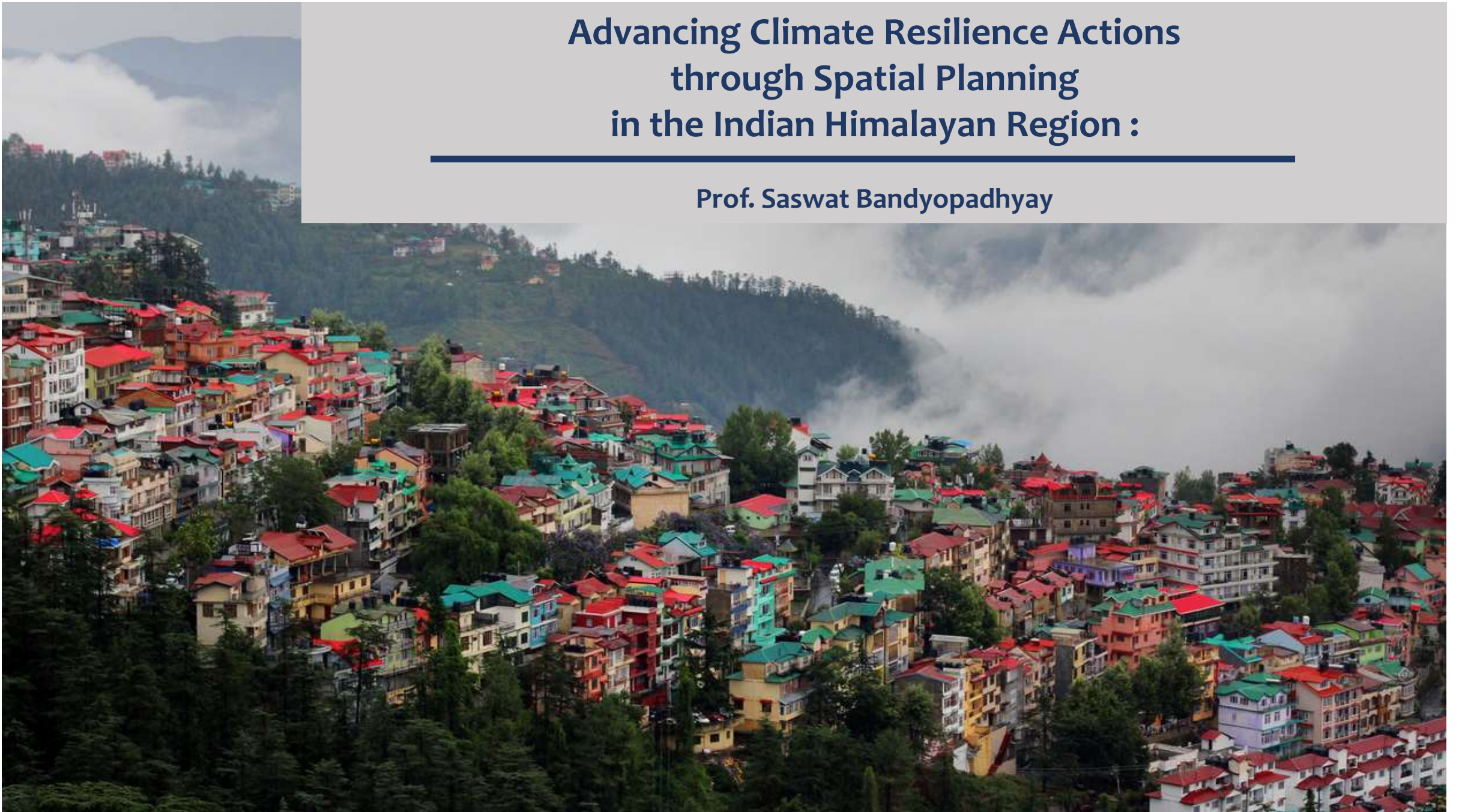


# Advancing Climate Resilience Actions through Spatial Planning in the Indian Himalayan Region :

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Prof. Saswat Bandyopadhyay



- The Indian Hill Region comprises of 10 mountain states such as J & K, Himachal Pradesh, Uttarakhand, Sikkim, Arunachal Pradesh etc. and 4 hill districts from the state of Assam and West Bengal like Karbi Anglong, Darjeeling etc.
- **The entire region is geographically unstable, tectonically alive and environmentally fragile even without human interference**



### Defining Hill Region

As per the NBC 2005, Part III, Annexure G

Any area having altitude more than 600 m from the mean sea level or any area with average slope of 30 degree is classified as Hilly region.

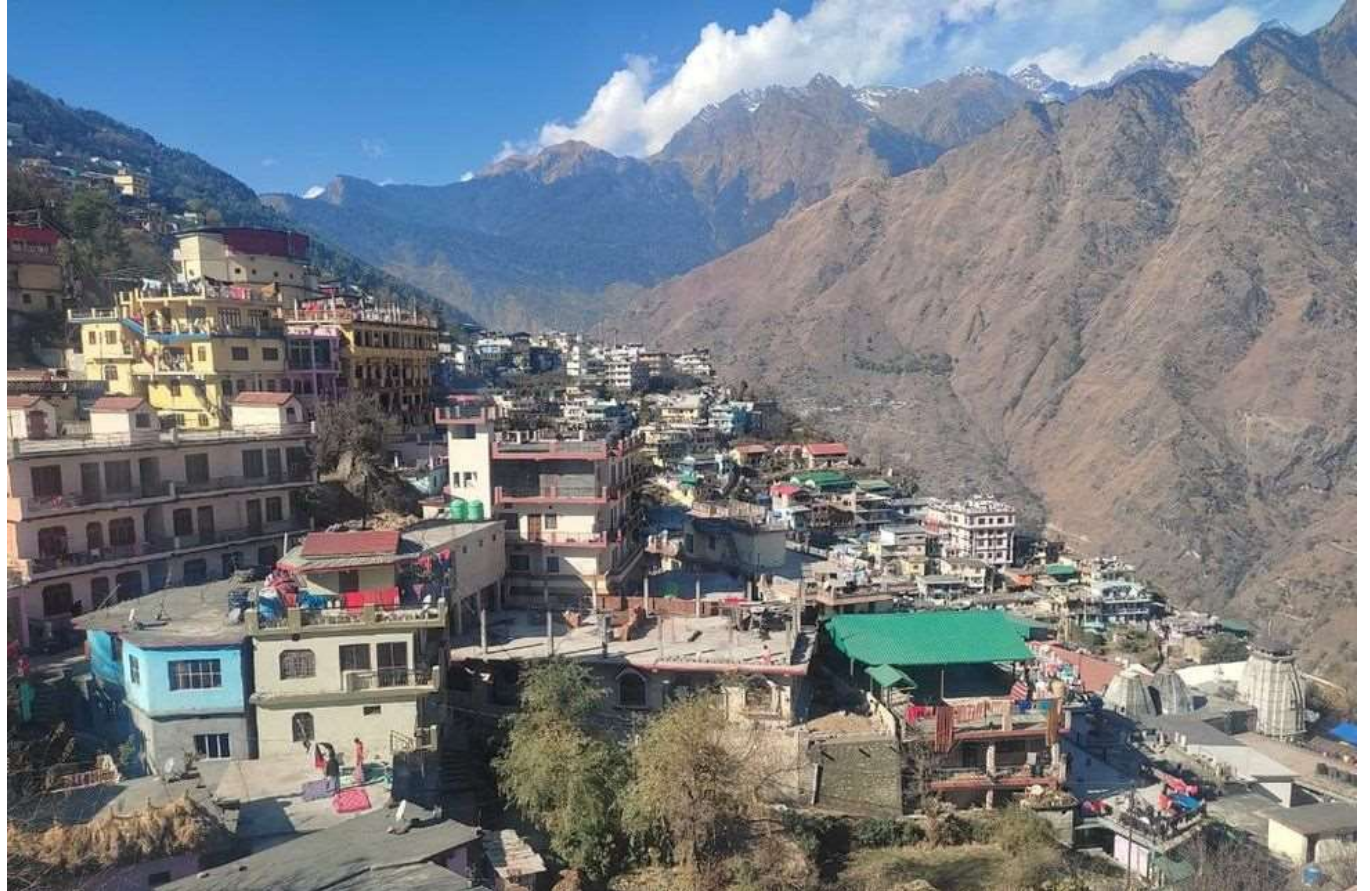
Depending upon the altitude and climatic condition, there are 3 types of hill region;

1. Foot Hill- Below 1200 m
2. Mid Hill- 1200 to 3500 m
3. High Hills- Above 3500m



# Rapid Construction in Himalayan Towns

1. In Uttarakhand, the built-up area in these mountainous towns has increased by almost 33 per cent in the past two decades
2. About 60 per cent of this construction has been concentrated in environmentally unsafe zones, particularly landslide and flood-prone areas.
3. The encroachment, obstruction, and obliteration of natural drainage channels has increased the vulnerability of the slopes to geohydrological risks, putting most towns under the threat of repeated landslides and mass movements (Source: Frontline, January 2023)



**The NITI Aayog Report, 2017 also reported a growth of Annual Tourist arrival from 10 Crore to 24 Crore by 2025**

## Development Zoning Through Spatial Planning, Key Recommendations by Planning Commission Task Force, 2008

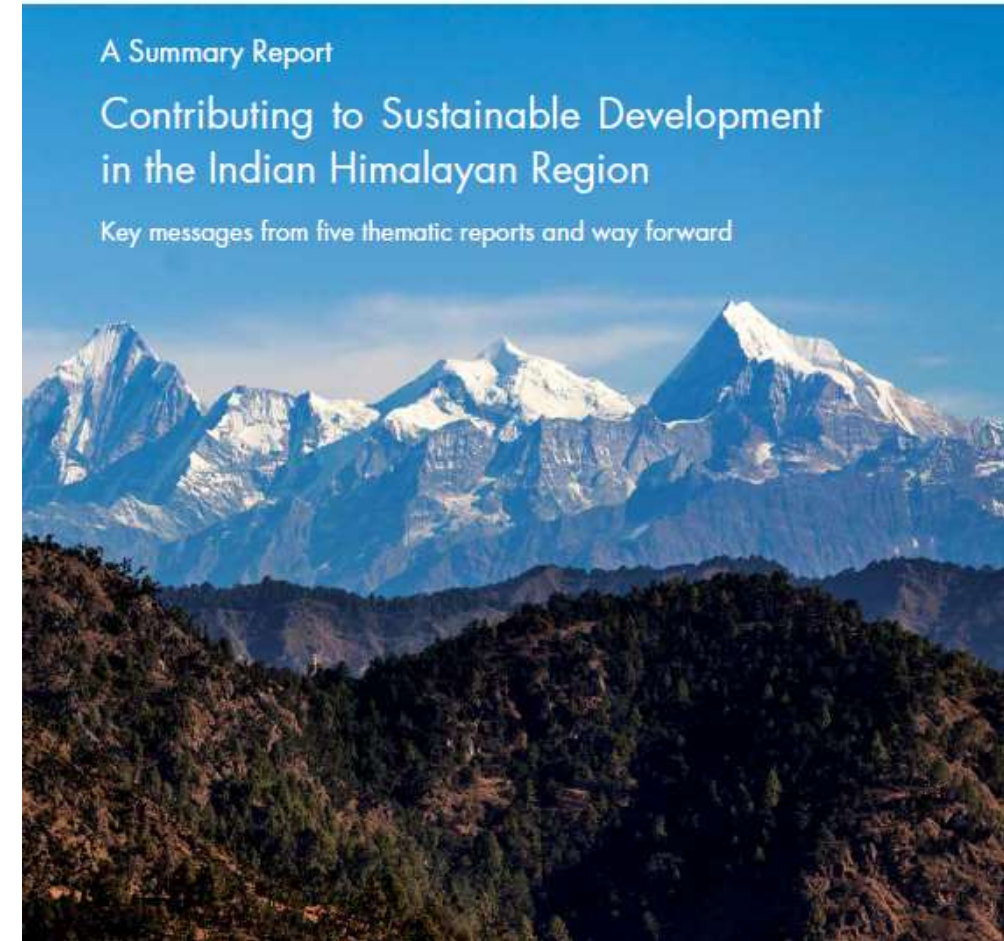
- Balance between **natural resource exploitation and conservation**
- **Zoning** needs to be identified and protected for the appropriate activities such as **water zone, forest zone, snow zone, river zone, zones for habitation** etc. to protect the fragile ecosystem of Hill towns
  - **Zones of snow, alpine, sub-alpine** areas and sacred landscapes to be protected at any cost, for maintaining the flow of vital ecosystem services and for respecting and preserving religious-cultural values
  - **All natural water zones (glaciers, rivers, lakes and springs)** must be strictly protected. Activities in any of the zones that, in any way, adversely impact on water resources should be barred. Areas that harbored natural springs must be converted to 'Spring Sanctuaries' and this concept should be incorporated in all planning
  - **Forest zones should be conserved** and augmented for environmental services and biodiversity values. Such zones should also be available for sustainable bio and NTFP, including bamboo, prospecting and for eco-tourism
  - **Zones of fertile river valleys** at lower altitudes should be utilized for maximizing agricultural production but conservation of agricultural land to other uses in such zones should not be allowed. Areas where shifting or terraced agriculture is practiced should be earmarked for unique crops, organic agriculture, horticulture, agro-forestry and for introducing better management practices
  - **Zones for habitation, especially of urban spaces: no constriction should be undertaken in areas having slope above 30 degree** or areas which fall in hazardous zones or areas falling on spring and aquifer lines and first order streams. Efficient sewage & municipal waste management systems should be mandatory in such places
  - **Zones for industry** should only be in non-fragile areas and include only those activities favorable to mountain conditions, processing non-toxic, preferably locally available raw materials and generate local employment, while demonstrating efficient CSR and CER practices

**Hon'ble SC bench has suggested a comprehensive evaluation of carrying capacity and subsequent adjustments to master plans, the hill towns, 2023**

# NITI Aayog Expert Committee for Sustainable Development of Hill Towns



- Developing the roadmap for actions with underpinning environmental sustainability has taken into decision-making, for livelihood enhancement, urban development, tourism promotion and disaster risk reduction
- These **5 thematic working group** contributing to Sustainable development in the IHR set up by NITI Aayog in 2017 to share a vision to foster well-being of the people in the region.
- The 5 key areas to address the key challenges in the region are;
  - (i) Revival of Springs,
  - (ii) Sustainable Tourism,
  - (iii) Shifting Cultivation,
  - (iv) Skills & Entrepreneurship and
  - (v) Data for informed Decision Making

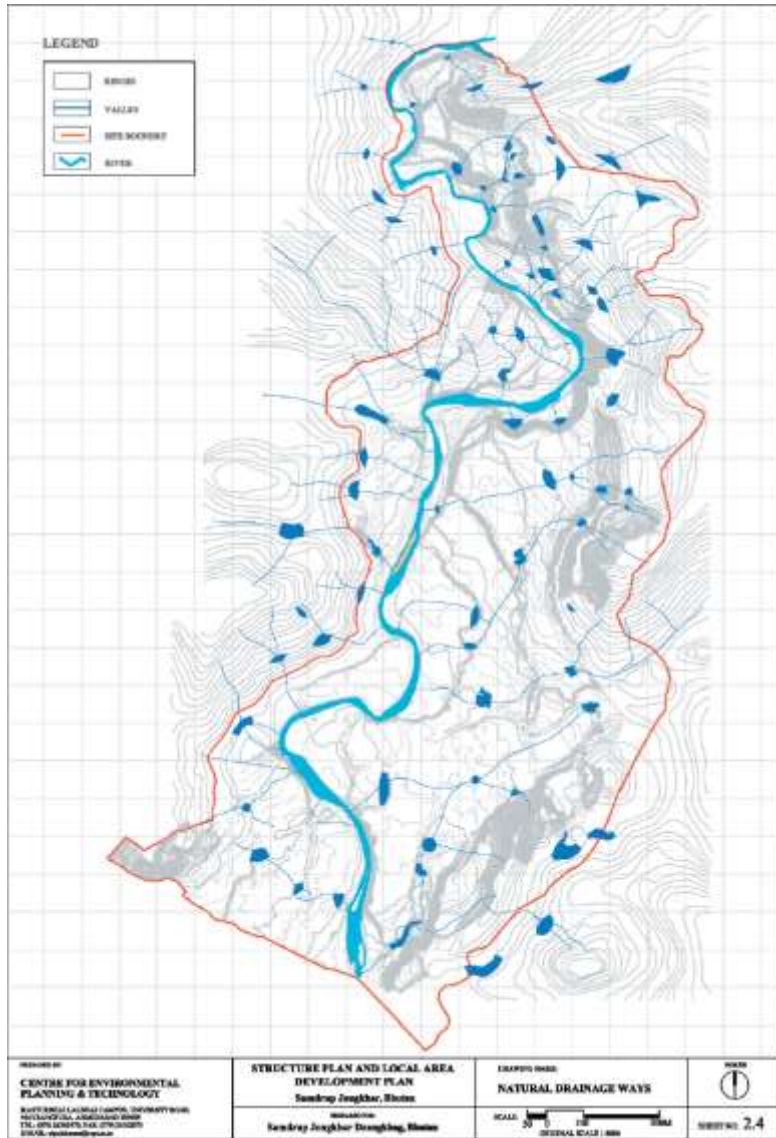


The aspects of Land Use Zoning or Spatial Planning and Regulations?

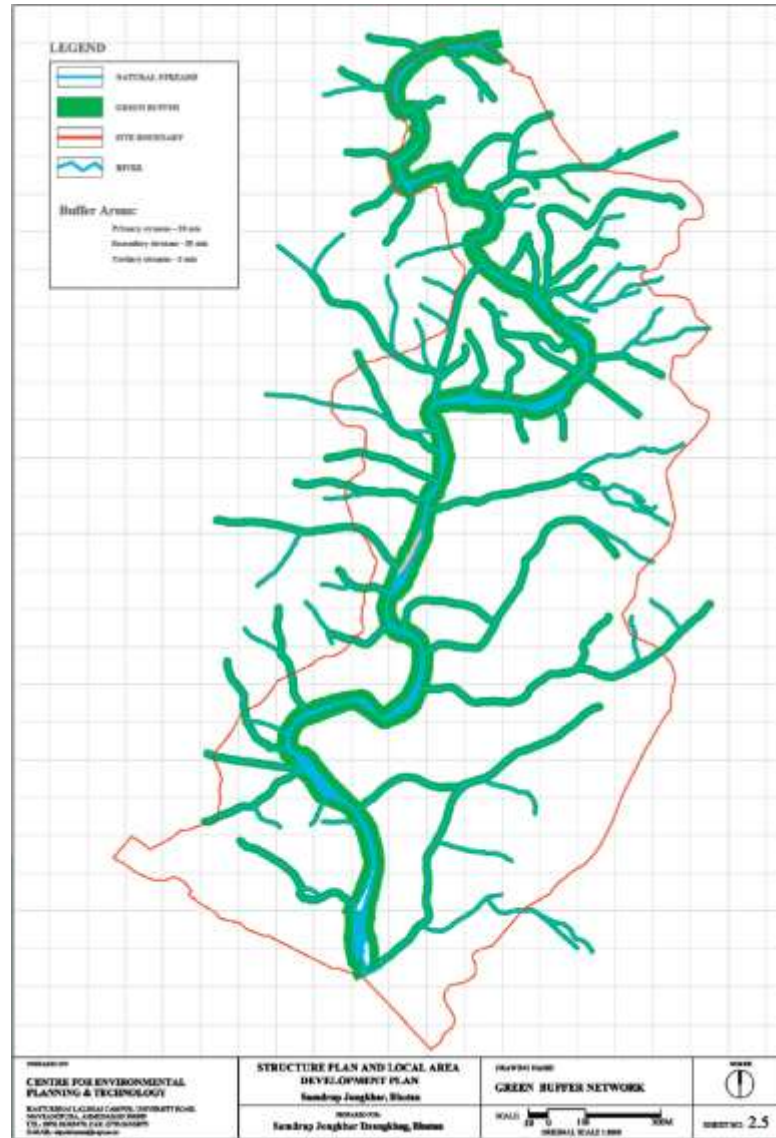
- Some Examples of Spatial Planning and Zoning in our Neighbourhood



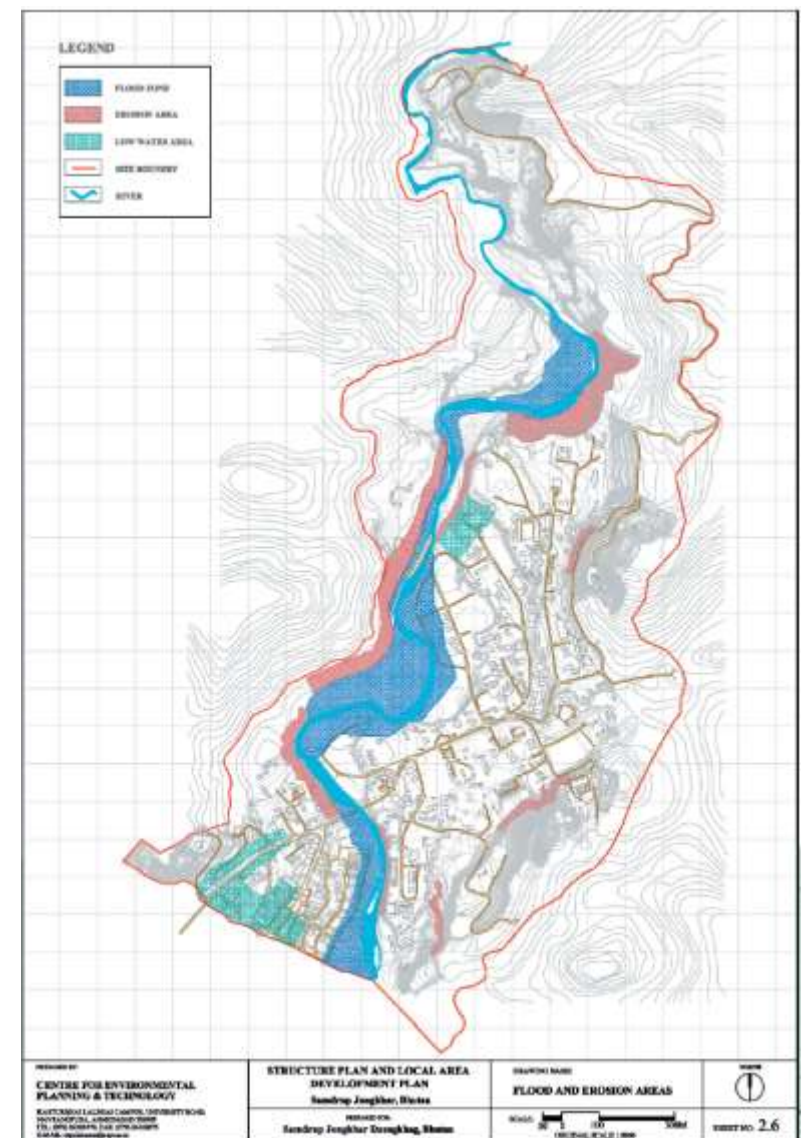
# Structure Plan of Samdhup Jongkar, Bhutan



Natural Drainage Ways



Green Buffer Network



Flood and Erosion Map

## Some Suggestions for future episodes of “Parvat Manthan’- Unpacking the “ Unknowns”

1. Review of the State Town Planning/Spatial Planning Acts among the IHRs- Regional Planning Framework and Spatial Planning Scales and their Contents
2. General development control regulations ( Planning + Building regulations)
3. Protection of Key ecological features through LDZ or NDZ
4. Compensatory framework for land parcels falling under Conservation Zones- LDZ or NDZ ( notions of “Hill TDRs” )
5. Increasing the Resilience of Infrastructure Assets ( Resilience for Infrastructure as well as Infrastructure for Resilience)
6. Human Resources and Capacity in the state town planning/urban development departments
7. IHR Sensitive Planning and design Academic Network and Training Curriculum for Inservice Professionals?  
Knowledge Platforms and Partnerships with Government-Academia/Research-other agencies?
8. Scaling up of Sustainable Tourism Aspect



- ***Failing to Plan is Planning to Fail! Let's start planning now!!***

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