

Climate change and Ecosystems



- What is an ecosystem?
- What is a fragile ecosystem?
- What makes it fragile?

Development pressures
Climate Change impacts

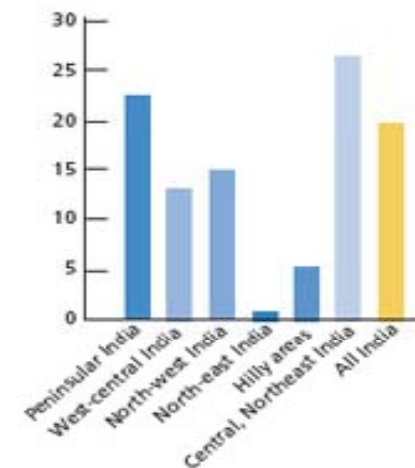


The signs and the impacts



- **Temperature:** By 2030, annual mean increase would stand at 1.7-2° C.
- **Rainfall:** More rains but less rainy days; high intensity, unseasonal rain. Floods, cloudbursts, storm surges
- **Agriculture:** Higher temperature, CO₂ concentration and precipitation will impact production
- **Sea level rise:** Continue at a rate of 1.3 mm/year
- **Target** – keep temperature below 2 degree C; emissions at 450 ppm

Percentage increase in high-intensity, short-spell rainfall between 1950s and 1990s



Source: Current Science

An aerial photograph of a vast mountain range in Ladakh, India. The mountains are covered in snow and ice, with dark, rocky peaks and ridges visible. The terrain is rugged and high-altitude. The sky is clear and blue. The text "LADAKH : A CASE STUDY" is overlaid in the center of the image.

LADAKH : A CASE STUDY



Topography

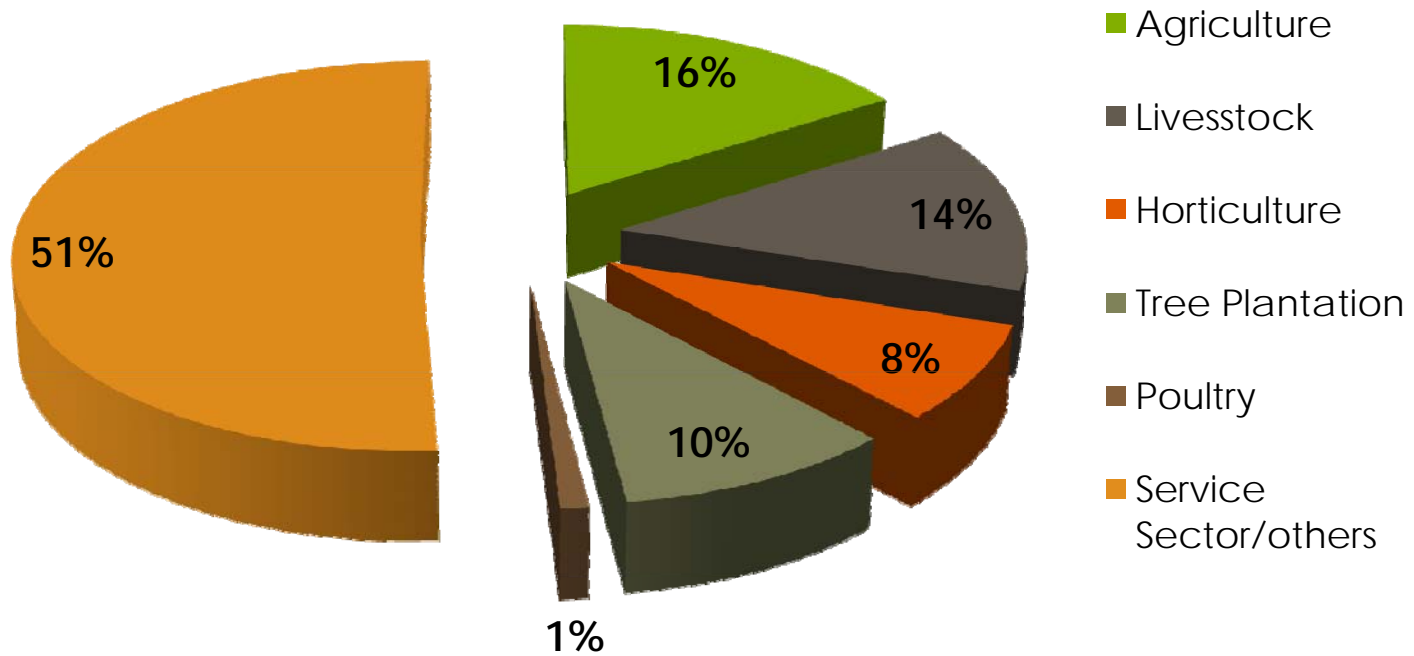
- Ladakh is located at the western side of Himalayas, flanked by four mountains ranges namely Himalayan, Zaskar, Ladakh and Karakoram.
- Ladakh is a cold desert. Ladakh is a high altitude desert as the Himalayas create a rain shadow thus prohibiting the entry of monsoon clouds.

Tourist Map of Jammu & Kashmir

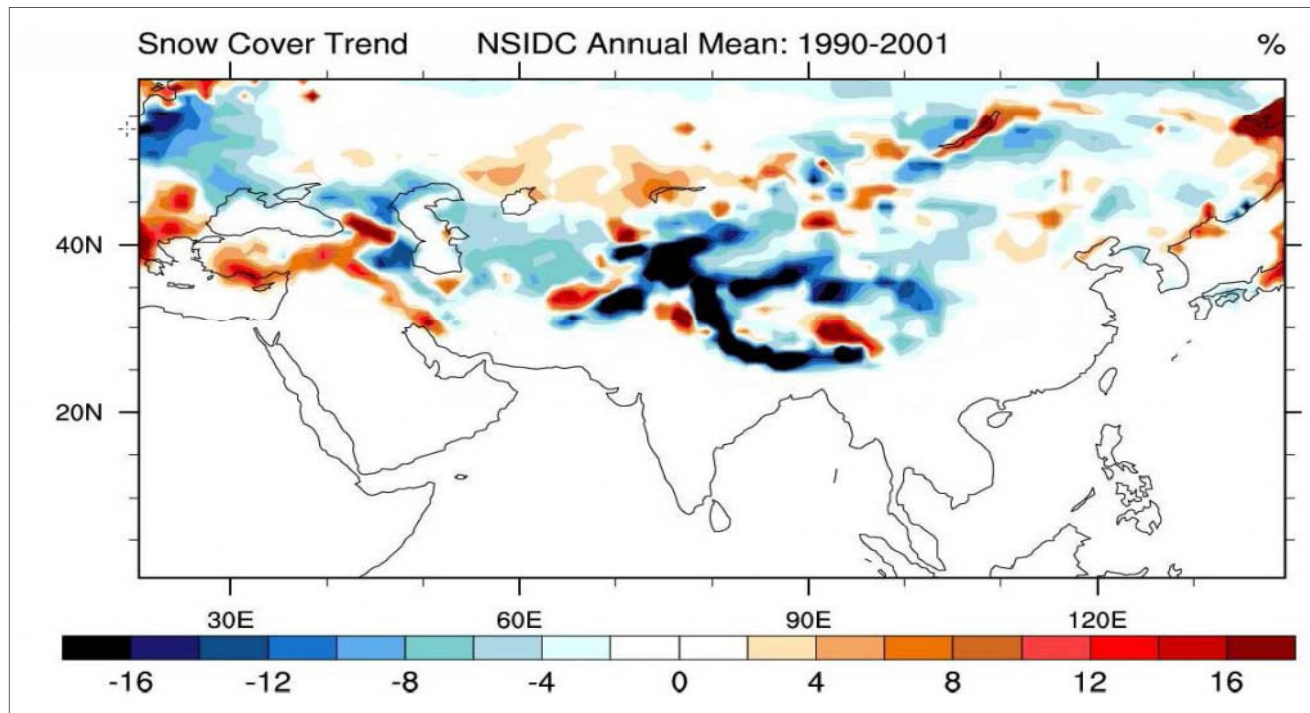




Sectors of Economical Dependence



Climate change and Himalayan Snow Cover Trend



The thick blue band across the Himalayas shows snow cover declining by at least 16 percent.

Warming will affect water regime in the Himalayas



The IPCC: The Himalayan glaciers, the source of water for billions, are retreating faster than in any other part of the world and are in danger of disappearing by 2035.

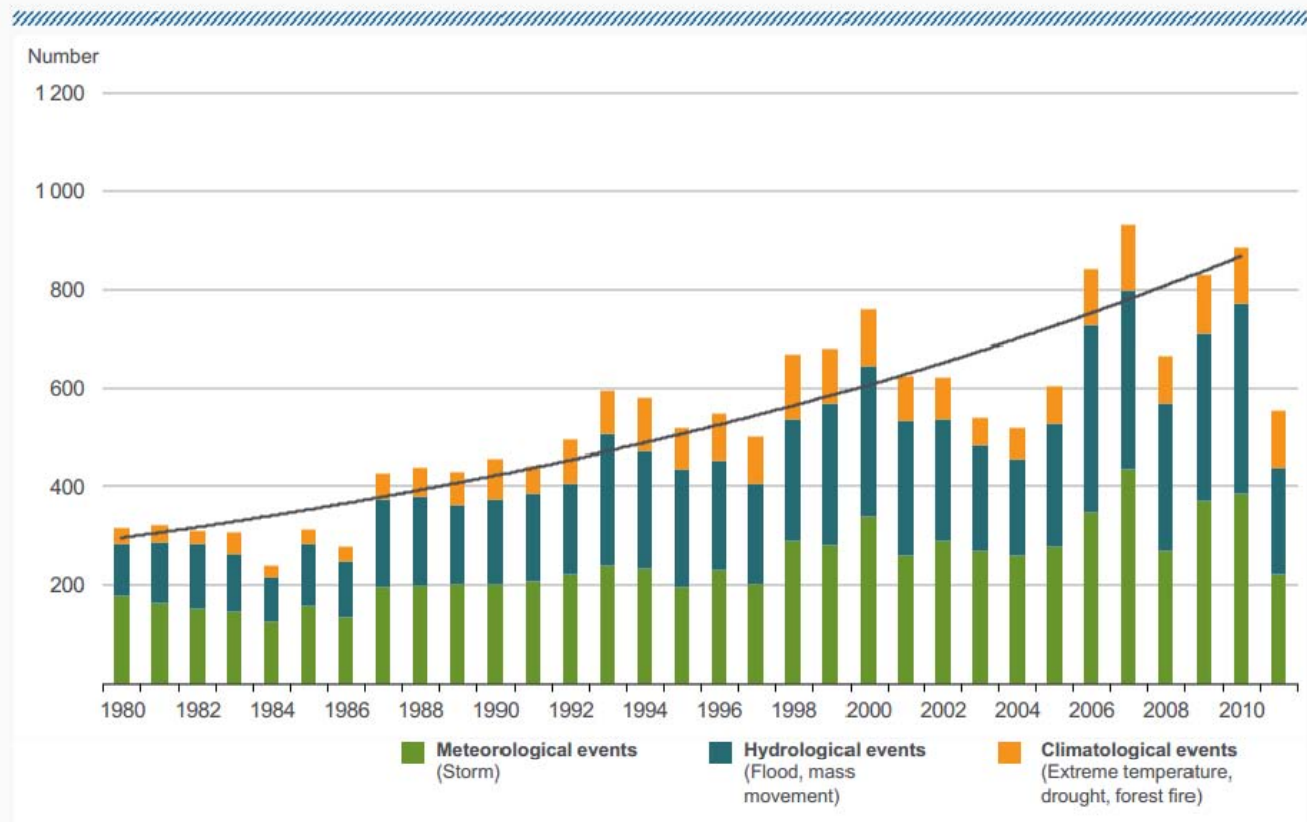
Real and deadly threat



Extreme weather events

Munich RE 

Number of weather catastrophes worldwide 1980–2011 (2011 Jan. to Sept.)



Extreme weather events: Ladakh



2009 -- Drought almost dried up the Tso Kar Lake in Changthang.

2010 – Flash floods.

2012 – Drought and snow led to death of 18,000 Pashmina goats in Changthang.

Livelihood threatened



Usually experiences 5cm of snow during winters when temperature dips to -30°C .

But this year it received 121 cm of snowfall, the worst in the past half a century.



Little rain last summer and not enough pastures. Adding the woes, heavy snowfall cut off the region from the outside,