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Disaster Management Centre (IU)



**Making
Cities
Resilient**



Residential Workshop on Urban Resilience and Making Cities Resilient 2030 (MCR 2030)

5th – 8th December 2022

SAARC Disaster Management Centre (IU)
Gandhinagar, Gujarat, India



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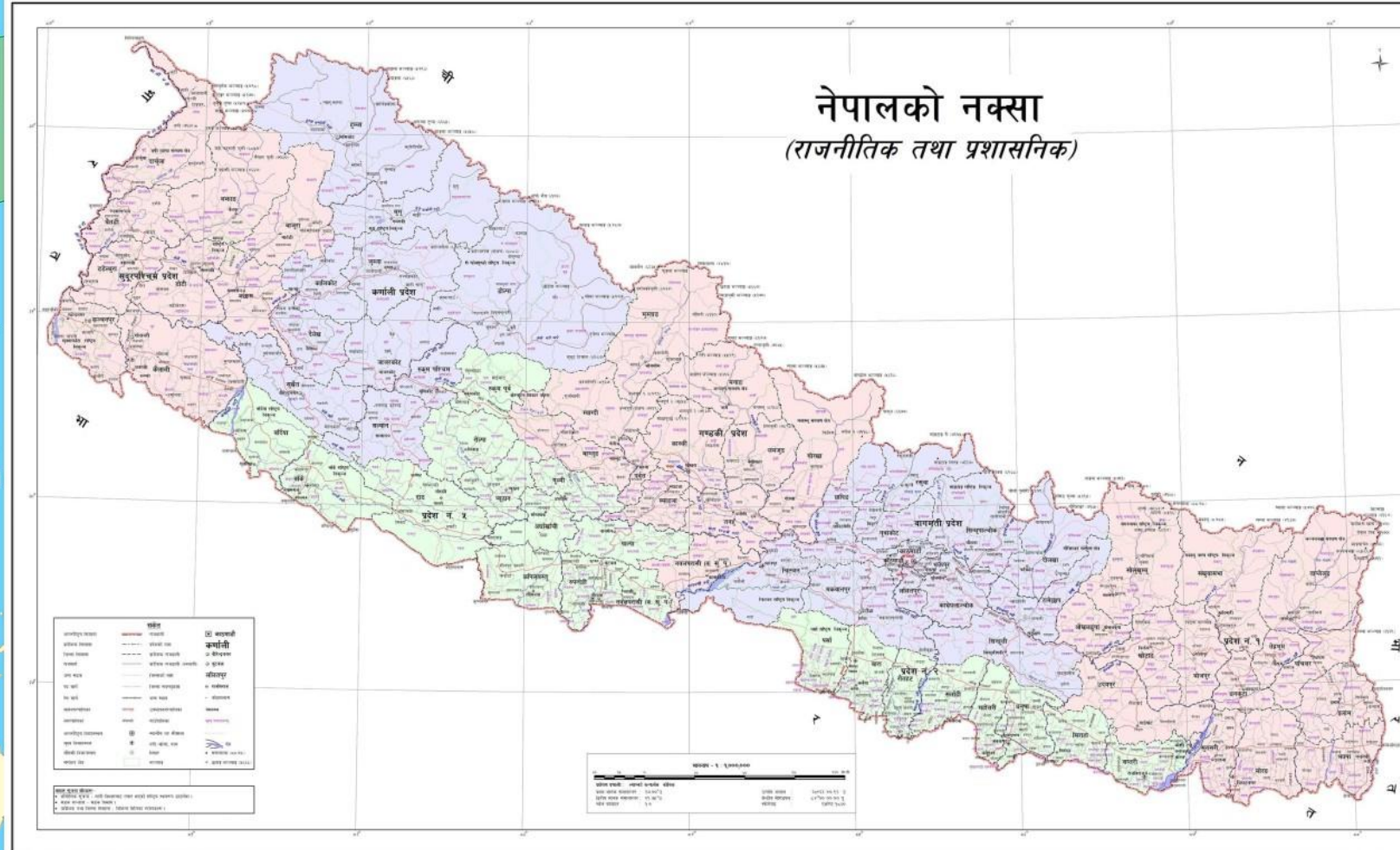
NEPAL

YUGDIP LUITEL, Environmental Engineer

Nepal in World Map



Political and Administration map of Nepal



Nepal

- Legal Name: Federal Democratic Republic of Nepal
- Nepal is a landlocked sovereign nation, strategically located between China in north and India in south, east and west.
- Nepal is located in Southern Asia in the Northern and eastern hemispheres of the Earth.
- Nepal is a roughly rectangular country, measuring 885 km from east to west and varies between 145 to 241 kilometers from north to south.
- The national border is 2,400 kilometers long.
- Nepal covers an area of 147,181sq.km (56,956 square miles) and it ranks 93rd in the world. 7 Provinces, 77 Districts, 753 Local Levels (6 Metropolitan City, 11 Sub-Metropolitan City, 276 Municipality and 460 Rural Municipality)
- Kathmandu (“The City of Temples”) is the capital of Nepal.
- Three tiers of Government; Federal, Provincial and Local Government.
- The population of 29.72 million is ranked 48th in the world.

Topography of Nepal

- Nepal is extensively diverse in terms of topography, flora and fauna.
- Mountains and rugged hills cover almost 75% of Nepal's land area.
- The elevation of land here rises from as low as only 59 m (194 ft) in the Tarai region to the snow-lined peaks in the north where 90 peaks are over 7,000 m (22,966 ft) in elevation.
- The world's tallest peak, the 8,848 m or 29,029 ft Mount Everest is also located here.
- The country also has an abundance of rivers starting from the glaciers in the mountains and flowing through it to the south.
- Some of the important rivers marked on the map are the Kail, Karnali, Kosi, and Narayani rivers.
- Nepal contains 8 of the world's 10 highest mountain peaks including, Mount Everest, Makalu and Kanchenjunga.



Present Day Challenges in Various Sectors

Transportation

- Lack of Capital
- Lack of technology and technical knowledge
- Lack of sufficient manpower
- Lack of energy
- Lack of long term planning
- Political instability

Waste management

- Low priority
- Transportation facilities
- Human resources
- Final disposal site management

Health Sector

- Lack of access to basic maternal healthcare
- Difficult geographical terrain
- Poorly developed transportation and communication system
- Women's low status in society, political
- Security concerns of health care professionals

Land Use & Land Planning

- Lack of implementation of land use zoning
- Unauthorized land use and fragmentation of land and haphazard urbanization
- Poor strategic plans for effective implementation

Disaster Background and Nepal Earthquake 2015

- **Hot spot** of natural disaster, occurrence of Flood, Landslide, fire are main disaster
- **11th** in terms of Earthquake disaster, **6th** in climatic hazards and **30th** in terms of floods
- Lies in **Seismic Active Zone**

Earthquake 2015

- 7.6 magnitude earthquake on 25 April 2015 at 11:56 local time
- Over 8000 people killed, more than 21,000 injured, displaced 2 million people

Lessons learnt

- Community involvement at all stages of disaster response and preparedness
- Development of local leadership capabilities and community resilience



Climate Projections and Climate Impacts

CLIMATE PROJECTIONS



1.6 - 2.2° C increase in
temperatures by 2050



3.9 - 5.1% increase in annual precipitation
by 2050; Increase in consecutive dry days



35 - 52% increase in extreme
rainfall events by 2050

KEY CLIMATE IMPACTS

Infrastructure



Damage to water and energy facilities
Damage to roads and bridges

Ecosystems



Loss of forest habitats and biodiversity
Reduced wetlands
Increased erosion of hillslopes

Agriculture



Reduced crop yields
Increased food insecurity
Damage to crops and livestock

Human Health



Increased risk of injury/death
Increased incidence of diseases
Increased risk of heat stroke

Water Resources



Reduced water supply
Decline in water quality
Reduced hydropower potential

Source: Climate Risk Profile, Nepal, USAID 2017

Climate Summary

Historical Climate:

- Average annual temperature from 1960-2015 shows increasing trend of 0.12 degree Celcius per decade
- Droughts are becoming more frequent, particularly in dry season
- More precipitation falling as rain rather than snow
- Between 2003-2009, Himalayan glaciers lost around 174 gigatons of water
- Increased incidence of Glacial Lake Outburst Floods (GLOFs)

Future Climate:

- Average annual temperature projected to increase by between 1.6 and 2.2 degree celcius
- Increase frequency of “hot” days and nights; decreases in “cold” days and nights
- Average annual rainfall projected to increase 3.9 to 5.1 %; largest increases July-September
- No. of consecutive “dry” days projected to increase by 3 to 7%
- Extreme rainfall projected to increase by 35 to 52%
- Dry season projected to be drier and monsoon season wetter
- Glacial melt projected to increase

Source: Climate Risk Profile, Nepal, USAID 2017

Sector Impacts and Vulnerabilities

Climate Stressors and Climate Risks INFRASTRUCTURE	
Stressors	Risks
Increased frequency of extreme storms	Damage to human settlements
	Increased risk of injury or death
	Displacement of populations
Increased temperatures	Damage to buildings and schools
	Damage to roads, bridges and transportation
Increased GLOFs	Damage to water and energy supply systems

Climate Stressors and Climate Risks ECOSYSTEMS	
Stressors	Risks
Rising temperatures	Increased incidence of pests and diseases
Reduced rainfall	Increase in forest fires
	Increased erosion of hillslopes
Increased drought conditions	Depletion of wetlands and reduced fish stocks

Source: Climate Risk Profile, Nepal, USAID 2017

Sector Impacts and Vulnerabilities

Climate Stressors and Climate Risks AGRICULTURE	
Stressors	Risks
Increased temperature	Increase in soil erosion
	Increase in pests and disease
Changes in seasonality of precipitation	Reduced crop yields
	Damage to crops and livestock
Increased drought	Increase in food insecurity
Increased storms	Loss of employment

Climate Stressors and Climate Risks HUMAN HEALTH	
Stressors	Risks
Increased temperatures	Increased incidence of heat stress
Reduced rainfall and increased drought	Increased incidence of vector-borne diseases (malaria, Japanese encephalitis, kala-azar)
	Increased incidence of waterborne diseases (cholera, diarrhea)
Increased storms	Increased incidence of injury from flooding

Climate Stressors and Climate Risks WATER RESOURCES	
Stressors	Risks
Increased temperatures	Increased water stress for agriculture and households
Changes in seasonality of precipitation	Decreased surface water and groundwater recharge
	Reduced water quality
Increased drought	Reduced hydropower potential

Source: Climate Risk Profile, Nepal, USAID 2017

Steps taken to ensure risk-informed development & resilience

Disaster Risk Management Initiatives

- Natural Calamity Relief Act, 1982, Nepal was the first country in South Asia with disaster specific act in South Asia.

1. **Constitution of Nepal:** Disaster management- key priorities of all tiers of government (Federal, Provincial and Local)
2. **Disaster Risk Reduction and Management Act, 2017**
3. **National Policy on Disaster Risk Reduction, 2018**
4. **Disaster Risk Reduction Strategic Plan of Action (2018–2030)**

1. Disaster Risk Reduction and Management Act, 2017
2. Local Government Operational Act, 2017
3. Nepal Government (Work Division) Regulations, 2017
4. National Policy on Disaster Risk Reduction, 2018
5. Public Health Act, 2018
6. Disaster Risk Reduction National Strategic Plan of Action (2018-2030)
7. Private Housing Rebuilding Grant for the Flood and Landslide Victims 2017
8. Public Housing Program Implementation Sample Guidelines, 2018
9. Guidelines for the Relocation and Rehabilitation of High Risked Settlements, 2018

Steps taken to ensure risk-informed development & resilience

Preparedness: Resources and Capacity Messengers (International to local)

1. Emergency Operation Centers
2. Warehouses
3. Early Warning System
4. The DRR Portal and use of Social Media

1. GPDRR 22-26, 2017 Cancun, Mexico
2. AMCDRR 2018, Ulaanbaatar, Mongolia
3. RCG Meeting, 2017

Engagement at National Level

1. RCC Meeting, 2018
2. National Council on Disaster Risk Reduction and Management Meeting
3. Executive Committee Meeting
4. National DRR Platform Meeting
5. National Climate Change Conference, Sindhupalchowk
6. National Earthquake Safety Day
7. International DRR Day
8. Province and Local Level Meeting/Consultations

Localization of DRR

1. Instruments (Law, policy and structure/institutions)
2. Leadership
3. Capacity
4. Resource

Steps taken to ensure risk-informed development & resilience

Disaster Risk Reduction National Strategic Plan of Action 2018–2030

1. Priority Area 1: Understanding Disaster Risk
2. Priority Area 2: Strengthening Disaster Risk Governance at Federal, Provincial and Local Level
3. Priority Area 3: Promoting Comprehensive Risk-Informed Private and Public Investment in Disaster Risk Reduction for Resilience
4. Enhancing Disaster Preparedness for Effective Response and to “Build Back Better ” in Recovery, Rehabilitation and Reconstruction



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Way Forward

1. Management of DRR related information, its accumulation, establishing common platform and ensuring access to all.
2. Enhancing the capacity of agencies directly involved in emergency management
3. Disaster risk and impact assessment incorporated in developing planning along with environmental impact assessment
4. “Whole of society” approach for DRR, engagement of stakeholders, collaboration with private sector
5. “Culture of safety”, inclusion of DRM in formal and informal education system
6. Early warning system should be shaped in legal framework and expanded further
7. Hazard specific monitoring and warning system needs to be strengthened
8. DRR budgeting should be focused on implementing DRR initiatives
9. Formal mechanism for regular and periodic monitoring of DRR strategic action plan and other DRR initiatives

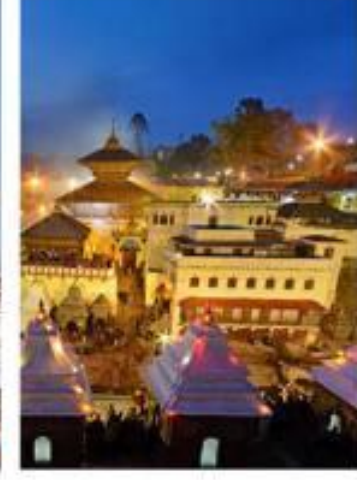
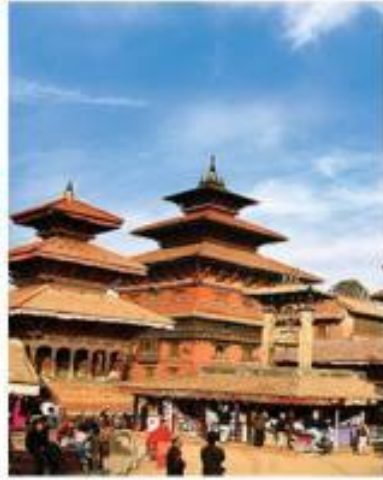


Tradition



Mt. Everest

UNESCO World Heritage Sites of Nepal





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*Lifetime
Experiences!*



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Thank you