

Impacts of Climate change on the Mountains of Nepal and their implications to the SMD



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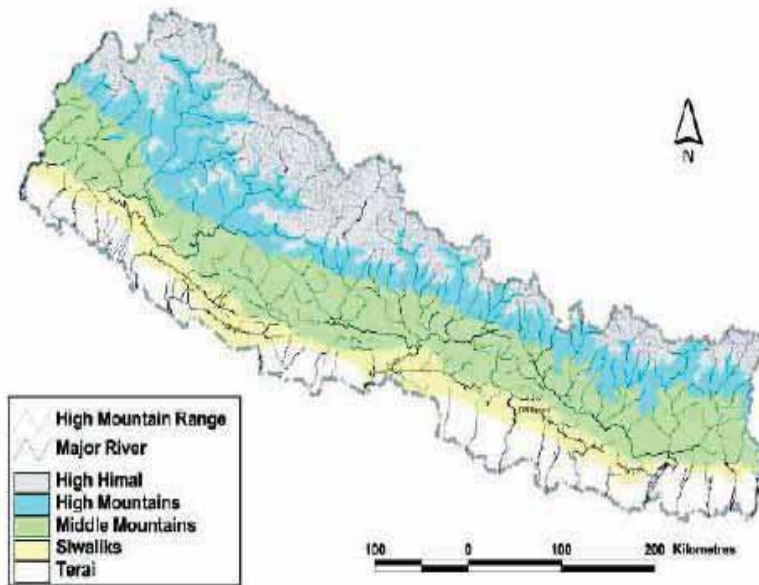
Presentation Outline

- ❖ Background (Geographical, Economic, Social)
- ❖ Impacts of Climate change on the Mountains of Nepal
- ❖ Implications to the SMD
- ❖ National Efforts on SMD
- ❖ Conclusion

Country Background

Geographical Background

- Physiographic regions: Lowland Terai(15%), hills(68%), high mountains(17%)
- 23% Nepal's total area : above permanent snowline of 5000m
- 3.6% of Nepal's total area covered by glaciers
- Average annual rainfall: about 1800 mm
- More than 1.9 million people estimated to be highly vulnerable, another 10 million exposed to increasing risks
- Nepal :4th most vulnerable countries in the world

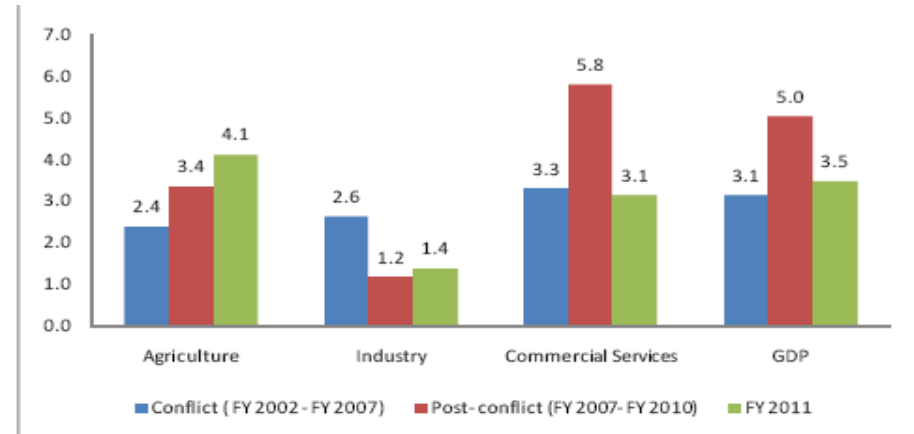


Economy

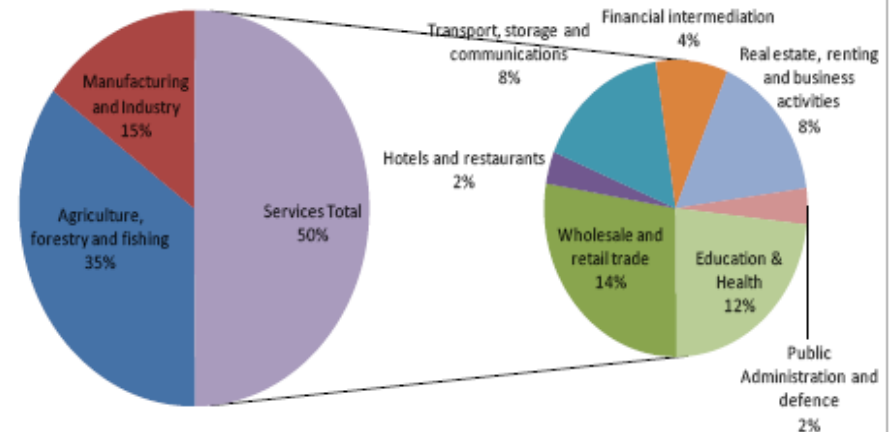
Politico - economic Background

- Political Transition
- Per capita income of USD 642 and human development index 0.418
- Livelihood and economic progress : primarily based on natural resources
- Agricultural sector contributes about 35 percent to GDP
- More than 1/4th of population lies below the national poverty line
- Average economic growth rate (2001-2010) 3.8%
- Remittance constitutes 23% of the GDP of the country

Growth in national economic activities



Composition of GDP in 2011



Impacts of Climate Change on Mountains of Nepal

Water

- 'Too Little Water'/ Too Much Water
 - Drought: drying of springs, groundwater depletion, reduction in river flow, floods etc

Glaciers

- Rate of retreat of some glaciers is estimated to be as high as 20 m /year
- Evidence in the Main Rongbuk glacier (in Mount Everest): lost 330 feet of vertical ice, at a rate of more than 4ft/yr, between 1921 and 2007
- Snow and glacier melt might increase water in Nepal's river system - 5.7% till 2030, decrease by 28% by the end of this century

Change in ecosystem

- Impacts on Forest , rangeland , Wetland and Agro eco system

Impacts contd..

Human Health

- Increase in prevalence of vector and water borne diseases
- Declining domestic water supply, poor sanitation

Mountain Livelihoods, Women and Indigenous Groups

- Loosing of traditional livelihoods in high mountains
- Women work in few locations nearly 17 hours (mainly to fetch water)
- Since the livestock have to be moved to higher elevations for grazing: affecting lives of mountain women
- Climate induced disasters in the mid-mountain and Churia-Tarai regions, could force more people, mostly male, to migrate in search of work leaving behind women, children and the elderly to look after the farm

Impacts contd..

Agriculture

- Increase in temperature by 3°C: predicted increase in annual irrigation water demand by 11%, keeping other parameters of water demand constant
- *Continuingly decreasing Food Security*

Natural Disasters

- Occurrence of 21 GLOF events
- 1983-2005, 938 persons lost their lives every year due to different type of natural disasters
- Economic loss: nearly Rs. 1208 million per year

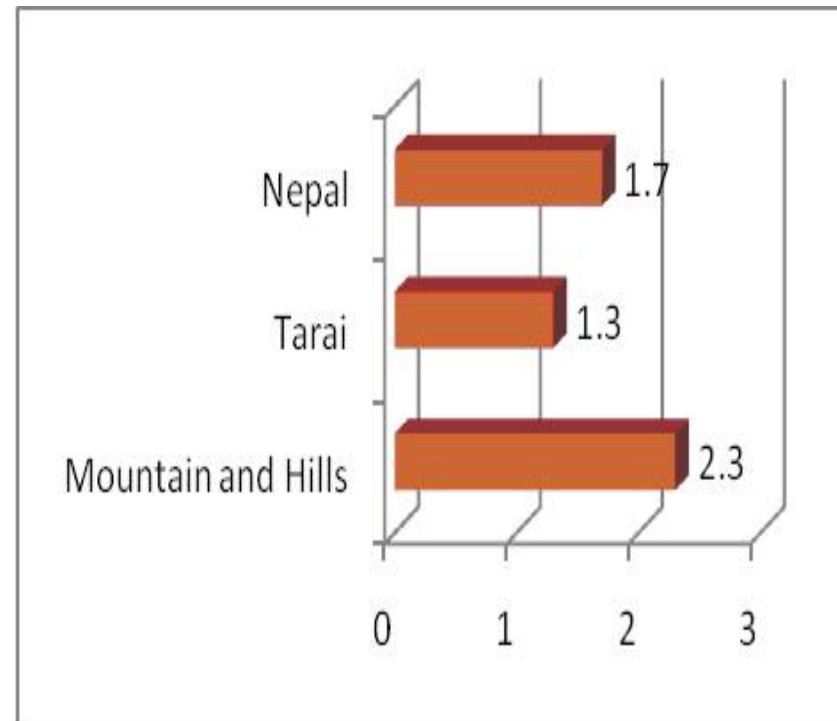
Implications on Sustainable Mountain Development

Biodiversity and Habitat Loss

59 mammal species, 279 bird species, 35 Herpeto fauna species, and 34 fish species, of which four species of mammals and seven species birds are believed to be extinct

Nepal's deforestation rate is 1.7 percent which is well above the Asian average of one per cent and the global average of 1.3 per cent

Fig: Annual rate of deforestation



Source: MoFSC 2008

Implications contd..`

Water

- Nepal: water deficit, for four to five months outside the monsoon seasons
- Decline in natural recharge of aquifers and over exploitation of groundwater
- Within Narayani River Basin : Groundwater level dropped from 50 to 70 feet below G L at few locations(NCVST 2009)
- GLOFs are in increasing trend
- Catastrophic Floods Of Trans- boundary Nature

Implications contd..

Socio-economic conditions

- Exploitation of mountain areas by diverse influences: agricultural systems, increasing reliance on mono-cropping, commercial logging and tourism enterprises
- Crop failure and loss of livestock: threaten livelihoods of mountain farmers who are already vulnerable and food-insecure
- Changes in snow patterns: affect tourism industry, cause enormous economic losses
- Expected changes in water availability: seriously affect upstream-downstream relationships, likely to lead to conflicts

National Efforts on SMD

Key Policy Interventions/Submission

- Sustainable Development Agenda (SDAN) , 2003
 - managing resources, reducing pollution, promoting renewable energies
- Interim Constitution of Nepal 2007
 - 'right to a clean environment' as a fundamental right (Article 16.1).
- Climate Change Council, 2009
 - chaired by the Prime Minister
- Mountain Initiative 2009
- Climate Change Management Division, 2010, MoEnv
- NAPA, 2010

National Efforts on SMD contd...

- Climate Change Policy, 2011
- Climate Resilient Planning Tool , 2011: NPC
- Local Adaptation Plan of Action (LAPA), November 2011
- Three Year Plan , 2010 Emphasized on climate resilient planning of infrastructure sector and Integrated Poverty Environment Initiatives
- Reducing Emissions from Deforestation and Forests Degradation (REDD+) program, Payment for ecosystem services (PES) : financing conservation and development programs in mountain regions
- Submission on Rio +20 highlighted the issues on SMD

CONCLUSION

- Effective Climate Compatible SMD policy, programs, and legislations that explicitly address mountain issues needs to be designed in each level including national level
- HKH region needs better and greater coordination as they are closely linked and sharing information, coordinating activities, avoiding duplication of resources, and developing regional capacity for addressing climate change impacts are very important
- Global cooperation are needed so that the resolutions of the international conventions are implemented, and the global and regional negotiations are translated into reality. In the Rio+20 conference get the role of mountain systems as well in UNFCCC

THANK YOU!!