Learning Hub event on Loss and Damage (L&D) in Nepal

April 30, 2024

Kathmandu, Nepal

Organized by

Least Developed Countries Universities Consortium for Climate Change (LUCCC)

In Collaboration with

School of Environmental Science and Management (SchEMS),

Pokhara University

Workshop Proceeding and Report

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1 Background

The international community has made concerted efforts to tackle the challenges presented by climate change. While significant strides have been made in mitigating greenhouse gas emissions and enhancing adaptation measures, there remains a critical gap in addressing the residual impacts of climate change. These impacts manifest most severely in regions already vulnerable to climatic extremes, disproportionately affecting the least developed countries (LDCs). Despite contributing minimally to global emissions, these nations bear the heaviest burden of climate-related damages and losses to their resources both economic and ecological. This inequity underscored the need for targeted interventions and support mechanisms to assist vulnerable regions in coping and recovering from the adverse effects of climate change.

Under the auspices of the UNFCCC, the establishment of the Warsaw International Mechanism for Loss and Damage in 2013 marked a crucial step forward in addressing the issue of climate change – induced loss and damage (L&D). This mechanism aimed to provide a framework for understanding and addressing the adverse impacts of climate change beyond the scope of adaptation and mitigation measures.

The significance of addressing L&D was further emphasized during the COP21 negotiations with the inclusion of a standalone article on L&D in the Paris Agreement, alongside adaptation and mitigation efforts. This acknowledgement underscored the urgent need to address the residual impacts of climate change and provided a platform for countries to collaborate on solutions.

The momentum continued at COP25 with the establishment of the Santiago Network on L&D, which aimed to provide technical support and expertise to developing countries facing the challenges on L&D. This network served as a crucial resource for enhancing the capacity of vulnerable nations to address and respond to climate-induced L&D.

In COP25, hosted in Sharm El-Sheikh, Egypt, resulted in the creation of the L&D Fund under the UNFCCC. This fund aimed to provide financial support for initiatives aimed at addressing L&D, particularly in vulnerable regions. Additionally, institutional arrangements for the Santiago Network were established, further strengthening the support mechanisms for countries struggling with L&D.

At COP28, hosted in Dubai by the UAE, significant progress was made in addressing Loss and Damage (L&D) issues. A major milestone achieved was the establishment of a dedicated fund with initial funding contribution by the UAE aimed at assisting nations facing climate impacts. The fund's board held its inaugural meeting in May 2024, marking a crucial step towards making the fund operational. However, efforts are ongoing to further develop the fund, including its operationalization and securing additional financial resources beyond the initial contributions. Moreover, there is a concerted focus on providing technical assistance to vulnerable countries to enhance their capacity to address and adapt to climate-related challenges. This demonstrates a collective commitment to addressing L&D and supporting vulnerable nations in their efforts to build resilience against climate impacts.

While international efforts to address L&D are progressing, LDCs still face challenges due to limited resources and technical expertise. This lack of capacity hinders their ability to tackle L&D issues effectively.

2 The Workshop

To bridge this gap, the Open Society Foundation (USA) has funded a project by the international Centre for Climate Change and Development (ICCCAD) called "Support to Least Developed Countries (LDCs) on Loss and Damage – Phase II." This project included a workshop, "The Learning Hub Event on Loss and Damage (L&D)". This event for Nepal was organized by School of Environmental Science and Management (SchEMS), affiliate with Pokhara University.

The workshop aimed to bring together representatives from government, NGOs, INGOs, civil society, researchers, professionals and students. The workshop's primary goal was to share knowledge, discuss challenges, and explore solutions related to L&D in Nepal.

2.1 Objectives of Workshop

The main objective of the Learning hub event was to improve understanding of loss and damage concerns in the Nepalese context followed by specific objectives:

1. To deepen understanding of L&D challenges faced by Nepal
2. To explore best practices and solutions for addressing Loss and Damage.
3. To foster collaboration among stakeholders for effective L&D actions in Nepal.

2.2 Participants of workshop

There were approximately 31 participants at the workshop (Annex 1), reflecting a wide range of representation from government institutions, NGOs and INGOS, civil society representatives, researchers and academia and development partners.

3 The Workshop Proceedings:

3.1 The opening Session:

The event was opened with welcome remarks by Principal of SchEMS college, Mr. Ajay Bhakta Mathema.

3.2 Global Framing and Politics of Loss and Damage (L&D)

The presentation on "Global framing of politics of L&D" was delivered by Mr. Manjeet Dhakal, Advisor to the Chair of the Least Developed Countries (LDC) at the United Nations Framework Convention on Climate Change (UNFCCC), serving as the Head of the LDC Support Team and Director of the South Asia Office.

Figure 1: Mr Manjeet Dhakal, Advisor to the Chair of the Least Developed Countries (LDC) at the United Nations Framework Convention on Climate Change (UNFCCC).

Key topics elucidated during the presentation included:

- Future climate impacts are more intense.
- What does science say?
- Increasing climate Impacts with warming
- Responses to climate change.
- Mitigation, adaptation and loss and Damage.
- Looking back: evolution of loss and Damage.
- What is Loss and Damage?
- History of Loss and damage in international negotiations.
- Loss and damage: Issues in the lead up to COP 28.

Key Information from the Presentation

- In 2023, the global climate broke records, marking the warmest year to date. The annual average temperature soared to 1.45 ± 0.12 °C above pre-industrial levels, accompanied by record-high global CO2 emissions.

- Coupled with climate change dynamics, exacerbated heat in the latter half of the year.

- Looking ahead to 2024, projections indicate a potential escalation in temperatures. Despite the looming challenges, the Paris Agreement sets a critical benchmark, emphasizing the possibility of constraining warming to 1.5°C, aligning with sustainable development objectives such as poverty alleviation, enhanced health, and clean energy access.
- Scientific insights underscore the urgency for deep and sustained emission reductions, as current global warming exceeds 1.1°C above pre-industrial levels. However, even with concerted efforts, human-induced climate change continues to inflict escalating

loss and damage on natural ecosystems and human societies. While near-term actions can mitigate some impacts, comprehensive solutions are lacking, particularly in vulnerable developing nations like those in South Asia.

- The correlation between warming and climate extremes is evident, with frequency and intensity on the rise, suggesting a potentially grim future if unchecked.

- The concept of loss and damage has evolved over decades, with COP 27 establishing a fund and COP 28 in Dubai adopting the Loss and Damage Framework, reflecting growing recognition of the issue.

- However, challenges remain in defining and accessing resources for loss and damage, both at the global and country levels. Initiatives are underway to address these challenges, but early movers with greater capacity may benefit disproportionately, exacerbating inequalities between nations.

3.3 Understanding of Loss and Damage:

The second presentation was conducted by Mr. Ajay Bhakta Mathema Associate Professor/Principal of SchEMS entitled "Understanding of Loss and Damage". During the presentation Mr. Ajay Bhakta Mathema. The presentation covered the detail information and definition of Loss and Damage.

Figure 2: Associate Prof. Ajay Bhakta Mathema, Principal, SchEMS, Pokhara University

It highlighted the following topics:

- Overview of Loss and Damage (L&D).
- L&D's increasing likelihood with Global warming.
- Working Definition of L&D.
- Economic and Non-Economic L&D.
- Climate Induced L&D

- Perspective and Updates on L&D

Key Information from the Presentation

- Loss and Damage happens when traditional adaptation tactics fall short of adequately mitigating the effects of climate change because of things like severity, resource limits, technological limitations, and gaps in knowledge.

- L&D is influenced by the severity or unpredictable nature of climate-related disasters, technological limits, resource constraints, knowledge gaps, and policy failures.

- Examples of L&D include the insufficiency of conventional adaptation measures like seawalls, the incapacity to fend off catastrophic events like storm surges, and the political or financial obstacles that marginalized populations must overcome.

- L&D is made worse by global warming, which creates problems such cascade effects, rapid climatic change, changing precipitation patterns, and exceeding the design limits of adaption mechanisms.

- Damages have permanent effects.

3.4 Role of Local/ Provincial/ National Government:

The third presentation was presented by Mr. Raju Sapkota, the Under-Secretary of the Climate Change Management Division (CCMD) under Ministry of Forest and Environment (MoFE) entitled "Climate Change Loss and Damage (L&D) in Nepal, Role of Stakeholder".

Figure 3: Mr Raju Sapkota, Under Secretary, Ministry of Forests znd Environment.

The presentation of Mr. Sapkota highlighted the following topics:

- Unpacking Loss and Damage.
- Current state of Play on Loss and Damage.
- Recent disaster events

- National Policy landscape
- Responding to Loss and Damage
- Policy Responses- Opportunities.
- Role of Stakeholders

Key Information from the Presentation

- Uncertainty regarding the effects of climate change in the future, as well as uneven effects over time and space.

- Remaining Losses and Adaptation Boundaries.

- Restrictions on Attributing Losses.

- There isn't a systematic evaluation technique in use.

- Availability of databases related to climate-related Loss and Damage, including hydro-meteorological data, DesInventar.Net, and BIPAD Portal.

- Challenges include limited coverage of direct L&D, limitations in capturing impacts of slow-onset events.

- The majority of the literature on L&D is theoretical and advocacy-focused.
  Record-breaking temperatures and precipitation, protracted dry spells that cause forest fires, and an increase in the frequency, severity, scope, and effects of climate extreme events and disasters are all examples of climate extreme events in Nepal.

- Realization of Loss and Damage: The acceptance of loss and damage as a fact of life in Nepal.

- In 2021, the Nepalese government approved a national framework on loss and damage.

- Roles include civil society organizations in awareness and capacity building, private sector in risk management, academic and research institutions in data generation and capacity building, development agencies in financial support, and NGOs in community mobilization and response to L&D impacts.

- Urgency to enable affected people to recover from climate-induced disasters, need for a grounded and integrated approach involving development, disaster, and climate communities, and the importance of mainstreaming Loss and Damage.

3.5 Scoping of the Loss and Damage for Nepal:

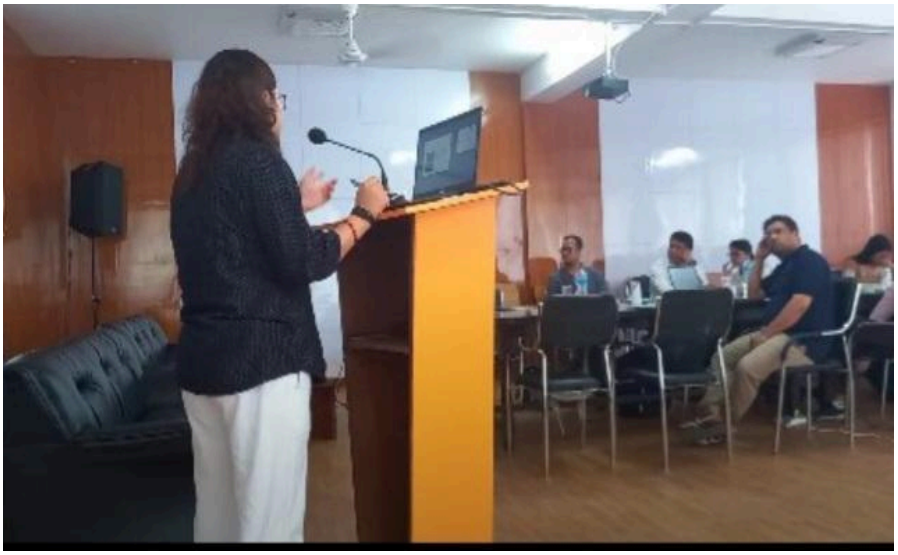


Figure 4: Ms Shubhit Kiran Ghimire, Expert, Climate Change.

Ms. Shubhuti Ghimire delivered a presentation outlining the scope of Loss and Damage. The corresponding scoping document, titled "Scoping of the Loss and Damage," was disseminated by her in COP 27. Ms. Ghimire's presentation encompassed the following thematic areas:

- Background
- Sectorial Impacts
- Country Context on: Economic and Non- economic Loss and Damage.
- Gaps and Challenges
- Recommendations.

Key Information from the Presentation:

- Nepal faces significant climate vulnerability, with 50 out of its 77 districts highly susceptible to climate change effects.

- The country has witnessed a steady rise in climate-induced disasters, averaging 647 deaths annually from 1971 to 2019, with an economic loss of USD 27.78 million per year, accounting for 0.08% of its GDP.

- Climate change has notably impacted water resources crucial for hydropower, irrigation, and drinking water, particularly affecting perennial rivers originating from the Himalayas, thereby impacting energy production and water-dependent livelihoods.

- Concurrently, the agricultural sector, a principal employer and economic contributor, confronts looming threats posed by erratic monsoonal precipitation patterns, precipitating crop impairment and imperilling food security potentially leading to species extinction and the alteration of ecosystems,

- The spectre of climate change extends to imperil forests and biodiversity, potentially catalysing species extinction and precipitating ecosystem alterations, disproportionately burdening marginalized communities reliant on these ecological resources.

- Addressing these challenges requires bridging gaps in data and understanding, emphasizing the necessity for further research, enhancing institutional capacity, and mobilizing stakeholders to effectively mitigate and adapt to climate-induced loss and damage.

3.6 Assessment of Loss and Damage:

In this segment two case studies were presented. First case study was shared by Mr. Prabin Man Singh from Prakriti Resources Centre (PRC). This presentation was from the recent published paper of PRC entitled "Locally-Led Assessment of Loss and Damage Finance in Nepal- A case of Melamchi flood 2021".

Figure 5: Mr Prabin Man Singh, Expert, Loss and Damage.

The presentation includes following topics:

- Introduction
- Objectives
- Study area
- Methods
- Findings: Types of losses and damages found in Melamchi, Economic loss and damage, non-economic loss and damage, impacts on culture and religion, Impacts on natural resources and ecosystem services, Migration, Gender Impact: Case stories- mental health impact, cultural and religious impact, impact on natural resources and ecosystem.
- Intervention gaps
- Policy and Institutional gaps
- Recommendation

Key Information from Presentation

- Climate change is inflicting increasingly severe consequences globally, resulting in significant loss and damage across various domains such as loss of lives, infrastructure, livelihoods, and ecosystems.

- This impact is particularly pronounced in developing countries like Nepal, where vulnerabilities are exacerbated by factors such as geographical remoteness, dependence on climate-sensitive sectors, and limited adaptive capacities.
- The study focuses on the aftermath of the Melamchi flood of June 15, 2021, which was triggered by a combination of anthropogenic and climatic factors along the Melamchi River Basin.

- Employing a comprehensive methodology, the study documents lived experiences, conducts in-depth case analyses, engages in community-level focus group discussions, municipal consultations, and a household survey encompassing 120 households from diverse ethnic backgrounds.

- Despite receiving financial support from the Government of Nepal and its development partners, households affected by the flood face a significant economic shortfall, with an average reconstruction assistance of only about USD 380 per household against an economic loss of USD 52,113 per household.

- The total economic loss resulting from the flood is staggering, approximately USD 436 million for Melamchi Municipality and USD 62 million for Helambu Rural Municipality, far surpassing their annual budgets.

- The study underscores the urgent need for substantial financial assistance from external sources, including national and international funding mechanisms, to facilitate recovery from such climate-induced disasters. Larger financial allocations from the international community and the Government of Nepal are imperative to bridge the substantial financial gaps and mitigate the long-term repercussions of such events.

3.7 Assessment of the flood induced and damage to agricultural crops in Rajapur, Bardiya

Next presentation of case study was shared our former student Ms. Shristi Poudel. This this was funded by the NORHED-II project. The Thesis entitled “Assessment of the flood induced and damage to agricultural crops in Rajapur, Bardiya”.

Figure 6: Ms Shristi Poudel, Graduate and Researcher, SchEMS.

The Presentation includes following topics:

- Background
- Impact of flood in Lower Region of Karnali
- Overview of Rajapur Municipality
- Objective
- Analysis of Loss and Damage
- Major findings: Flood events, loss and Damage
- Result
- Coping mechanism
- Conclusion

Key Information from Presentation

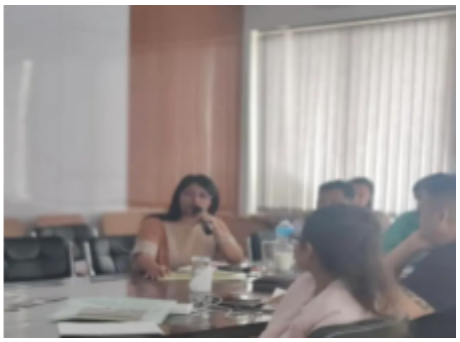
- Floods are a significant global disaster affecting millions.
- Loss and damage from climate change are both permanent and repairable.
- Flooding impacts food production and livelihoods, especially in Terai and Karnali River areas.
- Rajapur Municipality in Bardiya district is flood-prone but agriculturally productive.
- A study analyzes flood trends, crop loss, coping mechanisms, and economic impacts.
- The study focuses on indicators like agricultural land, paddy production, stored grains, livestock, and farm machinery.
- Farmers were categorized into three categories according to the land they own. The three categories are Small farmers, medium farmers and large farmers.
- Small farmers are disproportionately affected and employ more coping mechanisms.
- Extreme weather events, including floods, are increasing in frequency and severity.
- Over 30 years, 16 flood events occurred, including unseasonal floods.
- Erosion, sediment deposition, and chemical overuse are harming crop production.
- Small and medium farmers suffer significant land erosion and production losses.
- Coping mechanisms vary among farmers, with small farmers bearing higher costs.
- Various stakeholders, including municipalities and farmers, are involved in flood response and mitigation.

3.8 Question and Answer Session

During the question-and-answer session of the event, many questions were raised by participants from government sectors, NGOs/ INGOS and students reflecting a broad spectrum of concerns regarding climate-induced loss and damage particularly focusing on floods in Nepal.

The questions explored the complex understanding of this urgent matter, addressing both the issue's local and global implications. The participants emphasized the dual character of the harm and loss brought about by climate change, highlighting both its permanence and its reparability. Particular focus was placed on the severe effects of flooding on livelihoods and food production, particularly in areas such as Melamchi and the Karnali River basin.

The discussion also included local contexts, including the agriculturally productive but flood-prone Rajapur Municipality in the Bardiya area, where research have carefully examined the relationship between floods, crop loss, coping strategies, and economic consequences. Agricultural acreage, paddy productivity, stored grains, livestock, and farm machinery were among the key factors that this research looked at. Interestingly, small farmers were found to be disproportionately vulnerable as



3.9 Feedback from the participants

The Learning Hub Event on Loss and Damage in Nepal garnered substantial feedback from participants, reflecting a spectrum of perspectives and insights. Here's a synopsis of the sentiments expressed:

- **Appreciation for Comprehensive Coverage:** Many participants commended the event for its comprehensive coverage of the complex definition, issues of loss and damage in Nepal. They appreciated the depth of analysis and the inclusion of various facets such as what is loss and damage, its effects on livelihood, government concern, flood trends, crop loss dynamics, and coping mechanisms.
- **Relevance to Real-World Challenges:** Attendees highlighted the event's relevance to real-world challenges faced by communities in Nepal. The case study of Melamchi and Karnali River basin resonated with participants who could relate the discussions to their local contexts.
- **Call for Action and Collaboration:** There was a consensus among participants regarding the urgency of taking action to address climate-induced loss and damage in Nepal. Many stressed the need for collaborative efforts involving government agencies, NGOs, academia, and local communities to implement effective mitigation and adaptation strategies.

- **Desire for Continued Engagement:** Participants expressed a desire for continued engagement and follow-up actions beyond the event. They suggested ongoing dialogue, knowledge-sharing platforms, and capacity-building initiatives to sustain momentum and drive tangible outcomes in addressing loss and damage in Nepal.

awareness, fostering collaboration, and catalyzing actionable solutions to mitigate the impacts of climate change in Nepal.

3.10 Certificate Distribution

At the end of the session certificate was provided to each participant as a token of appreciation for participation and engaging on event.

Learning Hub Event

on Loss and Damage in Nepal

Certificate Of Participation

is presented to

Ms. Susmita Labh

for valuable contribution as a Participant at the Learning Hub Event on Loss and Damage in Nepal, hosted by the School of Environmental Science and Management (SchEMS), Kathmandu, Nepal.

Ajay Bhakta Mathema
Principal/ Associate Professor
School of Environmental Science and Management (SchEMS)

SchEMS
School of Environmental Science and Management
Affiliated to Pokhara University

LUCCC
Least Developed Countries Universities Consortium for Climate Change

Figure 8: Sample of certificate of participation.

Annex I: Participants List

Learning Hub Event on Loss and Damage in Nepal

Date : 30/09/2024
Time : 9:00am to 1:00pm

Attendance

S. N	Name	Organization	Phone No.	Email	Signature
1.	Gaurav Neupane	SchEMS	9860156149	gaurav.neupane@gmail.com	
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4.	Abhiyanta Karki	SchEMS	9841717239	abhiyantakarki38@gmail.com	
5	Madan Karki	PU-SchEMS	9841[illegible]	madankarki@gmail.com	
6.	Shrista Poudel		9847725[illegible]	shristi.sr@gmail.com	

Sn.	Name	organization	phone no.	Email	Signature
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14.	Dharma Raj Sharali	SchEMS	9861773532	dharmasharali77@gmail.com	

SN.	Name	organization	Phone no.	Email.	Signature
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17.	Manjil Shrestha	DCA	9801318262	manjil@ mosh@dcanepal	[illegible]
18.	Praveen K. Regmi	NES	9849219280	praveenkumar regmi@gmail.com	[illegible]
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23	Bibek Paudel	Schems	9856038271	bibekpaudel 231@gmail. com	[illegible]

SN.	Name	Organization	Phone no	Email	Signature
24.	Shila Gurung	CCMD, MoFE	9849852716		
25.	Susmita Labh	Land For Future	9860497586		
26.	Palistha Tuladhar	Power Shift Nepal	9843816720	powershiftnp@gmail.com	
27.	Pranjeet Dhakal	Climate Analyst	[illegible]		
28.	Lakeshya Bahadur Chaudhary	MoALD	9841500385	lakeshya.mald@gmail.com.	
29.	Shubhuti Kiran Ghimire	SchEMs.	9840511405	gshubhuti@gmail.com.	
30.	Laxmi Chhimwal	SchEMs	9866939903	laxmichhimwal0589@gmail.com	
31.	Prabin Man Singh	PRC			
32.					

Annex II: Presentation on Global Framing and Politics of L&D by Mr. Manjeet Dhakal

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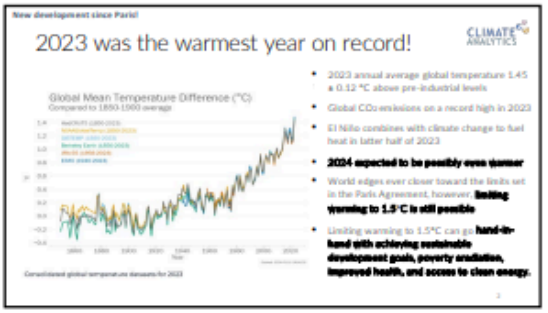

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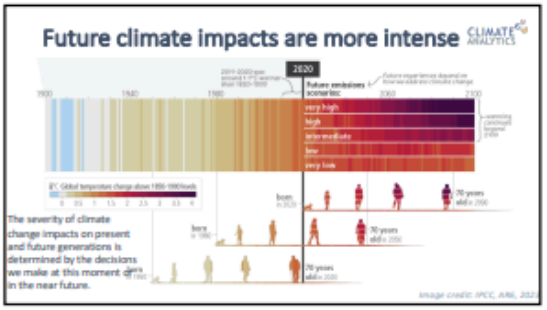

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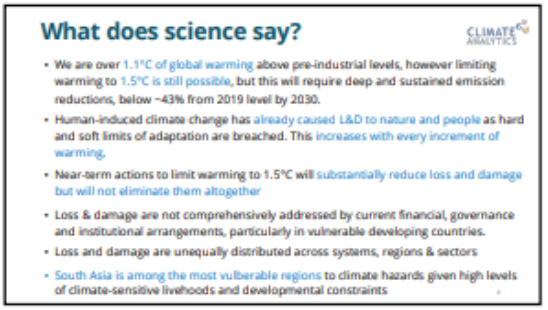

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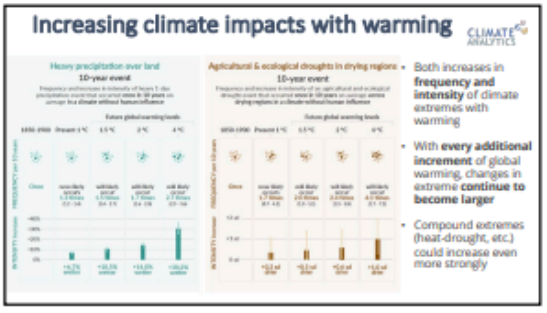

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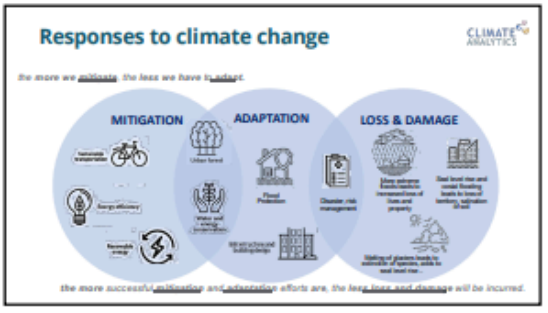

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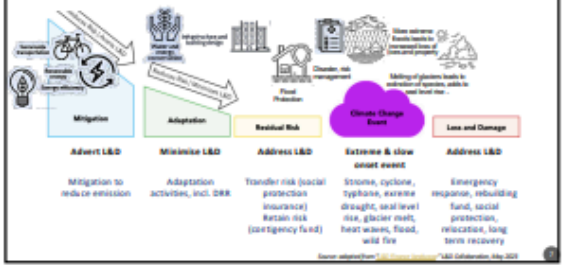
Mitigation, adaptation and Loss and Damage



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Looking back: evolution of Loss and Damage

CLIMATE ANALYTICS

- In 30+ years of multilateral climate change process, the concept of loss and damage was introduced even before the adoption of the UNFCCC.
- Science and policy prospects advanced over time, also fueled by insufficient emission reduction actions and inadequate finance mobilization.
- COP 27 took a significant step by establishing the Fund and mandating the Transitional Committee to work on its operationalization within a year.
- COP28 in Dubai made a historic decision by adopting the LDF and mobilizing pledges.

8

What is Loss and Damage?

CLIMATE ANALYTICS

There is no agreed definition of Loss and Damage.

Some working definitions:

- the impacts of climate change **that are not entirely addressed by** mitigation and adaptation.
- the impacts of climate change **that people households and communities cannot adapt** to or cope with.

"the actual and/or potential manifestation of impacts associated with climate change in developing countries that negatively affect human and natural system" (UNFCCC, 2012)

9

History of L&D in Int'l negotiations

CLIMATE ANALYTICS

- 1991 • Vanuatu – small island proposal to include insurance mechanism for the cost of climate change in the UNFCCC
- 2007 • COP13 in Bali called for understanding of risk management, risk sharing and transfer
- 2010 • COP16 in Cancun launched a work programme for enhanced understanding of L&D
- 2013 • COP19 in Warsaw established the Warsaw International Mechanism (WIM) on L&D
- 2015 • Paris Agreement recognize L&D as a separate article in the agreement – Article 8
- 2019 • COP25 in Madrid established the Santiago Network on L&D – voluntary network for technical support
- 2022 • COP27 in Sharm El-sheikh established L&D fund and funding arrangement to make it operational by COP28

10

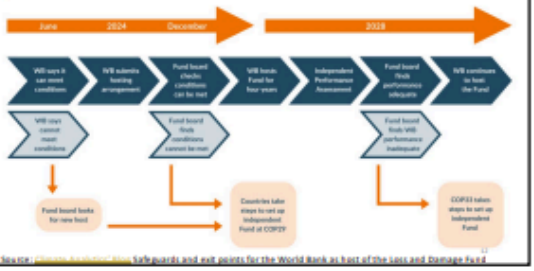
L&D Fund: issues in the lead upto COP28

CLIMATE ANALYTICS

11

Three points at which the Loss and Damage Fund could exit the World Bank

CLIMATE ANALYTICS



Source: Climate Analytics' blog Safeguards and exit points for the World Bank as host of the Loss and Damage Fund

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What next: accessing L&D resources

At the global process:

- First Board meeting likely Q1 of 2024, should start the work with urgency
- Selection of host country for the Board
- Further work on access mechanism
- Allocation floor based on COP28 guidance
- Synergy with the work on Funding Arrangement
- Fund disbursement as early as possible

At the country level:

- Accessing L&D resources will involve multiple challenges for countries, *such as attribution, data availability, qualitative/quantitative assessment & identifying direct/indirect impacts.*
  - support in place for research/study to inform policy process, attribution science, needs assessment
  - appropriate domestic response, policies and inter-agency coordination remains key.
- Early movers those who have capacity would be first to take advantage of the Fund, with a risk of leaving the countries with less capacity behind.

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Annex III: Presentation on Understanding of L&D by Mr. Ajay B Mathema

Understanding of Loss and Damage

Ajay B Mathema
Associate Prof/ Principal
School of Environmental Science and Management (SchEMS)

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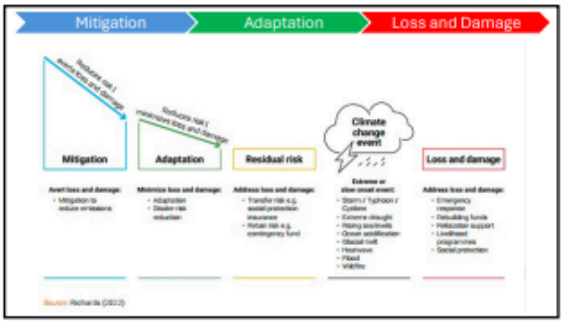

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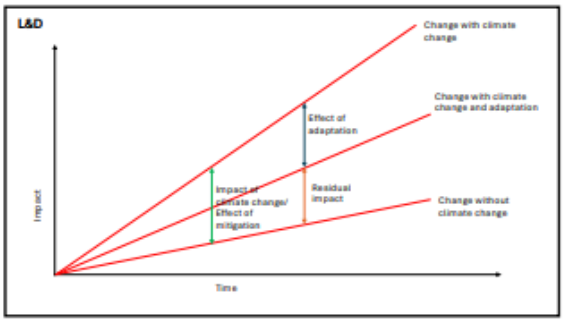

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Overview of Loss and Damage

L&D arises when conventional adaptation strategies/measures are inadequate or incapable of effectively addressing climate change impacts. This insufficiency can can result from several factors:

- ***(a) Severity or unpredictability of climate-related events*** – climate related events may exceed the capacity of existing adaptation measures due to their severity or unpredictability.
- ***(b) Limitations in available technology*** – Available technology may be inadequate to address the scale or complexity of climate change challenges.
- ***(c) Resource constraints*** - Scale of the challenge compared to the resources available for adaptation *i.e*, the implementation of adaptation measures is not feasible due to natural constraints or technological limitations.
- ***(d) Gap in knowledge***, policy failures, or underestimation of future risks (ignorance).

Examples of factors contributing to L&D:

- In areas highly susceptible to sea-level rise, traditional adaptation measures like building seawalls may be impractical due to the scale of construction required.
- the inability to protect against extreme events such as storm surges.
- Marginalized communities may lack the financial resources or political influence to implement adequate adaptation measures.

Despite adaptation effort, certain climate-related stressors may still cause damage or loss due to their severity or unforeseen consequences.

4

L&D's increasing likelihood with Global Warming

As Global Temperature rise, the effectiveness of adaptation measures will have a push the above.

(a) Exceeding Design Limits

- As global temperature continue to risern, the frequency and intensity of extreme events are increasing. Traditional adaptation measures, designed based on historical climate patterns, may become inadequate to address heightened risks.
- Our hydropower plant may fail as our watersheds rainbased rather than receiving water from the snow and glaciers.
- Adaptation measures are often designed with certain thresholds in mind, beyond which their effectiveness diminishes.
- Coastal protection infrastructures like seawall may be designed to withstand a certain sea-Level rise, but if sea-level exceeds projections, these measures may fail to provide protection.
- Increasing global warming can lead to the degradation or collapse of ecosystems, reducing their capacity to buffer climate-related impacts.
- With increasing global warming, vulnerable communities may face heightened risks and challenges in adapting to climate change, exacerbating existing inequities and vulnerabilities.

(b) Cascading Impacts

- Climate change impacts often act like dominoes, one triggering another.
- Decreased precipitation and increased evaporation due to heat can strain water resources. Water conservation measures may not be enough if entire regions face long-term drought.
- Heatwave can exacerbate droughts and increase the risk of wildfires. Forest management strategies designed for historical fire patterns may struggle with the intensity and frequency of fire fuelsl by a warming climate

(c) Rapid change

- The speed of climate change is also a concern, when it comes to adaptation. Ecosystems and human societies have adapted to changing environments throughout history, but there is a crucial difference now – the pace of change.
- Rapid warming might disrupt the intricate relationships between species and their environmen. Plants and animals may not be able to migrate or adapt fast enough to find suitable habitat with the preferred conditions, leading to species extinction or ecosystem collapse.

5

Working Definition of L&D

Loss and Damage (L&D) includes the negative impacts of climate-related stressors, consisting sudden events like flooding and cyclones, as well as slower phenomena such as sea-level rise, glacial retreat, and desertification, which cannot be mitigated or managed through adaptation efforts.

Distinction between Losses & Damages

Losses:

- Losses encompass irreversible impacts resulting from climate related events.
- These impacts often include severe consequences such as fatalities or the permanent destruction of environmental resources.

Damages:

- Damages, in contrast, are impacts that can be mitigated, alleviated, or repaired through various means.
- While damages may still cause significant harm, they are not necessarily irreversible.

6

Avoided, Unavoided, and Unavoidable

Avoided	Unavoided	Unavoidable
Avoidable damage and loss avoided	Avoidable damage and loss not avoided	Unavoidable damage and loss (irreversible)
Damage prevented through mitigation and/or adaptation measures	Where the avoidance of further damage was possible through adequate mitigation and/or adaptation, but where adaptation measures were not implemented due to financial or technical constraints	Damage that could not be avoided through mitigation and/or adaptation measures; – slow-onset changes such as sea level rise, glacial melting – damage due to extreme events where no adaptation efforts would have helped prevent the physical damage

Source: Verheyen (2013)

[1] The glossary to the IPCC Special Report on the ocean and cryosphere (IPCC, 2019b) identifies that Loss and Damage

7

Economic and Non-Economic Losses and Damages

- There is often overlap between economic and non-economic categories of L&D. For example, the destruction of natural habitat (material) can lead to the loss of biodiversity (non-economic) and incur financial costs for restoration efforts (economic).

8

Role of mitigation and adaptation

Mitigation efforts are the primary approach to prevent and reduce loss and damage associated with climate change.

- Mitigation involves reducing GHG emissions and limiting the drivers of climate change.
- The effectiveness of mitigation measures is crucial in reducing the risk of experiencing loss and damage.

The level of ambition in mitigation efforts directly influences the risk of experiencing loss and damage.

- ***Higher levels of ambition in mitigation*** **-** ***Lower the risks of loss and damage*** (as Mitigation addresses the root causes of climate change.)
- In cases where the level of ambition in mitigation is insufficient, adaptation efforts can complement mitigation measures.
- Adaptation aims to minimize the impacts of climate change on communities, ecosystems, and economies by adjusting to changing conditions.

IPCC cautions that current mitigation efforts have not achieved desired success.

- Despite international agreements and initiatives, global emission continue to rise, exacerbating the risk of loss and damage.
- Even with combined mitigation and adaptation measures, there will still be residual impacts or instances of loss and damage that persist.
- These residual impacts signify the limitations of current mitigation and adaptation efforts in fully addressing the challenges of climate change.

9

Perspectives and updates on L&D

(a) IPCC recognition - The inclusion of a section on 'Residual Risks, Limits to Adaptation and Loss and Damage' in IPCC special report on 1.5 degree C marked a significant milestone in the IPCC's examination of L&D. It aimed to provide policy makers with scientific information to guide efforts to limit global warming to 1.5 dgree C and assess the potential consequences of exceeding this threshold.

(b) Divergent views in UNFCCC negotiations –

- Developing countries view L&D as distinct from adaptation and advocate for discussions, liability attribution, and compensation within climate change negotiations.
- Developed countries often conflate L&D with adaptation and resist discussions of compensation and liability.

(c) Institutionalization in COP21

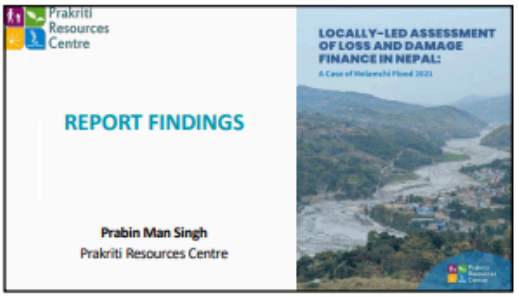
- L&D was institutionalized within UNFCCC framework during COP21 in Paris 2015.
- Despite this, the definition and practical application of L&D remained ambiguous.

(d) Establishment of L&D Fund

- COP27 marked a breakthrough with the decision to create a dedicated fund for responding to loss and damage. This fund aims to assist developing countries, particularly vulnerable ones, in dealing with the economic and non-economic impacts of climate change.
- A Transitional Committee was established to design the operational details of the fund, including how it will be accessed and how contributions will be made. This committee is expected to finalize its recommendations by COP28 (Nov 2024).

11

Annex IV: Presentation on Assessment of L&D by Mr. Prabin Man Singh



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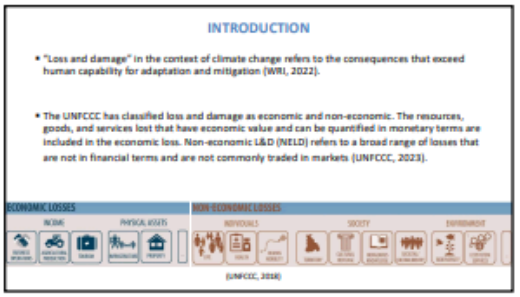

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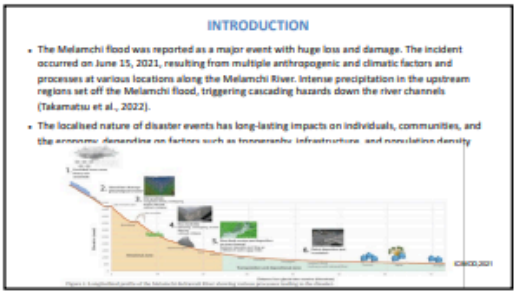

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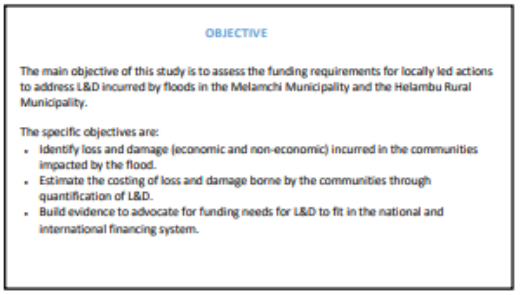

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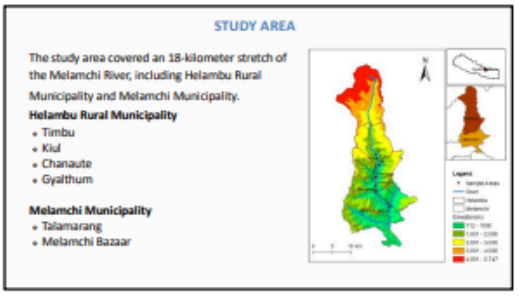

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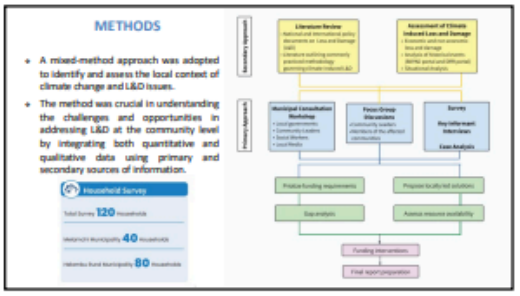

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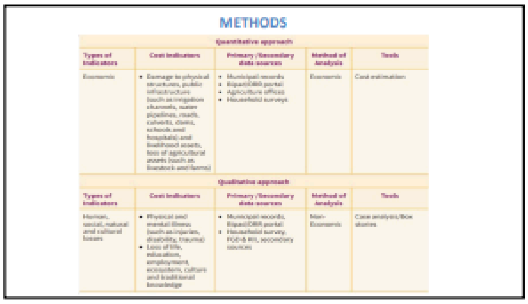
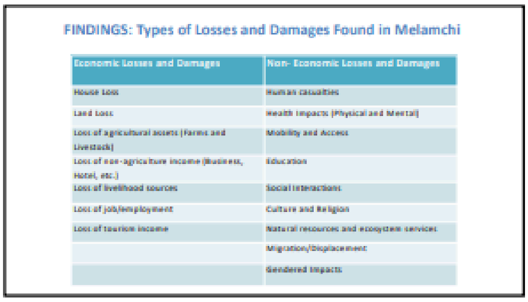

METHODS
Quantitative approach
Types of indicators
Cost indicators
Primary /Secondary data sources
Method of Analysis
Tools
Economic
Damage to physical structures, public infrastructure (such as irrigation channels, water pipelines, roads, culverts, dams, schools and hospitals) and livelihood assets, loss of agricultural assets (such as livestock and farms)
Municipal records
Bipad/DRR portal
Agriculture offices
Household surveys
Economic
Cost estimation
Qualitative approach
Types of indicators
Cost indicators
Primary /Secondary data sources
Method of Analysis
Tools
Human, social, natural and cultural losses
Physical and mental illness (such as injuries, disability, trauma)
Loss of life, education, employment, ecosystem, culture and traditional knowledge
Municipal records, Bipad/DRR portal
Household survey, FGD & KII, secondary sources
Non-Economic
Case analysis/Box stories

7

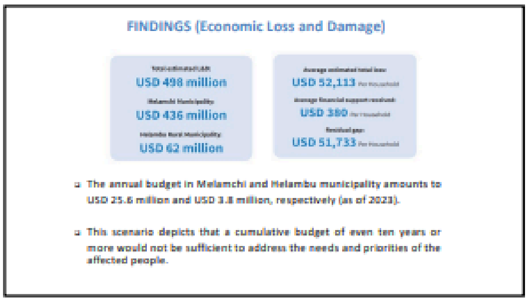
8



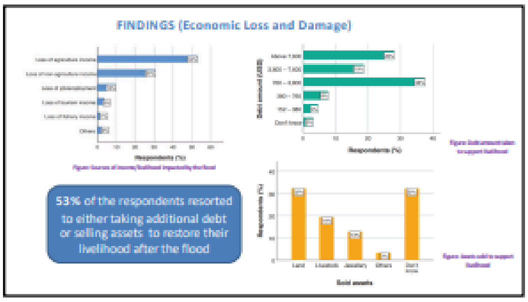
Economic Losses and Damages	Non- Economic Losses and Damages
House Loss	Human casualties
Land Loss	Health Impacts (Physical and Mental)
Loss of agricultural assets (Farms and Livestock)	Mobility and Access
Loss of non-agriculture income (Business, Hotel, etc.)	Education
Loss of livelihood sources	Social interactions
Loss of job/employment	Culture and Religion
Loss of tourism income	Natural resources and ecosystem services
	Migration/Displacement
	Gendered impacts

9

10


FINDINGS (Economic Loss and Damage)
USD 498 million
USD 436 million
USD 62 million
USD 52,113
USD 380
USD 51,733
The annual budget in Melamchi and Helambu municipality amounts to USD 25.6 million and USD 3.8 million, respectively (as of 2023).
This scenario depicts that a cumulative budget of even ten years or more would not be sufficient to address the needs and priorities of the affected people.

11



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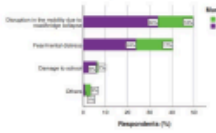
FINDINGS (Non-Economic Loss and Damage)

Mental Health issues emerged after the flooding

- Anxiety, and mental trauma due to the loss of business and agriculture
- Sleeplessness due to fear and stress

Impact in Education



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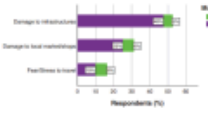
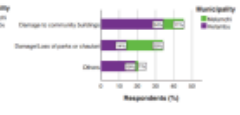
FINDINGS (Non-Economic Loss and Damage)

40% of the respondents faced challenges in accessing basic necessities due to disruption in mobility.



51% of the respondents reported that the flooding significantly affected social interaction.



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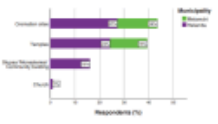
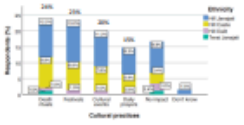
FINDINGS (Non-Economic Loss and Damage)

Impact on Culture and Religion

58% of the respondents mentioned that the flooding affected their cultural and religious sites and practices





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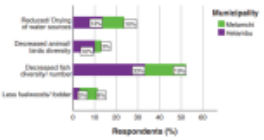
FINDINGS (Non-Economic Loss and Damage)

Impact on natural resources and ecosystem services



- 97% of the respondents mentioned that the scenic beauty was lost as the agricultural land and riparian vegetation were swept away
- Due to the high deposition of sediments, it feels warmer in the area

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FINDINGS (Non-Economic Loss and Damage)

Migration

20% Migrated to Kathmandu and other places in the Sindhupalchowk district to re-establish their source of livelihood

- **39%** In search of income opportunities to support their families
- **32%** Distressed/unwillingness to live in the same place
- **27%** Damage of farmland

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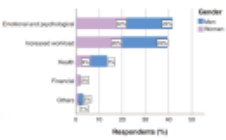
FINDINGS- Gendered Impacts

- 41% of the respondents mentioned gender-specific impacts of the flooding
- Women experienced an increased care burden as they had to manage household chores, secure food and water, and tend to family's emotional needs.
- 60% of both men and women respondents noted either direct or indirect engagement of women in decision-making processes.
- Among them, 78% of respondents reported that women were limited to community discussions, with only 11% having access to influence decision-making at the planning level.



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CASE STORIES

1. Mental Health Impact

Sofi Bhandari
35, Farmale, Helambu

Sofi Bhandari, originally from Kathmandu, settled in Kiul village, Helambu, after marrying a local man. She was captivated by the village's beauty and abundant water resources.

"It was amazing to think people here had uninterrupted tap water," she said.

Lifeswas good for Sofi, her husband, and their children until two major disasters changed everything. The 2015 earthquake had a profound impact on Sofi and her family, with her son trapped under rubble after their village was shaken by tremors, creating fear and uncertainty. As they were gradually getting back to their normal lives, the unexpected flood, accompanied by enormous debris, ravaged the Melamchi River. Sofi's husband was involved in managing the aftermath due to his role in the local rural municipality. Simultaneously, her brother-in-law worked at a nearby Bhandari Trust farm in

Kiul Bazaar, which was destroyed by the flood. The massive debris in the river swept away everything from the road then, including Sofi's brother-in-law, witnessed by her elder daughter. This traumatic event has left her daughter struggling with trauma, plagued by memories of the incident and her uncle. Sofi had to take her daughter to Kathmandu for counseling and treatment.

19

CASE STORIES

2. Cultural and Religious Impact

Tejmani Sapkota
67, Male, Helambu

The July 2021 Melamchi flood changed the life of Tejmani Sapkota, a resident of Ward no. 2 of Helambu Rural Municipality near the Kiul floodplain. The flood severely damaged Tejmani's home and washed away his fertile farmland, making it unlikely for him to resume farming anytime soon.

Tejmani has a wife, three daughters, one son, and a granddaughter in his family. To compound their troubles, tragically, both his parents passed away in 2020 following the flood event. The devastation caused by the flood prevented them from conducting the religious last rites for his parents at their traditional ancestral site, a site that had been used by their family for generations. They had no choice but to perform the final rituals at a neighbor's land situated along a nearby riverbank, further underscoring the emotional toll of the disaster. The devastating flood didn't just bring physical and economic hardships to Tejmani Sapkota and his family, it also had profound cultural and religious implications.

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CASE STORIES

3. Impact on natural resources and ecsystem

Gopal Bhujel
48, Male, Helambu

Gopal Bhujel is a generational fisherman from Jyamire Village in Helambu Rural Municipality. Inherited from his father, Bhujel developed his fishing skills from his early days. His deep love for fishing made the river his second home. Before the flood, he earned approximately USD 28 per day by selling fish which was enough for him to sustain his livelihood.

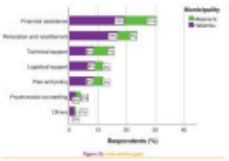
When the flood struck, it washed away homes, agricultural lands and damaged ecosystems. Consequently, it caused a significant decline in fish inhabiting the river, says Gopal, adding that the sediment deposits in the riverbank have made it difficult for fish to thrive.

With the reduced fish population, it has become challenging for Gopal to make enough money to sustain his family's needs. As an alternative source of income, he now works as a construction worker. But as a generational fisherman, he misses the joy of casting a fishnet into the river.

21

FINDINGS- Intervention Gaps

- A majority of households received financial support ranging from USD76 to USD180, with a few, who lost everything, including their homes, receiving between USD2,280 and USD3,800.
- 88% of respondents expressed dissatisfaction with the support, considering it insufficient to compensate for their losses and damages.
- The major intervention gaps remain in providing financial assistance (30%) and relocation (24%), followed by gaps in technical (15%) and logistical (12%) support. Few respondents (4%) pointed out gaps in psychosocial counseling.
- Immediate needs are primarily centered around financial support (28%), with significant emphasis on investment in resettlement (25%), insurance (23%), and training (15%), while a smaller percentage (3%) underscores the importance of employment opportunities for livelihood support.
- Key measures such as restoring infrastructure, implementing protective barriers, and ensuring a reliable early warning system were emphasized.



22

Policy and Institutional Gaps

Lack of sufficient data

Coordination issues

The concept of risk transfer mechanisms is relatively new in such contexts.

Inadequate fund

Lack of a clear mandate and functions specifically addressing loss and damage

Top-down approach of decision-making

Limited institutional and Technical capacity

23

RECOMMENDATIONS

- Prompt, equitable compensation for flood-affected individuals based on thorough assessments.
- Tailored support for vulnerable groups: elderly, women, children, and marginalized communities.
- Formulation of a multi-stakeholder and comprehensive Melamchi Valley masterplan to facilitate effective reconstruction, relocation, and rehabilitation.
- Prioritize and integrate non-economic losses and damages in the related policies, plans, and frameworks. Prioritizing unique needs related to NELD when planning mitigation, adaptation, and resilience-building interventions is important.
- Offer psychosocial counseling for social and economic recovery and Restore cremation sites for cultural revival and social cohesion.
- Promote affordable insurance for economic growth and risk transfer.
- Create a collaborative environment among the government, non-profit groups, and communities to reduce the risk of disasters by sharing resources and information.
- Address the existing gap between financial requirements and assistance provided, considering the extent of losses and damages in line with the principles of equity and fairness.
- Mobilize financial support from external sources (including international financing mechanisms) to cover

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25

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Thank you!

Prakriti Resources Centre

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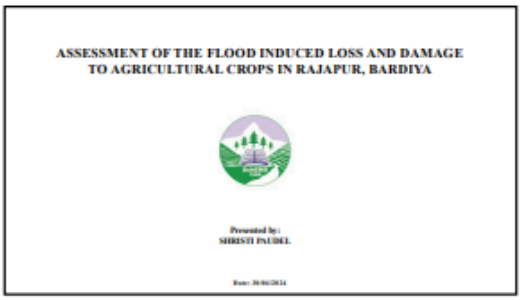
Annex V: Presentation case study of Rajapur by Ms. Shristi Poudel



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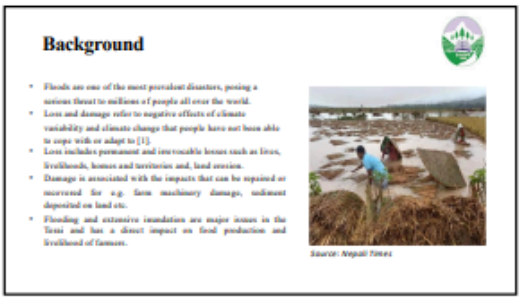

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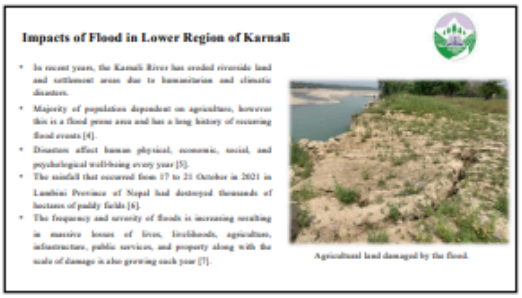

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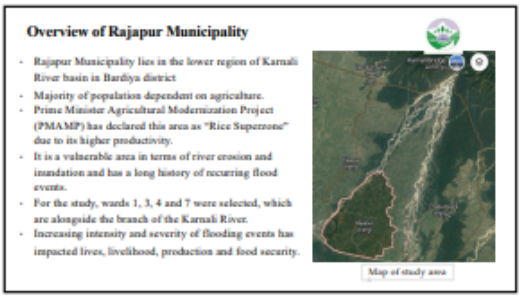

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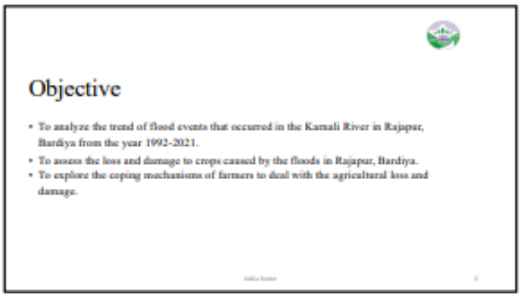

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6

Analysis of Loss and Damage:

- **Land**

Loss and Damage (ha) = Total Land (Land loss+ Land Damage)

Loss and Damage ($) = Lost land value + restoration cost

- **Production**

Loss and Damage (net) = Previous year yield. This year's net yield

Loss and Damage ($) = Economic value of expected yield – economic value of this year's yield.

- **Stored Grains**

Loss and Damage ($) = Quantity of stored grains lost* pre-disaster value of destroyed stored grains

- **Livestock Loss ($)** = Pre-disaster value of dead animals
- **Farm Machinery Damage/ Asset damage** = Repair cost of partially or fully destroyed assets

Food sufficiency = Loss (Monthly Average sufficiency month pre-disaster – average sufficiency month post-disaster

Income

Note: The loss and damage were estimated mainly based on the proposed indicators by ***RIPAH*** *(Building Information Platform against Disaster) in the agricultural sector. The selected indicators were agricultural land, paddy production, stored grains, livestock, and farm machinery.*

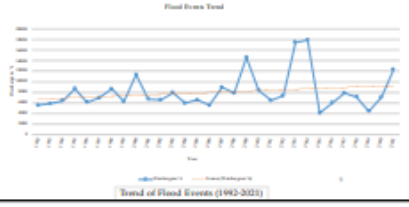
7

Major Findings

8

Flood Events Trend

The result showed that the flood occurred in the years 1995, 1998, 1999, 2000, 2003, 2007, 2008, 2009, 2012, 2013, 2014, 2017, 2020, and 2021.



Trend of Flood Events (1992-2021)

9

Loss and Damage

Table: Total L&D (in $) incurred by large, medium and small farmers to the five different sectors

Farmer's Type	Land	Production	Stored Grains	Livestock	Farm machinery	Total
Large	1726.0	19407.384	3437.588	7552.2	270.6	32393.691
Medium	2687.5	17872.589	3738.751	1607.2	151.2	26225.239
Small	9863.5	8609.082	2768.588	409.6	82.0	21709.769
Total	38462.0	45888.774	9924.826	9569.0	483.8	104328.500

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Result

L&D of Land (ha) | L&D of Land in USD

In average a large, medium, and small farmers have land holding of 3.23 ha, 1.29 ha and 0.221 ha.
Large farmers land was most damaged with majority on land having sediment deposit.
But small farmers' land are severely impacted as some of their lands are eroded by flooding.

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Continued..

L&D of production | L&D of stored grains

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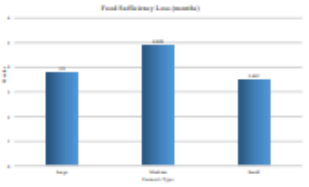
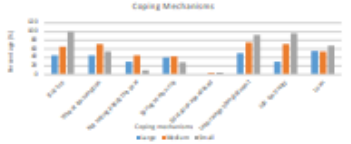


14

COPING MECHANISM

- Coping mechanisms to ensure food security and support their livelihood
- Small farmers followed more coping mechanisms in compare to medium and large
- Though large farmers lost most of their production, small and medium farmers were largely impacted.
- Effective for short term, long term solutions can be found through policies and scientific solutions.
- Farmers are the ones who have to bear all the cost for coping mechanisms



Spring Paddy

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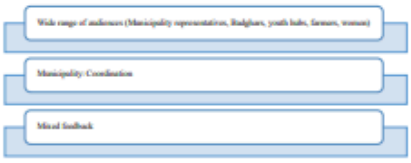
Conclusion

- In recent years, the risk of extreme weather events have been increasing. The temperature and precipitation trends are also increasing.
- The flooding events have become more frequent and more severe, causing loss and damage to lives, properties and in other sectors like agriculture, forest etc.
- In last 30 years, 16 flood events were recorded, among which unseasonal flood occurred three times.
- Erosion of agricultural land and fertile soil, deposition of sediments, and overuse of chemical fertilizers have already causing declining in crop production in the area.
- Small farmers and medium farmers were highly impacted as their land was eroded by river and high production was lost.
- Different farmers used different coping mechanisms, however, it's the small farmers who had to find the alternatives for farming.

16

Policy Brief



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Annex VI: Presentation on Role of Local/Provincial/ National Government by Mr. Raju Sapkota

CLIMATE CHANGE LOSS AND DAMAGE (L&D) IN NEPAL

Role of Stakeholders

Raju Sapkota
Under Secretary, CCMD, MoFE

1

Presentation Outline

- Background and setting the context
- Response measures
- Role of stakeholders in addressing L&D
- Way forward

2

Context

- Climate change Policy 2019
- Enhanced NDC 2020
- NDC implementation Plan and NAP, 2023
- Need of L&D assessment in Nepal
- severity of a climate change increased disaster in a natural environment, biodiversity, public n private properties, livelihood, ecosystem services .....
- Adequately reflect a post-disaster situation if it recognizes the plight of the affected population and provides a strong basis for policies to avert, minimize and address L&D in the future
- Provide input for efforts to adapt to climate change
- L&D research is relevant for compensation, relief, and reconstruction following a disaster including climate-induced.

3

Unpacking loss and damage

Non-Economic Loss and damage	Economic loss and damage
Individuals: life, health, human mobility	Income: Business operations; agricultural production (crops yields, livestock fisheries); Tourism
Society: territory, cultural heritage, indigenous knowledge, societal. cultural identity	Physical assets: infrastructure (buildings, bridges, roads, railways, irrigation canals, reservoirs, trails, power generation stations, dams, dykes, etc.), property (house, land, etc.)
Environment: biodiversity, ecosystem services	

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Current state of play on Loss and Damage

Developed Countries: Mitigation and Adaptation (Loss and Damage)

Developing Countries: Mitigation, Adaptation and Loss and Damage

1. Uncertainty about future climate and its impacts, and its unequal impact across time and space
2. Limits to adaptation and residual losses
3. Attribution limitations real
4. Systematic Assessment Method: Not yet in place
5. Literature: theoretical, veer towards advocacy

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Recent disasters events: can we draw something

- Record breaking temperature: 1.1 degree
- Record breaking rainfall all over Nepal: intense rainfall within short duration of time- DHM said it recorded **121.5 mm of rain in the last 24 hours** (September 5-6) which is highest in last 13 years
- Prolonged dry period- heavy forest fire
- Increased frequency, intensity, magnitude and impacts of climate extreme events and disasters.
- Massive loss and damages (2.5% of GDP)

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National Policy landscape

- Realization that L&D is a reality for Nepal
- Government of Nepal endorsed national framework on Loss and Damage in 2021
- Government has been strongly lobbying for an international agreement on establishment and operationalization of L&D fund

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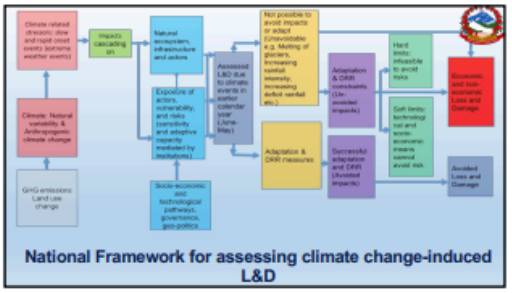

National Framework for assessing climate change-induced L&D

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Responding to Loss and Damage

1. Approaches to minimize loss and damage from climate change

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Responding to Loss and Damage

2. Existing information system in loss and damage in Nepal

The information and database system particularly targeting the assessment of L&D is not currently available. However, in Nepal, three sets of databases related to climate-related L&D are available.

- ❑**Hydro- Meteorology**

337 precipitation stations, 154 hydrometric stations, 20 sediment stations, 68 climatic stations, 22 agro meteorological stations, 9 synoptic stations, and 6 Aero-synoptic

- ❑**DesInventar.Net**
- ❑**BIPAD Portal**

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Policy Responses- Opportunities

- Submitted **Second NDC** in 2020 under the Paris agreement for the period 2021-2030.
- **National Climate Change Policy 2019** and **Environment Protection Regulations 2020** also emphasizes the need to conduct research on the L&D associated with climate change impacts and implement measures to reduce climate change-related vulnerabilities.
- **The National Adaptation Plan (NAP)** aims to reduce the country's risks and vulnerability to climate change and facilitate the integration of climate change adaptation into policies, programs, and activities across all sectors and levels.
- The **Vulnerability and Risk Assessment (VRA)** has been carried out that has generated evidence showing the impact and L&D from climate-induced disasters
- **Multi-hazard risk assessment** is being done by NDRRMA including Impact based forecasting

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Responding to Loss and Damage

Challenges of the database system in context to L&D

- The disaster database portal includes limited direct L&D and does not include non-economic L&D
- Major limitation in capturing the impacts of slow-onset events

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Role of Stakeholders

Ministry of Forests and Environment (MoFE)

- Play a facilitating role in updating vulnerability and risk assessment approaches in addressing L&D with regular coordination among MoHA, MoFAGA, NDRRMA as well as the provinces and Palikas;
- Review of indicators and the mechanism of assessment through monitoring and feedback for systematic monitoring, updates, and revision.
- Advocate/lobby for increased investment at the national, provincial, and local levels to build institutional capacity.
- Play a major role in expanding the understanding of economic and non-economic L&D and in defining acceptable, tolerable, intolerable risks and adaptation limits.
- Support facilitating the piloting of the approach for assessing L&D.
- International negotiations

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Role of Stakeholders

Department of Hydrology and Meteorology (DHM)

- Create, maintain and update a database that covers issues such as collection, indicator consensus, data standardization, synthesis, and storage.
- Consolidate weather information such as temperature, rainfall, and wind to feed into the above assessment.
- DHM has proposed rainfall thresholds for landslides and floods. These figures are also used in BIPAD portal as a guide. This is a useful starting point but must be linked with other triggers and ambient land conditions for developing a combined general threshold for landslides and floods used for making a realistic assessment.
- Efforts on impact-based forecasting and now-casting for thunderstorms, cloudbursts, and flash floods.
- Additional financial and human resources have to be allocated for management weather stations
- Increase investments in capacity development for preparedness.
- Develop Nepal Integrated Drought Information Mechanism (NIDIM) as a multi-agency partnership that will coordinate drought monitoring, forecasting, planning, and information at national, provincial, and local levels in coordination with GoN agencies, development partners and concerned authorities.
- To successfully conduct the above tasks DHM needs continuous institution-building support.

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Role of Stakeholders

National Disaster Risk Reduction and Management Authority (NDRRMA)

- Coordinate with all levels of government, inter-ministerial arrangements, and the private sector about the needs of risk assessment, risk reduction response, and recovery from climate hazards
- Ensure that plans, programs, and decisions made by the National Council for Disaster Risk Reduction and Management and the Executive Committee are implemented.
- Develop a robust, transparent, and reliable national mechanism for assessing climate change-induced L&D as part of its larger disaster risk reduction and humanitarian action data architecture.

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Role of Stakeholders

Provincial Governments

- Coordinate with all levels of government, inter-ministerial arrangements, and the private sector about the needs of risk assessment, risk reduction response, and recovery from climate hazards
- Coordinate across palikas in consolidating database management and
- Play a major role in expanding the understanding of economic and non-economic L&D and in defining acceptable, tolerable, intolerable risks and adaptation limits.
- Support facilitating the piloting of the approach for assessing L&D.

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Role of Stakeholders

Local governments (Rural and Urban Municipalities)

- Understand the multifaceted aspects of climate change-induced L&D.
- Regular dialogue with experts and stakeholders keeping the specific context of the Palika
- Prepare a baseline profile with details on infrastructures and natural ecosystems to serve as a reference for calculating economic damage, and gradually include the non-economic costs necessary for assessing total L&D.
- A dedicated team has to be formed. The team must include technical staff (infrastructure and agriculture),data collectors and IT and database support human resources.
- Risk informed adaptive DRR plans and programs

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Role of other stakeholders

- Civil society organizations: Support in awareness, capacity building, L&D responses, data generation and management
- Private sector: Helping communities to respond effectively to L&D – risk management
- Academic and research institutions: Study, research, data generation, capacity building
- Development agencies: financial flow and capacity building support
- International and National NGOs: Community mobilization, helping communities to prepare and respond to L&D impacts

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Way forward

- It is an urgency to enable affected people to recover from the impacts of climate-induced disasters and "build forward better
- A more grounded and contextualized approach to dealing with L&D requires integrated and harmonized approach bringing the development, disaster and climate communities together.
- Governemnt at all tiers and levels should focus on mainstreaming L&D and most importantly assess, monitor, document and share Loss and damage information and knowledge.

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Appreciate your Suggestions/ Feedbacks

Thank you very much

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Annex VII: Presentation on Scoping of Loss and Damage for Nepal by Ms. Shubhuti Ghimire

SchEMS
School of Environmental Science and Management
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LUCCC

Country Scoping Study on Loss and Damage (L&D) - Nepal

PREPARED BY:
AJAY B MATHEMA
MANJEET DHAKAL
SHUBHUTI KIRAN GHIMIRE
DATE: 30/04/2024

PRESENTED BY
SHUBHUTI KIRAN GHIMIRE

1

Presentation Outline

- Background
- Sectoral Impacts
- Country Context on
  - Economic loss and damage
  - Non- economic Loss and Damage
- Gaps and challenges
- Recommendations

2

Background

- Located in the Central part of the Himalayan Range, 80% of Nepal's population is at risk from natural and climate-induced hazards.
- A total of 9,886 small and large weather and climate-related disaster incidents were reported between January 2020 to September 2022 (32 months).
- Claimed Lives of 1,173 people 1,282 livestock, and destroyed 4,945 houses and other types of infrastructure.

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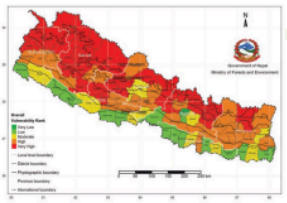

Climate Change Vulnerability Ranking

According to the recent climate-change vulnerability and risk assessment report (MoFE, 2021b), **50 districts out of 77** rank high to very high in term of vulnerability to the effects of climate change.

The trend in climate-induced disaster events in Nepal (1971-2019), the number is continuously increasing, with on average 647 people dying from climate-induced disasters each year.

The average economic loss per year due to climate-induced disasters is **USD 27.78 million (NPR 2,778 million)**, or 0.08% of Nepal's national GDP.

4

Sectoral Impacts

Water resource and energy:
Nepal's rich water resources is significantly impacted by climatic change, on which the **hydropower, irrigation, and drinking water supply systems** are dependent.
Most perennial rivers originating from the **high Himalaya, and glaciers** contribute to these rivers where the water availability can severely affect energy production and water dependent livelihoods (such as agricultural production).

Urban area:
Nepal's population has grown rapidly where the urban growth has been haphazard,
The urban centers in the terai are experiencing a **decrease in river discharge and a decline in groundwater table** during the dry seasons.
On the other hand, **excess rainfall is causing flash floods and/or landslides**, flooding rivers and urban floods, which largely **impact urban settlements** in their proximity and result in loss of human capital as well as infrastructure.

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Sectoral Impacts

Some of the sectors that can be directly affected by the changing climatic condition are:

Agriculture and Food Security:
Agriculture employs 66% percent of the economically active population which contributes to one third percent of the gross domestic product (GDP) of the country.
Agriculture is predominantly small-scale and much of it is **heavily dependent on the monsoon.** According to MoFE (2017), 'the agricultural sector has been suffering from a high direct economic cost because of the current climate variability. (IDS et al, 2014).
The unexpected and untimely excessive rainfall and floods have caused massive damage to the ready-to-harvest crop across all major rice-producing areas of Nepal - threatening the food security and livelihood of the country's smallholder rice farmers.

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Sectoral Impacts

Forest and biodiversity:
Nepal is home to diverse flora and fauna due to its variability in physiographic condition where most of the population is dependent on forest resources for their livelihood.

A number of studies have indicated some likely impacts of climate change on the forest ecosystem:

- many vulnerable species are likely to become extinct. Species with **limited climatic ranges** and/or with limited geographical opportunities (e.g. Mountain top species), species **with restricted habitat requirements**, and/or small populations are typically the most vulnerable.
- **existing ecosystems** will **be replaced** by new plant and animal assemblages.
- the impacts of climate change are likely to increase in the future, which will not only affect biodiversity but also the **livelihoods of millions of local and indigenous people** who depend on forests and biodiversity.
- The **disruption of ecosystem services** due to climate change is expected to especially affect the poorest and most vulnerable communities of the country.

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Country context – Loss and Damage

Scientific evidence suggests that loss and damage is unequally distributed and not comprehensively addressed by current adaptation and mitigation, particularly in vulnerable developing countries.

Multiple climate hazards will occur simultaneously and interact, resulting in compounding risks across sectors and regions. Hence the need of **Loss and Damage.**

8

Country Context

When mitigation and adaptation actions are not adequate, people and communities may face "loss and damage". Thus Loss and damage is not only a future issue for Nepal but something that vulnerable communities are experiencing right now.

UNFCCC (2012) identified glacial retreat and related impacts as a slow-onset event influenced by climate change. Being a mountainous country, Nepal is at the forefront of such slow- onset events in high altitude and downstream communities at high risk.

As climate impacts intensify, Nepal experiences acceleration in loss and damage attributed to climate changes, mainly associated with increasing frequency/magnitude of the extreme weather events as well as slow onset climatic processes.

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Country Context- Loss and Damage

The government of Nepal has proposed the following definition in its national context (MoPE, 2021):

"Loss and Damage represents the actual and/or potential negative manifestations of climate change on sudden onset extreme events, such as heat wave and extreme rainfall and slow-onset events such as snow loss, droughts, glacial retreat to which people in Nepal's mountains, hills, and Tarai are not able to cope with or adapt to as the country's natural ecosystem, infrastructure and institutions are overwhelmed, leading to the losses of life, livelihoods, including losses of cultural heritage."

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Economic Loss and Damage

- Economic loss and damage refers to negative impacts where the **costs are quantifiable**, such as damage to infrastructure or reduced crop yields.
- Building Information Platform against Disaster (BIPAD) portals records 15 weather-related disasters, namely floods, landslides, epidemics, fires, lightning, heavy rain, drought, glacial lake outburst flood (GLOF), heat waves, cold waves, storms, avalanches, blizzards, hail and wildfires.
- The trend analysis of 14 types of climate-related disasters (except GLOFs) shows that the incidence of disasters has significantly increased, especially since 1990.

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Non-Economic Loss and Damage

Non-economic loss and damage (NELD) refers to negative impacts that are **not easily traded in markets, and typically harder to measure in monetary terms**, such as loss of culture, displacement and way of life.
NELD includes **loss of lives, culture, community, and biodiversity, and the psychological and mental impacts of climate change – among others.**

However, accounting for non-economic loss and damage from past and current disasters in Nepal is difficult due to **lack of assessment tools and methodologies** as well as lack of databases.

Studies have been carried out as **case study approach** to capture non-economic loss and damage due to flooding.

A study applied to assess the NELDs of 2014 Floods in Karnali River in western Nepal which is presented.

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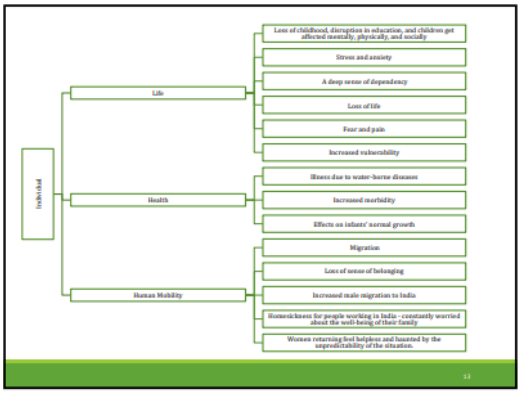

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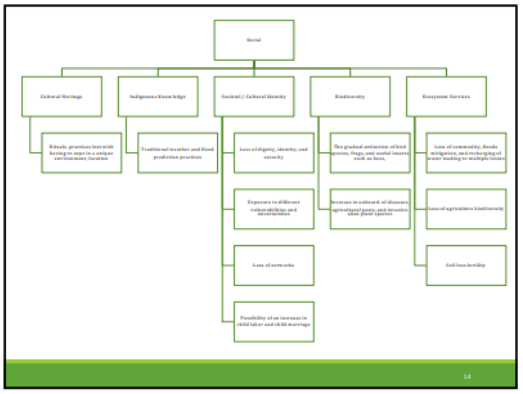

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Gaps and challenges

Lack of sufficient data to comprehend climate change's current and potential consequences is one of the significant gaps.

The institutional DRR actions such as risk preparedness and post-disaster response, and recovery and rehabilitation overlap with climate change actions, particularly loss and damage. However, these **have not been defined in any approaches and mandates.** Without clear mandate and functions, these institutions are unlikely to advance and implementation of approaches to address loss and damage.

An loss and damage in the climate change context is a new concept for majority of stakeholders, there is a **limited understanding and lack of technical know-how** on assessing loss and damage, particularly for non-economic loss and damage.

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Recommendations

Nepal is in a very **early stage of identifying and exploring loss and damage** in the national context. At the country level, policy and **planning documents mention** the rising losses and damages, the **need for research** and studies as well as the development of policies and institutions specifically focused to deal with the issue. However, the progress remains slow.

There is an ample opportunity to build upon the past and ongoing policy and planning processes to scale up actions on Loss and Damage. For example, Nepal conducts post-disaster rapid assessments by using different damage and loss assessment tools which can be adapted to assess past losses and damages.

Mobilize academia, civil society and other stakeholders to support the government in building knowledge and capacities as well as learning and sharing of approaches to address loss and damage.

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