ISSUE BRIEF

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PAKISTAN'S STRUGGLE WITH HEATWAVES, WATER STRESS, AND CLIMATE-DRIVEN DISPLACEMENT

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(Views expressed in the brief are those of the author, and do not represent those of ISSI)

Climate Crisis at Pakistan's Doorstep

Pakistan is on the frontlines of the climate crisis, despite contributing less than 1% to global greenhouse gas emissions. The country is facing a brutal convergence of climate hazards—record-breaking heatwaves in April, growing water insecurity, stressed agriculture, and rising internal displacement.[1] The climate emergency is no longer a future concern; it is already reshaping Pakistan's public health, economy, and landscape.[2]

In April 2025, the country recorded a 59% reduction in rainfall compared to historical averages, accompanied by temperatures soaring up to 49°C. These events are not isolated—they are part of a broader climate trend that is intensifying in both scale and impact.[3]

1 "Pakistan records second-hottest April in 65 years", The Express Tribune. May 03, 2025 https://tribune.com.pk/story/2543752/pakistan-records-second-hottest-april-in-65-years
2 Abdul Sattar Babar, "Criticality of research data", February 08, 2025 https://www.dawn.com/news/1890593
3 Pakistan records second-hottest April in 65 years", The Express Tribune. May 03, 2025 https://tribune.com.pk/story/2543752/pakistan-records-second-hottest-april-in-65-years

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Health Toll of Extreme Heat

Pakistan's major cities—Lahore, Karachi, Multan, Jacobabad—are now routinely hitting dangerous heat index levels. The 2022 and 2024 heatwaves killed hundreds and left thousands with heatstroke, dehydration, and respiratory issues. With much of the population lacking access to reliable electricity, air conditioning, or public cooling centres, the risks are magnified for low-income communities.[4]

Compounding the crisis is the sharp rise in night-time temperatures, especially in densely populated urban centres. Without relief from heat during the night, the human body cannot recover—leading to increased mortality, especially among the elderly, children, and outdoor labourers.

Water Crisis: The Next Flashpoint

Pakistan is heading toward absolute water scarcity by 2025, according to the Pakistan Council of Research in Water Resources (PCRWR). Heatwaves accelerate glacial melt in the north while simultaneously drying up rivers and reservoirs in the south.[5] This uneven water supply destabilizes irrigation systems, threatens hydropower generation, and reduces drinking water availability.

Rural communities in Balochistan, Sindh, and southern Punjab are already experiencing water shortages so severe that families are migrating in search of water.[6] The drying up of the Manchar Lake in Sindh and depletion of the Indus River Basin are urgent alarms of these adverse ecological impacts.

Agriculture and Livelihoods Under Stress

With nearly 40% of Pakistan's labour force working in agriculture, rising heat and erratic rainfall is a cause for concern. Wheat, cotton, and rice yields have already been affected in Punjab and Sindh. The agriculture sector grew by just 1.1%. The first quarter was worse, registering a growth rate of 0.74%. Higher temperatures during critical crop phases reduce productivity, while water shortages limit irrigation potential.[7]

4 "Pakistan: Climate disasters increasing risks of death and disease amongst children and older people", reliefweb, May 05, 2025 https://reliefweb.int/report/pakistan/uncounted-invisible-deaths-older-people-and-children-during-climate-disasters-pakistan

5 Sher Baz Khetran, "Intensified Heatwaves: Pakistan's Reflection Of The Climate Crisis", July 24, 2024 https://issi.org.pk/wp-content/uploads/2024/07/IB_Khetran_July_24_2024.pdf

6 Ibid

7 Khalid Saeed Watto, "Agriculture: Crop sector — from boom to bust", April 28, 2025 https://www.dawn.com/news/1906967/agriculture-crop-sector-from-boom-to-bust

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Livestock face heat stress too—milk production drops and mortality rates rise during prolonged hot spells. For smallholder farmers, these climate shocks mean income loss, food insecurity, and increasing reliance on costly loans or migration to cities.

Urban Heat and Infrastructure Strain

Urban areas are particularly vulnerable due to the "urban heat island" effect. Concrete-dense cities trap heat, with little green cover to cool them. In many low-income neighbourhoods in Karachi and Lahore, homes built with tin roofs become unliveable during peak summer. Frequent power outages during high-demand periods further strain public health and productivity.

As temperatures rise, Pakistan's already stressed energy grid faces blackouts. Hydropower capacity is reduced when river levels fall, and the growing use of air conditioners places new demands on an aging transmission network.

Displacement and Climate Migration

Climate change is now a driver of internal displacement in Pakistan. The 2022 floods displaced over 33 million people—many of whom remain in temporary shelters.[8] But beyond floods, slow-onset disasters like drought, water stress, and agricultural collapse are quietly forcing people to migrate.

Communities in Tharparkar, Cholistan, and Makran are seeing a slow exodus due to the inability to sustain farming or access water. Urban slums are swelling as migrants arrive with few resources, adding to pressure on housing, health, and services.

Responding to a Changing Climate

Over the past year, Pakistan's government and relevant institutions have taken several steps to shield communities from the rising threat of heatwaves.

- In mid-2024, the National Disaster Management Authority (NDMA), in collaboration with the Ministry of Climate Change, rolled out a "Heatwave Action Plan 2024." This included early warnings issued months in advance, the setup of over 1,000 cooling camps across heat-

8 Zoha Tunio, "In Pakistan, 33 Million People Have Been Displaced by Climate-Intensified Floods", September 16, 2022 https://insideclimatenews.org/news/16092022/pakistan-flood-displacement/

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prone areas like Sindh and southern Punjab, and coordination with local governments to provide water, shade, and emergency medical support.[9]

- The "Living Indus Initiative," which was launched in 2021 includes nature-based solutions to restore wetlands, recharge aquifers, and revive the river ecology.[10]

- The "Green Pakistan Initiative," which was rolled out in February 2025 aims to irrigate six million acres of land, leveraging modern farming techniques to enhance food security and economic growth.[11]

Policy Recommendations for Pakistan

To prevent climate breakdown from becoming a humanitarian catastrophe, Pakistan needs to take urgent and coordinated action at all levels of government:

- Enhance heatwave preparedness, by developing provincial and municipal heat action plans, establish community cooling centres in vulnerable districts, and launch public awareness campaigns focused on heat safety, hydration, and first-aid.

- Reform water management through a comprehensive strategy aimed at ensuring sustainable use and conservation of water resources by modernization of irrigation systems which significantly reduce water waste.

- Promote climate-resilient agriculture by focusing on supporting the transition to heat- and drought-resistant crop varieties, expanding crop insurance and credit programs tailored for small-scale farmers, and providing comprehensive training on climate-smart farming techniques.

- Pursue effective urban climate adaptation through a combination of nature-based and regulatory strategies, by implementation of green roofs, cool pavements, and urban tree planting schemes to mitigate heat and enhance urban resilience.

9 "Heatwave Guidelines 2024," NDMA, Accessed on April 28, 2024, https://ndma.gov.pk/storage/guidelines/April2024/Zp0ylx4ksogDptXteEYS.pdf

10 Amin Ahmed, "Living Indus Initiative ranked among UN's flagship programmes," Dawn, February 14, 2024, https://www.dawn.com/news/1814047

11 "Green Pakistan Initiative to revolutionize agriculture," Radio Pakistan, February 15, 2025, https://www.radio.gov.pk/15-02-2025/green-pakistan-initiative-revolutionizes-agriculture-in-cholistan

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- Enhance energy system resilience through decentralizing power grids and investing in solar microgrids, contributing to a more stable and sustainable energy infrastructure particularly in rural areas where access to reliable electricity remains limited.

- Officially acknowledge climate migrants in national disaster and relocation policies through effective planning for flood- and drought-prone communities to facilitate safe and sustainable resettlement.

Conclusion: The Time to Act Is Now

Pakistan is at the forefront of the climate crisis, where the repercussions of inaction globally are already being felt with catastrophic ferocity. Pakistan is facing searing heat waves, parched fields that compromise food security, and floods that uproot communities. These are not far away or abstract issues—they are close and deepening realities. Although contributing very little to world emissions, Pakistan is inordinately impacted by climate change, so the present world failure to cut emissions is not only an environmental concern, but also a moral one. The increasing cost to lives and livelihoods emphasizes the need for serious world climate commitments that consider the requirements of vulnerable countries.

However, Pakistan cannot hold out for others to move first. It must respond to the crisis with a strong, self-driven effort that draws on adaptation and climate justice. That means increased investment in strong infrastructure, shielding water supplies, healing ecosystems, and defending those on the front lines. As investment in early warning systems, climate-smart agriculture, and urban design is key to limiting the impact of coming climate shocks. Additionally, a fair response requires that the most vulnerable groups, particularly the poor, women, and marginalized communities, are put at the centre of climate policy to save lives, protect livelihoods, and build a more sustainable and equitable future.

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