



Asia Park Congress
Workshop 1: Natural Disasters and Protected Areas
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Disasters/ Natural Hazards and Protected Area Management
Challenges and Opportunities in Nepal

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Disasters/ Natural Hazards General Belief in Nepal



- **Disasters are a result of God and are beyond our control**
- **Disasters take place when God becomes angry**
- **Disasters are God's punishment**



Key Message

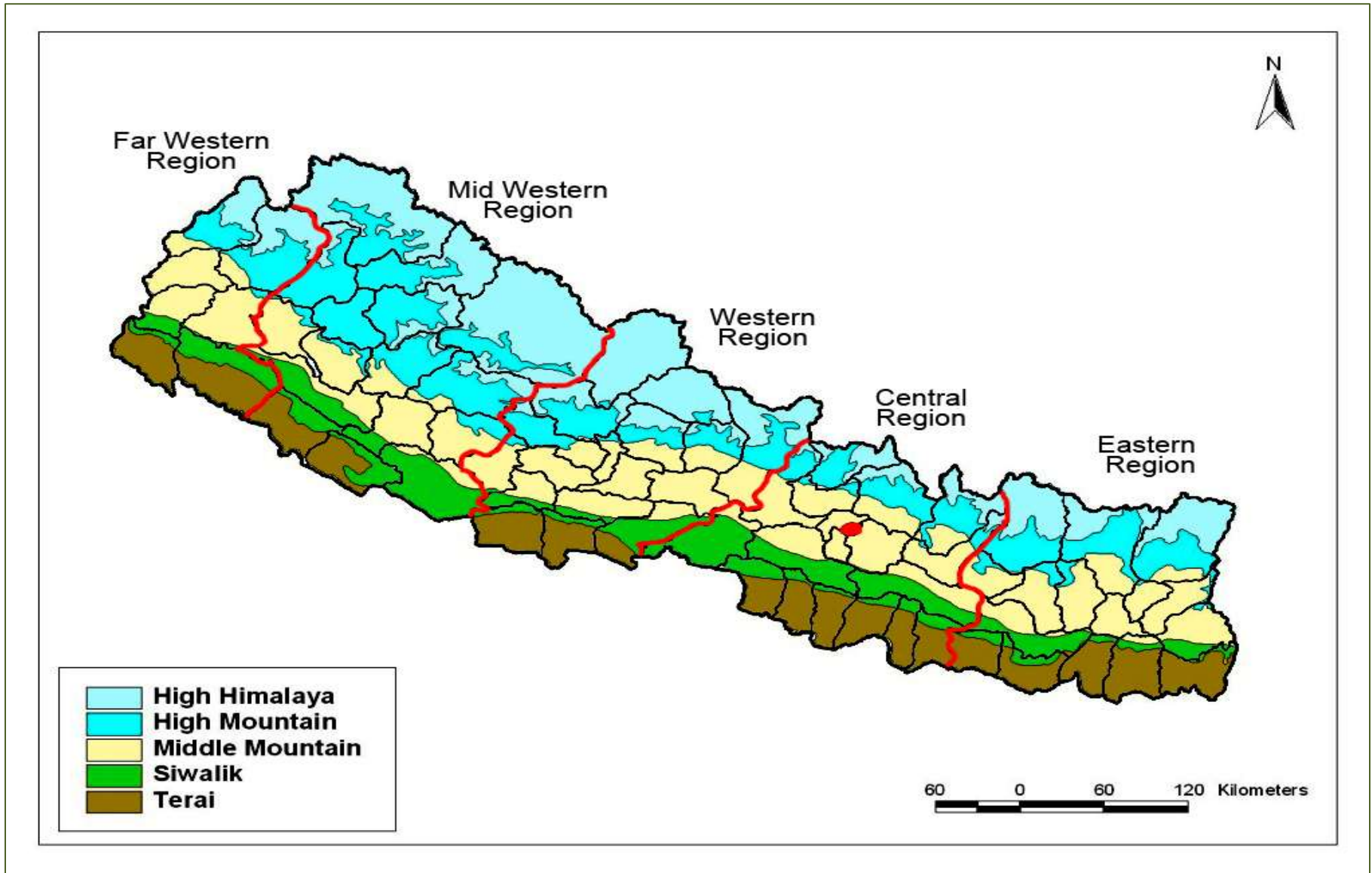
- No attempt to see DRR and PA together – let alone joint program planning and execution
 - One focuses on DRR and the other on biodiversity
- No communications b/w DRR and PA people – let alone with others and educating them on the role of PA in DRR
- Information on DRR outside the PAs – but not so much on DRR inside the PAs
- Presents both challenges and opportunities



Discussion Points

- Disasters/ natural hazards
- PAs in Nepal
- Policy/regulation for DRR and PA in Nepal
- Institutional provisions for DRR and PAs
- Role of PAs in DRR
- Challenges of DRR/PA management
- Opportunity/way forward

Nepal's Physiographic Regions





Basic Features of Nepal's Physiographic Regions

Region	Area (km ²)	Altitude (m)	Population (no)
Himalayas	35433.13 (24%)	>5000	1,781,792 (7%)
High Mountains	43151.14 (29%)	2000-5000	2,896,576 (11%)
Middle Hills	30177.19 (20%)	1000-2000	7,272,636 (27%)
Churia/ Siwalik	19019.69 (13%)	200-1300	5,654,674 (21%)
Lowland (Inner Tarai & Tarai)	20245.56 (14%)	60-200	8,888,835 (34%)
Nepal	147,181 (100%)	60-8848	26,494,504 (100%)



Disasters/ Natural Hazards in Nepal

- Nepal's ranking in the world
 - 11th in relative vulnerability to earthquakes among the most at risk countries (UNDP/BCPR, 2004)
 - 30th with respect to floods
 - 6th in an informal climate change risk study
- A '**global hot-spot**' for disasters/ natural hazards (World Bank, 2005)
- High Mountains, Middle Hills and Churia/ Siwaliks: **landslides** in monsoon; **droughts** in summer
- Lowland: **floods** in monsoon; **droughts** in summer
- Himalaya: **avalanches and lake outbursts** in summer



Major Disasters/ Natural Hazards Risks in Nepal

Region	Flood	Drought	Landslide Avalanche	Forest Fire	GLOF	Invasive Species	Epidemic
Himalayas	-	-	High	-	High	-	-
High Mountain	-	Low	High	Low	High	Medium	Low
Middle Hills	Low	Medium	Medium	High	Low	High	Medium
Churia/ Siwaliks	Medium	Medium	High	High	Low	High	High
Lowland	High	High	Low	High	Low	High	High

[Source: Adapted from Nepal Hazard Assessment/ EMDAT]



IUCN Disaster/Natural Hazard Impacts: 1990-2009

Reports every year on casualties and loss of human lives and properties during 1990-2009

Events/Causes/Effects	Numbers
Events (data-cards)	15,388
Loss of human lives	27,256
Population affected	4,926,562
Buildings damaged / destroyed	345,923



[Source: Nepal Hazard Assessment/EMDAT]



IUCN Factors for Disasters/ Natural Hazards in Nepal

- **Topography**
 - Fragile Himalayan geology
 - Steep mountainous topography
 - Settlements in ecologically fragile areas
- **Unsustainable management of natural resources**
 - High dependency on forest resources
 - Expansion of agricultural activities in steep slopes
 - Over exploitation of forest/tree resources
 - Forest fires (intentional & unintentional)
- **Climate change - temperature rise, melting of snow, glacial lake outburst, reduced winter period, longer droughts**
 - High rainfall in monsoon and droughts in summer
- **Poor coordination among sectoral agencies**
 - Unplanned infrastructure development
 - Priority on sectoral agenda (less for cross-cutting/shared agenda)
- **Undermining disaster/environment safeguard measures**

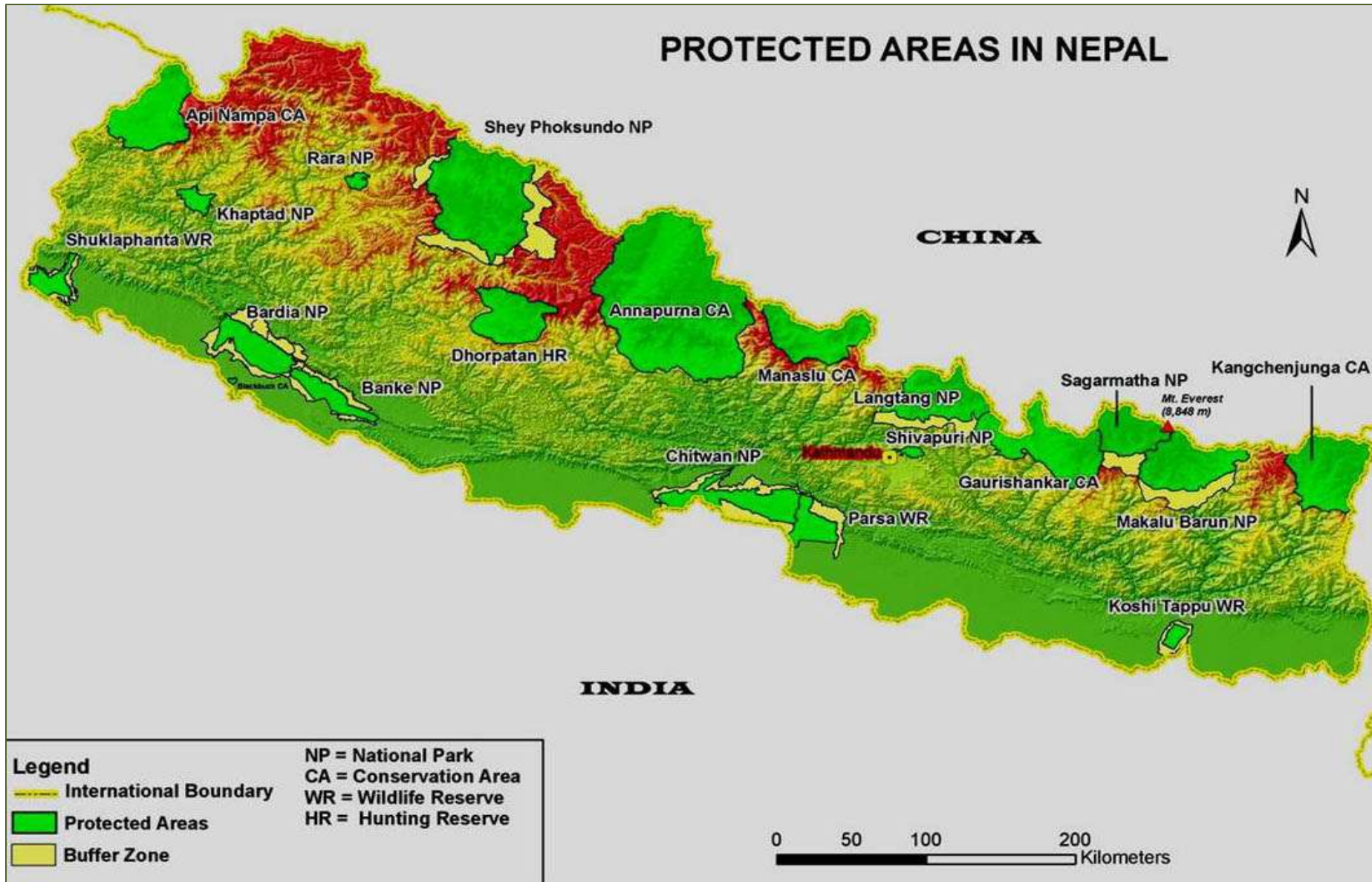


Protected Areas in Nepal

Definition, Number, Type, Area and Global Significance

- **DNPWC uses the following definition of PA**
 - ‘land dedicated to protection and maintenance of biological diversity, natural and cultural resources’
- **Number, Types and Area of PAs**
 - In 2010: total PAs - 20
 - National Parks - 10
 - Wildlife Reserves – 3; Hunting Reserve - 1
 - Conservation Areas - 6
 - Covering 23.2% of the country’s total land (147,181 sq. km)
- **Global Significance of Nepal’s Protected Areas**
 - World Heritage Sites: Sagarmatha NP and Chitwan NP
 - Ramsar Sites: Inside the PAs - 6 and Outside the PAs - 3

Distribution of Protected Areas in Nepal





Protected Areas by Physiographic Regions

Number and Area

Physiographic Region	No. of PAs	Area of PAs (sq. km)	Buffer Zone Area (sq. km)
Himalayas	NA	NA	NA
High Mountains	12	24,978	2,078
Middle Hills	1	159	NA
Churia/ Siwaliks	NA	NA	NA
Lowland (Tarai/ Inner Tarai)	7	3,446	2,314



Disasters/ Natural Hazards in/around Protected Areas

- PAs are prone to natural hazards
 - Fires
 - Floods
 - Landslides
 - Glacier lake outbursts
 - Invasive species
 - Habitat fragmentation
- Adverse impact on both
 - B-diversity/ wildlife habitat
 - Local peoples livelihoods





IUCN DRR and PA Policy/ Legislative Provisions in Nepal

- **DRR Related – Generic (applicable to all sectors)**
 - Natural Calamity Relief Act 2039 (1982)
 - Nepal Environmental Policy and Action Plan (NEPAP), 1993
 - Local Self Governance Act (LSGA), 1998
 - Water induced Disaster Management Policy, 2006
 - Draft Disaster Management Act (DMA), 2008
 - National Strategy for Disaster Risk Management, 2009
 - National Adaptation Programme of Action (NAPA), 2010
 - Climate change Policy, 2011
 - Local Adaptation Plans of Action (LAPA), 2011
 - Three Year Plan (2010/11 - 2013/14)
- **Protected Area Related (forestry & allied sectors)**
 - National Park and Wildlife Conservation Act, 1973
 - Soil Conservation and Watershed Management Act, 1986
 - Forest Act, 1993
 - Buffer Zone Management Regulation, 1996 and Guideline, 1999
 - National Biodiversity Strategy, 2002



IUCN DRR and PA Management Plans/Programs in Nepal

- **DRR Plans/ Programs**

- Local bodies and sub-sectoral agencies small scale programmes
- District Preparedness and Action Plan
- Community Level Flood Management Program
- Community Level Preparedness Plan for Glacier Lake Outburst Flood (GLOF)
- Community Level Preparedness Plan for Earthquake

- **PA Plans/ Programs**

- Biodiversity Conservation Plan
- Buffer Zone Management Plan



Institutional Provisions for DRR & PA Management

- **Disaster Risks Reduction**

- Ministries of Home Affairs, Federal Affairs & Local Development, Physical Planning & Works, and Science, Technology & Environment.
- Department of Water Induced Disaster Risk Reduction
 - National Disaster Relief Committee
 - Regional Disaster Relief Committee
- Chief District Office and District Development Committee
 - District Natural Calamity Relief Committees (DNCRCs)
- Village Development Committee
 - Local Natural Calamity Relief Committee
- Various national & international NGOs

- **Protected Area Management**

- National Park & Wildlife Conservation Dept/ Ministry of Forest & Soil Cons.
- Field offices of N/Parks W/Reserves & CAs
- Buffer Zone Management Council
- National Trust for Nature Conservation
- Various national & international NGOs



IUCN Role of Protected Areas in Disaster Risks Reduction

- **Flooding**

- Provide space for floodwater
- Absorb impacts of floods with natural vegetation

- **Landslides and Avalanches**

- Retain natural vegetation that helps to stabilize soil
- Tree crowns reduce the built up of snow that triggers slippage
- Slow the movement and extent of damage once the slippage is underway

- **Drought and desertification**

- Reduce pressure (esp. grazing) on land thus reduce/ slow down desert formation
- Maintain populations of drought resistant plants/ serve as emergency food during droughts



IUCN Role of Protected Areas in Disaster Risks Reduction

- **Fire**

- Limit human encroachment into the most fire-prone areas
- Maintain traditional ecologically sound safe fire use and wild animal control system

- **Earthquakes**

- Prevent/ mitigate against associated hazards especially landslides, rock falls
- Provide zoning control to prevent settlements in the most earthquake prone areas

- **Climate Change**

- Mitigate C/Change induced hazards and other extreme events – e.g. more intense flooding, droughts, wildfires, and worsening storm surges

- **Social and Economic Wellbeing**

- Support local livelihoods: some 1 million people live in and around PAs and depend on resource for living



IUCN Challenges Facing DRR & PA Management in Nepal

- Lack of provisions for DRR in PA management policies, legislation and programs
- Lack of consideration of PAs and their roles in DRR programs and plans
- Lack of coordination between institutions responsible for DRR and PA management
- Inadequate capacity within the DNPWC for DRR work
- Limited resources (human, finance & materials) for disaster/ natural hazard management with the DNPWC



Opportunity/Way Forward

- Joint program planning and execution – mainstreaming DRR in PA and PA in DRR
- Research / action research – establish better understanding of DRR and PA relationship – case studies, assist in developing methodology, management tools and techniques
 - Ways PAs can reduce disasters
 - Recovery after a disaster in the PAs
- Education/ awareness raising and capacity building programs
 - Strengthening capacities of PA institutions and staff on DRR and DRR institutions and staff on the PAs
 - Youth, media groups, other concerned stakeholders and general public



Opportunity/ Way Forward

- Information dissemination and knowledge management (integrating DRR & PA management)
- Policy and Legal Measures
 - Ensure that PA Policy and Act have provisions for DRR
 - Similarly, ensure that DRR policy and Act have provisions to include PA in their programs and activities – including disaster preparedness and response in PA management
- Institutional Measures
 - DRR and PA committees at national, regional, district and local levels
 - Ensure representation of one another
 - Ensure relevant activities are planned and executed jointly



Thank You

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