comes at the expense of diversifying funding sources, potentially limiting the scope and sustainability of resilience programming. The low allocation from equalization and special grants points to inadequate fiscal balancing mechanisms to address local disparities, unforeseen needs, or emergent risks. Moreover, in many municipalities, a significant portion of the revenue distribution is consumed by salaries and administrative expenses, leaving limited fiscal space for proactive investments in climate and disaster risk management. The minimal or absent CCA and DRRM allocation from revenue distribution highlights systemic budgetary constraints that weaken local governments' ability to implement context-specific resilience measures.

An over-reliance on conditional grants reduces the flexibility required for locally-driven CCA and DRRM planning and implementation. Meanwhile, inconsistent and limited utilization of internal revenues reflects disparities in local fiscal capacity, further exacerbating inequalities in resilience efforts across municipalities. This uneven distribution and underutilization of diverse funding streams threaten the sustainability and effectiveness of long-term resilience initiatives. Detailed data on the proportion of CCA and DRRM-related budget contributions by revenue source, disaggregated by fiscal year and local government, is presented in **Annex C.**

An in-depth analysis of LG budgets, disaggregated into current and capital expenditures, reveals differentiated allocations aligned with CCA and DRRM priority areas. Current budgets are typically directed toward emergency preparedness and response, awareness raising, capacity building, and administrative functions, largely addressing short-term and operational needs. Conversely, capital budgets support long-term resilience investments, such as the construction of disaster-resilient infrastructure, procurement of critical equipment, post-disaster recovery, and ecosystem restoration.

A balanced allocation between current and capital expenditures is essential to ensure both immediate responsiveness and sustainable development outcomes. However, the capital budget share varies significantly across local governments, ranging from 4.39% to 89.75%. Some municipalities, such as Dhankaul in FY 2076/77 BS (80.46%) and Tilathi Koiladi in FY 2080/81 BS (89.75%), demonstrate a strong emphasis on capital investments. Despite these outliers, current budgets dominate overall expenditure patterns, frequently exceeding 60% in most fiscal years. This trend reflects a predominant focus on recurrent costs and short-term activities, with limited emphasis on transformative or preventive measures. **Table 15** presents the distribution of CCA and DRRM-related budgets between capital and current expenditures across LGs over different FYs.

Table 15: Annual share (%) of CCA and DRRM-related allocations in the Disaster Risk Reduction and Management sector relative to the total annual budgets of LGs										
Name of the LG	FY 2076/77 BS		FY 2077/78 BS		FY 2078/79 BS		FY 2079/80 BS		FY 2080/81 BS	
	% Cap	% Rec	% Cap	% Rec	% Cap	% Rec	% Cap	% Rec	% Cap	% Rec
Tilathi Koiladi	38.6	61.4	81.2	18.8	30.5	69.5	21.6	78.4	89.8	10.2
Mahadewa	22.3	77.7	87.2	12.8	19.9	80.1	39.5	60.5	33.5	66.5
Dhankaul	80.5	19.5	38.1	61.9	73.9	26.1	25.3	74.7	30.0	70.0
Katahariya	12.5	87.5	19.2	80.8	12.2	87.8	14.8	85.2	40.3	59.7
Paroha	4.4	95.6	44.9	55.1	29.9	70.1	8.2	91.8	12.6	87.4
Krishnapur	66.1	33.9	52.0	48.0	37.3	62.7	43.2	56.8	37.7	62.3
Dodhara Chadani	35.6	64.4	20.6	79.4	9.0	91.0	9.9	90.1	19.8	80.2

The over-reliance on current budgets underscores a reactive rather than proactive approach to CCA and DRRM. This imbalance restricts the ability of local governments to invest in critical infrastructure, such as flood control systems, resilient housing, and protective green buffers, necessary for long-term risk reduction and adaptation. The limited capital investment also points to underlying financial, institutional, or technical constraints that hinder sustained progress toward resilient development.

Moreover, the dominance of operational spending suggests that local governments may lack the strategic planning tools or incentives needed to prioritize long-term resilience. Without adequate capital funding, opportunities for transformative change are lost, and vulnerabilities are perpetuated, resulting in escalating future costs. A shift toward balanced budgeting, grounded in risk-informed planning and investment, is therefore crucial.

4.2.4 CCA and DRRM- related sectoral budget allocation at the province.

In Madhesh Province, CCA and DRRM allocations increased both in absolute terms and as a share of the total budget, rising from 14.19% in FY 2077/78 BS to 15.14% in FY 2078/79 BS. Expenditure efficiency also improved from 63.53% to 67.80%. In Sudurpaschim Province, despite an overall decrease in the total provincial budget in FY 2078/79, the allocation for CCA and DRRM rose from 10.39% to 14.47%, indicating a growing prioritization of climate and disaster resilience. While expenditure efficiency remained relatively high, it declined slightly from 83.76% to 79.70%.

The analysis of allocation and expenditure underscores encouraging progress in prioritizing CCA and DRRM investments across both provinces. However, there remains significant room for improving fund utilization efficiency, particularly in Madhesh Province.

The budget allocation for DRM-CCA across thematic sectors in Madhesh and Sudur Paschim Provinces from FY 2077/78 to 2078/79 reflects shifting priorities and uneven sectoral emphasis (see **Table 16**). In Madhesh, Agriculture and Food Security continued to receive the largest share, increasing modestly from 10.53% to 11.12%. While allocations for Water Resources and Energy rose significantly, funding for Forest, Biodiversity, and Water Conservation declined. Sectors such as Rural and Urban Settlements, Tourism, and GESI Livelihood remained marginally prioritized. Notably, allocations for Health, Drinking Water, and Sanitation improved, whereas Disaster-specific funding decreased during the period.

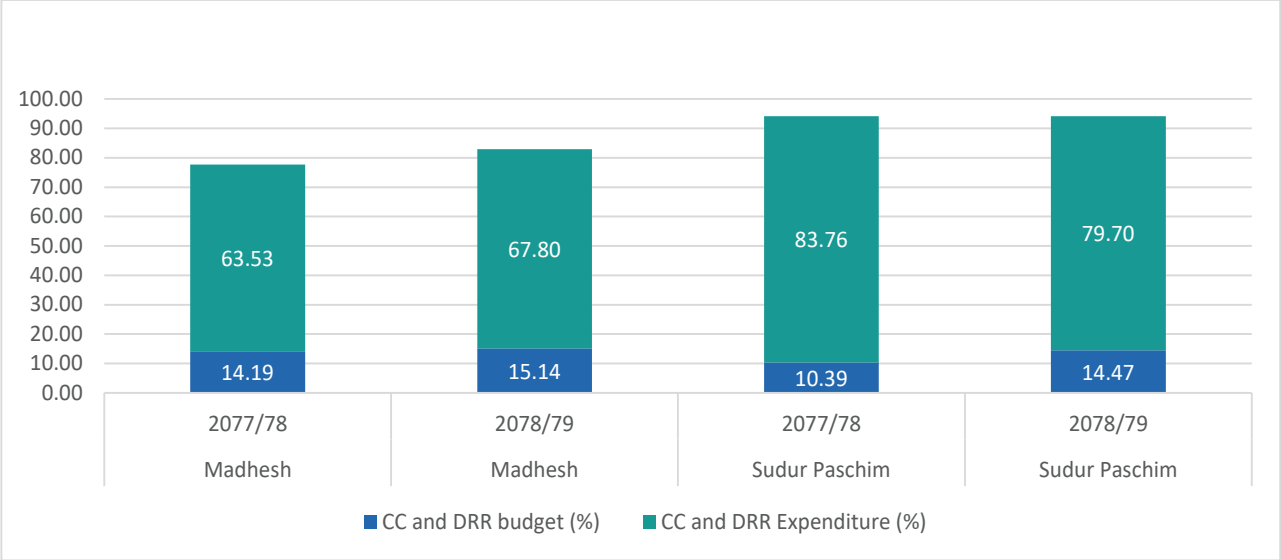


Figure 7: Percentage of CCA and DRRM related budget allocation and expenditure in provinces

In Sudur Paschim, Agriculture and Food Security allocations also increased substantially, from 6.44% to 9.46%, alongside a rise in Water Resources and Energy. While investment in Rural and Urban Settlements remained minimal, Disaster-related funding grew notably from 0.79% to 1.92%. Other sectors, including Tourism and GESI, showed little change.

Table 16: CCA and DRRM-related budget by thematic sectors and provinces

Strategic Priority Areas/Sectors	Madhesh (%)		Sudur Paschim (%)	
	% Cap	FY 2078/79 BS	% Cap	FY 2078/79 BS
Agriculture and food security	10.53	11.12	6.44	9.46
Forest, biodiversity, and water conservation	1.79	0.89	0.98	0.65
Water resource and energy	0.74	1.58	1.44	1.74
Rural and urban settlements	0.03	0.25	0.00	0.16
Industry, Transport and Physical Infrastructure	0.00	0.00	0.00	0.00
Tourism, Natural and Cultural Heritage	0.01	0.10	0.20	0.01
Health, Drinking Water and Sanitation	0.28	0.85	0.27	0.41
Disaster Risk Reduction	0.65	0.30	0.79	1.92
GESI Livelihood and Governance	0.15	0.02	0.25	0.12
Cross-Cutting	0.02	0.02	0.01	0.02
Total CCA and DRM-related budget	14.19	15.14	10.39	14.47

Both provinces demonstrate a consistent emphasis on agriculture and food security in the context of CCA and DRRM. Sudur Paschim's increased investment in disaster-specific actions suggests a growing recognition of risk mitigation. However, critical sectors such as industry, transport, and physical infrastructure, essential for long-term climate and disaster resilience, received no budget allocation, indicating a gap in holistic planning and investment.

4.2.5 Analysis of provincial government's budget according to funding sources and nature

The analysis of CCA and DRRM-relevant budget allocations and their funding sources shows that the highest allocations in both Madhesh and Sudurpaschim Provinces were made through the provincial governments. These were followed by equalization and conditional grants, while matching and special grants remained negligible. Improving CCA and DRRM allocations at the provincial level requires the adoption of objective budget coding criteria. Additionally, development projects funded through matching and special grants should prioritize CCA and DRRM during the planning and budgeting process. Figure 8 and Figure 9 illustrate proportion of various funding sources in Madhesh province and Sudurpaschim province respectively.

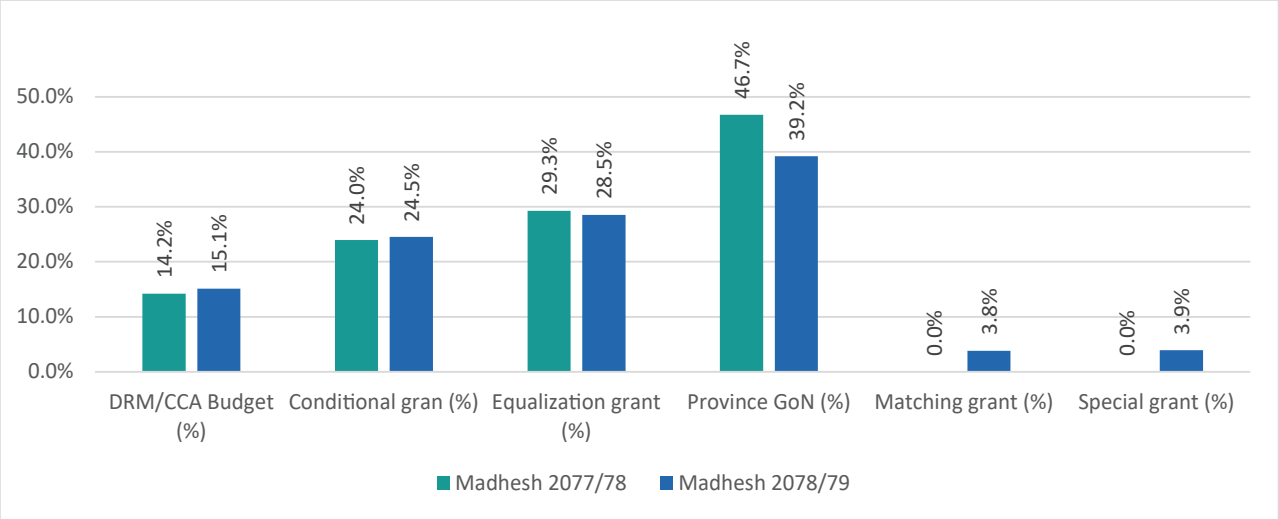


Figure 8: Percentage of CCA and DRRM-related budget according to funding sources and FYs in Madhesh Province

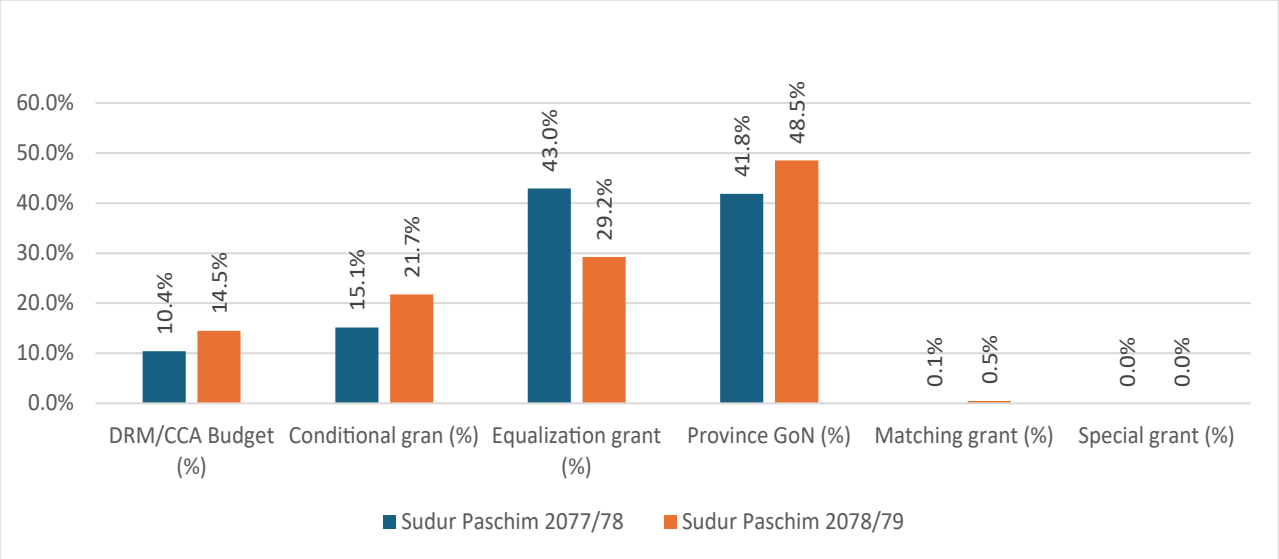


Figure 9: Percentage of CCA and DRRM-related budget according to funding sources and FYs in Sudurpaschim Province

In FYs 2077/78 BS and 2078/79 BS, both Madhesh and Sudurpaschim provinces demonstrated a growing commitment to CCA and DRRM by allocating substantial portions of their annual budgets to these priorities. Madhesh Province allocated 14.2% of its total budget to CCA and DRRM in 2077/78, with a dominant emphasis on capital investment (88%) and only 12% on current expenditures. This trend continued in 2078/79, with the allocation increasing to 15.1%, including 85% for capital and 15% for current expenditures—reflecting a strong focus on long-term resilience-building infrastructure and development. In comparison, Sudur Paschim Province allocated 10.4% of its budget to CCA and DRRM in 2077/78, distributing 75.8% to capital and 24.2% to current expenditures. This rose to 14.5% in 2078/79, with 76.9% directed to capital and 23.1% to current spending. These figures suggest that while Madhesh prioritizes capital-intensive, forward-looking investments, Sudur Paschim adopts a more balanced expenditure model that accommodates both immediate operational needs and longer-term resilience infrastructure. **Figure 10** presents the proportion of CCA and DRRM-related budgets categorized by capital and recurrent nature across provinces and FYs.

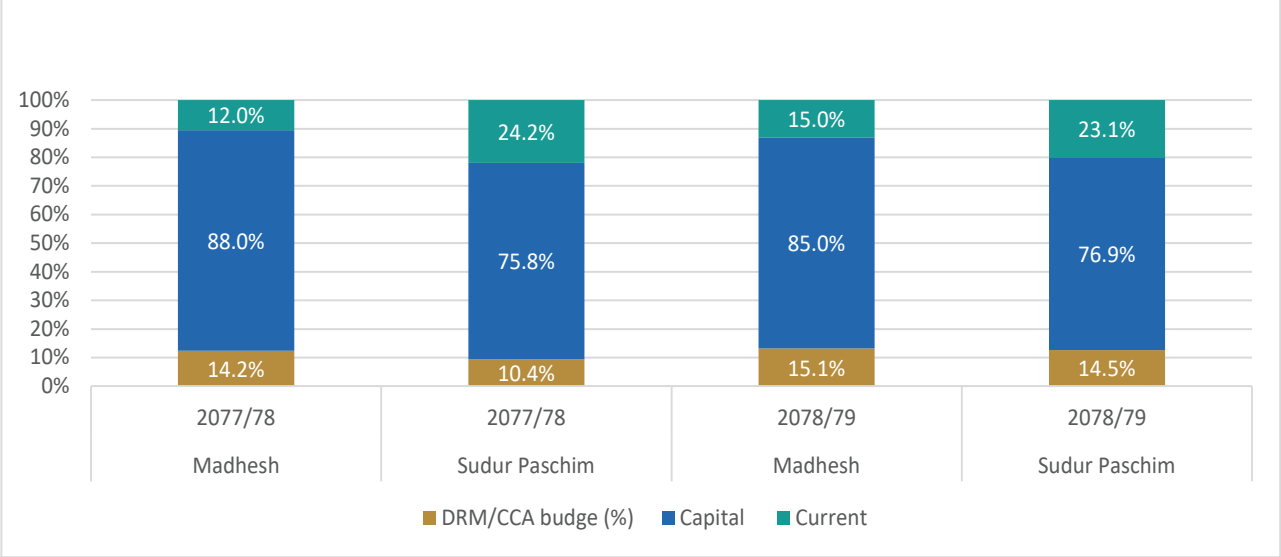


Figure 10: Percentage of CCA and DRRM-related budget by capital and recurrent nature in Madhesh and Sudurpaschim provinces in different FYs

This comparative trend underscores differing strategic approaches—Madhesh leaning towards infrastructure-driven resilience, while Sudurpaschim pursues a dual-focus strategy integrating both investment and operational capacities to address climate and disaster risks more holistically.

4.2.6 Key overarching issues related to prioritization of CCA and DRRM-related budgets at province and LG level

Local governments are mandated to prepare and implement annual development plans within their jurisdiction, in addition to periodic plans, Medium-Term Expenditure Frameworks (MTEFs), and sectoral strategies, all guided by national policies and legal frameworks. The local-level planning and budgeting process (see Annex D for a brief note on the seven-steps planning process) is designed to be structured and participatory, ensuring alignment with federal and provincial priorities while responding to community needs and considering specific criteria. The criteria for project prioritisation at the LG level are provided in Box 12.

However, in practice, several challenges undermine the effective implementation of this structured approach, particularly in targeting CCA and DRRM initiatives. Despite the intent of the seven-step planning process to foster systematic and inclusive planning, its application is not often very strong and at is at times inconsistently followed across annual planning and budgeting cycles. This results in ineffective integration of climate and disaster risk priorities into local development agendas. Moreover, a major constraint is the prevalence of informal and politically driven decision-making that undermines efforts to institutionalize risk-informed and evidence-based planning, diffusing the strategic focus of CCA and DRRM investments. Furthermore, LGs often face uncertainty regarding funding sources for proposed development projects. As also previously pointed out, the absence of reliable and predictable funding streams leads to planning instability, making it difficult to commit to long-term initiatives, particularly those that require sustained investment in climate and disaster resilience.

BOX 12: criteria for project prioritisation at the LG level according to LG planning guidelines

- Making support in poverty reduction
- Getting quick results and high productivity
- Creating more jobs and increasing income
- Receiving high public participation in cost-sharing
- Maximum use of local resources and skills
- Helping in inclusive development
- Ensuring sustainable development and environmental conservation
- Promoting local language and culture

An analysis of current CCA and DRRM-related plans and budgets at the LG level reveals a limited and fragmented focus, primarily concentrated in a few areas. These most common activities with frequency of focus in LGs are summarized in Table 17.

Table 17: Most frequent CCA and DRRM-related budget activities across LGs

Budget-Activities	Frequency
Implementation of a new rice crop pocket development program; implementation of a new banana pocket development program; and designation of bee farming pockets and provision of bee colonies, hives, and other materials along with training at an 80% subsidy.	26
Pandemic/Emergency Disease Control Program with focus in conducting campaigns to search for mosquito breeding sites and destroy larvae to control vector-borne diseases such as dengue and conducting orientation programs with stakeholders; providing orientation to the community about tuberculosis and implement door-to-door tuberculosis detection programs; initiatives on spraying insecticides to control dengue, kala-azar, malaria, and other vector-borne diseases.	27
The purchase and installation of hand-pipes for drinking water; hand-pipes for Dalit communities; distribution of taps to extremely impoverished families; and purchase and installation of tube wells.	36
DM fund for contingency and DRRM including relief and rehabilitation	46
Distribution of boring pipes to farmers; purchase and installation of tube wells for farmers; installation of boring irrigation and motors by the ward; shallow tube well subsidy; and 50% subsidy on the purchase of irrigation motors and boring.	54

While these most common initiatives are valuable, they represent only a small fraction of the broader investment landscape required for comprehensive CCA and DRRM. Many critical sectors, such as resilient infrastructure, early warning systems, urban risk management, ecosystem-based approaches, and social protection, remain underfunded or entirely neglected, undermining efforts to build long-term resilience.

As highlighted in other sections of this study report, the inadequate integration of climate and disaster sensitivity into broader development sectors, along with inconsistent budget allocation trends, remain major concerns. Limited CCA and DRRM funding constrains investment in key climate- and disaster-sensitive sectors—such as infrastructure, tourism, and natural resource management—heightening the risk of maladaptation and weakening long-term resilience. Despite the cross-cutting nature of climate risks, planning remains fragmented. Budget allocations also show inconsistent patterns across fiscal years and regions, reflecting a lack of strategic coherence and institutional capacity. A well-coordinated, multi-sectoral strategy is urgently needed to ensure sustained, risk-informed investment in resilience-building.

Despite these gaps, certain thematic sectors have consistently received relatively higher attention and budget allocation for climate and disaster risk reduction. These include agriculture and food security, water resources and energy, health, drinking water and sanitation, and disaster risk reduction and management. Local governments have shown comparatively better capacity in allocating and utilizing resources in these sectors, responding to immediate climate and disaster-related challenges. However, consultations in the field revealed that most of these investments are short-term in nature, aimed at addressing urgent needs rather than fostering long-term resilience. These initiatives often lack a sustainability lens and do npt consider evolving risks or future climate scenarios. As a result, their impact on reducing vulnerability and enhancing adaptive capacity over the long run remains limited.

4.3 Factors affecting risk informed planning and budgeting at province and LGs

Consultations at the province and LG level reveal multiple institutional, financial, and technical barriers that significantly hinder effective risk-informed planning and budgeting processes. The analysis of information and perspective from consultations at the provinces and LG reveal a range of challenges impeding effective risk-informed planning and budgeting. These include political interference in project selection, uncertain and inadequate funding, poor coordination across agencies, duplication of efforts, and significant technical and human resource gaps. Province and LGs often do not have systematic risk assessment data, integrated databases, and effective early warning and weather information dissemination systems, limiting their ability to prioritize and implement CCA and DRRM measures.

Budget constraints further restrict their capacity, especially for small-scale risk reduction initiatives, with continued dependence on federal and provincial funding. Moreover, municipalities and provinces face persistent challenges such as low enrolment in crop insurance due to bureaucratic procedures and limited awareness, inadequate institutional capacity to plan risk-informed infrastructure investments, and insufficient technical expertise in agriculture and disaster preparedness.

Environmental risks are other concerns exacerbated by unsustainable extraction of sand, gravel, and stones from rivers, compounded by the absence of effective monitoring and regulation mechanisms. Engagement of the private sector in CCA and DRRM remains minimal, largely due to the lack of clear mandates and enabling policies. Despite existing legal and policy frameworks, decision-making processes remain fragmented and poorly supported by integrated systems, undermining the ability of province and LGs to respond effectively to CCA and DRRM priorities.

The consultations in Madhesh and Sudurpaschim provinces identified various factors affecting risk-informed planning and budgeting.

A. Political and institutional challenges

- **Political influence and uncertain funding:** Local planning and prioritization processes are often shaped more by political interests than by objective risk assessments or actual community needs. Infrastructure and development projects may be influenced by political pressure, leading to compromised quality, inflated costs, and neglect of risk considerations. Additionally, unstable and unpredictable funding flows exacerbated by political interference in budget allocations undermine evidence-based, long-term planning. This makes it challenging for local governments to implement consistent, risk-informed strategies..

- **Coordination and duplication:** Insufficiently institutionalized coordination among federal, provincial, and LGs leads to duplication of efforts and fragmented implementation. The functional autonomy of subnational governments, while important, has contributed to coordination gaps in the absence of clear technical oversight. Moreover, there are no robust mechanisms to track budgetary activities, prevent overlaps, and ensure the effective and efficient use of development resources.

- **Limited access to risk data:** Provinces face significant challenges in accessing, standardizing, and utilizing risk data. Discrepancies in data collection across LGs, District Administration Offices, and provincial authorities, coupled with unstandardized practices in Emergency Operation Centers (EOCs), hinder effective disaster response. Additionally, insufficient data on housing inventories and localized risk assessments keeps DRRM efforts reactive rather than preventive, such as relocating flood-prone communities to safer zones.

B. Planning and budgeting gaps

- **Disconnect between planning and budgeting:** There is a persistent misalignment between periodic development plans, the Medium-Term Expenditure Framework (MTEF), and annual budgets with national CCA and DRRM frameworks. As a result, climate and disaster priorities are not adequately reflected in resource allocation. DRRM and development funds continue to be allocated based on routine, business-as-usual approaches, rather than ex-ante, evidence-based risk assessments. This undermines the efficiency and effectiveness of disaster preparedness and response efforts

- **Budgetary constraints and prioritization issues:** Budget ceilings set by the federal government limit the flexibility of provincial governments, with climate change initiatives often deprioritized. Climate and disaster management are still predominantly viewed as

the sole responsibility of the provincial nodal ministry such as Ministry of Home Affairs, Communication, and Law in Madhesh province, which lacks comprehensive data on vulnerable populations, leading to critical gaps in risk identification and integration.

- **Tool and capacity gaps:** Institutions such as the Provincial Policy and Planning Commission do not use the tools and methodologies needed for systematic risk-informed planning and budgeting. This also includes the absence of localized vulnerability and risk assessments, as well as planning templates that integrate CCA and DRRM priorities.

- **Technical and expertise deficits:** The lack of sufficiently embedded CCA and DRRM specialists within government institutions significantly limits the effectiveness of planning and budgeting processes. Key ministries, such as the Ministry of Forest and Environment, are under-resourced and lack dedicated personnel to oversee and implement climate-related initiatives.

C. Infrastructure and development challenges

- **Socio-political and economic constraints:** Infrastructure development frequently encounters resistance at the local level. Even minor changes, such as culvert relocation, can face strong opposition due to diversity of interests. Bulldozer development is rampant, particularly road development without bioengineering or slope stabilization, has heightened environmental degradation. Risk considerations are often overlooked in small-scale projects, compromising long-term resilience.

- **Inadequate risk-sensitive design standards:** Infrastructure projects, including roads and bridges, at times, fail to incorporate climate risk assessments, leaving them vulnerable to future hazards.

- **Urbanization pressure from migration:** Rapid in-migration, particularly in urban centers like Dhangadi, is increasing pressure on infrastructure and services. However, there are no climate-resilient urban planning standards in place to mitigate risks in expanding settlements.

D. Environmental and social governance gaps

- In Nepal, prescribed government-funded projects, like private ones, are legally required to conduct Initial Environmental Examinations (IEE) or Environmental Impact Assessments (EIA), which include the development of Environmental and Social Management Plans (ESMP), under the Environment Protection Act, 2019 and its associated Rules. While the explicit and comprehensive integration of climate and disaster risk reduction into all existing EIA guidelines is an ongoing process, the current legal framework provides a basis for their inclusion, and newer Terms of Reference for EIAs increasingly mandate the assessment of these risks. However, concerns persist that challenges in the effective implementation, monitoring, and enforcement of these legally mandated environmental safeguards can sometimes result in development priorities that appear to favor project quantity over robust environmental quality and long-term sustainability.

E. Data and risk assessment gaps

- **Inadequate capacity for systematic risk assessment:** Most LGs lack the technical capacity and resources to conduct systematic risk assessments. The absence of integrated and comprehensive database systems severely limits their ability to engage in evidence-based, risk-informed planning and budgeting.

- **Inaccessible risk information:** While documents such as municipal profiles, Local Adaptation Plans of Action (LAPA), and LDCRPs exist, they are often lengthy, fragmented, and presented in formats that are not user-friendly for community members or local officials, reducing their practical utility.

- **Limited risk anticipation:** The ability of LGs to anticipate and prepare for hazards remains weak. For example, significant LG investments have been damaged or wasted due to unforeseen flood impacts (e.g., road and culvert damage in Dodhara Chandani Municipality), reflecting underestimation of risks and inadequate foresight in infrastructure planning.

F. Communication and awareness challenges

- **Limitation in the dissemination of weather information:** Local governments face substantial limitations in the technical capacity required to generate, interpret, and disseminate timely and actionable weather-related information to at-risk households.

- **Low community awareness:** Community user groups (e.g., women's groups, agricultural cooperatives, child clubs, older persons' networks, and groups representing persons with disabilities) often have insufficient awareness of climate and disaster risks. This hampers the effectiveness of development activities and limits opportunities for community-led resilience building.

- **Limited private sector engagement:** The private sector's involvement in CCA and DRRM remains low at the LG level due to an underdeveloped understanding of their role in creating an enabling policy and investment environment for climate and disaster resilience.

G. Budgetary and resource constraints

- **Dependence on higher-level funding:** LGs rely heavily on provincial and federal transfers for large-scale development projects. This dependency undermines their ability to integrate risk-reduction considerations into planning, particularly for small- and medium-scale infrastructure investments.

- **High infrastructure demand when the capacity is limited:** LGs face immense pressure to deliver infrastructure such as roads, irrigation systems, schools, health posts, and religious buildings. However, constrained resources and inadequate technical capacity result in limited risk-informed investment, raising concerns about the safety, durability, and sustainability of such structures in the face of growing climate risks.

H. Environmental and resource management issues

- **Unsustainable natural resource extraction:** The unchecked extraction of sand, gravel, and stones, particularly from riverbeds (e.g., in Kanchanpur and Dodhara Chandani Municipality), has intensified flood risks and environmental degradation. The lack of effective monitoring systems, extraction standards, and coordination with national park or forest regulations has led to sedimentation, over-deposition, and destruction of infrastructure, crops, and livestock, as well as loss of life.

I. Governance and implementation challenges

- **Political interests in project selection:** Development priorities at the LG are often shaped by political interests or social tensions, resulting in deviations from the mandated seven-step planning process and undermining the incorporation of risk-informed and evidence-based approaches in local development.

In conclusion, risk-informed planning and budgeting at provincial and local levels are constrained by political interference, limited technical capacity, weak coordination, and budgetary dependence. Despite existing frameworks, gaps in risk data, low community awareness, and minimal private sector engagement hinder effective integration of CCA and DRRM. Addressing these challenges is essential to strengthen resilience and ensure sustainable development outcomes.

4.4 Effectiveness and efficiency of CCA and DRRM investments in building resilience among the most vulnerable groups

4.4.1 Best practices and case stories

The effectiveness and efficiency of selected CCA and DRRM public investments at provincial and LGs show a combination of positive outcomes and critical gaps. Consultations and observations were conducted in four LGs and six provincial-level projects involving CCA and DRRM-related investments, which also included development of relevant case stories. These investments included initiatives such as irrigation systems, embankments, and shallow/deep boring systems for drinking water and irrigation.

Overall, most of these public investments yielded tangible socio-economic benefits. Communities reported improvements in time-saving, increased agricultural productivity and income, and enhanced food and nutrition security, especially for children. The interventions also contributed to better educational and health outcomes. However, many projects primarily addressed short-term needs and lacked a long-term risk reduction perspective.

At the local level, financial limitations often led to prioritizing visible and immediate needs, such as irrigation and drinking water infrastructure, without adequate feasibility assessments, particularly of groundwater sustainability. In several cases, declining water tables rendered tube wells and borings ineffective over time. For example, in Saptari, a river-fed irrigation canal was repeatedly damaged by seasonal floods and sedimentation. Despite repeated rehabilitation efforts, structural vulnerabilities persisted due to the absence of integrated risk-reduction planning.

Despite these challenges, CCA and DRRM investments have delivered critical services and timely support to vulnerable populations. Community feedback was largely positive, with beneficiaries affirming the relevance and immediate benefits of the interventions. However, field visits and interviews also revealed a lack of strategic long-term planning, limiting the sustainability of outcomes and the overall resilience-building impact. These findings signify the need for a more holistic, forward-looking approach to CCA and DRRM planning, one that balances short-term relief with sustainable, risk-informed development.

All the case stories from observed investments on CCA and DRRM in the LGs and province level are summarized in Box 13 and each case story is presented in Annex E.

Different case stories provide evidence of the performance of CCA and DRRM investments and their impact on poor and vulnerable communities. The following examples demonstrate the transformative potential of well-designed interventions:

- **Buniyad Irrigation Project:** The conversion of an earthen irrigation canal to a cemented structure now serves approximately 50 hectares of farmland. Funded by the provincial government, this project has enhanced cereal crop production, improved food and nutrition security, raised household incomes, and reduced labor requirements. The improved canal also addressed previous issues of waterlogging during the monsoon by improving local drainage systems.

BOX 13: Summary of case stories on CCA and DRRM investments at province and LG level

The reviewed investments and corresponding case studies reflect a diverse range of CCA and DRRM investments across Nepal, showcasing both successes and challenges in building local resilience. Projects like the Buniyad and Sulav Irrigation Systems significantly improved food security, income, and women's well-being through reliable water access and efficient irrigation. Similarly, Paroha Municipality's multipronged approach enhanced agricultural productivity and community awareness of climate risks. However, several initiatives faced operational or structural issues—such as the non-functional Dhudhula Irrigation Project, technical flaws in Chaudhar River training works, and premature damage to the Suda Nala Embankment—often due to poor assessments, climate shocks, or weak oversight. Agricultural groups in Tilathi Koiladi and Suklaphanta faced ongoing challenges with low-quality seeds, rising temperatures, erratic rainfall, and soil degradation, limiting productivity and resilience. Meanwhile, the Dhamitol Pathar Nala Embankment and Milan Agriculture Group projects demonstrated partial success, but remained vulnerable to ongoing climate threats and lacked adequate training on disaster risk reduction. Overall, while many initiatives brought short-term gains, most require improved planning, technical capacity, and sustainability measures to ensure long-term resilience among the most vulnerable populations.

- **Sulav Irrigation Project:** Serving 125 hectares of farmland, this project harnesses a perennial natural spring with stable flow. Its reliability has supported sustained agricultural productivity, bolstered food security, and helped farming communities manage climate variability more effectively. It stands as a model for leveraging nature-based solutions for resilience building.

These cases also illustrate how targeted investments in irrigation and water infrastructure, when planned and implemented strategically, can significantly strengthen community resilience to climate and disaster risks. However, scaling such success stories requires addressing institutional gaps, ensuring technical assessments, and embedding long-term sustainability in CCA and DRRM investment planning.

4.4.2 Unintended consequences of CCA and DRRM-related investments

Despite the overall positive impact of CCA and DRRM investments, several interventions have resulted in unintended consequences, highlighting gaps in planning, implementation, and technical oversight. In Tilathi Koiladi, for example, seeds distributed to farmers under a resilience initiative failed to meet quality standards, leading to poor yields and dissatisfaction among beneficiaries. Consultations with the Sriram Janaki Agriculture Group revealed that premature seed drop and low productivity undermined the program's objectives. This points to the need for rigorous pre-distribution seed testing, quality control, and alignment with local agro-ecological conditions.

Similarly, infrastructure-related investments, such as the Gabion River Training Structure implemented by a users' group in Dodhara Chandani, revealed significant structural vulnerabilities. Though designed to protect irrigation canals from erosion and flooding, the structure was nearly buried in sediment within a year of completion, indicating inadequate planning for extreme weather events and sediment flow. Field inspections and discussions with the users' committee president, who also serves as a contractor, exposed systemic challenges with the users' group modality. These included insufficient risk assessments, absence of engineering expertise, and poorly defined technical standards, all of which compromised the resilience and longevity of the infrastructure.

These examples emphasize the critical need for strengthening technical capacity, ensuring robust oversight, and incorporating forward-looking risk assessments into CCA and DRRM planning. Without these improvements, investments may fall short of their intended outcomes or even exacerbate vulnerabilities among already at-risk communities.

4.5 Innovative financing mechanism for CCA and DRRM and the role of private sector

4.5.1 Context for innovative financing

Nepal's development agenda has increasingly embraced green growth and sustainable development as central pillars in its pursuit of poverty eradication, economic transformation, and climate resilience. Recognizing that climate change and environmental degradation pose significant threats to long-term development, the Government of Nepal (GoN) has integrated climate-sensitive goals into its broader national planning and regulatory frameworks. Acknowledging the critical role of private and financial sector actors, the government has formulated enabling policies to mobilize innovative financing for climate change adaptation (CCA) and disaster risk reduction and management (DRRM).

Key national instruments such as the *Environment Protection Act, National Climate Change Policy, NDC, Long-Term Strategy for Net Zero Emissions,* and the National Adaptation Plan (NAP) reflect Nepal's commitment to a green economy. These frameworks collectively outline pathways to climate-resilient development while explicitly highlighting the importance of private sector engagement. The National Climate Change Policy, in particular, highlights the importance of leveraging private sector resources through instruments such as green bonds, blended finance, results-based financing, carbon offset mechanisms, and CSR. These policy provisions are vital to promoting an investment-friendly environment where private capital can be aligned with public goals for sustainable development and climate action. As Nepal aims to graduate to middle-income country status by December 2026, tapping into innovative and diversified financial instruments becomes increasingly important[4] . This transition requires creating pathways for the private sector and financial institutions to design, pilot, and scale investment solutions that address both climate and disaster risks, particularly those that benefit the most vulnerable populations. The mobilization of such financing supports infrastructure and technology deployment and also catalyzes inclusive economic growth, climate resilience, and long-term sustainability.

Policy and Regulatory provisions are set for domestic private-sector or financial-sector investments that contribute to the relevant green activities in Nepal. The GoN and its development partners adopted the Green, Resilient, and Inclusive Development (GRID) approach in September 2021. This approach provides systematic strategies for long-term green growth, climate action, and sustainable development. This commitment is most clearly outlined in the GRID Strategic Action Plan 2024-2035 (being endorsed by Ministry of Finance). Still, many of these principles are enshrined in the 16th Annual Development Plan, sectoral strategies, MTEF, and national budgets. Nepal's CCFF articulated that systematic implementation of systemic reforms in public finance will help attract new climate finance from development partners and the private sector. The CCFF has recognised the need to track all sources of finance that will be delivered on adaptation with adequate capacity building and policy measures to help address the issue. Several public, private, and financial sector-led initiatives have been used to advance the innovative financing mechanism in Nepal to scale up and leverage additional sources of innovative financing instruments to enhance CCA and DRRM efforts. Innovative climate and green finance mechanisms for engaging the private sector in climate and disaster resilience are becoming increasingly essential due to addressing Nepal's low to very high vulnerability to climate change impacts, such as floods, landslides, and droughts.

The policy and legal provisions for innovative financing mechanisms introduced and regulated by the GoN support the allocation of resources toward resilience objectives. The Public-Private Partnership Act (PPIA, 2019) promotes private sector investment in infrastructure and service delivery, helping bridge the gap in funding and expertise required for large-scale projects. The Securities Board of Nepal (SEBON) has incorporated provisions for green bonds and debentures through the updated Securities Registration and Issuance Regulation (seventh amendment, 2023[5]). Nepal's financial system is predominantly dominated by banks, and lending by banking and financial institutions is categorized into 18 economic sectors based on the latest Supervisory Information System (SIS) and the Unified Directives 2021 issued by the Nepal Rastra Bank (NRB), the central bank of Nepal. The NRB has further prioritized directed lending to sectors such as agriculture, energy, tourism, and small, micro, cottage, and medium enterprises (MSMEs).

Making climate and disaster resilience a private-sector business has been an evolving practice in Nepal. Considering the country's overall economic development, the NRB has introduced priority sector

4 https://www.nrb.org.np/contents/uploads/2024/01/Nepal-Green-Finance-Taxonomy-V1.pdf
5 4J6mY5hhWf86mzkHVzIcr83TG8g8YYLpz5miKJrt.pdf

lending for banks, which includes areas such as agriculture, tourism, energy/hydropower, education, social infrastructure, and small and cottage industries, as well as sectors like cement and garments. This policy aims to ensure easier credit access for vulnerable groups and sections of society. Financial institutions are required to allocate at least 25 percent of their total loans to the priority sector, while the requirement is 15 percent for development banks and 10 percent for finance companies. These priority sectors represent the real sectors of the economy that generate a sustained share of Nepal's GDP, driving growth across the primary (agriculture), secondary (manufacturing), and tertiary (services) sectors. The central bank also maintains records of financial flows to these priority sectors.

The "Guidelines on Environmental and Social Risk Management for Banks and Financial Institutions (ESRM)", adopted by NRB in 2018, along with subsequent implementation directives[6] , have served as the foundation of Nepal's regulatory-driven approach to green finance[7] . In line with the Monetary Policy for 2022/23, NRB developed a Green Finance Taxonomy to promote the flow of domestic green finance and support the issuance of green bonds, climate risk reporting, and capital planning for the financial sector. Green and sustainable investments in Nepal made a significant advancement with the issuance of the comprehensive Green Finance Taxonomy by NRB in 2024. The taxonomy provides a classification of economic activities (assets, projects, and sectors) that are considered "green" or environmentally sustainable. This framework helps financial sector actors identify, track, and validate their green activities, thereby channelling capital, resources, and capacity toward building a green, resilient, and inclusive economy in Nepal. Additionally, the government has introduced a green tax on petroleum products, coal, and related goods. According to the Economic Bill 2024, presented in the joint session of the Federal Parliament, a green tax of Rs. 1 per litre will be levied on petrol and diesel.

In addition, there is a legal provision for CSR in the private sector. The Industrial Enterprise Act (2016) requires industries to allocate funds for CSR based on their annual turnover or fixed capital investments, and NRB Circular no. 11/073/74 requires banks and financial institutions to allocate at least 1% of their net profit to a CSR fund. As per the industrial enterprise rules (IER), 2022, the CRS funds can be spent on 1) Community projects, such as water supply, roads, sewerage, and community health posts; 2) Environmental initiatives, such as pollution control, tree plantation, and protection of water resources; 3) Disaster management; 4) Education; 5) Financial literacy; 6) Protection of arts, culture, and heritage and 7) Skill-building and wealth-generating programs: for vulnerable and marginalized community people. The CSR requirement applies to medium industries (fixed capital between NPR 100,000,000 and NPR 250,000,000), large industries (fixed capital exceeding NPR 250,000,000), and cottage and small industries with fixed capital below NPR 10,000,000 but an annual turnover of more than NPR 150,000,000 . However, no CSR requirement is prescribed for insurance businesses or other non-industrial sectors, such as trading businesses.

While banking institutions provide access to finance, the broader insurance and capital market is under development to contribute to the green goals. The insurance sector is undersized and unable to respond to large-scale disaster needs, requiring improvements in its regulatory framework and a transition to a risk-based regime. The capital market is gradually developing to meet the financial requirements, particularly for the real sectors of the economy, and it is facilitating through directives on the issuance of green bonds. However, the economic system would need to transform its operations from business as usual to meet the objective of a green, resilient, and inclusive development approach. In the coming days, the green finance taxonomy will support all market participants and regulators in building a community of practices to pilot and mainstream green finance investments in Nepal.

6 ESRM Checklist: 2074_75_For_A__B__C_Class-Circular_22 Checklist_to_Guideline_on_Environmental__Social_Risk_Management_for_Banks_and_Financial_Institutions_Related.xls

7 A Background Policy Paper on Green Financing in Nepal | United Nations Development Programme

4.5.2 Opportunities in innovative financing

Nepal holds significant potential to transition towards a sustainable and green economy by strategically leveraging green investment opportunities. There are opportunities to engage with capital and insurance markets, innovate capacity building within Nepal's financial structure, and identify the low-hanging fruits of developing an integrated approach to green finance. The sectors with the most potential to attract such investment include renewable energy, clean transportation, green buildings, and water and waste. Sustainable tourism, climate-smart agriculture, and agribusiness are other sectors that have large potential . Some evolving areas of innovative and sustainable financing in Nepal include the following:

- **Working Capital Financing:** This financing is for vendor companies that supply, install, and build renewable energy technologies and projects throughout the country, including the remote and last mile areas. The vendor companies are primarily associated with solar, biogas, micro and mini-hydro, clean cook stoves, solar dryers, solar pumping, and improved water mill (IWM)

- **Hydropower:** Nepal has vast hydropower potential to generate over 83,000 MW of electricity. This can significantly contribute to the energy needs and reduce the reliance on fossil fuels. The larger share of investment in green financing is on hydropower development in Nepal.

- **Financing in off-grid locations under Micro Hydro and Mini-Grids systems** also provides the last-mile population with access to energy. Similarly, Nepal has provided credit to microfinance institutions and cooperatives for ultimate financing to untapped populations to access energy and raise plant utilisation through energy application for productive use.

- **Project financing for renewable energy producers,** such as waste-to-energy projects, biomass pellet industries, and other renewable energy-producing industries/businesses.

- **Financing on Solar energy:** which includes i) rooftop solar projects, both CAPEX and financing under the RESCO model; ii) Financing utility-scale solar projects that sell energy to Nepal Electricity Authority.

- **Financing electric vehicles:** SafaTempo, Electric Vehicles, Charging stations.

- **Financing in Energy Efficiency:** Green Home Loans for Green Building, including financing the industrial and residential sectors

- **Private Equity and Venture capital are increasingly crucial in climate and disaster financing.** For example- the Dolma Impact Fund, established in 2014, contributes to Nepal's SDGs. Business Oxygen (BO2) is the first private equity fund with a climate focus that provides SMEs risk capital financing and advisory support.

- **Other potentials:** i) Wind Energy: While wind energy potential is moderate, it can still add value to the renewable energy mix, particularly in the hilly and mountain regions.; ii) Biomass and biogas: Agriculture and forest biomass can be utilised in rural areas.

A 2017 study by the International Finance Corporation (IFC) estimates that Nepal has a climate-smart investment potential of USD 46 billion between 2018 and 2030, which could be unlocked through effective green finance mechanisms. This estimate is particularly significant in light of Nepal's annual investment gap of 10 to15 percent of GDP projected over the next decade. Given this context, there is a pressing need to harness the momentum already achieved in green financing, while systematically identifying and addressing existing challenges and gaps. Doing so will be essential to shape informed strategies, set priorities, and develop actionable plans that can drive Nepal's transition toward a green and resilient economy.

Nepal's private and financial sectors have already shown growing interest in green investments. However, there is a critical need to diversify and align these investments more strategically with the country's national climate, DRRM, and green growth plans. Key sectors with strong potential include:

- **Renewable and alternative energy,** such as hydropower (across various scales), off-grid and grid-connected solar systems, waste-to-energy projects, wind energy, and both small- and large-scale biogas initiatives;
- **Transportation sector,** particularly the promotion of electric mobility in both private and public transportation systems;
- **Energy efficiency,** including industrial energy-saving measures and the adoption of improved cookstoves; and
- **Sustainable nature-based tourism,** encompassing eco-friendly practices in airlines, hotels, trekking, mountaineering, and adventure tourism.

Private sector initiatives in these areas have already made meaningful contributions toward achieving green development goals and delivering lasting sustainability impacts. Strengthening and scaling these efforts will be essential for Nepal's transition to a green and resilient economy.

Many green financing initiatives in Nepal are currently reported on a voluntary basis, but there is a growing expectation that both financial and non-financial disclosures aligned with green objectives will soon become regulated. Banking and Financial Institutions (BFIs), along with private sector actors, have begun conducting carbon footprint assessments to attract upstream credit flows from international financiers. Additionally, some donor-funded investments are being strategically positioned to build global investor confidence. With the introduction of the Green Finance Taxonomy, private and financial sector participants, including regulators, are expected to adopt an integrated approach that spans the entire value chain, from investors to project developers and implementers. Regulatory bodies will play a crucial role in incentivizing and supporting these stakeholders to align with green standards. To maximize impact and efficiency, there is an urgent need to streamline and harmonize the various green finance initiatives being pursued by BFIs, insurance companies, capital markets, and broader private sector actors.

4.5.3 Challenges related to innovative financing

The resource requirements are vast, and the public sector alone cannot meet the estimated financial needs for climate action targets and green growth aspirations[8] . The private sector plays

8 capitalising-green-finance-report.pdf

a crucial role in bridging the financial resources gaps by enhancing their technical skills and capabilities and streamlining their "green" investments, which can complement and contribute to the government's efforts to invest in sustainable solutions and create a green future. The pace of greening the investment is slow in Nepal. Although Nepal Rastra Bank has released the green taxonomy, the financial sectors in Nepal are at the early stage of promoting green finance. There is a general lack of clarity and capacity within the financial institutions to adopt green investments. Also, some uncertainties remain regarding government regulations and other practical challenges. Therefore, clarity on the implementation approach suggested by the NRB must be implemented systematically by doing, learning and updating. In doing so, the capacity of technical staff with expertise in environmental terminology should be integrated into the broader capacity-building efforts for market participants and regulators to ensure effective implementation.

In addition, lack of capacity and awareness of green finance along the value chain, shortage of long-term finance, lack of a pipeline of bankable green projects, limited credit information and inadequacy of transparency on climate-related disclosure and data are some specific barriers to green finance in Nepal. Small and Medium enterprises (SMEs) face additional barriers as the current lending model is largely collateral-based financing, with BFI hesitant to take risks resulting from project-based funding[9] . Furthermore, SMEs face high upfront costs and limited capacity in aligning projects with the investors' various social and environmental safeguard policies alongside the large transaction costs of funding small-scale projects. in the absence of government-level regulations and policy, there is a lack of incentive to go green and align with industry best practices, which limits BFIs and industries from being the first mover in going green in the fear of an unequal playing field.

Key challenges with standard metrics to evaluate outcomes adaptation/disaster resilience and mitigation investments. Adaptation or disaster resilience focuses on reducing vulnerability, which can be highly context-specific and varies across sectors and regions. However, mitigation aims to reduce greenhouse emissions, which is more straightforward to quantify (e.g., reduced tons of CO2 equivalent). Adaptation or disaster resilience lacks standardized metrics, making comparing outcomes across different projects and sectors difficult. There are challenges in funding resilience objectives, such as less predictability of return on investments (perceived high risk and uncertain return). However, there are global and international examples of success[10] ,[11] where innovative financing engages the private sector to meet adaptation and resilience objectives. For example, insurance products, pay-for-success contracts, green and climate resilience bonds, asset-backed securities, biodiversity offset markets, and debt-for-nature swaps. The private sector in Nepal would be more encouraged if incentive and subsidy packages were provided to promote green and sustainable development efforts.

The institutions relevant to innovative financing mechanisms in Nepal need to strengthen and, in some cases, radically reform their 'business-as-usual' approach to policy-making, planning and service delivery to deliver the next frontier for green growth, climate and disaster finance in Nepal. Several vital institutions at all three tiers of the government are required to enable economic growth, 'greening' the sectors and infrastructure and mobilising private sector participation and investment. Table 18 below maps the functions and mandate of each key institution relevant to promoting green growth, climate, and disaster resilience, enabling private and financial sector actors to improve their current performance and shortfalls, and identifying the key capacity or systems constraints that need to be strengthened.

9 https://www.opml.co.uk/files/Publications/a1594-strengthening-the-disaster-risk-response-in-nepal/capitalising-green-finance-report.pdf
10 Adaptation Finance: A Review of Financial Instruments to Facilitate Climate Resilience | SpringerLink
11 assessment-mobilise-private-finance-climate-adaptation-southeast-asia-2024-08-v1-2.pdf

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Table 18: Examples of removing the barriers from the key institutions involved to promote private sector engagement in climate/disaster resilience			
Institutions	Mandate/ Role	Barriers	Strengthening the efforts
Ministry of Finance (MoF)	Developing overarching economic policy and leading Nepal's GRID Approach, Enabling new green finance instruments.	Institutional leadership and capacity to mobilise new and additional green growth internal and external finance	Effective policy-making for enabling economic, industrial, and services policies and absorbing green growth finance, climate and disaster finance and investments from all sources;
Office of Investment Board of Nepal	Attracting PPP projects, mobilise and managing domestic and foreign investments	Legal and policy framework in not empowering investment, OIBN Act, FITTA, PPPIA etc.	Adjust perception of the role of OIBN to be seen as the institutions of the private sector with a "one-stop-service" investment facility.
Financial Institutions: SEBON, NRB, NIA etc	Green taxonomy implementation; setting regulations and guidance on ESG; New green finance instruments	Limited internal skills in green financing; limited depth of wider financial sector in Nepal; enabling policy framework lacks clarity (e.g. viability gap funding, repatriation)	Design (and skill building) of green financing instrument: foreign currency hedging; Bringing clarity to financial sector policies and regulations; Supporting implementation of green taxonomy and capacity building to the banking sector on ESG compliance.
Ministry of Industry, Commerce and Supplies (MoICS)	Facilitate Industrial Policy, Law, Criteria and Regulation; Develop PPPs for industrial infrastructure and support trade logistics	Insufficient legal and policy framework for regime transition from brown development to green growth development	Capabilities to update key legal and policy frameworks, including the Industrial Enterprise Act, Public-Private Partnership and Investment Act and Foreign Investment and Technology Transfer Act.
Other sectoral ministries:	Establish a supporting policy framework to encourage private green investment, including by opening up commercial revenue streams.	There is no level playing field for green investments, a lack of policy enablers to drive private green investment, and insufficient coordination with local governments.	Commitment to level the playing field for green infrastructure; Design new policy enablers and incentives; Improve coordination and engagement with provincial and local governments.

Ministry of Federal Affairs and General Administration (MoFAGA)	Provide coordination, cooperation, facilitation and patronage through circulars and guidelines to the local government	Weak coordination and mobilisation of local governments to advance green growth.	Develop policy enablers to improve municipal government's capability for resource mobilisation; Establish coordination mechanism for cluster urban projects.
Provincial Government	Distinct jurisdictions, institutionalising the federal system, improving service delivery, coordination and collaboration	Limited internal revenue generation, ability to choose quality projects, resource management, staff management, Lack of clarity on the role.	Establish/ strengthen Investment Authorities; Define green growth investment priorities and develop policy and financial enablers; Establish coordination mechanism to cluster local governments' investment projects.
Municipal Governments	Institutionalising local governance, accelerating inclusive development, autonomy function, participatory planning, service delivery,	Limited internal revenue general, very few human resources; skills gap in designing bankable projects; delivery capacity gaps.	Define green infrastructure investment priorities (mainstreaming in plans); demonstrate a model of bankable project design; find revenue generation opportunities; Strengthen oversight capacity for infrastructure construction.
	Institutionalising local governance, accelerating inclusive development, autonomy function, participatory planning, service delivery,	Limited internal revenue general, very few human resources; skills gap in designing bankable projects; delivery capacity gaps.	Define green infrastructure investment priorities (mainstreaming in plans); demonstrate a model of bankable project design; find revenue generation opportunities; Strengthen oversight capacity for infrastructure construction.

4.5.4 Way forward on innovative risk financing mechanisms

As the first step, achieving the country's low-hanging fruits and early win action to target climate and disaster resilience is imperative through enabling the investment climate. These include incentivising both regulatory agencies and BFIs to benefit from the support on green finance capacity building; identifying and working with potential investors and investment funds; getting government support in establishing a high-level green finance task force with public consultation; and providing low-hanging reputational incentives for BFIs that are taking strides in green finance. Simultaneously, sector-specific thematic working groups must be established to identify and design a potential pipeline of green projects and investment plans backed by financiers under comprehensive market and

regulatory assessments. Global and international examples of success[12] ,[13] exists where innovative financing engages the private sector to meet green objectives. For example, insurance products, pay-for-success contracts, green and climate resilience bonds, asset-backed securities, biodiversity offset markets, and debt-for-nature swaps. The private sector in Nepal would be encouraged if incentives and subsidy packages were given based on the need to promote green and sustainable development efforts by the regulators. Table 19 provides some examples of the current Nepali private sector-led scope of the work and respective financial instruments in use for wider scaling up.

Table 19: Examples of private sector-led resilience work and financing instruments in Nepal

Example of the scope of the work	Financial instruments
Financing hydropower projects	Grants/ Lending
Solar, biogas, micro and mini-hydro, clean cook stoves, solar dryer, solar pumping, and improved water mill (IWM).	Microfinance
Financing in off-grid locations under micro-hydro and mini-grid systems	Upstream credit flows
waste-to-energy projects, biomass pellet industries, and other renewable energy-producing industries/ businesses.	Lending
Rooftop solar projects.	Blended finance
Financing utility-scale solar projects that sell energy to Nepal Electricity Authority	Impact investing
SafaTempo and Electric Vehicles.	Working capital financing to vendor companies that supply, install, and build renewable energy technologies
Green Home Loans for Green Buildings	Credit to micro-finance institutions and cooperatives
MSMEs' renewable energy initiatives	Project financings to renewable energy cooperatives. Private equity and venture capital
Waste to Energy	Project financings to renewable energy producers
Promotion of energy-efficient and sustainable housing	CAPEX as well as funding under the RESCO model.
Financial resilience against climate-related risks	life and non-life, parametric insurance etc.

12 assessment-mobilise-private-finance-climate-adaptation-southeast-asia-2024-08-v1-2.pdf
13 assessment-mobilise-private-finance-climate-adaptation-southeast-asia-2024-08-v1-2.pdf

5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusions

Nepal stands at a promising juncture in its journey toward climate resilience and green development. Recent policy shifts, such as the adoption of the Green Finance Taxonomy, the Climate Change Financing Framework, and CCA as well as /DRRM policies strategies at all levels of government, reflect a strong commitment to integrating CCA and DRRM into national development priorities. The increasing engagement of the private sector and financial institutions in green investments, ranging from renewable energy and electric mobility to sustainable tourism and energy efficiency, has laid the groundwork for broader public-private collaboration.

Institutional progress is visible through initiatives like budget tagging, the use of environmental and social risk management guidelines, and donor-supported investments that are beginning to attract upstream climate finance. Encouragingly, budget analysis shows that even minor policy adjustments and the adoption of practical tools, such as checklists and integration frameworks, can increase allocation and effectiveness of CCA and DRRM financing. The growing use of climate-smart planning and fiscal instruments is a step in the right direction to ensure that green financing flows more consistently to where it is needed most.

At the same time, several structural and operational challenges must be addressed to accelerate impact. Despite progress, CCA and DRRM allocations remain low across many development sectors, and integration into sectoral planning and budgeting is still limited. Current approaches are often generic, with investments being short-lived or ineffective, such as in the case of poorly targeted seed distributions or gabion walls with minimal long-term benefit. Capital investment specifically earmarked for climate and disaster resilience remains inadequate and unevenly distributed.

Moreover, gaps persist in knowledge and technical capacity among government officials, private sector actors, and communities in understanding climate and disaster risks. Local governments in particular need support in using climate and disaster assessments to inform budget decisions, and in optimally leveraging various funding sources such as conditional grants, equalization grants, and own-source revenue. Building long-term resilience demands both improved risk data and more systematic integration of CCA and DRRM into local development plans and sector practices.

The private sector remains largely outside mainstream CCA and DRRM efforts, despite its potential to deliver scalable, climate-resilient solutions, such as insurance schemes, climate-proof infrastructure, and awareness-building initiatives. There is a clear opportunity to bring private actors into the fold through incentives, risk-sharing mechanisms, and blended finance models aligned with national green growth goals.

As climate impacts intensify, the need for a multifaceted, risk-informed development approach becomes more urgent. Strengthening early warning systems, harmonizing policies, and promoting climate-sensitive investments at all levels, from federal ministries to community user groups, are essential. Policymakers must also navigate risk data quality, uncertainty, and organizational inertia, making it critical to build institutional agility, cross-sectoral collaboration, and local ownership.

Looking ahead, Nepal is well-positioned to scale up its efforts by aligning financial flows with resilience objectives, strengthening institutional and community capacities, and creating an enabling environment where CCA and DRM are no longer a siloed concern but an integral part of development planning. With focused policy actions, coordinated investment strategies, and inclusive engagement across sectors, Nepal can lead the way toward a more resilient, sustainable, and equitable future, leaving no one behind in the face of a changing climate.

5.2 Recommendations

5.2.1 Federal-level recommendations

A. Strengthen policy implementation and alignment with planning processes

- Ensure timely and coordinated rollout of federal policies (e.g., NAP, NDC, DRRM Strategic Action Plan) to provincial and local levels through technical guidelines, budget frameworks, and planning calendars.
- Develop and disseminate simplified operational guidelines and orientation tools for integrating LAPA, LDCRP, and LDRMP into local annual planning and budgeting.
- Institutionalize the mandatory use of CCA and DRRM budgeting tools (e.g., climate budget code, DRRM tagging system), aligning with 16th Plan targets and existing sectoral strategies.
- Engage parliamentarians through targeted forums to promote risk-informed policies, enhance political will, and strengthen oversight of unsustainable practices.

B. Ensure predictable and risk informed financing

- Mandate and monitor to ensure a fixed percentage of the national budget for climate and disaster resilience investments at the sub-national level, based on vulnerability and risk profiles.
- Integrate risk considerations into intergovernmental fiscal transfer mechanisms (e.g., NNRFC equalization formula) and develop performance-based financing schemes.

- Regularly update and integrate comprehensive risk assessments (including loss and damage data) into the BIPAD portal to inform budget allocations.

- Develop a national digital platform linking CCA and DRRM indicators with planning and expenditure tracking systems to enhance transparency and decision-making.

- Generate compelling evidence (e.g., cost of inaction vs. resilience investments) using visual tools to influence high-level decision-makers.

C. Build technical and institutional capacity across all stakeholders

- Roll out large-scale capacity development programs for federal officials, sectoral ministries, and sub-national governments on climate- and risk-informed planning, public investment management, and anticipatory action.

- Develop integrated planning and execution frameworks that promote intergovernmental coordination and alignment with national policies.

- Institutionalize performance metrics and feedback mechanisms to assess the impact of investments, particularly on vulnerable populations.

D. Standardize metrics for measuring outcomes and risks

- Develop and implement federal-level standardized metrics for measuring resilience investment outcomes and associated risks. To establish standardized metrics for measuring CCA and DRRM outcomes and addressing high-risk perceptions in resilience investments, GON need develop a national a framework that defines common indicators across sectors, classifies risk levels, and integrates with existing systems like L-MBIS, SuTRA, and the BIPAD portal for planning, budgeting, and spatial visualization. Piloting in selected LGs, customizing to context, and embedding these metrics in project reporting and monitoring and evaluation frameworks will support consistent tracking and evaluation. Capacity building, regular updates, and public scorecards or resilience indexes will ensure transparency, accountability, and stronger alignment with national and global resilience goals.

- Use these metrics to enable cross-sectoral comparison, enhance accountability, and improve adaptive management of climate and disaster-related interventions.

E. Enable private sector engagement in climate actions

- Roll out the NRB's green finance taxonomy to province and LGs and provide technical guidance for implementation.

- Develop provincial-level private sector engagement strategies focused on disclosure, reporting, and incentivizing green investments.

- Promote diversified green investment opportunities across energy, transport, tourism, and waste management, ensuring synergy with national climate goals.

5.2.2 Provincial and LG level recommendations

A. Enhance risk-informed planning and resource allocation

- Adopt a balanced approach in budgeting (capital vs. recurrent), increase local revenue mobilization, and promote fiscal incentives for CCA and DRRM investments.
- Improve public finance systems (P-LMBIS, SuTRA, Financial Comptroller General Office reports) to track CCA and DRRM allocations and expenditures effectively.
- Introduce performance-based grants for local governments that demonstrate effective risk-informed investment planning and implementation.

B. Address underfunding in preparedness, response, and resilience building

- Prioritize investments in climate- and disaster-sensitive sectors through the integration of DRRM/CCA plans (e.g., LDCRP, DPRPs, LAPA) into local MTEFs and annual budgets.
- Allocate at least 5% of sectoral budgets to DRM/CCA as per the DRRM Strategic Plan and scale up climate-relevant spending to 20% as guided by the 16th Plan.
- Ensure timely release and utilization of allocated funds and establish monitoring mechanisms to track fund flow and impact across tiers of government.

C. Ensure adequate investment in Gender Equality, Social Inclusion, Livelihoods, and Governance (GESILG)

- Strengthen budget alignment of LAPA and LDCRPs with a minimum 5% allocation for CCA and DRRM per sector and operationalize strategies for GEDSI mainstreaming in DRRM and CCA.
- Improve data systems and decision-making tools for identifying funding gaps, vulnerable populations, and local adaptation needs.
- Integrate scenario-based risk mapping into planning to support evidence-based budget allocations and long-term resilience strategies.

D. Mobilize and regulate private sector investments

- Establish investment authorities at the local level to define green investment priorities and coordinate bundled infrastructure projects.
- Demonstrate scalable models of bankable climate-resilient infrastructure and identify viable revenue-generation approaches.
- Strengthen oversight capacities for infrastructure quality and sustainability, ensuring projects align with climate-resilient standards and risk mitigation criteria.

E. Cross-cutting sector related recommendations

- Promote inclusive and participatory planning at all levels, ensuring the voice of vulnerable and marginalized groups is reflected in CCA and DRRM strategies.
- Institutionalize climate and disaster risk governance through inter-agency coordination mechanisms, linking policy, planning, finance, and implementation.
- Foster whole-of-society approaches that engage civil society, academia, media, and communities in shaping Nepal's climate-resilient development trajectory.

ANNEXES

Annex A: Typology formulation for the activity level budget tagging

1. Agriculture and Food Security

CODE	TYPOLOGY
1: National Capacity Building of Agriculture and Livestock Institutions on Climate Change Adaptation Research, Planning and Implementation	
AFS.1.1	Develop a capacity-building package for climate vulnerability, risk assessment, and adaptation planning in the agriculture and livestock sector.
AFS.1.2	Provide climate change capacity-building training to agriculture and livestock technicians at all tiers of government.
AFS.1.3	Provide technical support on the assessment of climate change vulnerabilities and risks in the agriculture and livestock sector to revitalize Agricultural Cooperatives.
AFS.1.4	Promote Information and Communication Technology (ICT) service on climate change risk to agriculture and livestock service providers, farmers, and other related stakeholders.
AFS.1.5	Introducing and promoting Weather Index-based Risk Transfer Services (insurance).
AFS.1.6	Strengthen the service delivery capacity of provincial plant protection, seed, and soil testing laboratories of priority municipalities to improve their ability to consider climate vulnerabilities and risks.
AFS.1.7	Develop a catalogue of low cost, climate resilient as well as locally adaptive technologies and practices, and promote their adoption through strengthening farmer's field schools.
AFS.1.8	Establish Agriculture Adaptation Learning and Sharing Platforms at municipality level in each ecological zone.
AFS.1.9	Promote knowledge development and transfer across agroecological zones through Agriculture Adaptation Learning Platforms and farmers field schools.
AFS.1.10	Establish agriculture volunteers at the local government level to support agriculture and livestock extension services.
2: Strengthening Climate Services and Agriculture Information System	
AFS.2.1	Establish agro-meteorological weather station networks at the local government level to address the prevailing weather-related data gap.
AFS.2.2	Establish community-based early warning systems.

AFS.2.3	Develop models and strengthen forecasting systems (floods, drought, dry spells, erratic rainfall).
AFS.2.4	Establish crop growth forecasting mapping and yield prediction through the use of integrated crop modeling – remote sensing – artificial intelligence – statistical tools and technologies and disseminate information to concerned stakeholders and farmers.
AFS.2.5	Capacitate the local communities/farming systems for improved monitoring of localized weather stations, interpretation of climate services, and development of contingency plans.
AFS.2.6	Develop a catalogue and promote gender friendly agriculture tools and techniques.
AFS.2.7	Simulate cropping system under different water and nitrogen regimes.

	3: Integrated Soil and Nutrient Management for Resilient Agriculture
AFS.3.1	Build capacity on and promote composting and farmyard management at local level.
AFS.3.2	Promote Integrated Plant Nutrient Management Systems through field school at municipalities.
AFS.3.3	Promote sloping agriculture land technology (SALT) in hilly areas.
AFS.3.4	Promote conservation agriculture practices: minimum tillage, counter farming, hedgerow promotion, intercropping. Promote legume integration and crop rotation in farming systems.
AFS.3.5	Promote sustainable crop production system through organic agriculture practices and permaculture.
AFS.3.6	Develop a catalogue on Good Agriculture Practices (GAP) and Local Learning's on Soil Nutrient Management in three ecological regions and provide support to implement GAP.
AFS.3.7	Conduct soil nutrient mapping in agroecological zones to support soil nutrient management.
AFS.3.8	Scale up green manure across different physiographic regions.
AFS.3.9	Establish organic and biofertilizers plants in two provinces.
AFS.3.10	Manage biogas slurry to sustain soil fertility.
AFS.3.11	Develop model villages at three ecological zones with all the above interventions.

	4: Enhancing Agriculture Productivity through Building Climate-Resilient Water Management Systems
AFS.4.1	Develop and promote efficient water use technology and practices.
AFS.4.2	Promote snow/frost-harvesting, rainwater harvesting initiatives in high hills and mountains.
AFS.4.3	Adopt water saving adaptation technologies in the Tarai: micro irrigation (sprinkler, drip, sub surface, shallow tube-well).
AFS.4.4	Upscale the successful solar powered irrigation systems.
AFS.4.5	Conserve existing and traditional waterspouts, springs, ponds and irrigation measures (Kulesa, Paini maintenance).
AFS.4.6	Increase multiple uses of water systems (drinking, kitchen, gardening, integrated aquaculture and irrigation).

AFS.4.7	Promote water saving crop production technologies: systems of rice intensification, direct seeded rice, and alternate wetting and drying in strategic locations.
AFS.4.8	Adopt and promote stress tolerant and climate resilient crops and varieties.

5: Genetic Resource Conservation and Development Programme for Climate-Resilient Agriculture in Nepal	
AFS.5.1	Collect local and indigenous species and landraces of crops and animals and store them in community seed and gene bank for dissemination and conservation.
AFS.5.2	Developing climate stress tolerant varieties and breeds.
AFS.5.3	Produce and disseminate climate-resilient crops and breeds.
AFS.5.4	Establish seed storage facilities (super grain bags, seed bunker) at municipalities for food security.
AFS.5.5	Establish seed gene store (seed vault) in the high-altitude areas.

6: Programme on Sustainable Agriculture, Food and Nutrition Security and ClimateResilient Health and Hygiene	
AFS.6.1	Promote suitable climate-resilient agriculture crops across agroecological zones.
AFS.6.2	Cultivate perennial crops in sloped areas.
AFS.6.3	Conduct monitoring and research of fungal, bacterial, viral and nematological diseases of major agricultural commodities.
AFS.6.4	Promote biocontrol agents to address plant and animal diseases and pests.
AFS.6.5	Identify, explore, and promote effective and sustainable disease management technologies.
AFS.6.6	Establish food storage facilities in each of the food deficient districts.
AFS.6.7	Promote healthy consumption and dietary practices in deficient food districts and municipalities.

7: Commercial Animal Husbandry for Climate-Resilient Rural Livelihoods (753 Model Demonstration Project)	
AFS.7.1	Construct climate-resilient sheds for model commercial livestock farming communities in three ecoregions.
AFS.7.2	Develop and promote livestock and agriculture insurance schemes targeting both peasants and largescale commercial farmers and extend value chains and market access for rural agri-livestock products.
AFS.7.3	Promote nutritious fodder/grass species and introduce improved animal breeds model demonstration.
AFS.7.4	Promote integrated farming practices (apiculture, sericulture, aquaculture, agriculture, horticulture, piggeries, poultry, goat farming, agroforestry).
AFS.7.5	Explore and conserve local and indigenous species, landraces, varieties, cultivars, breeds and their wild relative for developing climate-resilient types.

8: Development of Insurance, and Community and Peasant-Friendly Climate Induced Risk Sharing Model and Expansion in both Agriculture and Livestock	
AFS.8.1	Develop and conduct capacity building packages on climate risk and vulnerability and adaptation strategies for local peasants, 753 local governments and private sector entities involved in agriculture.
AFS.8.2	Develop guidelines on climate risk sharing modules for agriculture and livestock.
AFS.8.3	Develop and implement innovative climate financing mechanisms for climate-resilient agriculture practices.

9: Climate Smart Collective Agriculture Promotion in Hills and Mountains	
AFS.9.1	Establish, promote, and expand agriculture cooperatives.
AFS.9.2	Identify agro-ecological zones and establish collective farming through forming agriculture cooperatives.
AFS.9.3	Delineate pocket areas for agriculture commodities and products and expand collective farming in each of the specialized areas.
AFS.9.4	Establish community agriculture learning centers in each of the local levels.
AFS.9.5	Promote climate-smart agriculture practices (organic agriculture, permaculture, climate smart farm/village, hydroponics, apiculture, etc.).
AFS.9.6	Use and promote biological pest management approach, bio fencing, green manuring.
AFS.9.7	Develop and implement a strategy for reducing land fragmentation of farmlands/ agriculture lands.
AFS.9.8	Promote snow harvesting and cloud forest practices in high mountains.
AFS.9.9	Establish and strengthen community seed banks for promoting local, native and indigenous varieties, crops and landraces.

2. Forest, Biodiversity and Watershed conservation: Sustainable environmental services by developing climate resilient ecosystem

CODE	TYPOLOGY
10: Forests Fire Preparedness, Prevention and Control	
FBWC.10.1	Revise and formulate the forest fire management strategy and action plan for the Federal and Provincial levels.
FBWC.10.2	Establish real time forest fire early warning systems throughout the country.
FBWC.10.3	Map and assess forest fire climate risk districts.
FBWC.10.4	Establish and capacitate Joint Rapid Response Teams that include security forces and communities for districts at high risk of forest fires.
FBWC.10.5	Conduct forest fuel management activities (early controlled burning, weeding).
FBWC.10.6	Construct and manage forest fire lines in Tarai, Chure foothills, and mid-hills.
FBWC.10.7	Develop communication, education, participation and awareness materials for wider outreach and dissemination.
FBWC.10.8	Develop insurance packages for forest fire responders.
FBWC.10.9	Capacitate Division Forest Offices and other forest-focused institutions with firefighting equipment.

11: Karnali Watershed Management Programme for Reducing Climate Risks and Vulnerabilities and Promoting Irrigation Facilities in the Downstream	
FBWC.11.1	Assess and undertake mapping of river cutting areas, and design appropriate interventions to protect farmland and community land.
FBWC.11.2	Identify indigenous people; document their indigenous and traditional knowledge for watershed resources management and support to upscale appropriate interventions for watershed management.
FBWC.11.3	Strengthen and diversify livelihood strategies focusing on crop, livestock and agro forestry for vulnerable livelihood zones and marginalized communities.
FBWC.11.4	Strengthen the existing community EWS and promote technology for expansion.
FBWC.11.5	Support climate-resilient infrastructure for rural households (high rise toilet, high rise taps) and communities (women-friendly shelter houses).
FBWC.11.6	Promote plantations of climate/disaster resilient and native/indigenous plant species in degraded riverbank and soil areas.
FBWC.11.7	Develop and strengthen institutions of Karnali for reducing climate vulnerability and building upstream and downstream linkages.

12: Restoration of Habitats and Strengthening Ecological Connectivity for Wildlife and Biodiversity	
FBWC.12.1	Construct safe refuge islands and species-specific sites in flood prone area (sites within and outside protected areas).
FBWC.12.2	Construct overpasses and underpasses for wildlife crossing in Tarai Arc Landscape areas.
FBWC.12.3	Maintain and construct waterholes and ponds in strategic locations.
FBWC.12.4	Provide continuous support for management of different ecosystems (forests, grasslands, wetlands) management within landscape to maintain ecological connectivity.
FBWC.12.5	Inventory and conserve sacred groves, religious forests and water heritages/holes.
FBWC.12.6	Identify and manage climate refuges for threatened wildlife, plants and other species.
FBWC.12.7	Undertake critical habitat management in PAs and outside PAs.
FBWC.12.8	Strengthening Rapid Response Teams for rescue and relief operations for wildlife.
FBWC.12.9	Strengthen trans-boundary coordination for connectivity.

13: Integrated Sub-watershed Management for Climate Resilience	
FBWC.13.1	Assess climate vulnerability and risk at sub-watershed level and develop sub-watersheds health cards for continuous monitoring with respect to climate variables.
FBWC.13.2	Map and restore degraded areas within the sub-watersheds and support for management of those vulnerable ecosystems to increase water availability and forest productivity.
FBWC.13.3	Support for climate-resilient infrastructure (embankments, dikes) to prevent flooding to secure agriculture land.
FBWC.13.4	Promote farmyard/organic manure to maintain soil fertility within sub-watersheds.
FBWC.13.5	Map and conserve spring revival through spring-shed approach.

FBWC.13.6	Promote soil erosion control techniques in upstream of the sub-watersheds using indigenous and traditional knowledge and local resources.
FBWC.13.7	Strengthen and establish Flood EWS in strategic locations of Bagmati and Eastern Rapti River Basin.
FBWC.13.8	Install hydro-met stations at strategic location of Bagmati and Eastern Rapti River Basin.

14: Improvement of Forest Health and Restoration of Rare, Endangered, Endemic, and Threatened Species for Building Resilient Forest Ecosystem	
FBWC.14.1	Prepare a database and mapping of REET species throughout the country.
FBWC.14.2	Update VRA of REET species.
FBWC.14.3	Strengthen and establish pest and disease control lab across all provinces.
FBWC.14.4	Promote massive mechanical uprooting and biological control of forest invasive species on a regular basis.
FBWC.14.5	Promote germplasm conservation of major tree species (in-situ and ex-situ).
FBWC.14.6	Strengthen and establish Breeding Seed Orchards (BSO) of REET species.
FBWC.14.7	Develop innovative actions for the use of forest invasive species.
FBWC.14.8	Develop guidelines to conserve and manage REET species for resilient forest ecosystem.
FBWC.14.9	Encourage afforestation in degraded forest patches.
FBWC.14.10	Develop indicators for resilient forest and actions for enhancing forest health.
FBWC.14.11	Explore innovative tools and techniques to improve forest health based on the indicators defined and promote their adoption.

15: Promotion of Multiple Uses of Protected Areas and Natural Heritage and Generation of Climate Adaptation Services	
FBWC.15.1	Promote the use of robust climate models that use GIS and remote sensing to make predictions on climate change in PAs.
FBWC.15.2	Integrate climate-resilient livelihoods in the management plan of PAs.
FBWC.15.3	Explore, design, and implement climate adaptation services in 6 PAs.
FBWC.15.4	Explore sustainable financing mechanisms to ensure adaptation services in the PAs.
FBWC.15.5	Develop and implement strategies to increase the resilience of natural heritage sites to withstand climatic shocks and climate induced disasters.
FBWC.15.6	Scale up Ecosystem-based Adaptation (EbA) approaches in these 6 PAs.

16: Reduce the Impact of Climate Induced Disasters and Extend Forest Networks for Resilient Ecosystems	
FBWC.16.1	Provide continuous support for forest ecosystems to maintain ecological integrity.
FBWC.16.2	Prepare a database and mapping of climate-induced hazards in forest areas.
FBWC.16.3	Simulation/modelling of climate impacts on highly vulnerable forest area to inform proper management.
FBWC.16.4	Support restoration of degraded forest areas to strengthen landscape connectivity
FBWC.16.5	Incorporating climate induced disaster management guidelines in all Forests Operational Plans.

FBWC.16.6	Build resilient infrastructure (bioengineering, earthen dikes) to control climate-induced disasters.

17: Conserve and Restore Ponds/Lakes in Community-managed Forests for Climate-Resilient Biodiversity (One Community-managed Forest-One Wetland)	
FBWC.17.1	Undertake mapping of water resources, springs, and wetlands across community forests.
FBWC.17.2	Maintain existing wetlands/ponds for water augmentation to withstand the increasing temperature and evapotranspiration.
FBWC.17.3	Explore and construct/develop wetlands in new areas of community-managed forests that are hard hit by the changing climate.
FBWC.17.4	Encourage plantation campaigns in degraded areas of the community-managed forests.
FBWC.17.5	Support the management of wetlands/ponds (silt removal/invasive species removal/water abstraction) in community-managed forests.
FBWC.17.6	Facilitate/update the implementation of Community-managed Forest Operational Plans by providing technical capacity.
FBWC.17.7	Support the integration of climate-resilient initiatives in the community-managed forest operation plans.
FBWC.17.8	Promote the sustainable use of the wetland's goods and resources.
FBWC.17.9	Promote traditional and indigenous knowledge, skills and wetland practices inclusive to the wetland dependent community and promote gender equality in planning and management of wetlands.

18: Wetland Development and Conservation along the Chure	
FBWC.18.1	Undertake mapping of wetlands in Chure region and assess the health of wetlands.
FBWC.18.2	Construct wetlands and ponds in strategic locations of the Chure range using small earthen dams, retaining streams, waterholes, ponds and lakes.
FBWC.18.3	Conserve wetlands as refuges for REET plants species and wildlife.
FBWC.18.4	Support for the protection of springs in the Chure range.
FBWC.18.5	Manage/control invasive alien species in wetlands.
FBWC.18.6	Develop a network of wetlands along the Chure region to increase buffering capacity.

19: Integrated Green Economy Promotion through Sustainable Forests Management and Non-Timber Forest Products Management, and Circular Economy in the Hills and Mountains	
FBWC.19.1	Undertake mapping of pocket areas of medicinal and aromatic plants species and varieties, non-timber forest products, technology needs, and access to market.
FBWC.19.2	Build capacity and facilitate resource mobilization and introduce climate-resilient technologies for upscaling women-led enterprises.
FBWC.19.3	Explore and access forest-based green jobs in hills and mountains.
FBWC.19.4	Develop guidelines for green jobs based on a public-private partnership model in mountains.
FBWC.19.5	Capacitate Community-managed Forests User Group members (climate vulnerable/ marginalized/IPs) to uptake green jobs as part of their livelihood support.

FBWC.19.6	Strengthen the capacity of community-based forests institutions on gender integration, skill development and technology interventions.
FBWC.19.7	Develop elements of a circular economy for the forest sector to diversify incomes of mountain communities.
FBWC.19.8	Promote broadleaved mixed forest against pine monoculture in the hills.
FBWC.19.9	Support the development of a model of forest-based circular economy in 10 Community-managed forests.
FBWC.19.10	Support Forests to implement resilient sustainable forest management practices in hills and mountains.

20: Upland Conservation and Climate-Resilient Livelihoods Programme in High Mountains	
FBWC.20.1	Research and promote high value forest products for climate-resilient livelihoods.
FBWC.20.2	Develop guidelines for private sector engagement for the use of high value forest products for livelihoods.
FBWC.20.3	Support capacity building of local communities to conserve, promote, and increase the use of high value forest products.
FBWC.20.4	Develop a climate-resilient strategy and action plan for the conservation and management of pastures and meadows and high-altitude areas.
FBWC.20.5	Support and catalogue ethnobotanical knowledge and practices of upland areas and capacitate local grazers/herders/healers with respect to address climate change, pasture management, and transhumance.
FBWC.20.6	Support to ensure community-led pasture management in highlands for resilient livelihoods.
FBWC.20.7	Promote livelihood diversification in uplands through pasture/rangeland management, sustainable harvesting of medicinal plants, mountain tourism and commercial animal husbandry.
FBWC.20.8	Conserve high altitude wetlands to sustain wetlands-based livelihoods.
FBWC.20.9	Develop management practices to rejuvenate highland rocky and barren areas through watershed management approach.

3. Water Resources and Energy

CODE	TYPOLOGY
21: Promoting Climate-informed Decision Making, and Developing Climate-Smart Design and Guidelines for Water Resource Infrastructure	
WRE.21.1	Formulate national meteorological and hydrological act/regulations and policy frameworks regarding hydro-met services including establishment and operation of hydro-met stations and data sharing protocols/mechanisms.
WRE.21.2	Formulate and implement climate-resilient designs and guidelines for water resources infrastructure.
WRE.21.3	Establish/strengthen hydro-met observation stations in the middle and high mountainous regions.

WRE.21.4	Develop hydro-met service decision support system based on impact-based forecasting.
WRE.21.5	Develop sector-specific weather and climate information packages and develop a mechanism for sharing of such information.
WRE.21.6	Establish modern technology and infrastructure for localized weather, climate, and early forecast.
WRE.21.7	Establish monitoring and forecasting and early warning systems for climate-induced hazards (floods, landslides, drought, forest fires, increased crop disease prevalence and its spread, heat waves, cold waves, lightning, storms, etc.).
WRE.21.8	Develop the capacity of the national meteorological and hydrological service, policy makers, users and end-users for integration of climate information in decision making.
WRE.21.9	Develop and implement the national framework on climate services for enhanced weather/climate services.
WRE.21.10	Develop/conduct education and awareness programmes on flooding, landslides, sedimentation, siltation, and adaptation and resilience in water resource and energy sector.
WRE.21.11	Implement ecosystem conservation programmes in the corresponding watersheds of the hydropower projects.

22: Promoting Energy Mix Systems for Industrial Sustainability and Climate-Resilient Livelihoods	
WRE.22.1	Revise and reform national policy documents to promote decentralized renewable energy sources in the national energy system mix.
WRE.22.2	Identity and assess climate change vulnerability and risk in the electricity generating system.
WRE.22.3	Build the climate resilience of the vulnerable electricity generating power plants.
WRE.22.4	Establish a medium scale solar power plant in each province with exploring potential and economic viability of solar plant with battery system/storage.
WRE.22.5	Promote renewable energy and strengthen energy security in industrial operations.
WRE.22.6	Promote the use of non-conventional energy sources to increase the share of non-conventional energy in the national energy system.
WRE.22.7	Establish biogas plants, distribute improved cooking stoves, and establish solar power mini grids in off-grid areas.
WRE.22.8	Expand rural electrification in off-grid areas to support livelihoods.
WRE.22.9	Reuse and recycle non-functional solar irrigation pumps (SIPs) and explore potential of grid connected large-scale solar irrigation.

23: Reduce Glacial Lake Outburst Flood (GLOF) Risks in Gandaki, Koshi and Karnali River Basins	
WRE.23.1	Study and research to reveal climate change trends and impacts on glaciers and glacial lakes in the Himalayan region and identify vulnerable glacial lakes in Nepal.
WRE.23.2	Assess potentially dangerous glacial lakes based on increasing temperature, lake expansion, moraine dam structure, and geo-morphological structures.
WRE.23.3	Assess hazards and communities in the downstream of glacial lakes that are vulnerable to potential GLOF events.

WRE.23.4	Establish research wings for the study of fresh water and glacial lakes at the federal level.
WRE.23.5	Establish and operate EWS with collaboration and cooperation in emergency response.
WRE.23.6	Quantify the freshwater storage and the impact of climate change on glaciers and snow coverage.
WRE.23.7	Establish and operate adequate hydro-meteorological stations and early warning equipment and systems for continuous monitoring and dissemination of information to the local level.
WRE.23.8	Design and develop environmentally friendly, climate-resilient structures for lowering of water levels in the glaciers and lakes.
WRE.23.9	Build capacity for the operation of the EWS and early actions in community at the federal, provincial and local levels.
WRE.23.10	Develop glacier and snow melting modelling systems to evaluate the freshwater availability in the glacial lakes for its optimum utilization.

24: Promoting Water Pumping Technologies in Water Scarce Areas	
WRE.24.1	Undertake mapping of water scarce areas and feasibility of water pumping technologies and set up ground water monitoring system to evaluate the impact of ground water irrigation.
WRE.24.2	Develop/strengthen prototype of the climate-resilient low carbon water lifting systems and establish in water scarce areas and upscale the successful system.
WRE.24.3	Construct climate-smart irrigation systems to effectively utilize the water available from the water lifting systems and develop the eco-financially feasible business model.
WRE.24.4	Establish multiple water use systems at the local level for easy access to drinking water and irrigation.
WRE.24.5	Develop/conduct education and awareness programmes of climate change and its impact, adaptation, resilience, health and hygiene.
WRE.24.6	Promote solar water pumps to improve access to drinking water and irrigation water requirement.

25: Promoting Climate-Resilient Renewable Energy in Rural Vulnerable Settlements and Institutions	
WRE.25.1	Establish biogas plants, distribute clean cooking stoves, and establish solar power mini grids in off grid areas with possibility of grid integration.
WRE.25.2	Establish solar power plants in each of the provinces considering the current and future climate change scenarios and impacts in the power plant locations.
WRE.25.3	Build capacity of local technicians, local communities and local governments on climate change risks, adaptation strategies and the use of non-conventional energy sources and their operation and management.
WRE.25.4	Equip and enable rural institutions to meet basic needs (health care and education) through improved access to energy.
WRE.25.5	Promote non-conventional energy (biogas, solar energy, wind energy and hydropower), and fuel efficient technologies to reduce firewood demand and enhance energy res

WRE.25.6	Promote productive end use of energy to enhance rural livelihoods.

26: Climate-Resilient Flood Control to Protect Livelihoods and Assets at Risk from Climate Induced Flooding	
WRE.26.1	Identify vulnerable settlements and devise resettlement plan and training activities to safeguard vulnerable communities.
WRE.26.2	Promote traditional knowledge, use locally available materials, and incorporate bio-engineering and green belts along the river for blanketing and sustainable management of rivers.
WRE.26.3	Promote small to medium storage for lowering flood peak.
WRE.26.4	Undertake climate and disaster risk assessments to understand the river catchment areas' susceptibility to different hazards such as landslides and soil erosion.
WRE.26.5	Conserve river catchment areas through peoples' participation and building of networks of upstream and downstream communities to forge collaboration.
WRE.26.6	Undertake study and research on river sediment, soil erosion and debris flow to determine the health of the check dams.
WRE.26.7	Extract aggravated riverbed materials to maintain river channels and sustain the life of the check dams.
WRE.26.8	Construct multiple use check dams that enable the various uses of the water, including for irrigation and hydropower generation.

27: Sustainable Run-of-River Systems at Feasible Locations Supported by Reservoir Systems	
WRE.27.1	Undertake climate and disaster risk assessment to understand the operability and energy generation potential of the run-of-river hydropower plants in the business-as-usual and climate extreme situations.
WRE.27.2	Undertake study and research on river sediment, soil erosion and debris flow to determine the health of the reservoirs and hydropower plants.
WRE.27.3	Extract aggravated riverbed materials to maintain river channels and sustain the life of the check dams.
WRE.27.4	Build capacity of the hydropower developers on climate change vulnerability and risks, adaptation, and resilience strategies.
WRE.27.5	Review and develop climate-resilient hydropower development guidelines to run the sustainable supply of power and to integrate climate change adaptation into run-of-river hydropower plant design and operation.
WRE.27.6	Ensure sustainability of the run of river hydropower projects by supporting them with reservoirs.

28: Clean and Efficient Energy Technology Development, and Build Resilient Systems and Infrastructure	
WRE.28.1	Catalogue climate-resilient energy efficient technologies pertinent to Nepal's geography and use these technologies in clean and green energy generation and distribution.
WRE.28.2	Develop guidelines to build climate-resilient energy systems.
WRE.28.3	Undertake climate and disaster risk integrity assessments of hydropower plants and other energy systems.

WRE.28.4	Design and develop retrofitting energy system to withstand climate extreme events and promote continuous generation and distribution of energy.
WRE.28.5	Promote research and innovation for the development and promotion of climate-resilient technology development.

4. Rural and Urban Settlements (RUS)

CODE	TYPOLOGY
21: Promoting Climate-informed Decision Making, and Developing Climate-Smart Design and Guidelines for Water Resource Infrastructure	
RUS.29.1	Mapping of the climate and disaster risks at the settlement level in seven cities in each of the seven provinces.
RUS.29.2	Promote non-motorized modes of transportation through construction of climate-resilient infrastructure that is inclusive and safe.
RUS.29.3	Support municipalities to develop and implement green growth strategies and plans.
RUS.29.4	Strengthen institutional capacity for coordination, planning, monitoring, and reporting of concerned agencies.
RUS.29.5	Align urban planning and development of infrastructure to avoid ecological imbalances, increased risk of exposure to new pathogens, and the emergence of new diseases.
RUS.29.6	Promote water retention systems – expanded rainwater harvesting, water storage, and conservation techniques, water reuse, and water use.
RUS.29.7	Enforce land-use planning and provision of subsidies for effective implementation of land-use plans to control the construction in risk-prone areas.
RUS.29.8	Revise building codes so that they integrate climate risk factors.
RUS.29.9	Mechanize an insurance system for populations and livelihood assets that are at risk of climate impacts.
RUS.29.10	Identify and promote social protection measures and alternatives for people living in slum and squatter areas along the banks of the river.
RUS.29.11	Promote urban planning that considers the specific needs of children, women, differently abled people, and the elderly.
RUS.29.12	Establish a database system to record and monitor the exposure of buildings and their sensitivity to climate extreme events and disasters.
RUS.29.13	Establish accessible multipurpose open spaces and community centres at the settlement level.
RUS.29.14	Promote urban forests and develop urban forest corridors connecting settlements.
RUS.29.15	Promote rooftop farming, aquaponics, hydroponics, roadside plantations, and vertical agriculture in urban centres.
RUS.29.16	Construct new and improve existing drainage systems considering a 100-year return period.
RUS.29.17	Promote, improve, and use local materials and traditional technology for the construction of buildings (bamboo house, mud house, stone etc.), via a municipal tax incentive system.

RUS.29.18	Increase the human resources capacity of the local government by creating compulsory designated posts of urban planners, architects, and engineers.
RUS.29.19	Integrate rainwater harvesting and groundwater recharge systems via recharge pits in the building permit system.
RUS.29.20	Develop regulatory mechanisms on groundwater extraction, and the inclusion of recharge pits and ponds concept before extraction.
RUS.29.21	Design and maintain road infrastructure with side drainage that gives due consideration to the runoff system and flooding.

30: Developing Integrated Settlements and Urbanization Models for Climate Risk Reduction and Supplying Climate Adaptation Services through Nature-based Solutions	
RUS.30.1	Study and identify vulnerable settlements in three ecological zones and seven provinces and undertake mapping of compact settlements.
RUS.30.2	Identify safer locations for resettlement and relocation as part of rural municipal-level strategic spatial plans.
RUS.30.3	Resettle/relocate climate and disaster vulnerable population in safe areas considering people's livelihood, agriculture and their traditional business/ economical activities.
RUS.30.4	Prepare Integrated Urban/Rural Development Plans emphasizing low carbon and climate-resilient urban and rural settlements in all municipalities.
RUS.30.5	Identify key potential areas for development of integrated settlements.
RUS.30.6	Establish emergency holding centres in cities.
RUS.30.7	Establish community-based early warnings and disaster information system at local level.
RUS.30.8	Promote cottage and local agro-industrial activities through installation of required technologies and equipment.
RUS.30.9	Build capacity of the local population on income generating activities that help to diversify income sources.
RUS.30.10	Implement climate-resilient physical development plans using GIS and hazards mapping techniques.

31: Upgrading and Promoting Climate-Resilient Building Designs, Codes, Practices and Construction Technologies, and National Capacity Building for Implementation	
RUS.31.1	Explore and prepare local construction materials, responsible sourcing, and preparation of material guide.
RUS.31.2	Conduct a study on climate responsive attributes of local architecture in three ecological regions.
RUS.31.3	Improve and/or enhance the characteristics and use of the building materials and technologies in the context of climate and disaster risk.
RUS.31.4	Explore and identify innovative building technology for climate-resilient buildings.
RUS.31.5	Undertake a study and prepare a catalogue on cost effective, climate friendly and disaster resilient construction materials and technology

RUS.31.6	Develop climate-resilient design guidelines for critical infrastructure such as roads, bridges, dams, and public buildings such as schools and hospitals.
RUS.31.7	Design a guideline to incorporate child-friendly, disabled-friendly, elder-friendly, and women-friendly factors when upgrading existing infrastructure as well as in new construction.
RUS.31.8	Develop incentive mechanisms for the promotion of improved, climate friendly construction materials and technology.
RUS.31.9	Retrofit existing buildings using climate-resilient building technology (greening of the multistore building through usage of low carbon and climate-resilient construction materials and building technology).
RUS.31.10	Prepare capacity building packages and promote skill development activities through tailor-made trainings, hands on exercises, and establishment of learning centres in seven provinces.

5. Industry, Transport and Physical Infrastructure (ITPI)

CODE	TYPOLOGY
32: Strengthening Institutions, Technologies, Policies and Resources (Databases), and Building Capacity and Awareness for Climate-Resilient Industry, Transport and Physical Infrastructure	
ITPI.32.1	Develop a nationwide and accessible resource, data and information pool that support building capacities of resilient ITPI.
ITPI.32.2	Disseminate EWS to industrial facilities that covers industry value and supply chain mechanisms.
ITPI.32.3	Amend, plan, and develop climate-resilient infrastructure design, climate friendly guidelines (EIA, SEA and Climate Impact Assessment), proper land-use planning, relocation strategies, green certificates (Leadership in Energy and Environmental Design - LEED), and provision of insurance and subsidy mechanisms.
ITPI.32.4	Build capacity and increase awareness on climate-resilient industry and infrastructure operations to ITPI stakeholders and service providers.
ITPI.32.5	Conduct periodic monitoring and review as necessitated by standards.
33: Developing and Promoting Resilient, Clean Energy-based Transportation Systems	
ITPI.33.1	Undertake climate vulnerability and risk hazard mapping of the road sector.
ITPI.33.2	Promote and use climate-resilient and environment friendly tools, technologies, and inclusive measures in roads and transport (e.g., green belts, avenue plantations, bioengineering, bypasses, distance shortening, electric vehicles, waterways, railways, charging stations, etc.).
ITPI.33.3	Promote hybrid-fuel systems for transportation vehicles.
ITPI.33.4	Develop a Decision Support System for Transportation Systems to enable understanding of the unfolding climate vulnerability and risks in the transport sector.
ITPI.33.5	Promote nature-based solutions to building resilience of the road sector.

34: Developing Climate-Resilient Community Infrastructures to address Climate Risks, Hazards and Pandemics	
ITPI.34.1	Develop guidelines for accessible, safe, and resilient shelters, based on the needs, vulnerabilities, and preferences of vulnerable groups.
ITPI.34.2	Assess, develop and strengthen community shelters and holding centres' open spaces, and helipads in each municipality.
ITPI.34.3	Develop a climate-resilient and energy efficient multipurpose community infrastructure and technology.

35: Up-Grading, Maintaining and Relocating Vulnerable Industries and Physical Infrastructures to Increase Resilience to Climate Risks	
ITPI.35.1	Map and assess current and potentially climate vulnerable industries.
ITPI.35.2	Identify climate-resilient measures for relocation, upgrading, and maintenance of industries and their infrastructure.
ITPI.35.3	Provide support to relocate identified vulnerable industries.
ITPI.35.4	Incorporate climate- resilient technologies and inclusive measures against climate risk while maintaining and upgrading the industries.

36: Diversifying the Energy Supply for Industrial Districts	
ITPI.36.1	Undertake mapping and prioritization of climate impacts on industries and develop a list of climate vulnerable industries.
ITPI.36.2	Implement provision of insurance and subsidy mechanisms for the small-, medium-, and large-scale industries to absorb and transfer climate and disaster risk.
ITPI.36.3	Promote nature-based solutions in the industry and infrastructure sector ensuring circular economy.
ITPI.36.4	Establish renewable energy centres and power hubs at seven special economic zones (SEZ) to provide uninterrupted electricity as and when required.
ITPI.36.5	Promote One Special Economic Zone at a renewable energy hub.
ITPI.36.6	Promote the concept of net-metering to facilitate increase in renewable energy generation.

6. Tourism, Natural and Cultural Heritage (TNCH)

CODE	TYPOLOGY
37: Climate-Resilient Tourism for Ecological Sustainability and Economic Prosperity	
TNCH.37.1	Identify and promote new and alternative destinations and tourism products.
TNCH.37.2	Promote green trails and nature-based tourism mostly focused on local resources, local products, and sustainable methods of hospitality management.
TNCH.37.3	Promote agro-tourism and eco-tourism for resilient livelihoods.
TNCH.37.4	Establish, develop, and promote high altitude sports and adventure tourism.
TNCH.37.5	Build capacity of tourism-related stakeholders on climate change vulnerability, risks and adaptation options in tourism sector.
TNCH.37.6	Promote and enhance the local and traditional knowledge and skill to diversify tourism products and services.

TNCH.37.7	Identify and diversify complementary/alternative employment and income sources, particularly for marginalized groups, women and youth through skills development training (such as bakery, local cuisine, homestay, nature guide, handicrafts, cooking).
TNCH.37.8	Develop domestic tourism packages for people irrespective of age including senior citizens, differently abled persons, and students.
TNCH.37.9	Undertake a tourism value chain analysis that considers climate-resilient technologies.
TNCH.37.10	Promote local customs and traditions to link the local economy to the tourism industry.
TNCH.37.11	Develop a climate change adaptation tariff and expenditure framework in tourism sector.
TNCH.37.12	Encourage private sector investment/involvement in climate-resilient infrastructure through subsidies and insurance mechanisms.
TNCH.37.13	Promote foreign direct investment to enhance climate change resilience in the tourism domain through policy easing, information access, and co-ordination.

38: Climate Risk and Tourism Information System for Resilient, Safe and Sustainable Tourism	
TNCH.38.1	Increase capacity of hydrological and metrological stations, particularly in mountainous regions, to monitor the change in glaciers and patterns of a snowstorm, for example.
TNCH.38.2	Establish emergency communication channels (hotlines) for tourists and operators to deal with emergencies during the major disasters.
TNCH.38.3	Support a tourism-based real time national weather, cryosphere, and disaster information system and mechanize the access to tourism operators as well as tourists (software based).
TNCH.38.4	Establish a national system of weather and disaster information dissemination using relevant scientific tools such as mobile, television, radio, Apps, and web pages for timely alerts (national) that are also accessible and feasible to people from marginalized communities.
TNCH.38.5	Develop a rapid response cell and climate induced disaster preparedness plan in mountainous districts incorporating the shift in seasons due to climate change and develop an all-season tourism master plan.
TNCH.38.6	Establish an integrated tourism facility centre in each district that provides information on weather and climate, risk and vulnerable sites, culture, local products, and souvenirs.

39: Develop Climate-Resilient Infrastructure, and Explore and Enhance Knowledge and Capacities for Resilient Mountain Tourism	
TNCH.39.1	Promote local and indigenous cultures, foods, and products (e.g., handicrafts) that directly benefit local communities.
TNCH.39.2	Identify and map at-risk cultural sites for further planning and implementation of cultural site protection and preservation action. Conserve the most vulnerable and at-risk cultural heritage sites through meaningful participation of IPLCs.
TNCH.39.3	Conduct regular maintenance of cultural heritage sites and develop mechanisms to allocate resources for repair and maintenance.

TNCH.39.4	Develop climate-resilient and environmentally friendly guidelines and standards for the protection of cultural heritage sites.
TNCH.39.5	Implement disaster risk reduction measures to protect the cultural heritage sites.
TNCH.39.6	Retrofit and reinforce the physical infrastructures in the cultural heritage sites to make them climate resilient without disturbing their original state (2 in each province).
TNCH.39.7	Develop and implement climate resilient and disabled, gender, children and senior citizen friendly (extreme temperature, precipitation, windstorm/blizzard proof) infrastructure design and structure guidelines.
TNCH.39.8	Establish rescue centres, shed houses, and cooling houses at appropriate locations and on specific trekking routes, climbing routes.
TNCH.39.9	Establish centres to collect, archive, share, and promote indigenous and traditional knowledge for building climate resilience in the tourism sector (7 centres as pilot).
TNCH.39.10	Increase the number of mountain tourist spots with all physical facilities.

40: Promotion of Community-based Adaptation through Eco-and Cultural Tourism and Indigenous and Traditional Knowledge	
TNCH.40.1	Inventory and assess the homestay sites in major tourist destinations and sites.
TNCH.40.2	Build capacity and awareness of local communities including women and marginalized populations on the impacts of climate change on tourism services.
TNCH.40.3	Promote and enhance local, indigenous and traditional knowledge and skills to diversify tourism products and services.
TNCH.40.4	Upgrade existing and build 500 new climate-resilient homestays (nationwide) ensuring their presence in all tourist destinations and trails.
TNCH.40.5	Develop, operationalize and link 'One Home Stay Circuit' in each province.
TNCH.40.6	Promote GESI inclusive tourism employment at the local level and develop women's leadership.
TNCH.40.7	Develop a strategic plan for the establishment of rescue centres at appropriate locations and in specific trekking routes and climbing routes.

41: Diversifying and Promoting Alternative Tourism Destinations and Products for Climate-Resilient Tourism Business	
TNCH.41.1	Develop climate-smart and diversified tourism products.
TNCH.41.2	Promote climate-smart tourism circuits and routes.
TNCH.41.3	Promote natural, cultural and eco-friendly tourism and destinations.

42: Establishment and Operation of Emergency Relief and Rescue Services in Adventure Tourism	
TNCH.42.1	Assess climate vulnerability and risks in the adventure tourism sub-sector.
TNCH.42.2	Explore suitability of the rescue centre locations and set them accordingly.
TNCH.42.3	Formulate a strategic plan to establish climate-resilient relief and rescue centres at appropriate locations and in specific trekking and climbing routes that are women, child, senior citizen, and differently abled people friendly.
TNCH.42.4	Build accommodation facilities with insulation to address temperature extremes at higher altitudes.

TNCH.42.5	Establish a tourism information system that is integrated with weather and climate forecasts and prepare a dissemination plan.

43: Building Capacity for Resilient Tourism in Nepal	
TNCH.43.1	Review and assess the policy framework on tourism considering climate change risks in the tourism sector.
TNCH.43.2	Facilitate the integration of climate change adaptation into sectoral plan, policies, and programmes.
TNCH.43.3	Develop and deliver tourism stakeholder-based capacity building packages on climate change vulnerability and risk and adaptation strategies in tourism sector.
TNCH.43.4	Raise awareness in the local community, including with women and marginalized groups, on the impacts on climate change and its consequences.
TNCH.43.5	Build capacity of all government officials, service providers, operators, and private sector entities on climate change risk and vulnerability and adaptation strategies in tourism sector.
TNCH.43.6	Develop curricula on climate change vulnerability and risk and adaptation planning and integrate into to school, colleges, and universities.

44: Promotion of Climate-Resilient 'One Local Level-One Tourism Destination'	
TNCH.44.1	Identity key tourism destinations in each of the local levels and develop plans to make the destinations safe, reliable, and resilient to climate risks.
TNCH.44.2	Establish local, regional, and national weather and climate forecasting, as well as an EWS information dissemination platform at local tourism destinations.
TNCH.44.3	Build capacity of the local people and local tourism service providers on safe, climate-resilient, and sustainable tourism services and products.
TNCH.44.4	Build accommodation facilities with insulation to address climate extremes at higher altitude.

7. Health, Drinking Water and Sanitation (HDWS)

CODE	TYPOLOGY
45: 'Health Promoting Cities': Health, Environment and Life (Heal)	
HDWS.45.1	Awareness raising and capacity building on the concept of 'Health Promoting Cities: Heal'.
HDWS.45.2	Designate areas for open spaces and parks to promote healthy behaviours.
HDWS.45.3	Plant suitable urban tree species and develop urban forestry corridor (e.g., roadside plantation, orchards, arboreta, evergreens, walkways) linking settlements.
HDWS.45.4	Increase and implement activities to reduce air pollution in line with WHO interim targets such as promotion of clean cooking solutions, prohibition of open waste burning and healthcare waste management through non-burn technologies.
HDWS.45.5	Develop cycling and walking lanes around cities and install air quality monitoring stations and device controlling measures.
HDWS.45.6	Promote waste management with a concept of zero waste and circular economy.
HDWS.45.7	Promote renewable energy to power city lights and city centres, public offices and private properties.

HDWS.45.8	Improve PES mechanism for control and conservation initiatives.
HDWS.45.9	Promote and use climate-resilient and environment friendly tools and techniques in health care facilities.

46: Strengthening Climate Sensitive Disease Surveillance Systems with Emergency Preparedness and Response	
HDWS.46.1	Develop an operationalization plan to strengthen federal, provincial and local health emergency operation centres.
HDWS.46.2	Strengthen the integrated surveillance system for climate sensitive diseases (vector-borne, waterborne, food-borne, other infectious)
HDWS.46.3	Make all surveillance and health information system inter-operable.
HDWS.46.4	Strengthen public health laboratories and research centres for climate sensitive diseases and surveillance.
HDWS.46.5	Promote and facilitate academia and researchers for evidence-based learning, data depository and research on the public health and climate sensitive health.
HDWS.46.6	Develop curricula on climate change vulnerability and risk and adaptation planning and integrate into to school, colleges, and universities
HDWS.46.7	Establish, operationalize, and strengthen rapid response teams (health and WASH), emergency teams, trauma centres/services, and hub satellite networks at federal, provincial and local levels.
HDWS.46.8	Digitize water and sanitation data and information including different components of climate risks at health emergency centres.
HDWS.46.9	Build awareness, community engagement, and capacity of WASH sector stakeholders at federal, provincial and local levels.
HDWS.46.10	Update and implement H-NAP as committed in COP26.

47: Research, Innovation and Development of Climate Resilient Preventive Measures/ Technologies/Approaches for Water Supply, Sanitation and Health System	
HDWS.47.1	Build climate-resilient water supply systems and services focusing on gender, children, youth, and overall social inclusion.
HDWS.47.2	Promotion of multiple water use systems focusing on gender and social inclusion.
HDWS.47.3	Enhance operationalization of a national WASH/MIS system that integrates hydro-meteorological and land use data.

48: Capacity Building of Health and Hygiene Service Providers and Professionals (Institution and Personnel) on Climate-Resilient Health Hygiene Service Planning and Implementation	
HDWS.48.1	Assess health care facilities and undertake climate change vulnerability risk assessment in the facilities (climate risk screening that essentially covers all disaster and extreme events risk).
HDWS.48.2	Explore innovative and climate-resilient technologies and implement (integrate) them in each health care facility.
HDWS.48.3	Capacity building of health professionals on climate sensitive diseases and health risks and on climate change health risks research through development of robust training modules.

HDWS.48.4	Provide support to improve and develop climate-resilient and environment friendly health care facilities.
HDWS.48.5	Explore and develop strategic actions on addressing cardiorespiratory diseases, and other diseases induced through the climate related hazards.

49: Development of Climate Resilient and Inclusive WASH Service and Facilities through Building Capacities, Developing Institutions and Systems, Adopting Innovative Technologies and Extending Collaboration	
HDWS.49.1	Promote climate-resilient and smart WASH technologies (low water use technologies, flood resilient technologies supporting water reuse, automation/ pumping, etc.).
HDWS.49.2	Establish and strengthen water quality monitoring systems that support climate-resilient water safety planning and develop and implement wastewater management plans at local levels.
HDWS.49.3	Build climate-resilient and inclusive sanitation service facilities focusing on gender, children, youth, and overall social inclusion.
HDWS.49.4	Promote water supply and sanitation system insurance schemes, rainwater harvesting innovations technologies and their adoption.

50: Promotion and Conservation of Water Sources along with Watershed Management for Sustainable Water Supply Service	
HDWS.50.1	Identify, map and conserve sources of water with reference to geo-climatic hazards.
HDWS.50.2	Conserve and promote existing and traditional water harvesting techniques, and sources.
HDWS.50.3	Promote and develop water recharge and flood management/retention systems.
HDWS.50.4	Control pollution in and around water sources to control water-borne diseases vectors.
HDWS.50.5	Promote and support watershed management system for sustainable supply of water.

51: Integration and Implementation of Climate Change Adaptation in the Health and WASH sector through Policy Reform, Strategy Development and National Level Awareness	
HDWS.51.1	Undertake review of the existing plan, policies, strategies, and guidelines and strengthen integrating climate change adaptation considering the current and future climate risks.
HDWS.51.2	Support local governments on the integration and implementation of climate change adaptation.
HDWS.51.3	Promote and develop hybrid water supply systems (impounding reservoirs, solar lifting, etc.).

8. Disaster Risk Reduction and Management (DRRM)

CODE	TYPOLOGY
52: Building Climate Resilience by Developing and Harmonizing DRRM and Climate Change Adaptation at Federal to Local Levels through Policy Reforms (Integration of DRR in Local Adaptation Plans)	
DRRM.52.1	Harmonize DRR and climate adaptation in the federal, provincial, and local level policy landscape.
DRRM.52.2	Support and capacitate all 753 local levels to develop and effectively implement GESI responsive local disaster and climate risk reduction management plans.
DRRM.52.3	Integrate DRR and climate adaptation in federal, provincial and local level development planning guidelines, periodic plans, Medium-term Expenditure Frameworks and local level plans.
DRRM.52.4	Formulate and implement guidelines to promote community-based DRR and management, child entered disaster risk reduction, climate change adaptation and minimum characteristics of resilient communities (including indigenous knowledge and technologies) to promote resilience.
DRRM.52.5	Promote mechanisms to ensure meaningful participation of vulnerable people including women, children, youth, persons with disabilities, senior citizens, indigenous people and other marginalized groups in planning, capacity building and implementation processes on DRR and climate adaptation.
DRRM.52.6	Strengthen coordination among DRR and climate adaptation institutional actors and other stakeholders.
DRRM.52.7	Integrate GESI in DRR plans, policies and programmes emphasizing women, children, youth and senior citizens in adaptation activities.
DRRM.52.8	Enhance capacity building on adaptation related GESI issues, solutions, and gaps at all levels of government.
DRRM.52.9	Strengthen local levels have capacity to develop circular economy based integrated climate adaptation and DRR planning and implementation.
DRRM.52.10	Promote research, knowledge management on GESI, DRR and adaptation.
53: Strengthening Adaptive Social Protection/Shock Responsive Practices for Transferring Climate Risk	
DRRM.53.1	Develop a centrally managed and accessible disaster management information system that is linked to shock-related indicators and digitalization of data that provides updated information to support shock responsive initiatives.
DRRM.53.2	Develop and implement adaptive /shock responsive social protection guidelines, frameworks, mechanisms, and institutional arrangements at all levels of the government.
DRRM.53.3	Strengthen risk transfer mechanisms/insurance (PEOC, DEOC, LEOC) for communities displaced by disasters and communities at risk at federal, provincial and local level.
DRRM.53.4	Enhance coordination among stakeholders that are part of the social protection and disaster response to ensure equity and coverage to the communities most in need.

DRRM.53.5	Enhance involvement of private sector organizations in risk transfer, encourage banking and financial institutions, especially the insurance companies, to adopt climate responsive (insurance) schemes.
DRRM.53.6	Generate knowledge products and continuously monitor and evaluate appropriate and accessible banking systems for target groups, especially during disasters causing mobility constraints.
DRRM.53.7	Conduct river trainings to manage Chure and forest ecosystem.

54: Maintaining and Strengthening Early Warning Systems and Multi-Hazard Monitoring Systems to Facilitate Climate Adaptive Function of Key Economic Service Sectors	
DRRM.54.1	Install now-casting system at the federal level.
DRRM.54.2	Establish and strengthen real-time/forecast-based early warning systems including monitoring in all 7 provinces (in major river systems), and efficient and people-centric communication channels through appropriate medium (e.g., radio, television, briefing notes, SMS and social media) and use of local language(s).
DRRM.54.3	Install at least one radar station and lightning detection system within Nepal's major river basins for the monitoring of precipitation and lightning.
DRRM.54.4	Research, pilot and establish landslide EWS in major landslide prone areas of Nepal.
DRRM.54.5	Strengthen and promote research on hydro-meteorological modelling, forecasting and future climate risks and GESI-transformative early warning systems.
DRRM.54.6	Design and develop early warning system and preparedness action plan, response plans and guidelines considering the needs, capabilities, and preferences of vulnerable groups, including women, children, youth, persons with disability, elderly, and indigenous groups.

55: Developing a Regulatory Framework and Implementation Strategy for Domestic and Industrial Fire Control and Mitigation, and Build National Capacities	
DRRM.55.1	Develop fire risk management policy and guideline at federal to local level to community level.
DRRM.55.2	Enhance the capacity of provincial and local governments, community-based organizations (CBOs) (e.g., forest user groups) and other relevant stakeholders through awareness raising, training and human resource mobilization and provision of tools and technologies.
DRRM.55.3	Carry out research and monitoring, develop and maintain database on fire management actors and stakeholders.
DRRM.55.4	Develop response plans and early warning systems.
DRRM.55.5	Set up training institutions and insurance mechanism to fire fighters.

56: Promote Culture of Safety and Build Climate Resilience through Climate Risk Sensitive Land Use Plan (RSLUP) Guideline and Standards	
DRRM.56.1	Collect, digitalize and manage data at the federal level for infrastructure, land cover and use, demographic data, and hazard risk areas.

DRRM.56.2	Develop RSLUP guidelines and standards.
DRRM.56.3	Implement RSLUP at the federal level and support the implementation of RSLUPs at the provincial and local levels, including capacity building.
DRRM.56.4	Map multi-hazard risk areas in each local level and use hyper spectral images and socio-economic data to develop geo-database.
DRRM.56.5	Establish rolled out risk transfer mechanism.
DRRM.56.6	Conduct suitability analysis for safer settlements.
DRRM.56.7	Enhance capacity from federal to local level on geospatial data management.
DRRM.56.8	Establish national standards on natural hazard data collection and management and a data sharing system.

57: Developing Federal and Provincial Strategies and Action Plans on Control of Climate Induced (primarily water-borne) Disasters in the Forest Areas of Nepal and Phase-wise Implementation under the Leadership of Forest Authorities	
DRRM.57.1	Assess forest health from the climate-induced hazards perspective and identify the forests with immediate interventions to improve forest health for greater resilience.
DRRM.57.2	Develop a catalogue of actions on forest health improvement and climate risk management in forests through review and analysis of Indigenous and traditional knowledge and practices.
DRRM.57.3	Build capacity of field forest officers on climate change risks in the forest sector and adaptation planning.
DRRM.57.4	Develop forest health improvement and resilience building guidelines at the federal and local levels.
DRRM.57.5	Enhance capacity of provincial and local governments, CBOs (e.g., forest user groups), FUGs and other relevant stakeholders through awareness raising, training and human resource mobilization in order to incorporate/address CCA and resilience building in forests.
DRRM.57.6	Carry out research and monitoring on climate risks on forest.
DRRM.57.7	Develop climate risk management buffer zones within the forest areas such as river flooding channelization, aquifers for storage of flood water, and landslide prevention in the forest areas.

58: Building the skills for a green, resilient, and inclusive economy through education. (Draft GRID SAP)	
DRRM.58.1	**Enhance the quality and relevance of education:** This includes implementing technical, vocational, and academic programs on the green economy, action research, and entrepreneurship. It also means increasing the availability of graduates for labor market needs, including prospective schoolteachers and vocational trainers.
DRRM.58.2	**Capacity building:** i) Develop community-based focal points within the education sector to quickly respond at times of emergency; ii) Develop an information and communication network targeting vulnerable communities living in fragile geographies; iii) Develop schools and community centers as safe zones providing temporary shelter.

DRRM.58.3	**Risk-proof developmental activities and infrastructures:** i) investment in sustainable and climate-smart education infrastructure that provides safe shelter during disasters;) Design and implement effective anticipatory action along with the early warning system to ensure the education system is prepared for unforeseen events.

9. Gender Equality and Social Inclusion (GESI), Livelihood and Governance (GESILG)

CODE	TYPOLOGY
59: Strengthening Gender Equality and Social Inclusion (GESI) Responsive Climate Change Adaptation Planning and Implementation	
GESILG.59.1	Conduct and promote quantitative and qualitative research involving vulnerable communities on GESI and climate change adaptation.
GESILG.59.2	Strengthen, establish, and functionalize climate change sensitized gender focal desks in all state and non-state institutions.
GESILG.59.3	Inventory and promote GESI responsive indigenous skills, practices, knowledge and resources for enhancing adaptive capacity and socio-economic empowerment.
GESILG.59.4	Develop GESI-based knowledge products on climate change impacts, risks and adaptation.
GESILG.59.5	Develop an accessible knowledge hub for management of research outputs, best practices, information and other knowledge products, and promote its usage in decision-making.
GESILG.59.6	Disseminate knowledge and information using inclusive and appropriate language and means of communication and build knowledge of wider stakeholders including media on the importance of GESI considerations in climate change adaptation actions.
GESILG.59.7	Enhance the technical and institutional capacity on GESI and climate change at all levels of the government, for their effective participation in key policy making and implementation processes.
GESILG.59.8	Implement federal, provincial and local level programmes/projects through a bottom-up approach with meaningful representation of vulnerable people in CCA plans and processes.
GESILG.59.9	Enhance GESI disaggregated data collection, monitoring and evaluation, documentation, and dissemination of information at an institutional level.
60: Building Human Capital for Inclusive Climate and Disaster Resilient Society	
GESILG.60.1	Strengthen current information management systems by enhancing mapping and identification of vulnerable people and communities in disaster prone areas to facilitate effective and equitable preparedness and response interventions.
GESILG.60.2	Ensure operationalization of mechanisms supporting collection of GESI disaggregated data of people affected and reached in emergency response interventions to inform preparedness and response interventions, and M&E.

GESILG.60.3	Establish and strengthen GESI-responsive early warning systems, preparedness and response at all levels of the government, including meaningful participation of vulnerable people, including children, in the processes with efficient, accessible and inclusive emergency communication channels using appropriate medium (radio, television, SMS, social media, posters) and language(s).
GESILG.60.4	Construct and ensure existence of GESI-responsive, safe and accessible spaces for disasters that include WASH facilities and climate-resilient shelters at the local level that are designed to meet the specific needs of women, LGBTIQ+, children, people with disability, elderly and highly marginalized indigenous groups, to ensure their protection and safety (including minimizing risks of discrimination and violence).
GESILG.60.5	Ensure prepositioning of and access to emergency kits and supplies for vulnerable groups, including children, during emergencies that are sensitive to the different needs and preferences of various vulnerable groups.
GESILG.60.6	Implement gender-based violence and discrimination prevention mechanisms and responses, which include increased leadership of vulnerable groups in the development and implementation process.
GESILG.60.7	Ensure equitable access to drinking water, sanitation, hygiene, safe transportation, legal and psychosocial support, and security/police and health services for vulnerable groups.
GESILG.60.8	Develop a roster of service providers (community psychosocial workers and counsellors, police, health care providers, etc.) and community groups such as woman, indigenous and youth groups, that can be immediately mobilized during disasters and build their capacity on how to respond during emergency situations from a GESI perspective.

61: Economic Empowerment through the Usage of GESI Responsive, Climate-Resilient and Smart Technologies	
GESILG.61.1	Promote GESI-responsive climate-resilient technologies in all eight thematic sectors identified in the National Climate Change Policy (2019) and the GESI and climate change strategy.
GESILG.61.2	Build capacity of policymakers and government officials specially tasked to develop plans and formulate budgets, women groups, CSOs, and youth on equitable approaches of adaptation planning.
GESILG.61.3	Conduct gap assessments and situational analyses at provincial and local levels on GESI and climate adaptation technology needs, challenges, and opportunities, including policy and institutional gaps. Based on the outcomes and in adherence to existing federal level plans and policies, develop, revise and implement policies and plans to integrate GESI-responsive technologies in sectoral programmes and projects on climate change adaptation.
GESILG.61.4	Strengthen information sharing and establish physical information centres on climate-resilient technology options and opportunities at local level, targeting and making accessible to vulnerable and socially excluded groups.
GESILG.61.5	Build capacity of vulnerable people to enable them to use those technologies for production, commercialization (e.g., food processing), DRR, water and energy solutions etc., to enhance their livelihoods by working together with value-chain organizations and micro enterprise development organizations.

GESILG.61.6	Capacity building on entrepreneurship development using climate-resilient technologies for vulnerable groups.
GESILG.61.7	Provide seed money to support vulnerable people to start up climate-resilient business opportunities for livelihood enhancement.
GESILG.61.8	Promote public-private partnerships for introducing climate-resilient technologies in both the private and public sectors and create employment opportunities with a focus on vulnerable people.
GESILG.61.9	Develop and implement policies and plans to integrate GESI-responsive technologies in sectoral programmes and projects on climate change adaptation.

62: Enhancing Resilience to Climate Change through GESI-Responsive Livelihood Programmes	
GESILG.62.1	Promote climate- and GESI-responsive budgets at the federal, provincial and local levels, ensuring effective implementation with meaningful participation of vulnerable people including children, to improve their livelihoods.
GESILG.62.2	Promote livelihood diversification (farm/non-farm) for women/youth, IPLCs, and vulnerable people through increased access to skills and formal markets to bridge the gap between production and productivity.
GESILG.62.3	Develop and increase access of the marginalized and vulnerable groups to technologies considering the equitable mechanism.
GESILG.62.4	Invest, promote, and increase access to social/financial safety nets/social protection such as: cooperatives, savings and credit, grain banks groups with special focus on women and marginalized groups; and ensure that they reach economically and socially vulnerable groups, such as single mothers, children, and persons with disabilities by providing capacity building opportunities.
GESILG.62.5	Identify and promote alternative businesses that are less vulnerable to climate change extremes.
GESILG.62.6	Integrate GESI and climate foresight in social protection and development interventions.
GESILG.62.7	Monitor and review the existing GESI responsive budgeting mechanisms and update as required to meet the commitments.

10. Cross cutting

CODE	TYPOLOGY
63: Awareness Raising and Capacity Development: Enhance capacity of stakeholder on adaptation and mitigation by creating awareness about impacts and risk of climate change	
C-ARCD.63.1	Investment in **mass media for raising awareness** on climate change effects and risks, adaptation and mitigation measures
C-ARCD.63.2	Investment on climate change and climate-friendly **traditional knowledge, skills and practices** (formal and non-formal educational curricula)
C-ARCD.63.3	Investment on **knowledge-based materials** for different target groups prepared and distributed
C-ARCD.63.4	Investment on **capacity of government, and community organizations** on climate resilience into development programs
C-ARCD.63.5	Investment in **mobilization of youth human resources** for raising awareness about climate change

C-ARCD.63.6	Investment on **workshops and conferences** of climate change related activities, treaties, protocols and conventions
C-ARCD.63.7	Training to teachers and **formation of Eco Club** in secondary schools to carry out the activities pertaining to climate change

64: Research, Technology Development and Expansion: Climate change related study, research and technology development and expansion	
C-RTDE.64.1	Investment in research on the **effects of climate change**
C-RTDE.64.2	Investment in **research on economic and non-economic loss or damage** caused by climate change
C-RTDE.64.3	Investment on **monitoring and scientific analysis** regarding the risk on river, landslides, wetland and sensitive ecosystems
C-RTDE.64.4	Investment in **monitoring and evaluation** of emission reduction activities
C-RTDE.64.5	Investment in **system of collection, analysis and transmission** of real time data by expanding the network of weather stations
C-RTDE.64.6	Investment in **vulnerability and risk assessment**

65: Climate Finance Management: Increasing access to bilateral, multilateral and international financial resources	
C-CFM.65.1	Investment from REDD+, Green Climate Fund (GCF), Global Environment Facility (GEF), Adaptation Fund (AF), and Carbon Trade.
C-CFM.65.2	Green Finance Initiatives: Encouraging investment in sustainable projects through green bonds and other financial instruments.
C-CFM.65.3	Carbon Pricing: Policy measures that incorporate the cost of carbon emissions into economic planning.
C-CFM.65.4	Subsidy Reform: Redirecting subsidies from fossil fuels to renewable energy and climate-resilient initiatives.

Annex B: Share of CCA-DRRM-related budget at the seven local governments assessed

Sudurpaschim		Madhesh					Province	
Dodhara Chadani M	Krishnapur M	Paroha M	Katahariya M	Dhankaul RM	Mahadewa RM	Tilathi Koiladi RM	Local level	
567,857,926	743,570,066	439,688,178	410,294,621	362,766,414	414,905,299	518,405,036	Total Budget (NPR)	FY 2076/77
16,034,000	22,312,498	24,619,000	23,106,083	12,285,000	9,985,000	8,315,000	DRM-CCA Related Budget	
633,273,661	740,200,123	497,026,912	490,028,510	385,825,341	372,134,341	532,899,772	Total Budget (NPR)	FY 2077/78
32,396,111	18,477,600	22,123,000	7,195,666	8,002,000	2,340,000	6,905,000	DRM-CCA Related Budget	
559,360,293	835,203,000	561,310,796	558,105,414	435,500,000	425,740,933	568,448,456	Total Budget (NPR)	FY 2078/79
55,588,000	30,840,000	12,490,000	19,920,719	37,140,000	14,786,394	23,655,000	DRM-CCA Related Budget	
578,081,706	912,963,972	621,942,380	608,087,942	382,076,799	470,658,084	666,196,123	Total Budget (NPR)	FY 2079/80
59,230,698	32,386,000	34,300,000	39,123,000	26,850,000	17,840,000	26,800,000	DRM-CCA Related Budget	
506,771,200	825,585,000	501,061,916	534,472,384	337,527,994	435,258,681	458,870,033	Total Budget (NPR)	FY 2080/81
18,495,000	20,866,110	20,071,710	8,879,000	9,577,000	8,118,000	9,757,000	DRM-CCA Related Budget	

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Annex C: Proportion of the CCA and DRRM -related budget revenue sources

Name of Palika	% of CCA and DRRM Budget	% CCA and DRRM Budget by Source of Revenue Against Total Budget					
		CG	EG	RD	SG	MG	IR
FY 2076/77							
Tilathi Koiladi RM	1.60	1.58	-	0.02	-	-	-
Mahadewa RM	2.41	0.27	0.99	0.02	-	-	1.12
Dhankaul RM	3.39	0.34	0.34	-	-	-	2.71
Katahariya M	5.63	0.99	4.64	-	-	-	-
Paroha M	5.60	0.24	0.65	0.61	1.14	-	2.96
Krishnapur M	3.00	0.47	1.83	0.34	-	-	0.37
Dodhara Chadani M	2.82	0.40	1.57	0.64	-	-	0.21
FY 2077/78							
Tilathi Koiladi RM	1.30	0.18	0.93	-	-	-	0.19
Mahadewa RM	0.63	0.20	0.38	0.05	-	-	-
Dhankaul RM	2.07	0.79	0.51	-	0.78	-	-
Katahariya M	1.47	0.28	1.19	-	-	-	-
Paroha M	4.45	0.23	2.45	1.77	-	-	-
Krishnapur M	2.50	0.25	1.09	0.26	-	-	0.91
Dodhara Chadani M	5.12	2.03	1.33	0.01	-	1.53	0.22
FY 2078/79							
Tilathi Koiladi RM	4.16	2.26	0.58	-	-	-	1.32
Mahadewa RM	3.47	2.92	0.32	0.23	-	-	-
Dhankaul RM	8.53	1.30	1.38	0.11	-	-	5.74
Katahariya M	3.57	2.68	0.59	-	-	-	0.30
Paroha M	2.23	1.33	0.72	0.18	-	-	-
Krishnapur M	3.69	1.44	0.76	0.50	-	-	0.99
Dodhara Chadani M	9.94	4.90	2.78	0.08	0.45	1.31	0.42
FY 2079/80							
Tilathi Koiladi RM	4.02	2.18	1.47	0.20	-	-	0.18
Mahadewa RM	3.79	2.81	0.76	0.21	-	-	-
Dhankaul RM	7.03	2.22	2.71	1.31	0.79	-	-
Katahariya M	6.43	4.69	1.61	-	-	-	0.14
Paroha M	5.51	3.10	1.46	0.06	0.48	0.32	0.08
Krishnapur M	3.55	1.71	0.47	0.74	-	-	0.63
Dodhara Chadani M	10.25	1.89	4.33	0.30	-	3.46	0.27

FY 2080/81							
Tilathi Koiladi RM	2.13	0.33	1.80	-	-	-	-
Mahadewa RM	1.87	0.35	0.83	0.23	-	-	0.46
Dhankaul RM	2.84	0.44	1.75	0.65	-	-	-
Katahariya M	1.66	0.26	0.83	-	0.56	-	0.01
Paroha M	4.01	0.47	3.34	0.19	-	-	-
Krishnapur M	2.53	1.29	0.44	0.27	-	-	0.53
Dodhara Chadani M	3.65	1.62	1.95	-	-	-	0.08

Annex D: Brief note on seven-steps planning process

The seven steps planning process is a structured approach which involves

1) *Receiving directives:* local governments receive guidelines and ceilings from federal and provincial authorities by mid-April;
2) ***Resource Assumption and Ceiling Fixation:*** By the end of April, local governments estimate available resources and set expenditure ceilings for different sectors;
3) ***Project Identification:*** Projects are identified at the settlement level, ensuring community involvement;
4) ***Project Selection and Prioritization:*** At the ward level, projects are selected and prioritized based on local needs and strategic importance;
5) ***Integrated Budget and Program:*** By mid-June, an integrated budget and program are prepared at the local level;
6) ***Approval by Local Executive:*** The budget and program are reviewed and approved by the local executive body and
7) *Approval by Local Assembly:* the budget and program are approved by the local assembly. Likewise, planning and budgeting follow the same process at the provincial level, where the Provincial Assembly reviews and approves the draft budget.

Annex E: Case stories

Case Study 1: The Buniyad Irrigation Project, **in Rautahat district** has transformed an earthen canal into a cemented canal, improving water flow and enabling farmers to transition to rice farming. The upgraded irrigation system has improved agricultural productivity and food security, reducing waterlogging and improving food security for local farmers. The project also offers labour and livelihood benefits, with reduced labour demand for irrigation, especially for women, which has improved their economic stability and overall well-being. The perennial water source feeding the canal ensures a stable water supply for agricultural use, strengthening community trust in the project as a sustainable solution. The project has had a positive social impact on vulnerable populations, particularly women and women, by reducing manual labour associated with agriculture, and enhancing their economic opportunities, food security, and well-being. No negative impacts have been reported, indicating the project successfully incorporates inclusive, community-friendly design principles.

Case Study 2: The Sulav Irrigation Project, covering 125 hectares of agricultural land, relies on a naturally occurring spring for irrigation. This water source provides a stable foundation for sustained agricultural productivity. However, the canal design and public investment challenges were highlighted when stoning was applied to stabilize the canal's edges, causing a reduction in water flow and requiring farmers to remove stones. This issue highlighted a lack of thorough assessment of water availability and potential lateral spread of the underground source. It has significantly increased crop yields, improved food security, and higher income levels for local farmers. The consistent irrigation service maximizes the productive potential of their land, fostering a stable agricultural environment that supports livelihood and community resilience. By securing a reliable source of water, the project has enhanced the economic well-being of farming families, strengthening food supply and financial stability.

Case Study 3: The Dhudhula Irrigation project, covering 88 hectares of agricultural land, is currently non-functional due to flood damage and sedimentation issues. The main water source, the Dhudhaula River, has decreased in volume, impacting its capacity to support irrigation. The high sediment load from the river also causes costly repairs and clogs irrigation canals. Regular flood risks and sedimentation issues have made the system unreliable and vulnerable to waste. In fiscal year 2080/81, the government allocated USD 1.67 million to the project, with official records showing a 100% expenditure. However, on-site verification revealed no visible construction activities or improvements at the project site, suggesting potential misappropriation of government funds. This raises concerns about transparency and accountability in project implementation and fund utilization.

Case Study 4: Paroha Municipality has supported the community in mitigating climate-related challenges through various initiatives, including installing borings for irrigation purposes and purchasing agricultural electricity meters. However, there is a high demand for additional borings and hand-pumps, with farmers often facing issues related to low voltage and seeking assistance to upgrade transformers. The municipality has also conducted awareness campaigns focusing on drainage clean-up, mosquito control, plantation drives, and spreading awareness through miking. The irrigation support provided by the municipality has had a positive effect on local agriculture, reducing crop vulnerability to drought and increasing vegetable production. This diversification has enhanced incomes and improved food security, and the nutritional status of children has improved. Farmers in Paroha Municipality have become increasingly aware of climate risks and disasters through various channels, enhancing their resilience to climate change and enabling them to take proactive measures in managing risks and adapting to shifting environmental conditions.

Case study 5: The Sriram Janaki Agricultural Group in Tilathi Koiladi Rural Municipality is facing challenges in agricultural equipment and seed quality. The municipality has received equipment support, but issues with the quality of seeds are reported, such as premature rice seed drop. Farmers are informed about seed distribution but lack proactive support to promote indigenous seed varieties. Climate change impacts agriculture, with increased temperatures and irregular rainfall patterns. Drought spells are becoming more frequent, causing inundation during heavy rainfalls, making crop planting difficult and limiting productivity. Climate change also contributes to crop diseases, impacting crop health and farm yield. The labor burden on farmers, particularly women, has increased due to increased workloads and health issues. Heavy rainfall events have disrupted crop planting, reducing crop rotation efficiency and limiting overall agricultural yield. This necessitates improved drainage systems or alternative water management solutions to support farmers in managing their land effectively despite unpredictable rainfall.

Case study 6: The Chaudhar River Control Project – Sudurpaschim has received NPR 20 million in funding for fiscal year 2080/81, with funds managed through contracting and users' group modalities. Field inspections of user-implemented Gabion River training structures revealed significant damage due to recent flooding, with sediment accumulating almost covering the Gabion wall. The users' group modality faces technical challenges in infrastructure development, with a lack of guidance on proper risk assessment and technical specifications, limiting the effectiveness and durability of structures built under this approach. The project's success relies on careful planning and coordination between various stakeholders.

Case study 7: The Suda Nala Embankment in Ward-7, Bedkot Municipality, was constructed to protect rivulets from erosion and bank cutting. However, field inspections revealed concerns about its sustainability, as it has already sustained damage within its first year. To improve the embankment's longevity, the ward office could conduct regular NALA (natural drainage) cleaning campaigns to support proper water flow and reduce pressure.

Case study 8: The Chief Minister Model Agricultural Village in Suklaphanta Municipality, Ward-9, Man Bahadur Air, faces challenges due to climate and environmental factors. Untimely rainfall has led to increased disease incidence and crop quality decline, while increased temperatures prevent farmers from working in fields. Fog has become more frequent, further affecting farming conditions. Province Gyan Kendra provides equipment to farmers, but its increased use has led to a drop in the water table, posing new challenges for sustainable water use. Additionally, farmers face issues with low-quality seeds and low levels of organic matter in the soil, hindering productivity and resilience. Addressing these issues with higher-quality inputs and soil enrichment practices could support long-term agricultural sustainability.

Case study 9: The Dhamitol Pathar Nala Embankment project received a NPR 2.5 million conditional grant from the federal government for fiscal year 2080/81, with 94% of the fund utilized. The embankment resolved recurring riverbank erosion issues, reducing the risk of river widening, as per consultations with beneficiaries.

Case study 10: The MILAN Agriculture Group received NPR 1 million in FY 2080/81 through an equalization grant, with 97% of the funds expended. This funding temporarily addressed irrigation needs, but climate impacts like irregular rainfall and inundation continue to affect the area. The group received a three-day training on off-season vegetable farming, but has not received any training or information on climate and disaster risks.

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