

An aerial photograph of a vast mountain range, likely in the Himalayas, with numerous peaks covered in snow. The mountains are partially obscured by a thick layer of white clouds that fill the valleys and the lower slopes. The sky above is a clear, deep blue, transitioning from a lighter blue near the horizon to a darker blue at the top. The overall scene conveys a sense of grandeur and natural beauty.

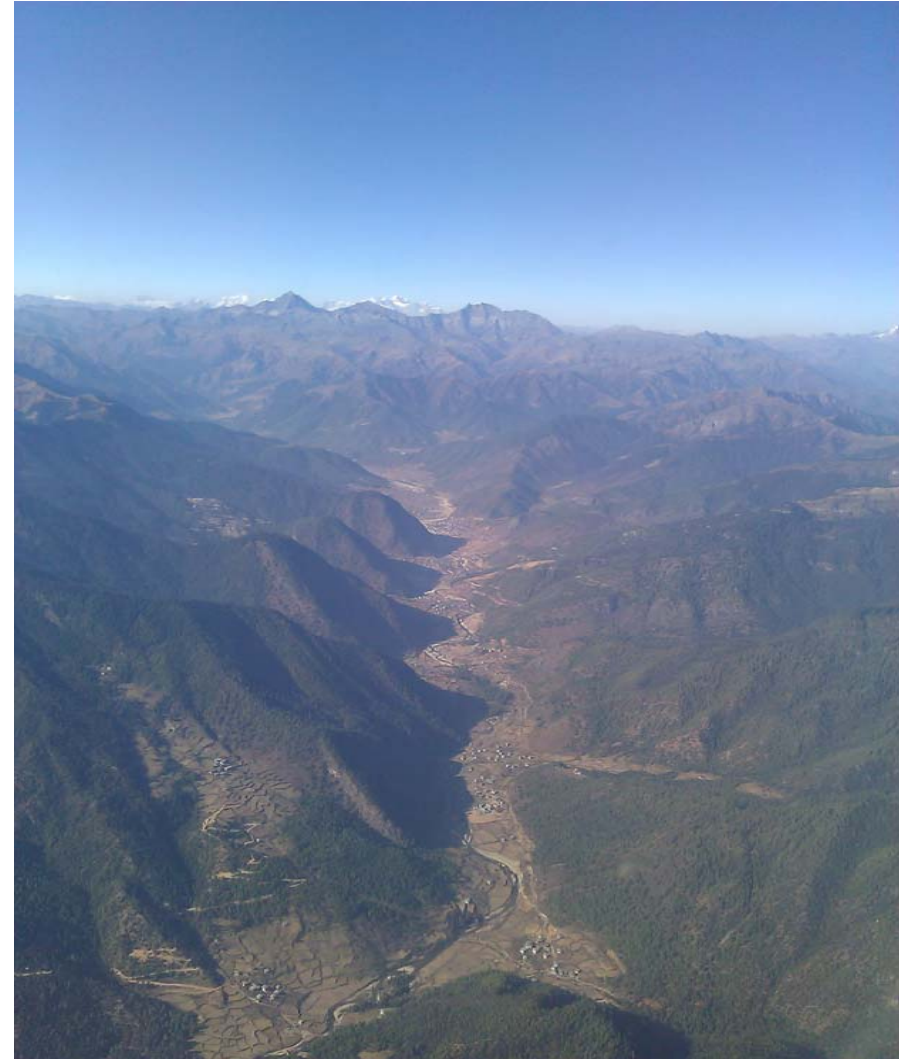
Loss and Damage

A Perspective from Bhutan

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Bhutan: Introduction

- Location
 - Between India and China
 - Eastern Himalayas
 - Climate change context: IPCC 2004
- Environment
 - Altitudinal range from 200m in the south to over 7000m in the north
 - Ecologically diverse: Sub-tropical forests to High mountain alpine ecosystems
 - 72% forest cover
 - Rugged terrain and ecologically fragile
- Governance: Parliamentary democracy



- Economy: Climate dependent
 - Hydropower – volume of water in rivers intensely vary with changing climate.
 - Primarily agrarian society: main source of livelihood for over 60% popn. in scattered settlements
 - Hydropower (potential of 30,000 MW): targeting 10,000MW by 2020
 - High Value Low Impact Tourism
 - Fledgling scale private sector
- Development Policy based on philosophy of Gross National Happiness (GNH)
 - Constitutional requirement to maintain minimum 60% forest cover



Climate Change context

- Bhutan falls in the South Asia sub-continent defined by 5N, 64E to 50N, 100E (IPCC, 2007)
 - IPCC projection - climate change will lead to changes in the geophysical, biophysical, and socio-economic systems.
 - IPCC - vulnerability and adaptation to climate change is most prevalent in systems that are more sensitive to temperature
 - Observed irregularities in climatic conditions
 - lack of long term data: Weather stations installed only in early 1970s
- Vulnerable to impacts of climate change:
 - Fragile and rugged mountain ecosystem
 - Changing climate → disaster risks
 - Soil erosion
 - extreme events - GLOF, flash floods
 - Droughts
 - Erratic rainfall
 - Crop failures
- Net carbon sequestering country

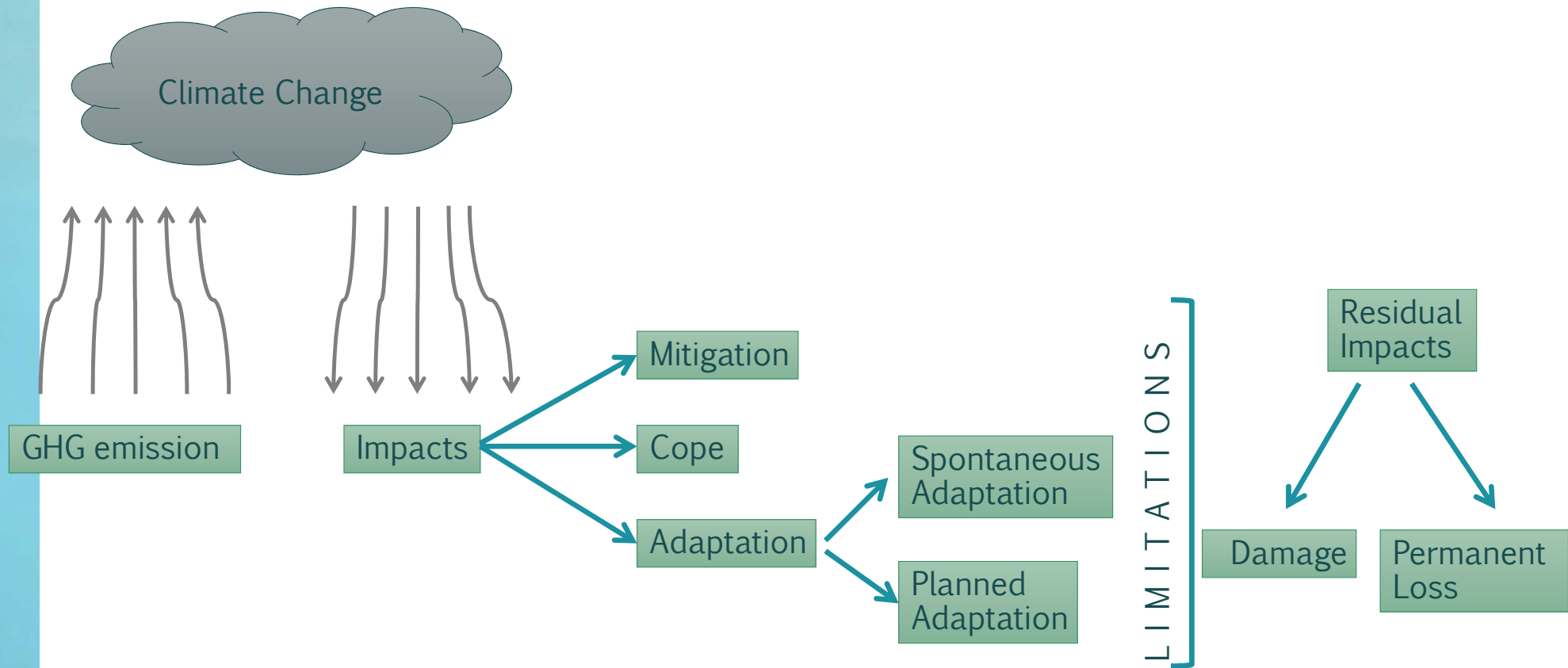
Context of Loss and Damage

- Fairly new and evolving debate
- Loss and damage: Refers to the entire range of damage and permanent loss associated with climate change impacts in developing countries
- At current trends in global warming, impacts of climate change is expected to increase over time
 - increase in frequency and magnitude of extreme weather events
 - impacts of slow-onset events.
- Vulnerable developing countries risk associated loss and damage in terms of impacts on lives and livelihoods

Context of Loss and Damage

- Bhutan Context
 - Rights to development
 - Business as usual
- Nascent stage of development of the concept
 - Low level of knowledge and awareness on 'Loss and damage'
 - Lack of research on the topic
- Reality: Climate change is eminent
 - Atmosphere as common pool resource (CPR)
 - Imperative for loss and damage

Loss and Damage: a perspective



Climate change Impacts	Events
Glacial melt	<i>Disasters</i>
Erratic and extreme variability in precipitation	Glacial Lake outburst Floods (GLOF)
Slow onset events	Flash floods/ land slides
	Droughts
	Pests
	Variations in water quantity/ quality
	Soil erosion and loss of fertility
	Drying of water sources
	Increasing incidences of vector borne diseases
	Northward shift of ecological zones
	Decreasing snow/ glacial reserve



Perceived areas of Loss and Damage

Economic

- Loss and damage to lives and property
- Displacement of settlements and farms
- Damages to infrastructure
- Reduced agricultural yield/ Crop failure
- Reduced hydropower generation
- Cost of transitional farming practices

Environmental

- Loss of biodiversity and associated services
- Losses from Invasive species

Social

- Increased cost of medical facilities/ services
- Stress, Conflicts and Social disharmony

What next?

- Find answers to the question
 - extent to which Loss and damage is associated with
 - Own development pursuit
 - Due to unavoidable climate change impacts
 - Research
 - Methodologies on assessment/ valuation
 - Should opportunity cost of development be included (given the rights to development)
- Capacity building
 - Awareness of developments at the CC negotiation
 - Planning
- Action

Thank You



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