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GLOBAL WARMING

Warm ice, cold consequences

Vaishnavi Chandrashekhara | June 29, 2013



Man-made disaster, yes. But in addition to the rash of unplanned development that has brought death and devastation to Uttarakhand, loom the effects of climate change.

In the wake of the floods in Uttarakhand, some officials blamed the disaster on global warming which has been linked to a rise in extreme weather events. In this instance, the disaster has been shown to be at least part man-made - the toll reflects the hazards of unplanned development and

inadequate disaster preparedness in a region prone to flash floods and landslides.

But there is still good reason to be concerned about the changing climate in the Himalayas. Research suggests that the mountainous region may be on the frontlines of global warming, with temperatures rising faster than average and a host of consequent effects already being observed - from melting glaciers and declining snowfall to shifting plant species and changing seasons.

The Himalayas being the source of five great rivers, these changes have profound implications for the entire subcontinent. "Much of the discussion has been focused on the melting of the glaciers, but there are many other risks involved," says Kamaljit Bawa, distinguished professor of biology at the University of Massachusetts in Boston and founder of the Ashoka Trust for Research in Ecology and Environment in Bangalore.

Here are some of the changes that locals and scientists are seeing in the region:

Like other mountainous regions, the Himalayas are warming faster than most places on earth. A 2012 satellite-based study by Bawa and other Harvard researchers found that mean surface temperature in the Himalayas rose by 1.5 Celsius from 1982 to 2006, compared with a 0.6C degree rise in global mean surface temperatures from 1975 to 2005. Other studies show a similar trend. Higher altitudes may be warming faster.

Winters seem to be getting shorter, warmer, and seeing less snowfall, at least in some areas. Winter temperatures are rising faster than summer ones, with some areas seeing maximum mean winter temperatures go up by as much as 3.4 C since the 1980s. Farmers in Himachal and Uttarakhand have observed a late start to winters, reduced snowfall and early spring, which is affecting apple crops. Studies support their perceptions. In Sikkim, landslides are more frequent.

Ecological changes are already taking place. The alpine treeline has shifted upland in some areas - attributed to warming - and that could shrink the snow leopard habitat. Rhododendrons have invaded the Valley of Flowers, according to one study. And mosquitoes are being seen at higher altitudes.

Rainfall trends are unclear. While some studies have found an overall decrease in summer rainfall in the Himalayan region, a recent climate modelling study projected a longterm

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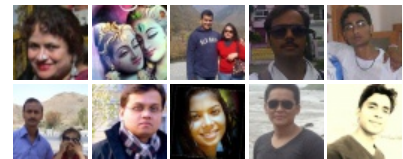
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increase in summer monsoon precipitation. Other studies have found no clear trend in the 2, 500 km-long range. Even so, "there is increased possibility of cloudburst events occurring in changing warmer climate along the southern rim of the Himalayas," says AP Dimri, associate professor of environmental science at Jawaharlal Nehru University.

Many glaciers are shrinking, with potentially enormous consequences for water. Glacial and snow melt contribute greatly to river flow in the region - as much as 70 per cent in the period before and after the monsoon, according to a report by the International Centre for Integrated Mountain Development in Kathmandu. Changes in melt could increase the chances of a flash flood, landslides and debris flow, and affect water supply in the long term. It also impacts the functioning of the hundreds of hydropower dam projects being constructed across the Himalayas, many of them financed through international climate mitigation funds. There is a greater risk of Glacial Lake Outburst Floods. The Uttarakhand floods are being called a "Himalayan Tsunami" but that term was also used recently by Time magazine to describe the effects of a sudden bursting of a glacial lake in the Himalayas. As glaciers melt, the water fills in the cavity left behind, and is usually held in place by a dam of ice or debris. If this barrier bursts, hundreds of millions of cubic feet of water may be released in one devastating deluge. Lakes are forming more quickly than they used to.

Scientists recently warned of a high risk of a glacial lake burst in Sikkim, a seismic zone-state with one of the highest number of such lakes and a number of hydropower dams. Much is still unknown about climatic change in this region - the lack of data and research has led to what ICIMOD calls "uncertainty on a Himalayan scale", especially since global warming is not the only driver of change. Landuse shift has its own effects on ecology. Climate change should inform development decisions, say experts. There have already been some efforts in that direction. The National Mission for Sustaining the Himalayan Ecosystems was launched under the National Action Plan on Climate Change in 2008. Both Himachal Pradesh and Uttarakhand have drafted state action plans. None of these plans have taken off yet, however.

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Ramesh Sargam Jul 2nd, 2013 at 23:43 PM

Is it a man-made disaster or politicians-made disaster? I strongly feel the second one is correct. Even after CAG warned about the number of projects in the region, the politicians went ahead and approved many projects which now resulted in the devastating floods and many deaths. No lesson learnt.

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