When Adaptation Follows Hazard, Not Vulnerability: Flood Loss and Damage in Assam

Surbhi Vyas; Anamika Barua; C. Mallikarjuna
Indian Institute of Technology Guwahati, India

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Outstanding Student & PhD candidate Presentation contest

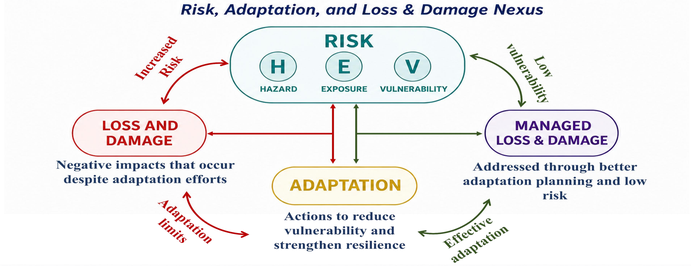
I. Introduction

- Frequent and severe flood extremes are driving rising loss and damage, disproportionately affecting vulnerable communities.
- Loss and damage reflect the residual impacts of inadequate mitigation and adaptation limits.
- Robust climate risk assessment is the foundation for understanding and addressing these impacts.

II. Aim

To examine the spatial distribution of flood risk and associated loss and damage across Assam's districts.

III. Conceptual Framework



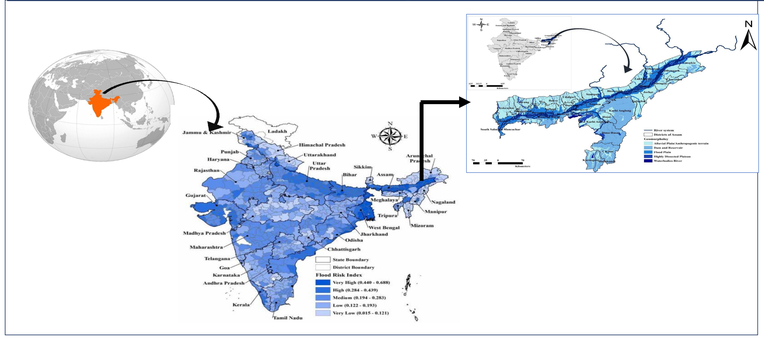
LOSS AND DAMAGE
Residual impacts that remain after adaptation efforts, leading to economic, social, and environmental losses.

RISK (H-E-V)
Risk arises from the interaction of:
- Hazard (H)
- Exposure (E)
- Vulnerability (V)

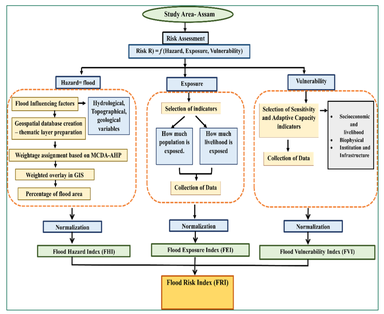
ADAPTATION
Proactive measures that reduce vulnerability, build resilience, and decrease both risk and future losses.

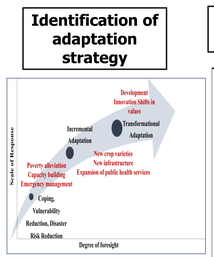
MANAGED LOSS & DAMAGE
Addressing unavoidable impacts through financial, technical, and institutional support for response, recovery, and rehabilitation.

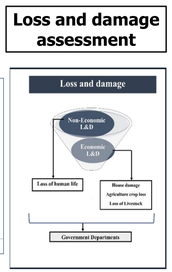
IV. Study area



V. Method



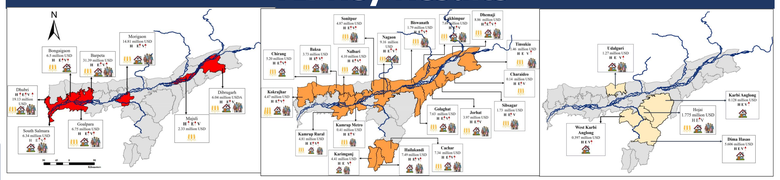




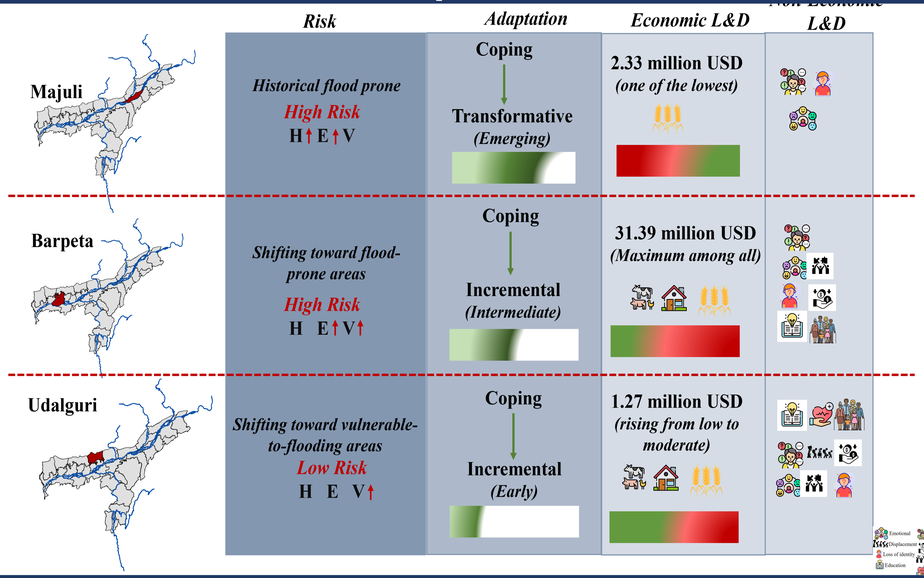
Approach:

- **Risk Assessment:** IPCC AR6 risk framework using a quantitative risk-based analysis.
- **Economic Loss & damage Assessment:** Assam State Disaster Management Authority data (2015–2023).
- **Non-Economic loss and damage assessment:** Focus group discussion, Transect walks, KIs, Expert interviews
- **Adaptation Strategies:** Focus group discussion, Transect walks, KIs, Expert interviews

VI. Key Results



VI. Key Results



VII Conclusion

1. Flood losses are shaped more by "***who is exposed***" and "***how vulnerable***" they are than by hazard severity alone.
2. Effective adaptation reduces risk and minimizes loss and damage, however when risk materialized and exceeds coping capacity, loss and damage occur.

VIII. Key References

IPCC (2023)
WGII – Impacts, Adaptation & Vulnerability
- Global synthesis
- Risk framework

Van der Geest & Warner (2015)
Vulnerability, Coping & L&D
- Household responses
- Climate shocks
- Social impacts

N'Guetta et al. (2025)
Tropical Fisheries Review
- Livelihood losses
- Climate stressors
- Systematic review

Birkmann & Welle (2015)
Risk Components of L&D
- Exposure
- Vulnerability
- Hazard intensity

OECD (2021)
Managing Climate Risks
- Policy tools
- Risk governance
- Economic losses

Panwar et al. (2025)
Extreme Events in SIDS
- Disaster accounting
- Economic valuation
- Method advances

IX. Acknowledgement

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ASK ME FOR MY CV

X. Contact

v.surbhi@iitg.ac.in; abarua@iitg.ac.in; c.mallikarjuna@iitg.ac.in
abarua.com

Centre for Disaster Management and Research under School of Interdisciplinary Studies and Sustainability; Indian Institute of Technology Guwahati Assam