



The impact of climate change the Himalayas

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Abstract: Climate change is a very significant issue, and it is a matter that requires serious contemplation. The Himalayas, a crucial component of Earth's, ecosystems are facing numerous problems and dangerous due to climate change. For example rising temperatures, changing rainfall patterns and altered weather conditions. All these factors are causing changes in the Himalayan ecosystems. These points highlight the destructive effects of climate change on the Himalayas. This report highlight the including glacier retreat water security food security are increased risk of natural disaster. The consequences of climate change are far-reaching, affecting not only the Environment but also human settlements. Urgent action is needed to mitigate the impacts of climate change a d promote sustainable Development in the Himalayan.

Keywords: Himalayas, climate change, impacts, action, ecosystem

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INTRODUCTION

The Himalayas often referred to as the third pole are a critical component of the Earth's ecosystem providing essential ecosystem services, including water supply, food security and climate regulation. Stretching over 2500 kilometers across 8 countries in Asia. The Himalayas provides home for people and support a vast array of plants and animals. The diversity contributes significantly to the unique characteristic of the region. In the Himalayan regions numerous species of plants are found highlights it's biodiversity. A source of impact of climate change on the Himalayas are far reaching devastating glacier retreat changes precipitation, pattern increase risk of natural disaster are threatening the livelihood of many peoples are compromising global food security. Its purpose is to prevent climate change and bring about plants and peoples cooperation for this change.

Climate Change

Sudden changes and alteration in the climate which have been occurring for a long time are natural. These changes includes sudden water shortage variations in rainfall increase water level rising temperatures extreme heat etc. These climate change related are significantly accelerating due to human activities. These changes weather pattern of any reason reflect these climate changes which can occur due to both human and natural causes.

Himalayas

The Himalayas are the world's tallest mountain range stretching over 2500 kilometers across eight countries in Asia including India, Nepal, Pakistan, Tibet, Myanmar, Bhutan, Bangladesh and Afghanistan.

Himalayas Geography

Mountain peaks:- The Himalayas are the world's tallest mountain range with many high peaks some of the highest peaks of the Himalayas are mount everest, kanchenjunga, lhotse makalu, Cho oyu, Dhaulagiri, mount manasalu, nanga parbat.

Rivers:- some of the major rivers of Himalayas are Ganga river, Brahmaputra river, satluj river, Yamuna river, Ravi river, Beas river, kali river, kosi river etc.

Valleys:- valleys including the kashmir, Nepal, and Bhutan valley.

Climate

Tropical:- The foothills of the Himalayas have a tropical climate, with hot summers and cold winters.

Temperature:- The middle Himalayas have a middle Temperature climate with cool summers and cold winters.

Alpine:- The higher Himalayas have an alpine climate with cold summers and harsh winters.

Biodiversity:- 1. Flora 2. Fauna

Human settlements:-

1. indigenous communities
2. Tracking and tourism

Special features of the Himalayan climate

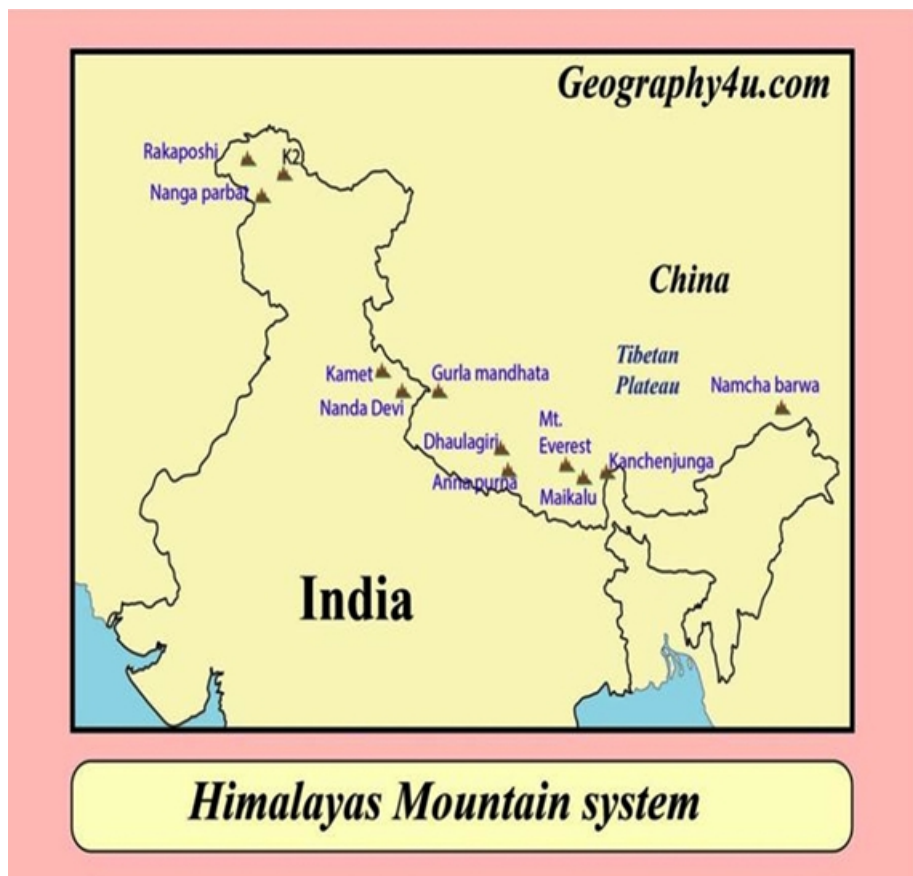
1. The climate of the Himalayas varies according to the altitude, temperature decreasing and increasing altitude
2. The average summer temperature in the Himalayan valley is around 25 degree celcius.
3. The summer temperature in the higher reaches of the central Himalayas remains between 15-18 degree celcius.
4. In winters the temperature of the Himalayas goes below freezing point.
5. In the Himalayan regions many climate related changes are occurring day by day. Therefore we should create various plans related to climate change for the Himalayan regions.
6. Climate Change in the Himalayas is likely to have serious impact on food water and energy security.
7. Climate Change in the Himalayas is also likely to cause loss of biodiversity and species.
8. The climate of Himalayas and its change directly impacts the regions the local lifestyle.

The Himalayas have several features:-

1. The Himalayas are the highest mountain range in the world.
2. The peaks of the Himalayas are covered with the snow.

3. There are many glacier valleys in the Himalayas.
4. There are many deep river valley in the Himalayas.
5. Many unique species of Flora and Fauna found in the Himalayas.
6. There are many alpine glacier in the Himalayas.
7. There are several altitude belts in the Himalayas.
8. The Himalayas peaks are steep sided and jagged.
9. The Himalayas have a complex geological structure.
10. Many river flow in the Himalayas.
11. There are several ecological associations in the Himalayas.

The Himalayas



Climate change in Himalayas

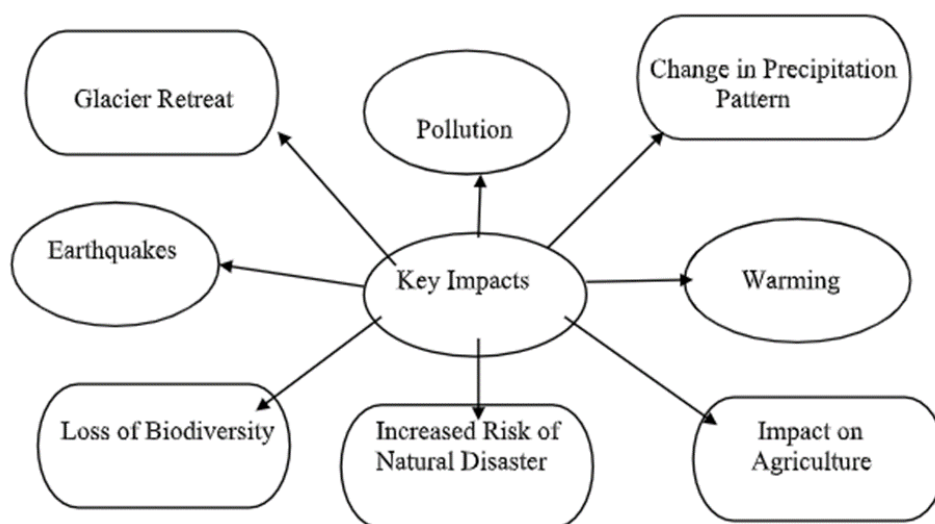
There is an interrelationship between humans and the environment on Earth. The environment is effected by human activities and the changes in the environment impact humans. Similarly in the Himalayan regions numerous climate related changes are occurring rapidly . Due to these changes in the Himalayas human are being affected. There economic activities are being affected disrupted wildlife are being impacted forest areas are being affected and the species are became endangered. The environment is being disturbed . The

Himalayan regions has witnessed an increase in temperature approximately 1.5 degree celcius 2 degree celcius over the past few decades. This viral trend are causing noticeable changes in the local climate and ecosystem changes in temperature in the Himalayan area over the past few decades have been significant . This region experienced a rapid increase in average temperature which is higher than the global average. The Himalayas are experiencing significant climate change including warming glacial meet,rainfall food production, flowering time. The Himalayas are a natural climate change laboratory making them an excellent place to study climate trends and impacts.

The impact of climate change in the Himalayas

The increase in temperature changes in rainfall patterns seasonal activities of the Himalayas and the growing number of weather related events and affecting the Himalayan ecosystem threatening the livelihood of millions of people posing a significant risk to global food security.

Climate change has had many impacts on the Himalayas including



GLACIER RETREAT

There are thousands of glaciers in the Himalayas that a melting rapidly, greatly affecting the surrounding area an alarming rate due to rising temperatures. This is not only affect the water supply but also contributed to sea level. As a result the water level in the ocean is rising quickly leading to natural disaster like floods. All of these will be happening due to melting of Himalayan glacier.

Glacial impact:- Climate change in the Himalayas leads to the formation of large icebergs. The rapid melting of Himalayan glacial increase the water volume and intensity in river and like resulting in food additionally reduced rainfall combined with higher temperature can cause droughts. Glacial melts also affects fresh water, availability for nearby regions disrupt ecosystem and increase the risk of natural disaster like landslides and floods.

Change in predation patterns

Due to climate change in Himalayas the timing of rainfall is also changing rapidly. The frequency of rainfall

is increasing changes are been observed in the rainfall patterns which is leading to increase in weather burst heavy rainfall etc.

Causes

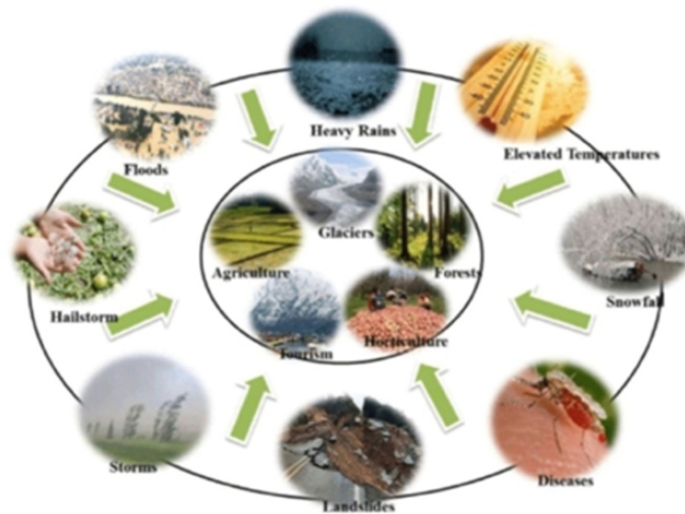
- 1 Global warming:-** Rising global temperatures are altering atmospheric circulation pattern leading to changes in precipitation.
- 2 Climate change:-** Change in ocean temperature and ice cover are influencing precipitation pattern.
- 3 Deforestation and land use changes:-** Human activities are altering local hydrological cycles contributing to change in precipitation pattern.

Impacts:-

1.Changes in monsoon patterns (altered monsoon patterns are affecting agriculture water reassures and ecosystem)

1. .Increased frequency of extreme events (changes in precipitation patterns are leading to more frequent and intense floods landslides and droughts).
2. .Water scarcity (Changing in precipitation patterns are affecting water availability impacting human settlements agriculture and ecosystem.
3. **.Pollution:-** Microplastic from source like open burning and coal plants are contaminating Himalayan lakes and rivers which can affect the ecosystem and local population.
4. **Earthquakes:-** The Earthquakes has been significant impacts on the climate and environment on the Himalayas exacerbation the effect of climate change. The breaking of glacier can trigger ice quakes which are seismic evthat can measure upto 7 on the Richter scale.
5. **Warming:-** Global warming is causing significant changes in the Himalayan climate primarily characterized by rapidly melting glacier. Decreasing snowfall rising temperatures at a rate faster than the global average and alter precipitation patterns. The Himalayas have warmed more than the global average with warming increase with elevation foe example 0.6 per decade between 1977 and 2000.
6. **Loss of biodiversity:-** many type of plants species and type forms are found in Himalayan regions. Climate Change in the Himalayas is adversely affecting these species due to which that the species are in danger and man of them have extinct.

Impacts of agriculture:- The Himalayas are a critical region of food security with many crops including rice, wheat and maize being grown in the climate change is affecting crop yield quantity distribution threatening the livelihood of many farmers.



Climate change impacts in the Himalayas

Increased risk of natural disaster:- Climate change is Increasing the risk of natural disaster such as landslides, flood in the Himalayas which can have devastating impacts on the local communities.

Climate change is having several impacts on the Himalayan ecosystem:-

1. Glacial melts rapidly in the Himalayas due to availability of water in river is decreasing.
2. Many glacial lakes has been formed due to the
 - a. melting of glaciers in the Himalayas.
3. The temperature is increasing and the number of cold days is decreasing due to the ecosystem.
4. Biodiversity is decreasing in the Himalayas due to the climate change
5. Agriculture production is being affected.
6. Economy is being affected.
7. Additionally the altered climate threatens the region rich biodiversity leading to the habitat. Climate Change is a pressing issue in Himalayas with far reaching consequences for the region ecology, economy and society.

Climate change in the Himalayas significantly impacts human life:-

Climate change in the Himalayas significantly impacts human life by causing melting glacier altering precipitation pattern leading to more extreme weather event disrupting water availability.

Key impacts on human life:-

1. **Water scarcity:-** melting glacier result in reduced fresh water supply for communities leading to water scarcity.
2. **Glacial lakes outburst floods:-** an glacier retreat glacial lakes from which Can burst suddenly

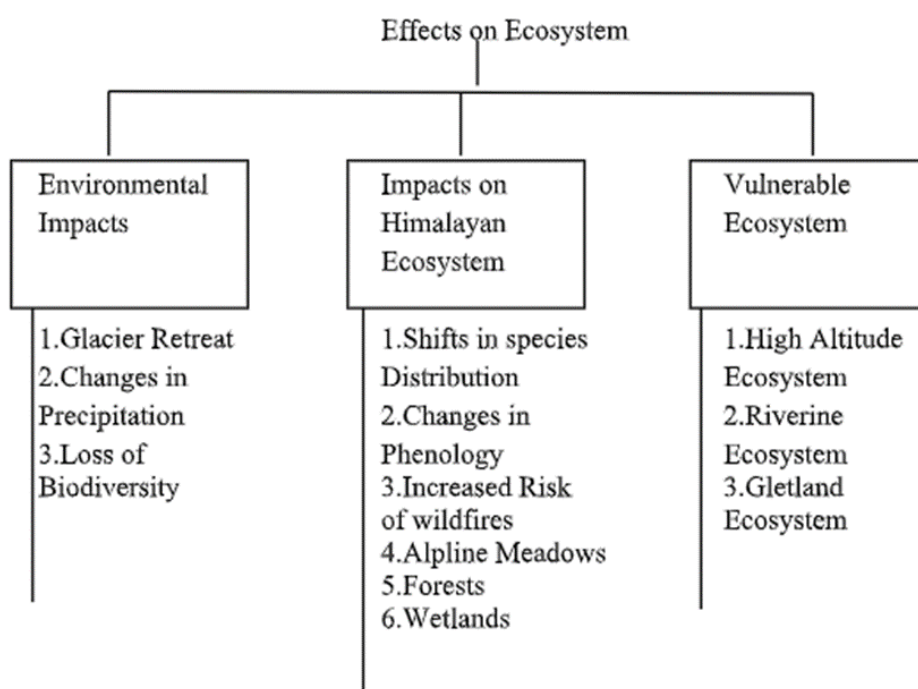
coming floods.

3. **Disrupts agriculture:-** changing weather pattern like unpredictable rainfall and temperature fluctuations .
4. **Health impact:-**changes in climate can leading to spread over disease transmitted by insects and increasing exposure of extreme heat.
5. **Tourism decline:-** changes in weather and glacial retreat can negativity impacts tourism.

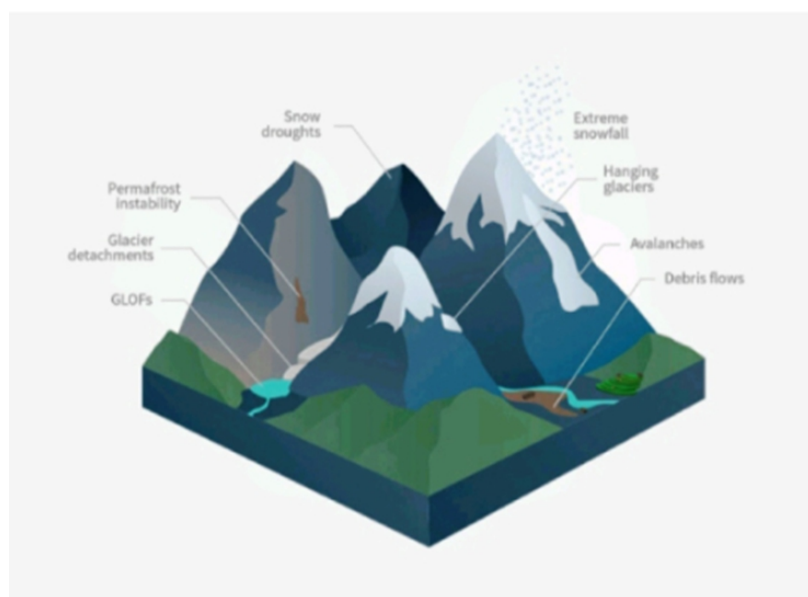
Public awareness:-

To increase public awareness about climate change in the Himalayas.

1. **Education and training:-** Incorporation climate change in school and providing training programs for local communities.
2. **Media campaigns:-** Utilising media outlets to raise awareness about climate change and its impacts on the Himalayas.
3. **Community events:-** organizing community event such a workshop seminars and rallies to raise awareness and promotes engagement.
4. **Youth and education:-** Educational youth about climate change and its impacts can help build awareness and promotes action.
5. **Climate change education:-** Incorporate climate change education into school curricula can help build awareness among youth.



Indian Himalayas:- jammu and kashmir rising temperatures and changing precipitation patterns and increasing risk of glacier lake outburst floods.



Paris Agreement international corporation

The aim and objective of the agreement was to keep the global to give the temperature below 2 degree celcius it was not increase more than 2 degree celcius and effort will continue ue to keep the temperature above 15 degree celcius during the industrial seasons.

CONCLUSION

The impact of climate change on the Himalayas is a pressing global concern. It requires immediate attention corporation and action from governmental. International organization and local communities. By

working together we can reduce the impact of climate change promotes sustainable Development and ensures a future for Himalayas and its peoples.

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