

# Climate change: new dimension of natural disasters

Glaciers play a vital role in Pakistan's ecological sustainability and economy in diverse ways

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**Live video-stream of the collapse of Hassanabad bridge in Gilgit Baltistan on 7th May, 2022 caused by glacial lake outburst flood (GLOF) from Shishper glacier in Hunza instantly went viral globally. It drew attention of the world to Pakistan warranting that glaciers are feeling the heat due to rise in surface temperature and could potentially result in more intense and frequent GLOF events causing largescale disasters. And the biggest factor responsible for such disasters is the climate variability.**

Over the past decade, Pakistan's northern region has become a live demonstration lab of impacts of increasing concentration of greenhouse gasses into the atmosphere and the disasters it can cause, establishing a nexus between climate change and natural disasters. Pakistan's climatic vulnerability is explicably based on two critical factors: its geographical location and associated unique ecological conditions; and its limited adaptive capacity to deal with such enormous and complex challenges. Pakistan's northern region houses over 5,000 glaciers, some of which are among the world's largest, oldest and currently under critical threat.

Glaciers play a vital role in Pakistan's ecological sustainability and economy in diverse ways. Setting aside economic and ecological benefits, Pakistan's water resources are highly dependent on melting of glaciers in a subtle weather-driven phenomenon. But global warming and associated climatic impacts are causing dramatic temperature rise with fluctuations in glacier melting. A number of previously non-existent lakes have been formed in the northern region, indicating increasing risks of sudden water outbursts and flood situations.

As per a study, the Shishper glacier had been surging at an exceptional rate for many years, and the formation of lakes during cold seasons represents a constant threat of GLOF in Pakistan's north. Glacial fluctuations and their associated impacts are not the only climatic challenge facing Pakistan. A complex but unquestionably atmospheric cryosphere interaction is resulting in an increase of average surface temperatures in the mountainous region shifting to downward plateaus in the form of higher than average surface temperatures.

Recent heatwave in many parts of India and Pakistan, causing casualties and serious disruptions in economic activities, is another emerging climate challenge which remains

highly underestimated. Scientific reports show that intensity and frequency of heatwaves are likely to exacerbate in the coming years. A recent study by Friederike Otto, a climate scientist, highlights the crucial nature of heatwave in India and Pakistan: “Climate change is a real game changer when it comes to heat waves... It’s really a major factor.” Economic dependence on climate sensitive sectors such as agriculture and low socio-economic indicators of large segments of population render low adaptive capacity to climate change. In March, Pakistan experienced the world’s highest temperature with 62% less rainfall, which is alarming.

Wheat production is estimated to be 10% lesser than in previous year due to extreme weather conditions. In terms of geographical and climatic features and socio-economic conditions, Pakistan is a highly diverse country. Consequently, the impacts of climate change and capacity to cope is unlikely to be uniform across different regions. At present, global warming and climate-induced disasters are global phenomena. However, given the varying adaptive capacity, some countries, like Pakistan, remain more at risk. Pakistan needs to improve preparedness and implement early monitoring and forecasting systems comprising timely identification of climate risks through monitoring and observation; institutional strengthening and capacity building; and empowerment of local government. National Disaster Risk Management Fund (NDRMF) — a government-owned entity mandated to build climate resilience in Pakistan — is actively engaged with a number of national, regional and international entities focusing on upcoming threats and challenges and orienting its funding and technical support functions accordingly to address the impacts of climate change and minimise disaster risks.

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