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STRONG POLICIES ON BLACK CARBON CAN SHARPLY CUT GLACIER MELT: WORLD BANK STUDY

Relevant for: Environment | Topic: Environmental Conservation, Sustainable Development, and EIA

Glacial melt can lead to flash floods and soil erosion.

Black carbon (BC) deposits produced by human activity which accelerate the pace of glacier and snow melt in the Himalayan region can be sharply reduced through new, currently feasible policies by an additional 50% from current levels, a study by World Bank (WB) specialists has said.

The research covers the Himalaya, Karakoram and Hindu Kush (HKHK) mountain ranges, where, the report says, glaciers are melting faster than the global average ice mass. The rate of retreat of HKHK glaciers is estimated to be 0.3 metres per year in the west to 1.0 metre per year in the east. BC adds to the impact of climate change.

Full implementation of current policies to mitigate BC can achieve a 23% reduction but enacting new policies and incorporating them through regional cooperation among countries can achieve enhanced benefits, the WB said in the report titled “Glaciers of the Himalayas, Climate Change, Black Carbon and Regional Resilience” released on Thursday.

“BC is a short-lived pollutant that is the second-largest contributor to warming the planet behind carbon dioxide (CO2). Unlike other greenhouse gas emissions, BC is quickly washed out and can be eliminated from the atmosphere if emissions stop,” the publication says. Unlike historical carbon emissions, it is also a localised source with greater local impact.

Some of the ongoing policy measures to cut BC emissions are enhancing fuel efficiency standards for vehicles, phasing out diesel vehicles and promoting electric vehicles, accelerating the use of liquefied petroleum gas for cooking and through clean cookstove programmes, as well as upgrading brick kiln technologies, says the publication, edited by Muthukumara Mani, lead economist, South Asia Region, World Bank. However, with all existing measures, water from glacier melt is still projected to increase in absolute volume by 2040, with impacts on downstream activities and communities.

At a virtual panel discussion on the release of the report, Hartwig Schafer, vice-president, South Asia Region, World Bank Group, said regional integration and collaboration was one way to address the question of melting glaciers. Glacier melt produces flash floods, landslips, soil erosion, and glacial lake outburst floods.

Air temperature

Deposits of BC act in two ways hastening the pace of glacier melt: by decreasing surface reflectance of sunlight and by raising air temperature, the researchers point out.

“Specifically, in the Himalayas, reducing black carbon emissions from cookstoves, diesel engines, and open burning would have the greatest impact and could significantly reduce radiative forcing and help to maintain a greater portion of Himalayan glacier systems. More detailed modelling at a higher spatial resolution is needed to expand on the work already completed,” says the study, calling upon regional governments to review policies on water management, with an emphasis on basin-based regulation and use of price signals for

efficiency, careful planning and use of hydropower to reflect changes in water flows and availability, and increasing the efficiency of brick kilns through proven technologies. There must also be greater knowledge sharing in the region.

The WB publication says “Industry [primarily brick kilns] and residential burning of solid fuel together account for 45–66% of regional anthropogenic [man-made] BC deposition, followed by on-road diesel fuels (7–18%) and open burning (less than 3% in all seasons)” in the region.

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