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Hazards and adaptation in Himalayas: Problems and strategies

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Abstract
Government is doing good efforts to make a disaster free area, but due to huge population pressure on its limited resources and haphazard physical growth without looking for future aspect presents a regular threat to the beauty and sustainability of region. Present research paper is on Himalayas region, gives a description about the natural problems which is faced by this area in the present time. Some natural changes like increasing temperature, change in precipitation, occurrence of earthquake or all other natural problems discussed in this research paper. Also discussed about the polices and steps which were taken by the government for the solution of the natural hazards.

Keywords: disaster, precipitation, earthquake, hazards etc.

Introduction
The Himalayas the youngest fold mountains in the world, geographically most fascinating panorama of Indian sub continent, is very much essential for life sustenance in sub continent. It is one of the most fragile environments on earth on one hand on other it is rich repositories of biodiversity and water on which downstream communities survive. Climate change is a change in weather phenomenon of an area over a longer period of time caused by natural as well as anthropogenic factors. It is widely acknowledged that Climate Change has diverse impacts on biosphere. Himalayas are very much vulnerable to hazards like floods, earthquake, forest fire and landslides and very much sensitive to climate change which has increased the frequencies of these events.

Result and Discussion
Problems of Himalayas Rising Temperature
Different studies suggest that Himalayas are warming at very rapid pace. Regional climatic modal suggests that the temperature in Himalayas is going to touch a hike of 4 to 6^C in this century.

Table 1: Increasing temperature

Regions	Increase in temp. by 2050	Increase in temp. by 2100
Indian subcontinent	3.5^C	5.5^C
Tibetan plateau	2.5^C	5^C

***Source*:** World Focus (may 2016)

However due to topography of region and complicated reactions to the greenhouse effects, even best climatic models cannot give true picture of climate change in Himalayas. Many studies suggest that warming in this region has been greater than global average in last century.

Change in precipitation
Rainfall data of last few decades show both increasing and decreasing trend in rainfall. Increase in rainfall occurred in eastern part while there is a decrease in rain in western part. And this leads to climatic extremities. Although there is a need of more research on precipitation as many studies have excluded Himalayas due to tough topography.

Retreating Glaciers and excessive Runoff
Many smaller glaciers will disappear and bigger will retreat in next few decades in Himalayan region as per IPCC 4th Assessment Report 2007. Various model suggests that with a 2^C hike in temperature 35% of glacier will be disappeared by 2050.
It will lead to excessive surface runoff in rivers. This will lead to flooding in rivers of north plains for short time and then for a long dry spell. This will have direct impacts on agriculture of plains as the nature of Himalayan Rivers will be change from perennial to seasonal. This can even lead to acute sacristy if drinking water in the northern plains of Indian sub-continent.

Earthquake
As world's youngest folded mountains Himalayas are very much active geologically. In last 60 years four earthquakes of more than 8 magnitudes have occurred here. Main cause is the convergence of Eurasian and Indian plates at a rate of 50 mm. per year. Recent Nepal earthquake (7.8 magnitudes) of 2015 which cause huge devastation in the region shows how fragile is Himalayas to an earthquake.

Landslides
Entire Himalayan region experience landslides activities although their intensities increase in eastern part where rainfall is higher and erosion is much. Seismic activities in the region also lead to landslides. Malpa tragedy of August 1998 in which entire village was washed away is the worst example of landslide. Kosi and its tributaries are very much defamed for landslides in their upper reaches.

Flashfloods

Flood is a natural process which occurs when flow rate exceeds the capacity of river channel. Normally it is of slow pace in plains but when it occur in a very short span of time it is called flash flood which cause much devastation as no time is given for preparedness.

Although it is a natural hazard but due human intervention in river courses such as illegal construction, deforestation, construction of dams, bridges transform it in a manmade tragedy fully or quasi nature. Flash flood of Uttrakhand in 2013 is one of its example when main cause was cloud burst but when it interact with construction in river bed it cause more devastation.

Adaptation and Strategies

Both locals and governments are doing their work to adapt the changing situation and making strategies about how to deal in future with these Hazards and mitigating their impacts on society. The unprecedented nature of these Hazards required a holistic approach to deal them.

Community Participation

Community participation is the most powerful tool to mitigate the impact of disasters, as locals are much more familiar to their area and they know much about locally available resources. On the face of a disaster well resilient society reduces the impact. Awareness and training to the society is very much required in areas which are more prone to Hazards.

Non-Governmental Organizations

NGOs also play a very crucial role in managing impacts of disaster. They play a very crucial role of link in between effected community and different agencies working on it. NGOs works at grass root level and help in both pre and post disaster phases as in rescue, relief, rehabilitation as well as for preparedness.

Government Policies

Government tries to reduce the impact of disaster at all level. The Ministry of Home Affairs is the Nodal agency which looks after the Disaster Management and it functions all the time day and night. Central Relief Commissioner is the Nodal officer and also acts as a pivot point as all important departments such as IMD, IDRF of government shares their data with him. Time to time policies formed by government also encouraged preparedness in society. Disaster Management act of 2005 provide strong institutional base for tackling situation. Government focus toward educating people about what to do and what not to do during disaster is also very good step to reduce the vulnerability of common people. Education is the biggest tool to fight with any disaster and government policies toward this are always welcome.

Emergency Operation Room

Control room or emergency operation room exist in Home ministry at central level and at each state level which function round the clock and assist different departments in face of disaster. Its major work is to collect synthesis and transmit the important information's. It remains in contact with all central government departments as well as states and keep up to date details on all front of a disaster event.

Calamity Relief Fund

As per the directions of 11th finance commission a Calamity Relief Fund is established at each state level in which 75% share will be provide by central government and remaining 25% by states. For Himalayan States this ratio is 90% for center and 10% for state. Apart from this state can also get assistance from National calamity Contingency Fund and Prime Minister Relief Fund.

National Disaster Management Act 2005

Passed in November 2005 it gives paradigm shift in the approach to Disaster Management in India. Now one can easily see governments major shift is towards pre disaster phase such as prevention, preparedness and planning and to immediate response. National Disaster Management Authority, National Disaster Response Force is constituted under this act. NIDM which is educational and research wing of NDMA is also constituted. At state and district level also SDMA and DDMA are constituted so that Disaster Management can go up to grassroots level.

Special provision for Himalayan region

Himalayan states are given some special benefits such as

1. They have to put only 10% share in their Disasters Relief Fund remaining 90%will be bear by central government.
2. Special focus is toward drainage correction in this area.
3. Proper land use measures, check on illegal construction in river beds are in special focus.
4. Environment friendly approach is adopting to develop concrete structure in these areas with special permission from forest department.
5. Reforestation and efforts to increase green cover and community participation in this is very much encouraged in Himalayan Region.

Conclusion

Himalayas which represent the most beautiful panorama is also most difficult terrain and very much fragile ecosystem. A proper take care is very much essential for it. Government is doing good efforts to make this a disaster free area, but due to huge population pressure on its limited resources and haphazard physical growth without looking for future aspect presents a regular threat to the beauty and sustainability of this region. Holistic approach of development is very much required in this area in which community participation should be encouraged. Local participation is very much important to mitigate the impact of disaster and to make society less vulnerable.

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