

INTENSIFIED HEATWAVES: PAKISTAN'S REFLECTION OF THE CLIMATE CRISIS

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



From mid-May until the first week of July 2024, parts of South Asia witnessed the worst heatwaves, causing widespread health crises and fatalities in both Pakistan and India. The region, encompassing approximately one-fifth of the global population, is exceptionally susceptible to the adverse impacts of climate change, resulting in extreme weather phenomena. Both Pakistan and India have been identified as among the most significantly affected nations due to these recent heat waves. In Delhi, temperatures have soared to over 120 degrees Fahrenheit since mid-May, with local Indian media reporting nearly 4,000 cases of heatstroke in the past two months, including the death of a labourer attributed to the extreme heat.¹ Concurrently, Karachi, Pakistan's largest city, has also experienced severe heatwaves, with over 500 fatalities in the southern Sindh province in the past two months, 141 of which were directly linked to temperatures reaching 49 °C (120 °F). The incidence of heat-related illnesses, such as gastroenteritis, vomiting, diarrhoea, high fever, and general weakness, escalated in mid-June and July.²

¹ Dia Haadid, "A heat wave gripping parts of South Asia since mid-May gets even more brutal" NPR May 31, 2024. <https://www.npr.org/2024/05/31/nx-s1-4985885/a-heat-wave-gripping-parts-of-south-asia-since-mid-may-gets-even-more-brutal>

² Dr Ziaur-Rehman, "Pakistan Withers Under Deadly Heat and Fears the Coming Rains" The New York Times, July 6, 2024. <https://www.nytimes.com/2024/07/06/world/asia/pakistan-heat-wave.html>

According to the National Disaster Management Authority (NDMA), the heatwave layout for May-June 2024 identified several districts in Sindh and Punjab, including Tharparkar, Matiari, Umarkot, and Sanghar in Sindh, as well as Rahim Yar Khan and Bahawalpur in Punjab, as the hottest regions in the country. The report highlighted that southern and central Pakistan remain the most vulnerable to severe heat waves.³

Relative Humidity %	Temperature °C																
	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
40	27	28	29	30	31	32	34	35	37	39	41	43	46	48	51	54	57
45	27	28	29	30	32	33	35	37	39	41	43	46	49	51	54	57	
50	27	28	30	31	33	35	36	38	41	43	46	49	52	55	58		
55	28	29	30	32	34	36	38	40	43	46	48	52	54	58			
60	28	29	31	33	35	37	40	42	45	48	51	55	59				
65	28	30	32	34	36	39	41	44	48	51	55	59					
70	29	31	33	35	38	40	43	47	50	54	58						
75	29	31	34	36	39	42	46	49	53	58							
80	30	32	35	38	41	44	48	52	57								
85	30	33	36	39	43	47	51	55									
90	31	34	37	41	45	49	54										
95	31	35	38	42	47	51	57										
100	32	36	40	44	49	56											

Caution
Extreme Caution
Danger
Extreme Danger

Source: NDMA (2024)

Heatwaves Intensifying yet Reflecting the Climate Crisis

Climate change drives increasingly frequent, intense, and prolonged heat waves globally. According to a group of scientists from World Weather Attribution (WWA), if global warming reaches 2°C above pre-industrial levels, these extreme events could occur about 5.6 times per decade, with temperatures soaring by 2.6°C.⁴

Recent deadly heatwaves across multiple continents highlight the immediate dangers, potentially surpassing previous records, and contributing to hundreds, if not thousands, of fatalities in Asia and Europe alone. The Global Climate Risk Index declares Pakistan the 5th most vulnerable country to climate change. Like other developing countries, Pakistan's contribution to greenhouse gas

³ NDMA, "Heatwaves guide line 2024"

<http://www.ndma.gov.pk/storage/guidelines/April2024/Zp0ylx4ksogDptXteEYS.pdf>

⁴ Extreme heat killing more than 100 people in Mexico hotter and much more likely due to climate change <https://www.worldweatherattribution.org/extreme-heat-killing-more-than-100-people-in-mexico-hotter-and-much-more-likely-due-to-climate-change/>

emissions remains below 1%.⁵ In August 2022, Pakistan faced an unprecedented flood that submerged one-third of the country and was declared the “climate catastrophe of the decade.” The flood affected 33 million people, including 16 million children, claimed 1,730 lives, and displaced over 12 million people.⁶ Unfortunately, there is a perception that we have learned little from the history of such natural disasters before. The flood led to the loss of critical infrastructure, including public health facilities and thousands of schools, resulting in an economic loss of over \$30 billion. Inflation soared to a record high of 38%, and people faced severe financial, food, and energy insecurity. Climate experts warn that Pakistan will face more heatwaves and floods in the coming years, exacerbating water scarcity and food insecurity.⁷

Exacerbating Pakistan's Food and Water Security Challenges

Climate change has significantly impacted the country's main crops, particularly in northern Pakistan. The unpredictable frequency of floods exacerbates food insecurity by affecting key crops such as wheat, cotton, rice, maize, and sugarcane. Annual monsoon floods wash away fertile soil, reducing agricultural productivity and complicating farmers' ability to plan their activities. The intense monsoon season of 2022 affected 5.7 million people, including 3.4 million children, by exacerbating food insecurity. The floods severely damaged the agricultural sector, which employs 39% of the country's workforce.⁸

The escalating temperatures pose a severe threat to the 8.6 million individuals already experiencing food insecurity in the region. The International Rescue Committee (IRC) has cautioned that up to 26 districts are at risk of exacerbated drought conditions due to the intense heatwaves. According to the World Food Programme, approximately 60% of Pakistan's population faces food insecurity, with 44% of children under the age of five suffering from severe stunted growth.

Similarly, intensified heatwaves accelerate water evaporation, depleting surface water and groundwater reserves, while higher temperatures increase water demand for irrigation, exacerbating scarcity. As the fifth most populous country in the world, Pakistan's per capita water availability is decreasing alarmingly. Pakistan's ranking of water security is just behind six other nations due to its overwhelming population. The per capita water declined from 5,260 to 1000 cubic

⁵ Extreme weather events in Pakistan can trigger water scarcity, and food insecurity in future — experts, Arab News, April 17, 2024. <https://www.arabnews.com/node/2539846/pakistan>

⁶ UNICEF. “Devastating floods in Pakistan”, Published on August 25, 2023, <https://www.unicef.org/emergencies/devastating-floods-pakistan-2022>

⁷ Staff Report, “PMD predicts rain across the country from tomorrow”, Pakistan Today, June 25, 2024. <https://www.pakistantoday.com.pk/2024/06/25/pmd-predicts-rain-across-the-country-from-tomorrow/>

⁸ ibid

meters in the recent years.⁹ Pakistan could face absolute water scarcity by 2025 stated by the United Nations Development Program (UNDP), severely affecting the population's basic needs.¹⁰ The Pakistan Council of Research in Water Resources (PCRWR) reported that about 60% of the population lacks access to safe drinking water, causing a 40% death ratio and 30% of people facing fatal diseases.¹¹ Poor water quality leads to over 55,000 children in Pakistan dying each year from waterborne diseases such as cholera, diarrhoea, and typhoid. Rural areas are particularly affected due to inadequate sanitation systems, while urban areas suffer from poor sewerage systems and insufficient waste management infrastructure.¹²

Conclusion

Erratic weather patterns have alarmed climate experts in Pakistan. Extreme weather events can trigger water scarcity and food insecurity if no timely policies are implemented by the government. The Meteorological Department reported that in May and June, the country experienced severe heatwaves while north-western Pakistan, such as Kaghan, received snowfall in the last week. High temperatures and recent heatwaves are leading to the rapid melting of glaciers. This could cause urban flooding and landslides, damaging critical infrastructure.¹³

To address the escalating temperatures in the coming years, the Government must enforce a policy plan centred on climate change adaptation and mitigation. This includes enhancing the disaster response mechanism to swiftly address extreme weather events. Public awareness of necessary precautions should be promptly disseminated. Provincial authorities must review and implement the NDMA Guidelines for the Heat Wave Action Plan 2024-25. Lastly, The Government recently allocated an additional PKR 11.82 billion (USD 42.43 million) to the Ministry of Climate Change for the 2024–25 budget. These funds must be effectively utilized to meet international standards and address climate-related challenges.

⁹ Muhammad Javed Pasha, "The urgency of environmental conservation", The News on Sunday, June 9, 2024. <https://www.thenews.com.pk/tns/detail/1198316-the-urgency-of-environmental-conservation>

¹⁰ Staff Report, "Pakistan will be facing severe water scarcity, droughts, desertification by 2025", The Nation, July 3, 2024. <https://www.nation.com.pk/03-Jul-2024/pakistan-will-be-facing-severe-water-scarcity-droughts-desertification-by-2025>

¹¹ Martina Igini, "Elections 2024: Pakistan's Next Government Faces Pressing Environmental Issues", Earth.org, published on February 7, 2024. <https://earth.org/elections-2024-pakistans-next-government-faces-pressing-environmental-issues/>

¹² Staff Report, "Garbage crisis heightens urban flooding fears ahead of monsoon", The Express Tribune, July 3, 2024. <https://tribune.com.pk/story/2476090/garbage-crisis-heightens-urban-flooding-fears-ahead-of-monsoon>

¹³ Aamir Saeed, Unusually high temperatures in Pakistan lead to rapid melting of glaciers, threaten lives, Arab News June 1, 2024, <https://www.arabnews.pk/node/2521136/pakistan>.