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A Decade of Divergence: Climate Change and Health in Pakistan

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Ten years ago, climate change was still perceived as a risk that could be modelled, mitigated, and planned for, and Pakistan's engagement with the phenomenon was still in the future tense. The "that framing" has not passed into the past decade. From 2016 to 2026, Pakistan shifted from the phase of anticipating health emergencies due to climate change to facing such emergencies on repeat basis; the epidemiological records now enable direct comparison of the current situation with the past. This warming has been very rapid at the end of this period in Pakistan.

The 2025 regional temperature anomalies have been reported as the highest in 65 years of observation in 2025 in Azad Jammu and Kashmir (+1.56°C), Khyber Pakhtunkhwa (+1.29°C) and Gilgit-Baltistan (+1.24°C) in the Government's own Economic Survey for 2025–26 [1].

The increase in glacial melting has also led to an increase in glacial lake outburst floods (GLOFs) in Pakistan: in Gilgit-Baltistan, the glaciers producing GLOFs are now occurring at three times the historical average, with a rate of at least 16 GLOFs recorded in 2022, compared with 5-6 GLOFs per year on average over the past 30 years, and an estimated 7.1 million people living at risk from the 33 glacial lakes that are classified as hazardous in this region [2]. The most obvious sign of this trend is the difference in the severity of the two worst natural disasters of recent years in the country: the floods of 1982 and 2000. In 2010, over 1600 people died in the Indus floods, and there was a financial loss of approximately $10 billion [3]. The 2022 floods resulted in financial losses estimated to be in the range of $15–30 billion, depending on the approach; these floods impacted 33 million people, displaced 8 million, affected more than a million homes, and were the costliest in the preceding 30 years [4, 5].

In this case, the one-decade-to-10-decade data are very clear. Malaria cases across the WHO Eastern Mediterranean Region, of which Pakistan is the largest contributor, rose to an estimated 10.2 million in 2023, a 137% increase compared with 2015 [6]. Nationally, there were 399,097 cases of malaria in Pakistan in 2021, and the floods in 2022 contributed 6.6 million more cases over the following three years, peaking at 2.7 million cases in 2023, with the World Health Organization and the Government of Pakistan's Ministry of Health reporting more than 2 million malaria cases each year as the new baseline [5, 6]. The 2022-2023 outbreak is the worst in 50 years according to Pakistan's Directorate of Malaria Control. Here, the mortality pattern is not a straightforward increase, but is a harbinger of a wider surveillance issue. The most clearly established toll has been the Karachi heatwave in June 2015, where 1,233 people died and approximately 65,000 people were admitted with heatstroke in a week in Sindh's Provincial Disaster Management Authority (PDMA) [7]. In contrast, the widely reported death toll of 568 in June 2024, linked to the Sindh heat wave, was based on bodies found at the Edhi Foundation morgues, but not on confirmed heat-wave-attributed mortality; even the Sindh health department recommended that the heat wave should not be blamed for deaths other than 13 deaths that month as heat exposure, but as confirmed, not bodies found, deaths Sindh's chief meteorologist "regardless of which count" called the worst heat wave since 2015 [8]. The same benchmark was set during 2015, a decade ago, when near-record temperatures and a second wave of heatwave warnings occurred in April, and was again triggered when temperatures in May 2024 approached the global record temperature for that month (47.8°C), as a

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consequence of which the 2024 toll was again invoked [9].

The current level of hunger in Pakistan is classified as a 'serious' level, with a 28-point increase in the Global Hunger Index score in 2024 compared to 2016, and the current stunting, wasting, and undernourishment rates are 33.2%, 10%, and 20.7%, respectively [10]. This has happened despite the low level of investment in health over the decade: public health spending is consistently low at 0.8 – 0.9% of GDP, compared to the South Asian average of 3.1% during the decade, and one doctor per 750,000 people in the country.

The climate change that Pakistan has been facing over the last decade is not just prominent; it is a transformation-like problem, from responding to discrete disasters to increasing health system stress, which is especially evident in the increased burden of vector-borne diseases, but is most urgently evident in the disconnect between the growing hunger index and lack of investment in health financing. The figures of heat-related deaths in 2024, which are disputed, also indicate a clear ground-level issue that needs to be addressed: Pakistan lacks a standardized real-time heat-mortality surveillance system after 2015 showed that such a system is required. The information points to an approach of embedding climate-sensitive disease monitoring, GLOF early-warning systems, verified heat-mortality monitoring, and nutrition financing in national health planning policies, as opposed to piecemeal disaster response.

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