

Himalayan meltdown: Hindu Kush Himalayan region warming faster than global average

The Hindu Kush Himalayan (HKH) region – spread over 3,500 square kilometres across eight countries including India, Nepal and China – is warming faster than the global average. It would continue to warm through this century even if the world is able to limit global warming at the agreed 1.5 degrees Celsius, says the Hindu Kush Himalaya Assessment, the first-ever assessment of impacts of climate change on the ecologically important but fragile region.

On February 4, 2019, the International Centre for Integrated Mountain Development (ICIMOD) – a regional intergovernmental body – released the assessment. More than 300 researchers participated in the study who took over four years to bring out the first report.

“In the future, even if global warming is kept to 1.5 degrees C, warming in the HKH region is likely be at least 0.3 degrees C higher, and in the northwest Himalaya and Karakoram at least 0.7 degrees C higher,” says the assessment report.

As it has been the case with climate change, the per capita fossil fuel carbon dioxide emission from the HKH countries is one-sixth of the global average though it is disproportionately impacted.

The HKH region – part of the Third Pole due to its largest permanent snow cover after the North and South poles – sustains the livelihoods of 240 million people living in the

mountains and hills. It also houses the origin of 10 river basins that include the Ganga, Brahmaputra and the Mekong. Some 1.5 billion people depend on these basins for sustenance. Usually identified with its extreme cold climate, the region is already showing disruptive signs of changes diametrically opposite to it.

In the last 60 years, extreme cold events have become lesser while extreme warm weather events have become more pronounced. Both minimum and maximum temperatures are also changing: they are moving north, indicating overall warming.

Every decade HKH loses one cold night and half a cold day. While warm nights have increased by 1.7 per decade, the region gets 1.2 warm days every decade.

Alarmingly, changes in surface temperature (relative to 1976-2005) in this Himalayan region are higher than the global average, and even the South Asian region. "The projected changes in the surface mean temperature over the HKH region are larger compared to the global mean change by the end of the 21st century," says the report. In what it terms as the "moderate scenario", by the end of the century the temperature rise would be 2.5+/- 1.5 degree centigrade. In another "extreme" scenario, it would be 5.5+/- 1.5 degrees centigrade. "Although the climate of the region has changed significantly in the past, it is projected to change more dramatically in the near future." In 1998-2014, when the global warming slowed down, this region continued to warm.

In the 20th century, the HKH region oscillated between warming and cooling phases. In the first 40 years, it reported warming to be followed by a cooling phase in 1940-1970. However, since

1970 it has been warming, and as assessed it would continue to be through the current century. However, warming may be good news for agriculture. "The length of the growing season has increased by 4.25 days per decade – a positive change for agriculture," says the assessment.

Warming in HKH region has ramifications for the global climate. This region is a heat source in summer and a heat sink in winter. Along with the Tibetan Plateau, this influences the Indian summer monsoon. So, any changes in this region would have a bearing on the monsoon itself that already shows signs of changes in spread and distribution.

"Such large warming could trigger a multitude of biophysical and socio-economic impacts, such as biodiversity loss, increased glacial melting, and less predictable water availability—all of which will impact livelihoods and well-being in the HKH," warns the assessment report.

Faster snow and glacier melting due to warming is already manifesting in formation of glacial lakes. Glacial lake outburst floods (GLOF) are becoming frequent and causing huge casualties and loss to local infrastructures. The ICIMOD survey in 1999 and 2005 found 8,790 glacial lakes covering a total of 801.83 square km in HKH; out of these 203 lakes have potential to cause GLOF.

Glaciers in HKH have been retreating faster, and consistently causing greater water flows in rivers. In Tibetan Plateau, river run off has increased by 5.5 per cent. Most of the lakes in high altitudes have also reported water level rise by 0.2 m/year besides their surface areas expanding.

Source: xaam.in