

Editorial

HEAT WAVE IN PAKISTAN: A BURNING ISSUE

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Pakistan is ranked as the fifth most vulnerable country to climate change and faces extremely hot weather conditions¹. A heat wave is an extreme weather event characterized by a period of abnormally high temperature exceeding the normal range for a given time and place. This period of scorching heat typically lasts two or more days. Humidity makes it feel much hotter. This results from the building of a high-pressure zone in the upper atmosphere, mainly due to anthropogenic greenhouse gases. Global warming has led to more frequent and severe heat waves all over the world². According to the World Bank, Pakistan has faced an increase in average yearly temperature of 1.5°C since 1900. Pakistan is anticipated to experience more than 30 extreme heat days annually, compared to less than 10 days in the past years.

Urbanization contributes to the Urban Heat Island phenomenon by replacing the vegetation with concrete roads, buildings, and other structures. These surfaces absorb and hold heat rather than reflect it, thereby raising the surface temperatures and overall ambient temperatures in these urban areas. Rapid urbanization, deforestation, and the burning of fossil fuels underpin this predicament. In Pakistan, Karachi, Lahore, Rawalpindi, Gujranwala, Multan, and Faisalabad suffer from the Urban Heat Island phenomenon.

Heat waves have multifaceted implications. The health impacts of heat waves range from heat exhaustion (heavy sweating, weak pulse, muscle cramps, headache, nausea, and dizziness), heat stress (rapid heartbeat,

headache, cramps, weakness, chest pain, difficulty breathing) to heat stroke (high body temperature, fast and strong pulse, losing consciousness, nausea, headache, and dizziness). Heat stroke is an emergency condition that can be fatal if not appropriately managed. Childhood, pregnancy, old age, working outdoors, and low socioeconomic conditions are highly at a higher risk³.

Heat waves also cause drought by damaging the crops, thereby aggravating food insecurity. Global Climate Risk Index estimated that nearly 10,000 Pakistanis died due to climate change impacts, and the country suffered an economic loss of approximately \$3.8 billion between 1999 and 2018. Heat waves exacerbate the water shortage. Energy demand has also increased. Heat stress causes dehydration and fatigue, which reduces labor productivity. Subsequently, the country suffers economic loss. An estimated 100 million people will be forced to cross the poverty line in 2030, South Asia being the most affected region.

Heat waves impoverish the poor and the marginalized, rendering them more exposed to heat. They usually do not have adequate access to health care. World Bank has warned that climate change could push an additional 100 million people into poverty by 2030, South Asia being one of the most affected regions.

Pakistan is expected to suffer a drop of 6.8% in its GDP by 2050 due to climate change. This calls for a shift from a reactive to a proactive and strategic approach. This needs to develop workable and sustainable solutions. For example, Miami, Phoenix, Athens, and Freetown have appointed chief heat officers to coordinate the response to extreme heat.

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Raising awareness identifies at-risk communities and implements sustainable solutions. The Temporary Employment Program (PET1) in Mexico provides a social safety net to vulnerable groups. Singapore has implemented several programs to support urban farming, which has subsequently decreased the severity of its urban heat island effect by four °C over the last 30 years.

Pakistan shares less than 1 % of global greenhouse gas emissions, having a negligible carbon footprint⁴. Climate governance, by combining risk reduction, adaptation, and preparedness measures along with mitigation, will provide a comprehensive strategy for Pakistan. Focusing on preparedness by integrating disaster risk management and climate change adaptation through early warning systems and social protection plans holds promise to save Pakistan from the negative impacts of heat waves. Resilient, sustainable, and inclusive urban planning is fundamental for both preparedness and response to such hot weather conditions. Furthermore, along with inter-governmental coordination at the global level, commitment to the Paris Agreement will help Pakistan deal with this scorching reality⁵.

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