



- ### Presentation Content
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 - The National Disaster Risk Management Framework (NDRMF)
 - Components of the Framework
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 - Hazard Vulnerability and risk assessment
 - Early warning system
 - Disaster preparedness plan at all levels
 - Mitigation and integration of DRR in development sectors
 - Public awareness and education
 - Capacity development
 - Transportation and communication

I. Disaster Hazards in Bhutan:

Earthquakes

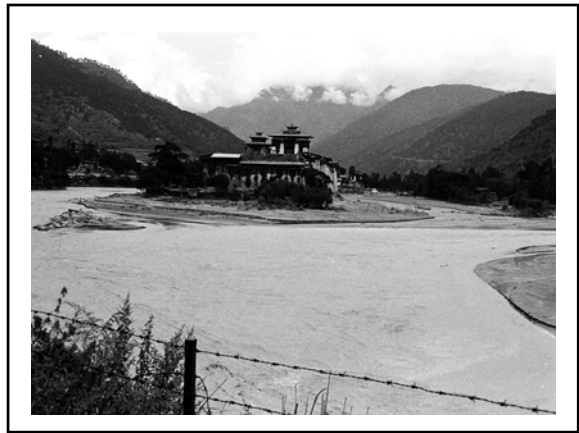


- ❖ Bhutan is located in one of the most active seismic zones (Zones IV &V)

Glacial Lake Outburst Flood (GLOF)




- ❖ GLOFs: 25 lakes potentially dangerous
- ❖ 2674 glacial lakes in Bhutan, 562 are associated with glaciers
- ❖ GLOF flash flood hazards likely to increase in intensity with impacts of climate change
- ❖ Major GLOF incidences - 1957, 1960, 1994
- ❖ Big threat to lives & livelihood of people in valleys and low lying river plains



Floods and Natural Dam formations






A collage of four images illustrating flood and dam-related hazards: a road blocked by a mudflow, a natural dam formation, a small structure on a rocky riverbank, and a river valley with a dam.

Landslides, Forest Fires

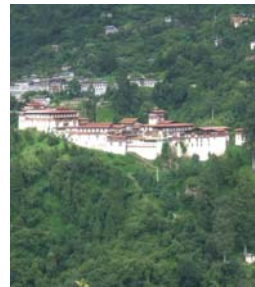


II. National Disaster Risk Management Framework (NDRMF)

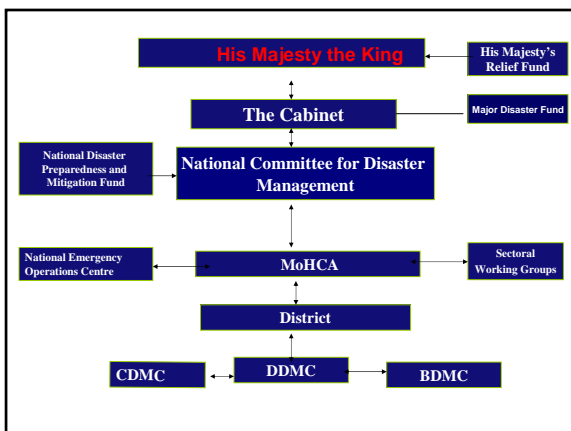
❖ Key Objectives:

- ❖ Promote a disaster risk management approach instead of an *ad hoc reactive approach*
- ❖ Recognize respective roles of different organizations and provide possible support within the national framework
- ❖ Establish linkages between disaster risk management and development program activities
- ❖ Build a sustainable and decentralized disaster management mechanism at National, District, Block and Municipality level
- ❖ Ensure appropriate and timely welfare for isolated victims of disasters.

Component 1: Establishment of Institutional & Legislative Framework



- ❖ Coordination mechanisms and decentralized institutions at National, District, Sub-district, Block and Municipalities
- ❖ National Disaster Risk Management Act
- ❖ National Disaster Management Plan
- ❖ Guidelines for Disaster Management planning at local levels



Component 2. Hazard Vulnerability and Risk Assessment

- ❖ Multi hazard atlas in of Bhutan
 - ❖ GLOF hazard mapping – three districts
- ❖ Multi-hazard Maps for human settlements
 - ❖ Household mapping of the whole country
- ❖ Seismic Zonation Maps



Component 3: Early Warning System

- ❖ Meteorological Services & Hydrological Observation network (24 River Gauging stations, 89 Met. Stations, 15 Flood Warning Stations)
- ❖ End-to-end early warning system for GLOF – pilot in three districts
- ❖ Local administration and community involvement
- ❖ Information network & coordination mechanism strengthened
- ❖ GLOF, Flood and Landslide Monitoring

Component 4: Disaster Preparedness Plans at all administrative levels



- ❖ National Disaster Preparedness and Response Plan
- ❖ Inter-ministerial Task Force
- ❖ Guidelines for the disaster management planning at local levels
- ❖ Establishment of National Emergency Operations Centre (NEOC)
- ❖ Inventory of disaster response resources

Component 5: Mitigation and Integration of DRR in Development Sectors



- ❖ Sector Plans in accordance with the National Plan
- ❖ Integrate Disaster Impact Assessment into all development projects
- ❖ Strengthen Hazard-specific risk mitigation

Component 6: Public Awareness and Education



- ❖ Disaster management studies into college & school curricula
- ❖ National Public Awareness – 7 districts
- ❖ Disaster management plan for schools



Component 7: Capacity Development



- ❖ Capacity and training needs assessment at all levels
 - ❖ Inter-ministerial task Force
- ❖ Capacity building plan
 - ❖ District Disaster Management Committees
 - ❖ District Disaster Management Teams
 - ❖ Gewog Disaster Management Committees
 - ❖ Community level awareness and training

Component 8: Communication and Transportation



- ❖ Establish better transport connectivity and transportation arrangements
- ❖ Involvement of concerned sectors at all levels
- ❖ Alternate routes, transportation and communication facilities
- ❖ NEOC/Units



Challenges

- ❖ Lack of resources
- ❖ Difficult Terrain
- ❖ Awareness
- ❖ Competing developmental priorities
- ❖ Multi-sectoral coordination
- ❖ Technical and organizational capacity
- ❖ Access to synthesized information and data
- ❖ Incorporation of Disaster risk management into development process

**Thank you
"Kadinchey"**