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In Depth - Melting of Himalayan Glaciers

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International Centre for Integrated Mountain Development (ICIMOD) has released a report on Hindu Kush Himalayan (HKH) Region, titled as 'Hindu Kush Himalaya Assessment' Report. According to the Report, even the most ambitious goal set by the Paris Agreement to limit global warming would lead to a 2.1 spike in temperature in the Hindu Kush Region, leading to melting of one-third of the region's glaciers and thus potentially destabilizing Asia's rivers.

'Hindu Kush Himalaya Assessment' Report

The Report is a combined effort of more than 350 researchers and policymakers from 22 countries and has been compiled by ICIMOD, which is a Nepal based intergovernmental organization, serving the eight regional member countries of the HKH region – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan.

The Report lays down in definitive detail, the HKH Region's critical importance to the well-being of billions and its alarming vulnerability, especially in the face of climate change.

Significant Findings

- HKH Region spans eight countries; Afghanistan, Pakistan, India, Nepal, China, Bhutan, Bangladesh and Myanmar and also has some of the world's tallest mountains including Mt. Everest and K2. HKH Glaciers feed into river systems including Ganga, Yangtze, Irrawaddy, and Mekong.
- The water that runs down from glaciers feeds the agriculture, on which nearly 2 billion people are dependent upon.
- HKH Region, also known as the third pole, along with China's Tien Shan Mountains holds most ice outside the North and the South Pole. The Report claims that less attention has been devoted to the region than to other areas, considered more vulnerable to Global Warming.
- Since the 1970s, about 15% of the ice in the region has disappeared as the temperature has risen.
- Under the more dire circumstances, the Himalayas could heat up by 4.4 degree Celsius by the century's end, bringing radical disruptions to food and water supplies and mass population displacement.
- The Report stresses that even if carbon emissions are dramatically and rapidly cut and succeed in limiting global warming to 1.5 degree C, 36% of the glaciers in the HKH Range will have been gone by 2100.

Impact of Melting Glaciers

- Melting Glaciers will increase river flows through years 2050 to 2060, pushing up the risk of high altitude lakes busting their banks and engulfing communities.
- From the 2060s, river flows will go into decline. Lower flows will cut the power from Hydro dams that generate much of the Region's electricity.
- There will be a most serious impact of water shortage on farmers in the foothills and downstream. Farmers rely on predictable water supplies to grow crops that feed nations in the mountainous chateaus.
- Glacial Melting will also likely cause global sea levels to rise, threatening already endangered species like the Snow Leopard and Tiger and dramatically change the roof of the world.

Impact of Climate Change

- Worldwide, Ice is melting, and glaciers are shrinking rapidly.
- For Example, in Montana's Glacier National Park, presently, the number of glaciers have declined to fewer than 30 from more than 150 in 1910.

- Melting ice leads to rising in global sea level. According to Scientists, global sea levels are rising 0.13 inches every year. The rise has been rapid in recent years threatening low lying islands and coastal cities.
- Melting Glaciers and vanishing ice has made survival of certain species difficult, pushing them towards extinction.
- Frequent and extreme weather events like bushfires, cyclones, droughts, and floods are being witnessed.
- Scientists point that oceans have absorbed most of the extra heat and carbon dioxide, making seas warmer and acidic.
- Warming waters bleach coral reefs and drive stronger storms.
- Rising Ocean Acidity threatens shellfish including the tiny crustaceans, without which marine food chain will collapse.
- The threat to Agriculture: Where, How and Why we grow food is vitally connected to patterns in climate. Changes in climate pattern affect the agricultural economy of a country.
- Warmer Atmosphere also leads to the formation of ground-level ozone, also known as Smog, in polluted areas.

Impact of climate change in 2018 (stats)

- No Mega Disaster (death of more than 5000 people in a disaster) in the year.
- In 2018, 61.7 million People were affected by natural disasters, losing their jobs and possessions, being displaced and injured.
- 10,373 people lost their lives, majorly due to earthquakes and Tsunamis- a significant decrease from the average of 77,144 deaths recorded between 2000 and 2017.
- Wildfires hit North America and Europe badly claiming a record number of 247 lives compared to the average of 71 for the past seventeen years.

Initiatives taken by India

- International Solar Alliance (ISA): Initiated by India, it is an alliance of more than 121 countries, most of them being sunshine countries. The primary objective is to work for efficient exploitation of solar energy to reduce dependence on fossil fuels.
- National Clean Air Program(NCAP): Under it, a long term and time-bound national level strategy were build up to tackle the increasing air pollution problems across the country in a comprehensive manner.
- India's first National Air Quality Index (NAQI): Prime Minister Modi launched the index in 2015, to monitor the quality of air in major urban centers across the country on a real-time basis.
- Swachh Bharat Abhiyaan: A national campaign by the government to clean streets, roads and infrastructure of the country.

- Pradhan Mantri Ujjwala Yojana: It is a move to expand LPG connection among rural poor and thus cut household air pollution and protect health, particularly of women.
- Waste Management has remained a priority which gets reflected in the notification of six waste management rules.
- Namami Gange Program for cleaning and rejuvenating Ganga.
- Battery Cars: In order to reduce emissions and cut fuel imports, the government is buying 10,000 battery-powered cars from Tata Motors and Mahindra & Mahindra to replace Petrol and Diesel cars.
- Steps were taken to reduce the use of single-use plastic.
- Steps were taken to progress towards implementing the 2030 SDG targets. Sustainable Development Goals (SDGs) are ambitious global development goals that address key aspects of universal well being across different socio-economic, cultural, geographical divisions and integrate the economic, social and environmental dimensions of development.

Experts see 2019 as a more catastrophic year compared to 2018. The UN Office for Disaster Risk Reduction has predicted more natural disasters in 2019. Countries need to prepare for that and have to make combined efforts to reduce overall emissions from fuels, conserve the forest cover and push the use of renewable energy.

India needs to give itself a big push to reduce its emissions from diesel, petrol, and coal. India has protected its forest cover very well. On the same lines, it should try to make its air and water clean.