



A BURNING EMERGENCY

EXTREME HEAT AND THE RIGHT TO HEALTH IN PAKISTAN

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Cover photo: A 70-year-old brick kiln worker cools off in Jacobabad, Pakistan.
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☺↑ A truck driver takes a nap under stacked tables in the blazing heat. Most labourers take a break during the afternoon, when the sun is at its hottest, but this can lead to reduced wages. Photo: Shakil Adil/ Amnesty International

“The people of Pakistan are the victims of a grim calculus of climate injustice. Pakistan is responsible for less than 1 per cent of global greenhouse gas emissions, yet it is paying a supersized price for manmade climate change.”

UN Secretary-General Antonio Guterres, Remarks to the UN General Assembly on Pakistan's floods, 7 October 2022

1. EXECUTIVE SUMMARY

Climate injustice is starkly visible in Pakistan, with its population facing severe consequences despite the country's disproportionately small contribution to global climate change. For example, heavy rains and flooding between June and August 2022 led to what the UN termed an "unprecedented climate-induced disaster", with deaths, injuries, a loss of livelihoods, and about 7.9 million people becoming internally displaced. People in Pakistan have also been experiencing extreme heat, seeing some of the highest temperatures in the world in recent years. Increased exposure to heat, and more heatwaves, have been identified as one of the key impacts of climate change in Pakistan.

This report examines the impacts of extreme heat in Pakistan on people's right to health. It is based on desk research and in-person interviews with 45 people experiencing and/or responding to adverse impacts of extreme heat in Jacobabad and Lahore, during the summer months of 2021 and 2022. Amnesty International conducted the interviews during July and August of both years.

Jacobabad is a semi-urban city in Sindh province and has experienced amongst the highest summer temperatures in the world. Lahore, which also experiences high temperatures, is representative of some different patterns. It is the second largest city in Pakistan, located in Punjab province, where people are likely to experience the Urban Heat Island effect (this occurs when a metropolitan area is a lot warmer than the rural areas surrounding it). Interviews sought to assess the impact of extreme heat and heat waves on people's health. Most interviews were with people whose work requires them to spend a significant amount of time outdoors, including public sector employees (police officers and other security personnel, sanitation and health workers) and informal sector workers (farmers, daily wage workers, and people working in brick kilns). Amnesty International sent letters containing a summary of research findings, and questions to the Federal Ministry of Climate Change, Federal Ministry of Finance, Federal Ministry of National Health Services Regulations and Coordination, and to the Environment, Climate Change and Coastal Development Department, Government of Sindh, and the Environment Protection Department, Government of Punjab, in April 2023. At the time of publication, only the Environment Protection Department, Government of Punjab had responded.

In 2021, the IPCC noted that "more intense heatwaves of longer durations and occurring at a higher frequency are projected over India... and Pakistan". A scientific survey assessing the extent to which human-induced climate change affected the likelihood and intensity of the 2022 heatwave in India and Pakistan found that "because of climate change, the probability of an event such as that in 2022 has increased by a factor of about 30". Jacobabad, in particular, competes with other cities in Pakistan and beyond for the title of the hottest place on the planet. In June 2021, Jacobabad's highest recorded temperature reached a scorching 52°C. In May 2022, it was 51°C.

IMPACTS OF EXTREME HEAT

"We are more vulnerable to heat than anyone else. Hot weather impacts poor people any way. There is no escape for us."

A woman living in an informal settlement in Jacobabad

Climate change-induced extreme heat impacts human health in multiple ways. Direct effects of exposure to extreme heat and heatwaves can include heat-related illnesses such as heat cramps, heat exhaustion, heatstroke, and hyperthermia. It can make certain chronic conditions worse, including cardiovascular, respiratory, and cerebrovascular disease and diabetes-related conditions, and can also result in acute incidents, such as hospitalizations due to strokes or renal disease. The actual impact of extreme heat on any population ultimately depends on several factors, including the capacity of individuals to adapt to the heat, and how prepared institutions and systems are for the higher temperatures. However, certain categories of people are more vulnerable to the health impacts of extreme heat.

It was evident from Amnesty International's interviews that while the impact of extreme heat is felt by everyone, some people, because of their socio-economic situation, are much worse off. People such as those living in poverty and working in the informal sector have limited or no access to measures to help them cope and, as a result, were severely impacted by the extreme temperatures experienced in two locations during the summer months of 2021 and 2022. Amnesty International interviewed agricultural workers, labourers in brick kiln factories, delivery riders, police officers, sanitation workers and others whose outdoor work exposed them to the extreme temperatures. People reported a wide range of conditions including heatstroke, feeling drowsy, having difficulty breathing, burning sensations in the stomach, dizziness, fever, body pain, eye infections, and headaches, when they spent time outdoors.

“I don’t go out because it is so hot ... I go and spend the day in someone’s house. I sit there under the ceiling fan all day ... I get intense itching [because of the heat]. And that leads to boils. [The heat] effects my diabetes. My blood sugar levels fall low. So I keep on sitting under the fan. I don’t go anywhere.”

70-year old woman, Lahore

A consistent theme among people whose work requires them to spend long hours outdoors was the lack of adequate protection from extreme heat provided by employers, whether governmental or in the informal sector. Informal sector workers face more severe challenges because of their lower incomes and fewer opportunities for rest and shade, because their work is more precarious, and because the sector is comparatively less regulated. A tractor driver for example explained that because he works on a daily wage, he cannot afford to take long breaks so, rather than stopping when temperatures are at their highest, he works more slowly, takes frequent showers and short breaks in the shade, and drinks water to stay hydrated. “We cut resting time short so that we may resume our work. If we don’t work, owners will not pay us,” he said.

Furthermore, keeping homes cool during periods of searing heat is a challenge for everyone. However, for those living in poverty it is much harder. People living in poverty do not have access to or are unable to afford electricity to run electric fans or air conditioning or to purchase solar panels or other alternative technologies to run them. People in both Jacobabad and Lahore described a range of different coping mechanisms that they use to try and keep their homes cool with many noting the high costs involved, with cooling their homes often consuming a large portion of their monthly income – up to 30% for some.

STATE RESPONSES HAVE BEEN INADEQUATE

Some cities and provinces in Pakistan, for example Karachi and Khyber Pakhtunkhwa province, have heat action plans relevant to their specific context. However, others have none. For example, despite the searing temperatures experienced in recent years in Jacobabad and Lahore, neither has an equivalent heat action plan. The Environment Protection Department, Government of Punjab has told Amnesty International that they are in the process of developing a Heat Wave Management plan for Punjab. Furthermore, while the authorities in Sindh and Lahore have taken some actions to protect people from extreme heat, these appear to have been somewhat ad hoc, and awareness of protective actions among those interviewed by Amnesty International was limited. Based on available information, existing strategies and plans in Jacobabad and Lahore did not provide adequate measures to protect residents, workers, children and others from the preventable and predictable effects of extreme heat. As a result, the health of those most marginalized is being put in danger. Organizations like the World Health Organization and International Labour Organization have provided guidance for how to protect people from extreme heat, which should be reflected in governmental plans and policies.

“We have to rethink taking [a] break. If we take a break there is no daily wage... because of poverty, we have to work no matter the weather.”

Male tractor driver in Jacobabad

The lack of climate responsive social protection is a linked problem. A lot of the public health advice on avoiding exposure to heat, for example, depends on whether people can afford to stay indoors, can negotiate different work hours, and for those who work precarious jobs on hourly rates, whether they can afford to miss some working hours. It also presupposes that people can afford adequate water, health care and cooling mechanisms. Several experts and organizations have noted how well-designed, well-resourced social protection programs can help mitigate some of the worst impacts of climate change. This is not the reality in Pakistan. A 2021 ILO report on building an inclusive social protection system in Pakistan noted several shortcomings in the country’s social security system, including limited coverage for workers in the informal economy, who make up 71.7% of the labour force, and lack of unemployment benefits. Furthermore, social protection has not been adequately integrated into climate change mitigation and adaptation plans in Pakistan. Robust social protection was not included in the heatwave and disaster management plans reviewed for this briefing. For example, there is no provision for income support for people who are unable to work normal hours or who suffer sickness due to extreme heat.



↑ *Despite an abundance of sunlight, solar power is still prohibitively expensive for the majority of Jacobabad’s residents. Photo: Shakil Adil/ Amnesty International*

Tackling the climate crisis requires global action, and wealthier countries must play an important role. They have so far failed to meet their commitment to deliver USD 100 billion in climate finance annually from 2020 to 2025 to developing countries – an amount which, in any case, falls far below what is needed. Funding for the implementation of effective heat management plans should be covered by climate finance for adaptation. According to UN Environment Programme’s 2022 Adaptation Gap Report, while adaptation finance to developing countries continues to rise, “the adaptation finance gap in developing countries is likely five to 10 times greater than current international adaptation finance flows and continues to widen”. According to the

Pakistan's 2021 NDC, "Pakistan's adaptation needs in 2016 were placed in the range of between US\$7–14 billion per annum to 2050", but it also noted that "Pakistan has enjoyed very limited access to international climate finance". In addition to providing adequate funds to support adaptation to heat extremes, it is also crucial that wealthy states – which are most responsible for the climate crisis – provide remedy for the loss and damage people have experienced or will experience because of climate-exacerbated extreme heat. These losses and damages represent human rights harms, and the costs associated with them are mostly borne by the people who have contributed the least to the climate crisis. The costs for climate-induced loss and damage in Pakistan are likely to be enormous: for example, the cost of the damage caused by the 2022 floods alone is estimated at US\$14.9 billion, with losses of US\$15.2 billion, and total reconstruction needs of US\$16.3 billion.

RECOMMENDATIONS

Amnesty International has made a comprehensive set of recommendations to all relevant actors at the end of this report. Some of the key recommendations include:

- The federal government and provincial governments in Pakistan, including authorities in Punjab and Sindh, should take all necessary steps to develop comprehensive heat action plans consistent with human rights law and standards and guidance from the ILO and WHO.
- The government should ensure that groups that are especially vulnerable to the health impacts of extreme heat are identified through specific assessments, and specific measures to keep them safe are put in place and made accessible.
- The government should revise existing social protection strategies and plans in Pakistan, keeping in mind climate-related risks, and ensure that they move away from narrow poverty targeting, and towards universal social protection.
- The international community, in particular wealthier states, should:
 - Significantly increase climate funding for human rights-consistent initiatives in Pakistan;
 - Ensure a better balance between climate mitigation and adaptation funding;
 - Provide specific funding and technical support for climate adaptation measures in Pakistan aimed at protecting people from the impacts of extreme heat and heat waves, particularly for those who are at particular risk, and;
 - Provide adequate support and remedy to people who have suffered or will suffer loss and damage as the result of heat extremes and other climate-induced impacts, including assistance to carry out human rights-consistent Loss and Damage Needs Assessments.

2. METHODOLOGY

This report is based on desk research and in person interviews with 45 people experiencing and/or responding to adverse impacts of extreme heat in two locations in Pakistan, Jacobabad and Lahore, during the summer months of 2021 and 2022. Amnesty International conducted the interviews during July and August of both years. Jacobabad is a semi-urban city in Sindh province and has experienced amongst the highest summer temperatures in the world. Lahore, which also experiences high temperatures, is representative of some different patterns. It is the second largest city in Pakistan, located in Punjab province, where people are likely to experience the Urban Heat Island effect (this occurs when a metropolitan area that is a lot warmer than the rural areas surrounding it).

Interviews sought to assess the impact of extreme heat and heat waves on people's health.¹ Most interviews were with people whose work requires them to spend a significant amount of time outdoors, including public sector employees (police officers and other security personal, sanitation and health workers) and informal sector workers (farmers, daily wage workers, construction workers, and people working in brick kilns). This included 35 men and 10 women. Amnesty International also worked with a leading meteorologist who advised on trends in and the impact of climatic change in Jacobabad and Lahore. The names of people interviewed have been anonymised.

Secondary research involved reviews of studies and policy documents by intergovernmental organizations, the Pakistan government and national and international non-governmental organizations on the health impacts of extreme heat and heat waves both globally and in Pakistan; the impacts of climate change in Pakistan; Pakistan's health and social security system; and climate adaptation and mitigation measures taken by the Pakistan authorities.

Amnesty International sent letters containing a summary of research findings and detailed questions to the Federal Ministry of Climate Change, Federal Ministry of Finance, Federal Ministry of National Health Services Regulations and Coordination, and to the Environment, Climate Change and Coastal Development Department, Government of Sindh, and the Environment Protection Department, Government of Punjab, on 28 April 2023. At the time of publication, only the Environment Protection Department, Government of Punjab responded, saying they were in the process of developing a Heat Wave Management plan for Punjab, and had "incorporated [Amnesty International's] valuable suggestions". They did not provide the other information requested in the letter.

We would like to express our profound gratitude to the people who shared their stories with us, without whom this report would not be possible.

¹ In some literature, heatwaves and extreme heat are used interchangeably. Other literature uses one of the two terms. In this briefing, heatwaves and extreme heat refer to the same phenomenon. According to the World Meteorological Association, a heat wave is broadly understood as a period of statistically unusual hot weather persisting for a number of days and nights. <https://public.wmo.int/en/media/news/wmo-has-no-immediate-plans-name-heatwaves>.

3. BACKGROUND

Climate injustice is starkly visible in Pakistan with its population facing severe consequences, despite its disproportionately small contribution to global climate change.² In 2021, the Global Climate Risk Index – which analyses how countries are impacted by extreme weather events linked to climate change – ranked Pakistan as the eighth most affected country in the world on average between 2000 and 2019.³ According to a 2020 ranking by the Notre Dame Global Adaptation Initiative (ND-GAIN), Pakistan is the 35th most climate vulnerable country yet only the 149th most ‘ready country’ to respond to the impacts of climate change – a finding which caused ND-GAIN to warn of “both a great need for investment and innovations to improve readiness and a great urgency for action” in Pakistan.⁴ Both rankings were made before the devastating floods of 2022 (see Box below).

The World Bank and others have warned of the impact of climate change on Pakistan’s economy. In 2022, the World Bank Group’s Country and Climate Development Report said that “the adverse impacts of climate change on Pakistan’s natural and human capital are likely to be severe”, noting that “between 1992 and 2021, climate- and weather-related disasters in Pakistan resulted in economic losses totaling US\$29.3 billion (inflation-adjusted to 2021 US dollars) from damage to property, crops, and livestock, equivalent to 11.1% of 2020 GDP”.⁵

These losses occurred in the context of an already struggling economy. In September 2022, the International Monetary Fund (IMF) stated that Pakistan was at a “challenging economic juncture”, noting an “unsustainable current account deficit, a significant decline in reserves, and [that] inflation has increased considerably, putting pressure particularly on the more vulnerable”.⁶ A March 2023 World Bank Pakistan Development Update Report noted that Pakistan’s economy has come under increasing stress, that economic activity was estimated to have slowed sharply over July–December 2022, and that “poorer households” were particularly impacted. It added that the “outlook is highly uncertain and hinges on strong political ownership and effective implementation of critical reforms”.⁷

The 2022 floods further exacerbated this already dire economic situation. A Post-Disaster Needs Assessment published by the Ministry of Planning Development & Special Initiatives in October 2022, noted that the loss in GDP resulting from the floods was projected to be 2.2% in 2022, with the agricultural sector seeing one of the biggest contractions.⁸ In April 2023, the World Bank reported that “Pakistan is experiencing severe economic challenges reflecting long-standing structural weaknesses” and that the outlook for the future remained bleak. According to the report, “economic growth is expected to slow and remain below potential in the medium-term... In the absence of higher social spending, the lower middle-income poverty rate is expected to increase to 37.2 percent in FY23. Given poor households’ dependency on agriculture, and small-scale manufacturing and construction activity, they remain vulnerable to economic and climate shocks”.⁹

² In 2019, Pakistan emitted 439.49 million tonnes of CO2 equivalent representing 0.88% of global emissions. Climate Watch, www.climatewatchdata.org/countries/PAK?end_year=2019&start_year=1990

³ German Watch, “Global Climate Risk Index”, www.germanwatch.org/sites/germanwatch.org/files/2021-01/cr-2021_table_10_countries_most_affected_from_2000_to_2019.jpg

⁴ “Readiness” measures a country’s ability to leverage investments and convert them to adaptation actions. ND-GAIN measures overall readiness by considering three components – economic readiness, governance readiness and social readiness. University of Notre Dame, “ND-GAIN initiative”, <https://gain.nd.edu/our-work/country-index/rankings/>

⁵ World Bank Group, “Pakistan Country Climate and Development Report”, November 2022, <http://hdl.handle.net/10986/38277>

⁶ IMF, “Country Report, Pakistan Seventh and Eighth Reviews under the Extended Arrangement under the Extended Fund Facility, Requests for Waivers of Nonobservance of Performance Criteria, and for Extension, Augmentation, and Rephasing of Access”, September 2022, www.imf.org/en/Publications/CR/Issues/2022/09/01/Pakistan-Seventh-and-Eighth-Reviews-of-the-Extended-Arrangement-under-the-Extended-Fund-522800

⁷ World Bank, “Pakistan Development Update: Recent Economic Developments, Outlook and Risks”, April 2023,

<https://thedocs.worldbank.org/en/doc/5ee854aff2b120cb30ef910f4e7421f9-0310012023/pakistan-development-update-report-april-2023>

⁸ Ministry of Planning Development & Special Initiatives, Pakistan, “Pakistan Floods 2022, Post-Disaster Needs Assessment”, 28 October 2022 (previously cited).

⁹ The World Bank, “The World Bank in Pakistan”, www.worldbank.org/en/country/pakistan/overview

Impact of the 2022 floods

The 2022 floods were a stark reminder of the serious and devastating impacts of climate change in Pakistan. Heavy rains and flooding between June and August 2022 led to what the UN termed an “unprecedented climate-induced disaster”, with deaths, injuries, large scale displacement and a loss of livelihoods. August 2022 saw more than three times Pakistan’s usual monthly rainfall. A scientific analysis found that the rainfall total for summer 2022 and shorter spikes of very heavy rain in August were one in 100-year events – both of which occurred in the same year. The authors concluded that climate change “likely increased extreme monsoon rainfall” and therefore contributed to the flooding.¹⁰

Around 33 million people have been affected. Over 1,600 people were killed and over 12,800 people were injured. About 7.9 million people have been internally displaced, and many are now living in relief camps and informal housing. Over 2 million houses were damaged, as was a lot of public infrastructure. More than 1.1 million livestock were killed, and 9.4 million acres of crop area in Pakistan was inundated.¹¹ As of September 2022, 81 districts were officially declared as “calamity-hit” and 40 districts declared as “flood-affected” including Jacobabad district.¹² As of February 2023, while flood waters were receding, 1.8 million people were still living by stagnant floodwater, 1.5 million children lacked Severe Acute Malnutrition (SAM) services, with 170,000 of them suffering from SAM with complications due to lack of stabilization treatment, and 4.3 million workers in flood-affected districts were affected by disruptions and job losses.¹³

The flooding also deepened inequalities and poverty. Nineteen of the 25 poorest districts in the country were affected by the floods and poverty rates for many flood-affected districts were already much higher than the national average. Government estimates indicate that the floods will increase the national poverty rate “3.7 to 4.0 percentage points, pushing between 8.4 and 9.1 million people into poverty”; and that the intensity of poverty is projected to increase, with the number of extremely poor people living more than 20% below the poverty line increasing from 18 to 25–26 million.¹⁴

The total damage caused by the floods is estimated at US\$14.9 billion, total loss is estimated at US\$15.2 billion, and total reconstruction needs are estimated at US\$16.3 billion.¹⁵ The loss in GDP because of the floods was projected to be 2.2% in 2022, with the agricultural sector seeing one of the biggest contractions.¹⁶ As of February 2023, only 52% of the Pakistan Floods Response Plan was funded.¹⁷

¹⁰ World Weather Attribution, “Climate change likely increased extreme monsoon rainfall, flooding highly vulnerable communities in Pakistan”, 14 September 2022, www.worldweatherattribution.org/climate-change-likely-increased-extreme-monsoon-rainfall-flooding-highly-vulnerable-communities-in-pakistan

¹¹ OCHA, Revised Pakistan 2022 Floods Response Plan: 01 Sep 2022 - 31 May 2023 (Issued 04 Oct 2022), <https://reliefweb.int/report/pakistan/revised-pakistan-2022-floods-response-plan-01-sep-2022-31-may-2023-issued-04-oct-2022>

¹² International Organization for Migration (IOM) Situation Report, “Estimated damage to houses in flood affected districts and existing population density in Pakistan, as of 17 September 2022”, 23 September 2022, <https://dtm.iom.int/reports/pakistan-damage-houses-due-floods-existing-population-density-17-september-2022>; and Government of Sindh, Provincial Disaster Management Authority Rehabilitation Department, “Flood 2022 in Sindh”, 2022, <https://pdma.gos.pk/flood-2022-in-sindh>

¹³ UN Office for the Coordination of Humanitarian Affairs (OCHA), “Pakistan: 2022 Monsoon Floods Situation Report No. 15 as of 9 March 2023”, 10 March 2023, <https://reliefweb.int/report/pakistan/pakistan-2022-monsoon-floods-situation-report-no-15-9-march-2023>

¹⁴ Ministry of Planning Development & Special Initiatives, Pakistan, “Pakistan Floods 2022, Post-Disaster Needs Assessment”, 28 October 2022, <https://reliefweb.int/report/pakistan/pakistan-floods-2022-post-disaster-needs-assessment>

¹⁵ Ministry of Planning Development & Special Initiatives, Pakistan, “Pakistan Floods 2022, Post-Disaster Needs Assessment”, 28 October 2022 (previously cited).

¹⁶ Ministry of Planning Development & Special Initiatives, Pakistan, “Pakistan Floods 2022, Post-Disaster Needs Assessment”, 28 October 2022 (previously cited).

¹⁷ OCHA, “Pakistan: 2022 Monsoon Floods Situation Report No. 15 as of 9 March 2023” (previously cited).

3.1 HEATWAVES AND CLIMATE CHANGE

“We are more vulnerable to heat than anyone else. Hot weather impacts poor people any way. There is no escape for us.”

A woman living in an informal settlement in Jacobabad¹⁸

The link between climate change and increased human exposure to heat is well documented. According to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), “it is unequivocal that human influence has warmed the atmosphere, ocean and land ... Evidence of observed changes in extremes such as heatwaves, heavy precipitation, droughts, and tropical cyclones, and, in particular, their attribution to human influence, has further strengthened... In all regions increases in extreme heat events have resulted in human mortality and morbidity... Compound heatwaves and droughts are projected to become more frequent, including concurrent events across multiple locations”.¹⁹ The IPCC also noted that “It is virtually certain that hot extremes (including heatwaves) have become more frequent and more intense across most land regions since the 1950s”.²⁰



↑ *A man passes out from a heatstroke in the middle of the road, a commonplace occurrence in the hottest months where temperatures have exceeded 50 degrees Celsius for the last four years. Photo: Shakil Adil/ Amnesty International*

¹⁸ Interview in person, 22 August 2021, Jacobabad.

¹⁹ IPCC, “Synthesis Report of the IPCC Sixth Assessment Report (AR6), Summary for Policymakers”, March 2023, www.ipcc.ch/report/sixth-assessment-report-cycle/, para A.2.1.

²⁰ IPCC, “Climate Change 2021 – The Physical Science, Working Group II contribution to the Sixth Assessment Report, Summary for Policymakers”, August 2021, https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf, para A.3.1

The World Health Organization (WHO) has warned that population exposure to heat is increasing due to climate change. It has noted that globally, extreme temperature events are observed to be increasing in frequency, duration, and magnitude, and that “between 2000 and 2016, the number of people exposed to heatwaves increased by around 125 million”.²¹ The WHO’s classification of climate-sensitive health risks includes extreme weather events like heatwaves, and heat-related illnesses. According to the WHO, “avoiding the worst climate impacts could help prevent 250,000 additional climate-related deaths per year from 2030 to 2050, mainly from malnutrition, malaria, diarrhoea and heat stress”.²²

Increased exposure to heat, and more heatwaves, have been identified as one of the key impacts of climate change in South Asia including in Pakistan. In 2021, the IPCC noted that “heatwaves and humid heat stress will be more intense and frequent during the 21st century” in South Asia,²³ and that “more intense heatwaves of longer durations and occurring at a higher frequency are projected over India... and Pakistan”.²⁴ A report on the June 2015 heatwave in Karachi, by Pakistan’s Ministry of Climate Change concluded that “as a result of projected climate change, more frequent and powerful heat waves can be expected in the future”.²⁵

This conclusion is supported by more recent data including the Asian Development Bank’s 2017 Climate Change Profile for Pakistan which noted that heatwave days per year increased by 31 days in the period 1980 to 2007, and warned that “Pakistan’s projected temperature increase is expected to be higher than the global average”.²⁶ Scientific surveys assessing the extent to which human-induced climate change affected the likelihood and intensity of the 2022 heatwave in India and Pakistan found that “because of climate change, the probability of an event such as that in 2022 has increased by a factor of about 30”.²⁷ In Pakistan’s November 2022 Country Climate and Development Report, the World Bank likewise warned that “the country faces further warming of its already hot climate at a rate considerably above the global average” adding that by the end of the 21st century, “the number of days a year with a heat index greater than 35°C is projected to rise”.²⁸

3.2 RISING TEMPERATURES IN JACOBABAD AND LAHORE

“In the past there was hot weather, but that was bearable. Nowadays, the temperature is intolerable. Poor people who cannot afford to leave the area, they bear the heat ... Heat is the enemy of poor people.”

Male brick kiln owner in Jacobabad.²⁹

In the summer months, from May to October, other than the brief relief provided by the monsoon, Jacobabad competes with other cities in Pakistan and beyond for the title of the hottest place on the planet. In June 2021, Jacobabad’s highest recorded temperature recorded reached a scorching 52°C. In May 2022,

²¹ WHO, “Heatwaves”, www.who.int/health-topics/heatwaves#tab=tab_1 (accessed on 29 April 2023).

²² WHO, “Fast Facts on Climate Change and Health”, 8 September 2021, www.who.int/publications/m/item/fast-facts-on-climate-change-and-health

²³ IPCC, “Climate Change 2021 –The Physical Science, Working Group II contribution to the Sixth Assessment Report: Regional Fact Sheet – Asia”, www.ipcc.ch/report/ar6/wg1/downloads/factsheets/IPCC_AR6_WGI_Regional_Fact_Sheet_Asia.pdf

²⁴ IPCC, “Climate Change 2021 – The Physical Science, Working Group II contribution to the Sixth Assessment Report, Chapter 11”, August 2021, https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter11.pdf, p 1556

²⁵ Ministry of Climate Change, Pakistan, “Technical Report on Karachi Heat wave June 2015”, July 2015, <https://mocc.gov.pk/SiteImage/Misc/files/Final%20Heat%20Wave%20Report%203%20August%202015.pdf>

²⁶ Asia Development Bank, “Climate Change Profile of Pakistan”, August 2017, www.adb.org/publications/climate-change-profile-pakistan

²⁷ World Weather Attribution, “Climate Change made devastating early heat in India and Pakistan 30 times more likely”, 23 May 2022, www.worldweatherattribution.org/climate-change-made-devastating-early-heat-in-india-and-pakistan-30-times-more-likely/

²⁸ World Bank Group, “Pakistan Country Climate and Development Report”, November 2022 (previously cited) <https://openknowledge.worldbank.org/server/api/core/bitstreams/2d1af64a-8d35-5946-a047-17dc143797ad/content>

²⁹ Interview in person with a brick kiln owner, 18 August 2021, Jacobabad.

a full month earlier than in the previous year, the temperature in the city reached 51°C.³⁰ In Lahore, temperatures in May 2022 reached 45°C, just a few degrees below the highest maximum temperature ever recorded there of 48°C in 2007.³¹

Climate models developed by the Pakistan's Global Change Impacts Study Center (GCISC) and the Pakistan Meteorological Department (PMD) predict that in the Jacobabad region, the spring period (from approximately March to May) is likely to become significantly warmer, while night-time temperatures around the year will also increase. They predict that the warm season would increase from nine months to 11 months annually and 'very hot days' (where temperatures are higher than 40°C) are likely to increase from 15 days (two weeks) to 60 days (two months) a year.³²

The combination of heat and humidity in Jacobabad makes it particularly challenging for residents especially when temperatures reach a consistent wet-bulb temperature (a measure of the combined effect of heat and humidity on the human body) of above 35°C.³³ Because humidity prevents the human body from sweating sufficiently to cool down during high temperatures 35°C wet-bulb temperature "represents the upper limit of human survivability".³⁴ The Telegraph reported, "Jacobabad crossed the 35C wet bulb threshold in July 1987, then again in June 2005, June 2010 and July 2012. Each time the boundary may have been breached for only a few hours, but a three-day average maximum temperature has been recorded hovering around 34C in June 2010, June 2001 and July 2012."³⁵

Within Pakistan, land-use changes and deforestation, which are also drivers of climate change, are also contributing to rising temperatures. Amnesty International's analysis of satellite imagery and district-wise land utilization statistics confirm what experts, including a former meteorologist consulted for this report have said for some time, that the gradual reduction of vegetation in the entire district is likely contributing to increasing temperatures and exacerbating impacts of heating,³⁶ as the region does not have sufficient natural cooling spaces.

³⁰ Pakistan Meteorological Department. May 2022. pmd.gov.pk/cdpc/Pakistan_Monthly_Climate_Summary_May_2022.pdf (accessed on 4 May 2023)

³¹ Regional Meteorological Centre, Lahore. "Historical Events". rmcpunjab.pmd.gov.pk/P-historical.html

³² GCISC and PMD, "Climate Change Extremes and Rainfall Variability Over Pakistan", 15 December pmd.gov.pk/reports/Extrme_Events_Scenario_Under_2C_Pakistan.pdf

³³ Wet Bulb Temperature is the temperature measured with a wet cloth/muslin over the bulb of the thermometer, used to assess the humidity in the air which directly impacts the human body's ability to cool down through sweating during hot conditions. Climate Preparedness. "Understanding Wet Bulb Temperature and Why It is so Dangerous", 25 May 2020, climate-preparedness.com/understanding-wet-bulb-temperature-and-why-it-is-so-dangerous/

³⁴ UN Development Program (UNDP), South Asia's early heatwave a harbinger of climate change, 23 July 2022, <https://undp.medium.com/harbinger-of-climate-change-heatwave-in-spring-8af8c2948fae>

³⁵ The Telegraph, "Hotter than the human body can handle: Pakistan city broils in world's highest temperatures", 28 June 2021, <https://www.telegraph.co.uk/global-health/climate-and-people/hotter-human-body-can-handle-pakistan-city-broils-worlds-highest/>

³⁶ Sarah Deweerdt, "How deforestation creates heat waves in North America and Europe", 1 May 2018, www.anthropocenemagazine.org/2018/05/deforestation-has-made-heat-waves-due-to-climate-change-worse; Sally Thompson and others, "Deforestation can raise local temperatures by up to 4.5°C – and heat untouched areas 6km away", 15 November 2021, www.preventionweb.net/news/deforestation-can-raise-local-temperatures-45-and-heat-untouched-areas-6km-away; D Dunne, "Deforestation has driven up hottest day temperatures, study says" Carbon Brief, 23 April 2018, <https://www.carbonbrief.org/deforestation-has-driven-up-hottest-day-temperatures/>



© ↑ An emaciated child seeks relief under a solar-powered fan, charged by a small battery in his home, which is only functional during the daytime. Photo: Shakil Adil/ Amnesty International

“Heatwaves are among the most dangerous of natural hazards, but rarely receive adequate attention because their death tolls and destruction are not always immediately obvious.”

The World Health Organization³⁷

³⁷ WHO, Heatwaves, www.who.int/health-topics/heatwaves#tab=tab_1

4. IMPACTS OF EXTREME HEAT

“I don’t go out because it is so hot ... I go and spend the day in someone’s house. I sit there under the ceiling fan all day ... I get intense itching [because of the heat]. And that leads to boils. [The heat] effects my diabetes. My blood sugar levels fall low. So I keep on sitting under the fan. I don’t go anywhere.”

70-year-old woman, Lahore³⁸

Climate change induced extreme heat impacts human health in multiple ways. Direct impacts of exposure to extreme heat and heatwaves can include heat-related illnesses such as heat cramps, heat exhaustion, heatstroke, and hyperthermia. It can make certain chronic conditions worse, including cardiovascular, respiratory, and cerebrovascular disease and diabetes-related conditions, and also result in acute incidents, such as hospitalizations due to strokes or renal disease.³⁹

The 2022 report of the Lancet Countdown on health and climate change, a collaboration of 120 experts from a variety of relevant backgrounds, noted that exposure to extreme heat was associated with acute kidney injury, heatstroke, adverse pregnancy outcomes, worsened sleep patterns, impacts on mental health, worsening of underlying cardiovascular and respiratory disease, and increases in non-accidental and injury-related deaths. It also affects health indirectly by restricting people’s capacity to work and exercise. The Lancet report indicated that, because of rapidly increasing temperatures, “vulnerable populations (adults older than 65 years, and children younger than one year of age) were exposed to 3.7 billion more heatwave days in 2021 than annually in 1986–2005, and heat-related deaths increased by 68% between 2000–04 and 2017–21”.⁴⁰

The actual impact of extreme heat on any population ultimately depends on a number of factors, including the capacity of individuals to adapt to the heat, and how prepared institutions and systems are for the higher temperatures. However, certain categories of people are more vulnerable to the health impacts of extreme heat. According to the UN Office of the High Commissioner of Human Rights, for example, in people aged over 65 years, higher temperatures and more frequent heat waves are projected to result in 38,000 additional deaths per year by 2030 and 100,000 by 2050.⁴¹ Children are also particularly at risk of morbidity and death due to extreme heat.⁴²

³⁸ Interview in person, 5 July 2022, Lahore

³⁹ For a full list of possible impacts see Global Heat Health Information Network, <https://ghhin.org/heat-and-health/> and WHO Fact Sheet, “Heat and Health, <https://www.who.int/news-room/fact-sheets/detail/climate-change-heat-and-health>

⁴⁰ Marina Romanello and others, “The 2022 report of the Lancet Countdown on health and climate change: health at the mercy of fossil fuels”, 5 November 2022, The Lancet, Countdown, Volume 401, Issue 10363, [www.thelancet.com/journals/lancet/article/PIIS0140-6736\(22\)01540-9/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(22)01540-9/fulltext)

⁴¹ OHCHR, Climate Change – Protecting People’s Right to Health, <https://www.ohchr.org/sites/default/files/Documents/Issues/ClimateChange/materials/2PHHealthLight.pdf>

⁴² UNHRC, “Analytical study on the relationship between climate change and the full and effective enjoyment of the rights of the child - Report of the Office of the United Nations High Commissioner for Human Rights”, A/HRC/35/13, 04/05/2017, https://ap.ohchr.org/documents/dpage_e.aspx?si=A/HRC/35/13

Gender can also play an important role in determining heat exposure and the impacts of it. For example, studies from Europe show that women are at more risk than men of dying during extreme heat events,⁴³ and that where rising temperatures result in increased transmission of disease, women can also be more impacted. For example, pregnant women are particularly vulnerable to malaria.⁴⁴ Where extreme weather events including heat led to increased migration, it is often men who depart, leaving women behind to care for families, land and the household.⁴⁵ In Pakistan, UNDP and the National Commission for the Status of Women (NCSW) has acknowledged how the climate crisis “compounded vulnerabilities” for women.⁴⁶ Members of other marginalized or other discriminated against groups are likely to face specific and severe impacts. According to the Lancet Countdown report, people who are “socially deprived” are among those particularly at risk. The report also highlighted the heightened risks to people working outdoors and other studies have pointed to the negative impact of extreme heat on those exposed to it while they work.⁴⁷ According to the Centers for Disease Control and Prevention, outdoor workers and workers in hot environments such as firefighters, bakery workers, farmers, construction workers, miners, boiler room workers and factory workers, are particular susceptible to heat stress which can “result in heat stroke, heat exhaustion, heat cramps, or heat rashes. Heat can also increase the risk of injuries in workers as it may result in sweaty palms, fogged-up safety glasses, and dizziness”.⁴⁸

4.1 HEALTH IMPACT OF HEAT WAVES IN JACOBABAD AND LAHORE

There is little in the way of publicly available official data on the health impacts of recent heatwaves in Sindh and Punjab provinces. Pakistani authorities did not provide data on impacts in Jacobabad and Lahore, in response to Amnesty International's request, prior to the publication of this report. It does not appear as though information about heat-related illnesses is being systematically published, even if it is being collected. The following analysis of impacts therefore relies on interviews with residents of and workers in the two cities. It is evident from these, that the impact of heat waves is felt by everyone. However, some people, such as those living in poverty and working in the informal sector, have limited or no access to measures to help them cope and, as a result, were particularly severely impacted by the extreme temperatures experienced in two locations during the summer months of 2021 and 2022.

“In summers ... we continue to work because it is necessary, instead of borrowing money from friends. Due to the hot weather, we work less and earn less. Most of times, we remain indebted. The government is also not helping us be in form of provision of ration or cash, so that we get relief.”

Male brick kiln worker in Jacobabad⁴⁹

⁴³ See for example Y Steen et al, “Sex differences in mortality after heat waves: are elderly women at higher risk?”, *Int Arch Occup Environ Health*, 2019 Jan; 92 (1):37-48; WHO, “Heat and health in the WHO European Region: updated evidence for effective prevention”, 103 <https://apps.who.int/iris/bitstream/handle/10665/339462/9789289055406-eng.pdf>; N Davis, “Women more at risk from heatwaves than men, experts suggest”, *The Guardian*, 18 July 2022, <https://www.theguardian.com/society/2022/jul/18/women-greater-risk-heatwaves-men-extreme-weather-study>

⁴⁴ WHO, *Gender, Climate Change and Health*, 2014, <https://www.who.int/publications/i/item/9789241508186>

⁴⁵ UN Framework Convention on Climate Change (UNFCCC), *Dimensions and Examples of the Gender-Differentiated Impacts of Climate Change, The Role Of Women as Agents of Change and Opportunities for Women*, 1 June 2022, UN Doc. FCCC/SBI/2022/7.

⁴⁶ National Commission on the Status of Women and UNDP Pakistan, “Climate Equity: Women as Agents of Change”, 2022. <https://www.undp.org/pakistan/publications/climate-equity-women-agents-change>

⁴⁷ Marina Romanello and others, “The 2022 report of the Lancet Countdown on health and climate change: health at the mercy of fossil fuels”, 5 November 2022, *The Lancet, Countdown*, Volume 401, Issue 10363 (previously cited).

⁴⁸ The National Institute for Occupational Safety and Health, Centers for Disease Prevention, Heat Stress, www.cdc.gov/niosh/topics/heatstress/default.html#:~:text=Heat%20stress%20can%20result%20in.with%20hot%20surfaces%20or%20steam

⁴⁹ Interview in person with male brick kiln worker, 18 August 2021, Jacobabad.

Amnesty International interviewed agricultural workers, labourers in brick kiln factories, delivery riders, police officers, sanitation workers and others whose outdoor work exposed them to the extreme temperatures, as well as other people who also experienced heat-related stresses or were involved in responding to it. People reported a wide range of conditions including heatstroke,⁵⁰ feeling drowsy,⁵¹ having difficulty breathing,⁵² burning sensations in the stomach,⁵³ dizziness,⁵⁴ fever,⁵⁵ body pain,⁵⁶ eye infections,⁵⁷ and headaches,⁵⁸ when they spent time outdoors. Poor living conditions and poverty also contributed to heat-related symptoms, including among children. A daily-wage worker living in an informal settlement in Jacobabad said that her family are frequently ill during the hot summers, especially the children who experience high fever, loose stools, and vomiting. One of her sons also has asthma, which she attributed to the hot summer weather.⁵⁹ Another daily wage earner, also from Jacobabad, referred to similar experiences of frequent illness among her children during the scorching summer months.⁶⁰ Even those exposed for short periods to the high temperatures reported experiencing heat-related symptoms. For example, a university student explained that “now the temperature goes so high that if we walk from one department to another at the university, we feel unwell. My head starts hurting and I feel quite strange”.⁶¹



↑ Shadi Khan, a gardener holds up a sapling of trees he is preparing at a nursery he works. Photo: Shakil Adil/ Amnesty International

“As a doctor, we faced this change the most ... in May and June, many patients came to us because of the heatwave. The influx was a lot. Daily, we would receive 50-60 cases in the emergency department.”

Health worker in Lahore⁶²

Health workers interviewed in Jacobabad and Lahore reported seeing increases in certain health conditions during heat waves particularly among children and the most marginalized. One health worker in Lahore explained that they had noticed an increase in gastrointestinal diseases which they believed was connected

⁵⁰ Interview in person with male police officer, 18 August 2021, Jacobabad.

⁵¹ Interview in person with male farmer, 18 August 2021, Jacobabad.

⁵² Interview in person with male brick kiln worker, 18 August 2021, Jacobabad and interview in person with female hairdresser, 2 July 2022, Lahore.

⁵³ Interview in person with male police officer, 20 August 2021, Jacobabad.

⁵⁴ Interview in person with female transgender, beauty salon worker, 5 July 2022, Lahore.

⁵⁵ Interview in person, with male student, 5 July 2022, Lahore.

⁵⁶ Interview in person with male student, 5 July 2022, Lahore.

⁵⁷ Interview in person with female hairdresser, 2 July 2022, Lahore.

⁵⁸ Interview in person interview with male delivery rider, 4 July 2022, Lahore.

⁵⁹ Interview in person with female daily wage earner, 22 August 2021, Jacobabad.

⁶⁰ Interview in person with female daily wage earner, 22 August 2021, Jacobabad.

⁶¹ Interview in person with female university student, 2 July 2022, Lahore.

⁶² Interview in person with female health worker, 5 July 2022, Lahore

to the heat waves and scarcity of potable water in the city.⁶³ The high temperatures combined with frequent power cuts that are experienced in the city meant that food quickly spoiled, which particularly for people living in poverty whose access to fresh food is already limited and who cannot afford to throw food away, heightens the risk of gastric illnesses such as food poisoning. Health workers in Jacobabad reported seeing more people being admitted to hospital for heatstroke and also noted an increase in skin conditions on hands, legs and feet among agricultural workers.⁶⁴ According to one health worker, 15-20 patients with heat-related symptoms were admitted each day during the summer months of 2021 to the government hospital in Jacobabad where he works.⁶⁵

Skin rashes among children was reported to have worsened due to the heat and poor hygiene, in some cases contributing to abscesses. Diarrhoea among children under the age of five was also reported by health workers to be common in Jacobabad in the summer months.⁶⁶ According to one health worker, children frequently came to the hospital where he worked with heatstroke, skin rashes or blocked sweat glands.⁶⁷ Another observed an increase in the number of children with eye infections.⁶⁸

Similar trends were also noted by a health worker in Lahore who reported seeing increased hospital admissions of people suffering from heatstroke, jaundice and water borne diseases.⁶⁹ There is no publicly available information on heat-related illnesses in either Jacobabad or Lahore for 2021 or 2022, but one government health worker said that there had been fatalities resulting from heatstroke, although others reported not being aware of any.⁷⁰ Extreme heat can heighten risks to life. The Karachi Heatwave Management Plan notes that the heatwave in 2015 in Karachi caused over 1200 deaths.⁷¹ A study by World Weather Attribution reported that, according to initial estimates, the 2022 heatwave led to at least 90 deaths across India and Pakistan,⁷² with the real number likely being higher.⁷³

Some people also highlighted concerns about the vulnerability of women and girls, particularly those living in informal settlements, to heat-related risks because of their domestic roles and because of safety concerns and other social or cultural constraints on their behaviour.⁷⁴

Cooking falls disproportionately on women and girls with those from poorer households still widely reliant on firewood and dried cow-dung to fuel cooking fires due to the prohibitive cost of gas and electricity. These polluting fuels are already linked to respiratory problems which hot weather can worsen.⁷⁵ Women are also unable to make use of coping strategies, such as visiting public baths or cooling themselves in ponds and rivers, that are commonly used by men and children to stay cool. Safety concerns, including of sexual or other forms of gender-based violence, often prevents them from sleeping outside forcing them instead to sleep in poorly ventilated and often overcrowded homes. Personal security also means that, unlike their male counterparts, female agricultural workers cannot adjust their working hours to the evening to avoid the hottest parts of the day.

Multi-layered, intersecting forms of discrimination against women can also undermine their ability to cope in heat waves with potentially dangerous implications for their health and that of their children. A mother of seven children from Jacobabad explained how she was often turned away from a religious seminary near her home when she asked them for water. As a result, her children have to beg for water or she is forced to buy water, at PKR 20 (approximately USD 0.07) a gallon when she can ill afford.⁷⁶

⁶³ Interview with male health care worker, 5 July 2022, Lahore.

⁶⁴ Interview with male healthcare worker, 21 August 2021, Jacobabad and interview with female healthcare worker, 21 August, Jacobabad.

⁶⁵ Interview with male healthcare workers, 21 August 2021, Jacobabad.

⁶⁶ Interview in person with male health care worker, 21 August 2021, Jacobabad, and interview in person with female health care worker, 21 August 2021 Jacobabad.

⁶⁷ Interview in person with male healthcare worker, 21 August 2021, Jacobabad.

⁶⁸ Interview in person with female healthcare worker, 21 August 2021, Jacobabad.

⁶⁹ Interview in person with male healthcare worker, 5 July 2022, Lahore.

⁷⁰ Interviews in person with male healthcare workers, 21 August 2021, Jacobabad

⁷¹ Commissioner Karachi, "Karachi Heatwave Management Plan: A Guide to Planning and Response" <https://ghin.org/wp-content/uploads/HeatwaveManagementPlan.pdf>

⁷² World Weather Attribution, "Climate Change made devastating early heat in India and Pakistan 30 times more likely", 23 May 2022, www.worldweatherattribution.org/climate-change-made-devastating-early-heat-in-india-and-pakistan-30-times-more-likely/

⁷³ <https://www.nytimes.com/2022/07/14/opinion/environment/heat-waves-india-pakistan-climate-change.html>

⁷⁴ For example, interview in person with male air conditioning (A/C) technician, 2 July 2022, Lahore and interview in person with female hairdresser, 2 July 2022, Lahore.

⁷⁵ UN Human Rights Council, Outcome of the panel discussion on the adverse impact of climate change on States' efforts to progressively realize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health and related policies, lessons learned and good practices, A/HRC/32/24, 19 April 2016, at p.8

⁷⁶ Interview in person with male healthcare worker, 21 August 2021, Jacobabad

4.2 LIMITED CAPACITY TO ADAPT

4.2.1 LACK OF PROTECTION AT WORK

A consistent theme among people whose work requires them to spend long hours outdoors was the lack of adequate protection from extreme heat provided by employers, whether governmental or in the informal sector.

A police officer in Jacobabad explained that his work routinely requires him to stand for hours during the hottest time of the day without any provision for shade. He explained that he works from 8am-5pm each day and described an incident that occurred when he was directing traffic the week before he spoke to Amnesty International researchers, when he fainted due to the heat and required emergency hospital treatment for heatstroke. He explained that he was responsible for his own hydration while on duty, which in his case costs an average of PKR 200-250 per day (USD 0.70 - 0.88), which represents 20% of his daily wage of PKR 1,100 (approximately USD 3.87).⁷⁷

A sanitation worker, also from Jacobabad, described how he often feels ill during his daily shift which involves tasks such as sweeping roads and clearing garbage. In order to try avoiding the hottest hours of the day, he works from 6am-11am in the morning and from 4pm-7pm in the afternoon. However, he is not provided with protective clothing or water and instead tries to cope with the heat by placing a wet towel on his head, taking regular breaks in the shade and buying ice from his monthly salary. Explaining the dilemma that he and other outdoor workers face, he said, “there are lots of difficulties during summers. Because of [the] temperature we are unable to work. However, we have to do this [work] because it is necessary”.⁷⁸

Government health workers responsible for household visits to administer vaccines described similar challenges because their working hours (typically between 7am-1pm and 3-4pm) requires them to be outside at the hottest time of the day. One explained that they consume oral rehydration salts, which are available to them for free in health centers where they can go for short breaks or after work to recover, but that otherwise there is little in the way of protection from the heat and its effects. She explained that she and her colleagues suffer from “whole body sweats. Even if we sit under a fan for an hour, we continue to sweat. When we return to our homes, there is electricity load shedding (scheduled power cuts to manage demand). We think summers are getting hotter than in the past”.⁷⁹ Another health worker from Jacobabad said that she was prone to fainting, heatstroke, abdominal pain and motions due to the heat.⁸⁰ Another noted that doctors often complained of dehydration and fever during the summer months.⁸¹

“If we take rest then how can we feed ourselves. We work at brick kiln so that we can earn... There are no alternate jobs or source of earning.”

Brick kiln worker, who also works in other daily wage jobs in Jacobabad⁸²

Informal sector workers face similar, often more severe challenges because of their lower incomes and fewer opportunities for rest and shade. Their working conditions depend on their employers. As one man who worked as a construction worker said, “Some of the people who hire us are good folks. They offer food, they give us cold water and tea. Others just tell us to work quickly. They want work, they don’t care about what we are going through”.⁸³ While some people said they were able to avoid working between midday and 4pm during summer months, this was not the case for all. A tractor driver explained that because he works on a daily wage, he cannot afford to take long breaks so, rather than stopping when temperatures are at their highest, he works more slowly, takes frequent showers and short breaks in the shade, and drinks water to

⁷⁷ Interview in person with police officer, 18 August 2021, Jacobabad.

⁷⁸ Interview in person with male sanitary worker, 22 August 2022, Jacobabad.

⁷⁹ Interview in person, female healthcare worker, 21 August 2021, Jacobabad.

⁸⁰ Interview in person, female healthcare worker, 21 August 2021, Jacobabad.

⁸¹ Interview in person, male healthcare worker, 21 August 2021, Jacobabad.

⁸² Interview in person, 18 August 2021, Jacobabad

⁸³ Interview in person with male labourer, 5 July 2022, Lahore

stay hydrated.⁸⁴ “We cut resting time short so that we may resume our work. If we don’t work, owners will not pay us” he said.⁸⁵ Similarly, a fruit vendor in Lahore said, “When I work the whole day, I can earn Rs. 1000 (USD 3.5) to Rs. 1500 (USD 5.2) per day but when I cut short my working hours it comes down to Rs. 500 (USD 1.75) to Rs. 700 (USD 2.45)”.⁸⁶



↑ Community health workers making their rounds that they must complete by 4:00 pm to submit their daily progress reports on time at their offices. Photo: Shakil Adil/ Amnesty International

Other day-wage workers including a delivery rider, and a security guard also said that they have no choice but to continue working even if they feel hot, despite the health guidelines to stay indoors during periods of extreme heat.⁸⁷ Several described having to rely on inadequate coping mechanisms such as placing wet towels on their head to try and stay cool.⁸⁸ The higher temperatures also leads to other challenges in finding work, since some construction site operators shut down operations when it is impossible to work outdoors due to the heat. For example, a man who was worked as a tractor driver when Amnesty International interviewed him explained that he also worked as a construction labourer when he was able to find the work. He said, however “We receive fewer orders [in the summer] as contractors feel no labourer will be able to work due to the temperature ... When the temperature is lower, we start receiving work as construction work also resumes”.⁸⁹

Brick kiln workers, who are paid by the number of bricks that they make each day at a rate of PKR 700 (approximately US 2.45) according to a brick kiln owner in Jacobabad, are likewise unable to shorten or otherwise adapt their working hours to minimise their exposure to the heat, without losing some income.⁹⁰ They, like others working in low paid jobs, struggle to afford ice, water or other cool drinks.⁹¹ Food items that

⁸⁴ Interview in person with male tractor driver, 18 August 2021, Jacobabad.

⁸⁵ Interview in person with male tractor driver, 18 August 2021, Jacobabad

⁸⁶ Interview in person with male fruit vendor, 5 July 2022, Lahore

⁸⁷ Interview in person with male delivery rider, 3 July 2022, Lahore, Lahore; and interview with security guard, 3 July 2022, Lahore

⁸⁸ Interview in person with male farmer, 18 August 2021, Jacobabad, and interview in person with male delivery driver, 4 July 2022, Lahore.

⁸⁹ Interview in person with male tractor driver, Jacobabad, 18 August 2021; This was also echoed in an interview in person with a male brick-kiln owner, 18 August 2021, Jacobabad.

⁹⁰ Interview with male brick kiln worker, 18 August 2021, Jacobabad.

⁹¹ Interview in person with male tractor driver, 18 August 2021, Jacobabad, and interview in person with male farmer, 18 August 2021, Jacobabad.

are regarded as having a cooling effect, such as yoghurt, curd, sherbet and milk which are widely consumed during the summer months in Pakistan, are likewise mostly unaffordable for those on low wages.⁹² A man working in a brick kiln told Amnesty International “We are paid as per our work. More bricks I will make more I will be paid”. He explained how his job was completely under the sun, and there was no shaded area around where he worked. “There is hardly any way to escape for us,” he said. The owner of the kiln he worked in provided workers with water, and he also takes a dip in a nearby pond when he is feeling very hot.⁹³

4.2.2 COOLING MECHANISMS INADEQUATE AND HARD TO AFFORD

Keeping homes cool during searing heat is a challenge for everyone. However, for those living in poverty it is much harder. Traditional cooling methods are inadequate in the high temperatures. People living in poverty do not have access to or are unable to afford electricity to run electric fans or air conditioning or to purchase solar panels or other alternative technologies to run them. In Pakistan, more than 40 million people do not have access to electricity.⁹⁴ For many others, electricity supplies are erratic and irregular and reports indicate that the heatwaves have exacerbated energy shortages.⁹⁵

“Earlier I used to use a clay pot for drinking water as it would keep water cool. Nowadays, clay pots don’t keep the water cold... I purchase ice and for that I need money. Where should that money come from? God forbid, if my children get sick due to heatstroke then I would have no money.”

Disability rights activist, Jacobabad⁹⁶

One health worker from Jacobabad observed that, ideally the authorities should provide enough electricity to enable every household to run at least one fan during the hottest times of the day.⁹⁷ However, this is a far cry from reality.

As fossil fuels remain the main source of energy supply in Pakistan⁹⁸ and access to electricity supplies remain limited or irregular, domestic solar panels represent a cleaner and more reliable clean source of energy to cool homes and businesses. However, average daily earnings of people living in poverty who spoke with Amnesty International were between PKR 500 - 600 (USD 1.75 – USD 2.10), and they said the cost of a single solar panel can be around PKR 7000 (USD 24.5), meaning they are unaffordable for many.⁹⁹ According to media reports, the government is planning to provide subsidies and concessionary loans to encourage people to shift to solar energy, but this does not appear to be in force as yet.¹⁰⁰

⁹² Interview in person with male brick kiln worker, 18 August 2021, Jacobabad, and interview in person with male A/C technician, 2 July 2022, Lahore.

⁹³ Interview in person with a male brick-kiln worker, 18 August 2021, Jacobabad.

⁹⁴ International Energy Agency (IEA), “Pakistan”, www.iea.org/countries/pakistan

⁹⁵ The Guardian, “We are living in hell’: Pakistan and India suffer extreme spring heatwaves”, 2 May 2022,

www.theguardian.com/world/2022/may/02/pakistan-india-heatwaves-water-electricity-shortages. For additional details see, Modern Diplomacy, Energy Crisis in Pakistan, 11 March 2023, <https://moderndiplomacy.eu/2023/03/11/energy-crisis-in-pakistan/>

⁹⁶ Interview in person, 20 August 2021, Jacobabad

⁹⁷ Interview in person, male health care worker, 21 August 2021, Jacobabad.

⁹⁸ International Energy Agency (IEA), “Pakistan”, www.iea.org/countries/pakistan

⁹⁹ Interview in person with male electronics shop keeper, 21 August 2021, Jacobabad. Costs of solar panels can vary considerably based on a number of factors, including where and when they are purchased, the quality and capacity of the panel, the seller, etc. The price remains unaffordable for people living in poverty.

¹⁰⁰ The Express Tribune, “Solar energy package on the cards”, 2 July 2022, <https://tribune.com.pk/story/2364251/solar-energy-package-on-the-cards>. Amnesty International asked the Ministry of Climate Change and Environmental Coordination what subsidies and concessions existed to support solar energy but had not received a response at the time of publication.



↑ *Some families have created “donkey-powered fans” where a donkey is blindfolded and tied to a pole and made to move in circles, rotating an axle with two light blankets on them. Photo: Shakil Adil/ Amnesty International*

People in both Jacobabad and Lahore described a range of different coping mechanisms that they use to try and keep their homes cool with many noting the high costs involved often consuming a large portion of their monthly income – up to 30% for some.¹⁰¹ Those with more disposable income use air conditioning but often only sparingly and only when electricity is available. Several said they were reluctant to switch on air conditioning units except at night.¹⁰² A university student from Lahore said that her family slept together in the one room in the house with air conditioning and, when there is no electricity, they sleep on the roof. A sanitary worker from Jacobabad said that he sat in the shade when there was no electricity supply.¹⁰³

“Temperature has risen a lot, however we don’t have money to purchase solar panels. Should we buy solar panels or food?”

Male brick kiln worker in Jacobabad¹⁰⁴

For many, air coolers and electric fans are not an option, either because they do not have access to electricity or cannot afford it. Instead, they must rely on other methods to try and keep cool indoors. Some said that they bought factory-produced ice to keep themselves hydrated and cool,¹⁰⁵ but the price of ice has

¹⁰¹ Interview in person with female university student, 2 July 2022, Lahore; Interview in person with male business owner, 2 July 2022, Lahore; interview in person with female cook, 3 July 2022, Lahore; and interview in person with male granite businessman, 5 July 2022, Lahore.

¹⁰² Interview in person with male business owner, 2 July 2022, Lahore; interview in person with female hairdresser, 2 July 2022, Lahore; and interview in person with male fruit seller, 3 July 2022, Lahore.

¹⁰³ Interview with male sanitary worker, 22 August 2021, Jacobabad.

¹⁰⁴ Interview in person with a brick kiln worker, 18 August 2021, Jacobabad

¹⁰⁵ Interview in person with male ice factor manager, 19 August 2021, Jacobabad, and interview with male brick kiln worker, 18 August 2021, Jacobabad.

increased with inflation and not all can afford it anyway.¹⁰⁶ A female daily wage earner living in an informal settlement in Jacobabad said that her children stay inside during the day and take showers from time to time under a nearby handpump to cool down.¹⁰⁷ The cost of solar panels to run fans or air conditioning is entirely out of reach for her and people like her. Even keeping herself and her children hydrated is a challenge – she and another female daily wage earner described having to rely on wealthier homeowners to give them drinking water or buying it when they could afford to.¹⁰⁸ Another person who told Amnesty International that she was unable to afford electronic cooling systems said that she slept on the veranda.¹⁰⁹ A daily wage labourer said he slept on the side of the road to benefit from the breeze created by passing vehicles to try and gain some respite from the stifling night heat. He also noted that children often cool off in unsanitary ponds and water canals.¹¹⁰ One person described how he had constructed a traditional wooden structure covered with leaves (chakra) to stay cool in his home.¹¹¹

Such strategies, while perhaps bringing a bit of relief, are however inadequate for the kind of temperatures experienced in Jacobabad and Lahore in 2021 and 2022. In homes without natural ventilation, conditions can be unbearable.¹¹² Another interviewee pointed out that while effective for those who can afford it, air conditioning contributes to the heat as the units dispel hot air into the surrounding streets.¹¹³

4.3 OTHER HUMAN RIGHTS RISKS RESULTING FROM EXTREME HEAT

In addition to the risks to health of extreme heat and heatwaves it can also impact a range of other related rights including to adequate food and to education. While this report focuses primarily on health, which the government should monitor and address at the earliest to mitigate adverse impacts in the future.

The UN Framework Convention on Climate Change and the Paris Agreement recognize the threat to food security posed by climate change.¹¹⁴ Extreme weather events such as heat waves not only negatively impact crop yields, they can also adversely affect food distribution and food prices. For example, the heatwaves in 2022 affected wheat yields in India, as a result of which the government limited wheat exports (India is one of the largest wheat exporters).¹¹⁵ The UN Special Rapporteur on the Right to Food noted that an additional 24 million children worldwide would be undernourished by 2050 due to climate induced reduction in their calorie intake.¹¹⁶ In 2023, the IPCC reported that farmers were experiencing declining crop yields and higher incidence of crop diseases.¹¹⁷ The report cited evidence of reduced crop yields in arid, semi-arid and dry sub-humid zones of Pakistan.¹¹⁸ Lower crop yields can result in lower earning for agricultural workers.

Extreme weather can also impact access to education: preventing students from travelling to schools and other education facilities; increasing dropout rates; and making it difficult for students to concentrate. Because schools and colleges have to pay more for electricity in order to keep classrooms cool, extreme heat can also increase the cost of education, thereby making it less affordable for more people.

People interviewed in Jacobabad and Lahore described differing impacts of heat on their children's education and the way in which schools were trying to adapt to the heat. One said that his children refused

¹⁰⁶ Interview in person, male disability rights activist, 20 August 2021, Jacobabad, and interview in person with female cook, 3 July 2022, Lahore.

¹⁰⁷ Interview in person with female daily wage earner, 22 August 2021, Jacobabad.

¹⁰⁸ Interview in person with female daily wage earner, 22 August 2021, Jacobabad, and interview in person female daily wage worker, 22 August 2022, Jacobabad.

¹⁰⁹ Interview in person with female cook, 3 July 2022, Lahore.

¹¹⁰ Interview in person with male laborer, 18 August 2021, Jacobabad.

¹¹¹ Interview in person with male farmer, 18 August 2021, Jacobabad.

¹¹² Interview in person with female cook, 3 July 2022, Lahore; Interview in person with female hairdresser, 2 July 2022, Lahore.

¹¹³ Interview with female university student, 2 July 2022, Lahore.

¹¹⁴ UN Framework Convention on Climate Change, adopted 1992, entered into force 21 March 1994, Article 2, and Preamble of the Paris Agreement, adopted 12 December 2015, entered into force 4 November 2016.

¹¹⁵ Foodtank, "Climate Change is Driving India's Heat Waves, Increasing Wheat Prices", 30 June 2022, <https://foodtank.com/news/2022/07/climate-change-is-driving-indias-heat-waves-increasing-wheat-prices>, and CBS News, "Wheat prices hit record high as India's heat wave-driven export ban compounds Ukraine war supply woes", 17 May 2022, www.cbsnews.com/news/india-heat-wave-wheat-prices-soar-climate-change-ukraine-war-supplies

¹¹⁶ UN Special Rapporteur on the Right to Food, *Interim Report, Impact of climate change on the right to food*, 5 August 2015, UN Doc. A/70/287.

¹¹⁷ IPCC-WGII. 2022. "Sixth Assessment Report- Asia". At p.47

¹¹⁸ IPCC-WGII. 2022. "Sixth Assessment Report- Cross Chapter Paper 3".

ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_CrossChapterPaper3.pdf at p. 12

to go to school during the hot summer months.¹¹⁹ Others explained that only the most affluent schools and universities had air conditioning and that many rely on natural ventilation to cool the classrooms due to unreliable or unaffordable electricity supplies.¹²⁰ A university student from Lahore described the various adaptation methods used by some schools and universities, including providing free water dispensers for use by students and adapting class hours to avoid the hottest times of the day. She said that because of the heat she often felt drowsy and unwell in class during the summer months, and that getting to and from her university was also difficult because transport was often overcrowded and very hot.¹²¹

¹¹⁹ Interview in person with male A/C technician, 2 July 2022, Lahore.

¹²⁰ Interview in person with male tractor driver, 18 August 2021, Jacobabad; interview in person with female university student, 2 July 2022, Lahore; interview in person with male student, 2 July 2022, Lahore; and interview in person with female teacher, 3 July 2022, Lahore.

¹²¹ Interview in person with female university student, 2 July 2022, Lahore.



↑ Abdul Malik, brick kiln worker and Jacobabad resident. Photo: Shakil Adil/ Amnesty International

“If the government had taken care of the area, Jacobabad would have been a fine place. But government is invisible here.”

Male brick kiln owner in Jacobabad.¹²²

¹²² Interview in person, 18 August 2021, Jacobabad

5. INADEQUATE RESPONSE BY AUTHORITIES

5.1 LIMITATIONS IN EXISTING HEAT MANAGEMENT STRATEGIES

5.1.1 INTERNATIONAL GUIDANCE AND BEST PRACTICE ON HEAT MANAGEMENT

As extreme heat becomes an increasing problem in many parts of the world, public health bodies and intergovernmental organizations have published guidelines for heatwave management measures, and many governments have developed national and local plans. The following, non-exhaustive, summary of key elements of best practice for heat management is based on analysis of such materials from intergovernmental organizations, regional bodies, national and local governments, and non-governmental and academic sources.

According to the WHO, the most important actions to take during a heatwave are “to avoid or reduce exposure, to communicate risks effectively, to take particular care of vulnerable population groups and to manage mild and severe heat illness”.¹²³ It has also developed eight core elements for an effective heat action plan: agreement on a lead body to coordinate a multipurpose collaborative mechanism; accurate and timely alert systems; a heat-related health information plan about what is communicated, to whom and when; a reduction in indoor heat exposure, including advice on how to keep indoor temperatures low during heat episodes; particular care for vulnerable population groups; preparedness of the health and social care system, including staff training and planning, appropriate health care; long-term urban planning (to address building design and energy and transport policies that will ultimately reduce heat exposure); and real-time surveillance and evaluation. People should have information that is accessible, about keeping the home cool, keeping out of the heat, keeping the body cool and hydrated, helping others, what to do if they have a health problem, and what to do when others feel unwell. Additionally, the WHO guidance notes that heat management plans should be adequately resourced with financial, technical and human resources.¹²⁴

The International Labour Organization (ILO) has also published detailed guidance on employment and labour market policies to tackle heat stress among workers, including measures that governments and employers should put in place to protect workers from extreme heat and heat waves. Among the recommended measures, particularly for employers of outdoor workers are erecting canopies and providing other forms of cover to shade work areas exposed to direct sunshine; where possible, moving jobs to naturally shaded areas; increasing mechanization to reduce the physical demands of jobs; ensuring workers have regular access to drinking water and rest breaks; and providing workers with personal protective equipment and appropriate clothing. Recommendations to governments include improving warning systems, putting in place effective social protection systems, and improving technical standards for buildings so internal temperatures are reduced.¹²⁵

¹²³ WHO, “Public health advice on preventing health effects of heat”, 1 January 2011,

¹²⁴ WHO, “Heat-health action plans: guidance”, 2008, <https://www.who.int/publications/i/item/9789289071918>; See also WHO and WMO, Heatwaves and Health: Guidance on Warning-System Development, 2015, https://cdn.who.int/media/docs/default-source/climate-change/heat-waves-and-health---guidance-on-warning-system-development.pdf?sfvrsn=e4813084_2&download=true

¹²⁵ ILO, “Working on a WARMER planet: The impact of heat stress on labour productivity and decent work”, Chapter 8, 2019, https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_711919.pdf

5.1.2 HEAT MANAGEMENT AND RESPONSE IN PAKISTAN

As a part of its 2021 Nationally Determined Contribution (NDC) required under the Paris Agreement,¹²⁶ Pakistan set a target to achieve an overall 50% reduction in greenhouse gas emissions by 2030. However, the achievement of this target is conditional to the availability of international financial and technical resources, with Pakistan estimating that it could reduce emissions only by 15% with its own resources. The NDC indicates that USD 101 billion of international grant finance would be required just for energy transition. Among the “high priority actions” detailed in the NDC to achieve this goal is a rapid shift to renewable energy, increase of electric vehicles, reduced use of coal, land use changes, and increase in forestry.

Adaptation actions included in the NDC also include “the reduction of flood risk and enhanced water recharge at six sites in the Indus Basin” and increasing the protected areas in the country, to preserve “rare fauna / flora, green job opportunities for 5,500 people, and promoting ecotourism”. Pakistan’s NDC explicitly recognizes the vulnerability of the plains of Punjab and Sindh to extended and frequent floods and heatwaves, and highlights that the “most frequent compound extreme events are heatwaves and droughts in parts of Balochistan and Sindh”. It goes on to note the extreme summer temperature of 52°C recorded in Jacobabad and that “biologically, humans cannot withstand heat beyond the threshold of 52°C”.¹²⁷

Some of the proposed adaptation measures contained in the NDC are indirectly linked to resilience to extreme heat, such as climate resilient agriculture. The NDC also refers to plans to develop, by 2026, a Pakistan Cooling Action Plan (PCAP) “which will identify the key cooling needs and prioritize actions for addressing current and future cooling demands with the minimum possible impact on the environment”.¹²⁸ While the proposed plan is positive, urgent action is needed to protect the population, particularly those in the hottest regions, from the negative impact of extreme heat that is already being experienced and is likely to worsen further before the PCAP is drafted.

Pakistan does, however, have a National Climate Change Policy (NCCP), updated in 2021, which recognizes the need for actions in response to increasing heat and resultant impacts on water and agricultural productivity. It notes the risk to the country of “rising temperatures resulting in enhanced heat and water-stressed conditions, particularly in arid and semi-arid regions, leading to reduced agricultural productivity” and acknowledges that “the increased frequency and intensity of extreme weather events such as heat and cold waves ... due to climate change have serious implications for human health”. It contains general recommendations on how people’s health should be protected in the context of climate change. For example, it recommends that “appropriate measures to address health related climate change issues [be] incorporated into national health plans”, to “assess the health vulnerabilities of communities in areas most likely to be affected by the adverse impact of climate change, and build their capacities to reduce these vulnerabilities”, and that “preventive measures and resources such as vaccines, good quality medication and clean drinking water [should be] available to the general public easily and cost effectively particularly during climate related extreme events”.¹²⁹ However, it does not prescribe any specific and urgent measures to protect people from extreme heat and heatwaves.

Pakistan’s National Health Vision 2016-2025, as part of its “strategic vision”, states that “the entire health care system will be made resilient to disasters (climate change, natural disasters, disease outbreak, etc.) through disaster mitigation responses and continued provision of services during acute crises and emergencies”.¹³⁰ No details are provided in the document about how the health system will be made resilient to climate change, and no response had been received from the Ministry of National Health Services Regulations and Coordination to Amnesty International’s questions about any such plans, including regarding timelines and funding, at the time of publication.

Pakistan lacks detailed plans for responding to extreme heat at both federal and, at least in the case of Jacobabad and Lahore, at a more local level. In 2023, as this briefing was being finalized, the Ministry of Climate Change issued “Heatwave Guidelines - Urgent Preparatory Measures”, which included short-term,

¹²⁶ The Paris Agreement is a legally binding international treaty on climate change, adopted in 2015 at the 21st Conference of the Parties of the United Nations Framework Convention on Climate Change. Under the Paris Agreement, all state parties are required to submit updated NDCs every five years. NDCs are reports indicating the nationally determined target for emission reductions and the actions each national government intends to take to meet that target and to adapt to the impacts of climate change.

¹²⁷ Government of Pakistan, “Pakistan: Updated Nationally Determined Contributions 2021” page 24 <https://unfccc.int/sites/default/files/NDC/2022-06/Pakistan%20Updated%20NDC%202021.pdf>

¹²⁸ Government of Pakistan, “Pakistan: Updated Nationally Determined Contributions 2021” page 23 (previously cited) <https://unfccc.int/sites/default/files/NDC/2022-06/Pakistan%20Updated%20NDC%202021.pdf>

¹²⁹ Government of Pakistan, Ministry of Climate Change, “National Climate Change Policy”, October 2021 (updated), <https://mocc.gov.pk/SiteImage/Policy/NCCP%20Report.pdf>

¹³⁰ “National Health Vision, Pakistan 2016-2025” https://extranet.who.int/countryplanningcycles/sites/default/files/planning_cycle_repository/pakistan/national_health_vision_2016-25_30-08-2016.pdf

medium-term and long-term responses to potential heatwaves. At the time of publication, these measures were not publicly available. However, in press interviews, Ministry officials said the Guidelines included “The activation of Union Council level heat wave response units (HRU) and establishing provincial level control rooms for coordination to protect vulnerable segments of the urban population” and said the Guidelines were key to “protect vulnerable communities and mitigate the impacts of extreme heat”. According to the Ministry of Climate Change, the responsibility for responding to the impacts of heatwaves rested with districts, the Provincial Disaster Management Authorities, Health Departments, and local administration. Since they were not publicly available at the time of finalization, Amnesty International has been unable to assess whether these Guidelines put in place the full range of measures necessary to protect marginalised groups from the impacts of heatwaves, whether the Guidelines are supported with adequate budgetary allocations, and the extent to which they are being implemented.

At a provincial level, the Sindh Climate Change Policy (SCCP), which covers Jacobabad, acknowledges that “most of the province is located in the intense heat zone, which is expected to see 4-5 C temperature increase in 21st century, therefore, the burden on human health will be immense due to heat strokes, diarrhoea, cholera and vector borne diseases”. It proposes conducting a needs-assessment to support the development and implementation of “effective district wise health, heat and disaster management plans”, but gives no timelines for doing this. It proposes measures to improve access to health care, nutrition and safe water. It notes that “indigenous adaptation measures” are widely used in the province to mitigate heat. It also speaks about “ensuring availability of medication and clean drinking water during climatic extremes and emergencies” but provides no further detail on when or how.¹³¹



☺ ↑ *A child fills up a plastic canister with water from a public water tank in Jacobabad. Some residents have to make trips a few times a day to get their daily water supply. Photo: Shakil Adil/ Amnesty International*

Some city authorities have developed heat action plans relevant to their specific context, although this is not the case in either Jacobabad or Lahore. The Karachi Heatwave Management Plan, for example, was published following a severe heat wave in 2015 which, resulted in over 1,200 deaths and over 50,000 cases of heat illness in Sindh’s capital city.¹³² The plan contains detailed guidance on surveillance systems and for

¹³¹ Environment, Climate Change & Coastal Development Department, Govt of Sindh, “Sindh Climate Change Policy” <https://krel.pk/wp-content/uploads/2021/11/Sindh-Climate-Change-Policy.pdf>

¹³² Commissioner Karachi, “Karachi Heatwave Management Plan: A Guide to Planning and Response” <https://ghhin.org/wp-content/uploads/HeatwaveManagementPlan.pdf>

issuing public alerts when heatwaves are expected.¹³³ Responsibility for overseeing the implementation of the plan sits with the Commissioner Office Karachi but responsibilities are also delegated to other government departments. These include the Medical and Health Department which is responsible for ensuring that hospitals and other health facilities have emergency response medicines in stock; the Education and Labour Department which takes the lead on setting school holidays and changes to working hours “depending upon the severity of the weather”; and the Information Department which has responsibility for the dissemination of public health messages from the Commissioner Office. Amnesty International did not analyse how the Karachi Heatwave Management plan was being implemented or whether it is adequately resourced, but it is notable that the plan exists at all.

More recently, in 2022, a heatwave action plan for Khyber Pakhtunkhwa province was published by the Provincial Disaster Management Authority. The Heat Wave Action Plan acknowledges that certain groups may be at higher risk of impacts due to heat, such as outdoor workers, people working at construction sites, people experiencing homelessness, and children, and identifies 19 “immediate measures” that should be put in place during a heatwave.¹³⁴

HEAT MANAGEMENT AND RESPONSE IN JACOBABAD AND LAHORE

Despite the searing temperatures experienced in recent years in Jacobabad and Lahore, neither has an equivalent heat action plan. The 2022 Jacobabad Disaster Management plan recognizes that heatwaves are a risk in the district, makes some provision made for monitoring of extreme weather events and allocates certain responsibilities such as warning and public alerts including via social media and SMS to different government departments. The plan also recommends tree planting and action to reduce Urban Heat Islands.¹³⁵ The Lahore District Disaster Management Plan does not include any information or guidance specific to heat wave management.¹³⁶

Amnesty International wrote to the to the Environment, Climate Change and Coastal Development Department, Government of Sindh, and the Environment Protection Department, Government of Punjab to request further information on the plans including the processes for their development and whether affected people were consulted in accordance with international human rights standards. We also sought information on resources allocated to the Jacobabad Disaster Management Plan, whether action on heatwaves is monitored, and whether other actions not included in the plan are taken in Jacobabad during heat waves. Authorities in Lahore were asked what actions are planned to prepare for heatwaves there. At the time of publication, only the Environment Protection Department, Government of Punjab responded, saying they were in the process of developing a Heat Wave Management plan for Punjab, and had “incorporated [Amnesty International’s] valuable suggestions”. They did not provide the other information requested in the letter.

“This we could know from a mobile phone, and I don’t own any. Educated people may get this information from their mobile phone and tell us.”

Male brick kiln worker in Jacobabad.¹³⁷

Information from other sources indicates that various actions have been taken, including in Sindh province and Lahore, but these appear to have been somewhat ad hoc and awareness of protective actions among those interviewed by Amnesty International was limited.

¹³³ The plan includes the issuing of “heat watches” when there is a potential for a heatwave in the next three to seven days, but timing is still uncertain and “heatwave emergency alerts” which are issued 24-48 hours before the onset of dangerous heat conditions, and which trigger heatwave responses contained in the plan.

¹³⁴ Provincial Disaster Management Authority Khyber Pakhtunkhwa, “Heat Wave Action Plan 2022” <https://pdma.gov.pk/sub/uploads/PDMA%20Heat%20Waves%20Plan%202022.pdf>

¹³⁵ An urban heat island, or UHI, is a metropolitan area that’s a lot warmer than the rural areas surrounding it: National Geographic, “Urban Heat Island” <https://education.nationalgeographic.org/resource/urban-heat-island/>

¹³⁶ “District Disaster Management Plan 2022, Division: Lahore, District: Lahore” <https://pdma.punjab.gov.pk/system/files/DDMP%20Lahore.pdf>

¹³⁷ Interview in person, 18 August 2021, Jacobabad



© ↑ A "heat kit" that is distributed by a local NGO in Jacobabad. Photo: Shakil Adil/ Amnesty International

A report by World Weather Attribution referenced media reports which indicated that “in response to the 2022 heatwave, public health authorities in Pakistan instructed health units to open “heatstroke centres” and communicate this to the public, while reminding people to avoid direct sunlight and increase their water consumption”. The report went on to note that numerous trainings were rolled in April 2022 and the Provincial Disaster Management Authority (PDMA) Sindh and Pakistan Red Crescent Society jointly offered heat emergency training to traffic police and line department officials as well as representatives of civil society organisations”.¹³⁸ An official from the Meteorological (MET) Office told Amnesty International that it issues early warnings to relevant government officials and departments including the Chief Minister, rescue and disaster management services, up to seven days before a heat wave is due.¹³⁹

Health workers interviewed by Amnesty International described of heat management initiatives in Jacobabad and Lahore that they were aware of. For example, a health worker from Jacobabad said that the government had set up heatstroke centres and provided public information on administering oral rehydration therapy (ORT) to children.¹⁴⁰ He and another interviewee also referred to educational programs conducted by the health sector to inform the public of signs of heatstroke and how to respond.¹⁴¹ A health worker from Lahore said that the health department there had conducted public awareness campaigns including television and newspaper advertisements, flyers and pamphlets.¹⁴² Non-governmental organizations also organize activities around raising awareness about heat-related illnesses and distributing some types of relief materials, such as ORT.

One person in Jacobabad said that community health workers had shared information with them about how to cope with heat.¹⁴³ Several said they were aware of the television public information broadcasts in Lahore

¹³⁸ World Weather Attribution, “Climate Change made devastating early heat in India and Pakistan 30 times more likely”, page 28, https://www.worldweatherattribution.org/wp-content/uploads/India_Pak-Heatwave-scientific-report.pdf

¹³⁹ Interview in person with a Meteorologist, 7 July 2022, Lahore

¹⁴⁰ Interview in person with a healthcare worker, 20 August 2021, Jacobabad.

¹⁴¹ Interview in person with a healthcare worker, 21 August 2021, Jacobabad; Interview in person with a disability rights activist, 20 August 2021, Jacobabad.

¹⁴² Interview in person with a health care worker, 7 July 2022, Lahore.

¹⁴³ Interview in person with a farmer, 18 August 2021, Jacobabad.

and that they were useful in helping them to take appropriate actions to counter the effects of heat waves such as staying indoors, staying hydrated and wearing cooler clothing.¹⁴⁴

However, many of those interviewed were either unaware of government initiatives and/or considered them to be inadequate. There was general consensus that there was insufficient publicly available guidance on how to stay safe during extreme heat and heatwaves or how to access public health and other government provided response services. One person from Lahore said that he did not know about the existence of government run heatstroke centers in the city although he was aware of centres run by private health care providers.¹⁴⁵ Others said that, as far as they knew, there were no adaptation and mitigation techniques provided by the government.¹⁴⁶

Based on available information, existing strategies and plans in Jacobabad and Lahore did not provide adequate measures to protect residents, workers, children and others from the preventable and predictable effects of extreme heat. As a result, the health of those most marginalized is being put in danger. Plans developed by federal and local authorities to address the impacts of extreme heat should be consistent with human rights and follow guidance by the WHO and ILO, and should recognize and respond to the specific risks of extreme heat to marginalized groups, including women and children, people with disabilities, those living in poverty or with precarious incomes, people who are homeless and people who work outdoors.

5.2 LACK OF CLIMATE RESPONSIVE SOCIAL PROTECTION PROGRAMS

“The government must provide us with facilities. It should provide us solar panels, batteries and a fan. These are the basic things poor people need.”

Woman living in an informal settlement, Jacobabad¹⁴⁷

The right of everyone to social security is recognized in Article 9 of the International Covenant on Economic, Social and Cultural Rights to which Pakistan is a State Party (see chapter 6 for further details) and well-designed, well-resourced social protection programs can help mitigate some of the worst impacts of climate change and increase capacities to cope. The World Bank has highlighted the way in which social protection measures – such as safety nets for climate risks and natural disasters, livelihoods programs, and microfinance – could help people living in poverty adapt to the impacts of climate change.¹⁴⁸ The ILO likewise sees social protection as a “powerful tool to protect populations at greater risk of climate-related hardship”.¹⁴⁹ Other experts have set out the evidence supporting the rationale for a greater role of social protection in managing the new risks created by climate change including in helping households to “cope with the immediate impacts of climate-related shocks by providing immediate support at times of crisis”, and respond “to the impacts of individual shocks and stressors”.¹⁵⁰

As highlighted in this report, many people are not in a position to follow public health advice for example by reducing or changing working hours, keeping their homes cool or staying hydrated. A lot of the public health advice on avoiding exposure to heat, for example, depends on whether people can afford to stay indoors, can negotiate different work hours, and (for those who work precarious jobs on hourly rates) afford to miss

¹⁴⁴ Interviews in person in Lahore, July 2022

¹⁴⁵ Interview in person with an A/C Technician, 2 July 2022, Lahore.

¹⁴⁶ Interview in person with a farmer, 18 August 2021, Jacobabad. Interview in person with a brick kiln worker, 18 August 2021, Jacobabad.

¹⁴⁷ Interview in person, 18 August 2021, Jacobabad.

¹⁴⁸ The World Bank, “Social Dimensions of Climate Change, Equity and Vulnerability in a warming world”, 2010, <https://openknowledge.worldbank.org/server/api/core/bitstreams/57ef7f5d-df55-552f-91b8-843eb7b286a3/content>

¹⁴⁹ ILO, “Social protection and climate change: Greener economies and just societies”, <https://www.social-protection.org/gimi/ShowProject.action?id=3046>

¹⁵⁰ Space, “Social protection and climate change: scaling up ambition”, May 2021, https://socialprotection.org/sites/default/files/publications_files/Paper%20-%20Social%20Protection%20and%20Climate%20Change_%20Scaling%20up%20Ambition%20%282%29.pdf

some working hours. Advice on how to keep cool and hydrated depends on whether people can access cooling technologies and whether their workplaces are equipped to support this. As this briefing has already described, cooling mechanisms are unaffordable for many people who are most at risk of health impacts from extreme heat in Pakistan.

Likewise access to timely, adequate health care for heat-related symptoms is unaffordable or otherwise inaccessible to many. The issue of affordability of health care and medication came up repeatedly in interviews for this report. A tractor driver and brick kiln worker from Jacobabad and a hairdresser and rickshaw driver from Lahore, all on low day wages or precarious incomes, all said that they had difficulty in affording medicines that they were prescribed for heat-related conditions.¹⁵¹ A cook from Lahore said that she had stood for hours in a queue in the heat for medical treatment after experiencing heatstroke symptoms.¹⁵² This situation may have improved following the launch in 2022 of a scheme to expand health coverage,¹⁵³ but further research would be needed to ascertain its effectiveness in improving access to medical care and medicines for those living in poverty.

A lack of adequate social protection also means that people often work to earn a living even when the conditions are not safe and pose a risk to their health. People, especially those living in poverty or on very low incomes, are not in a real position to follow public health advice asking them to stay indoors during the heat, since they need the income. An older man who said he was over 70 years old, told Amnesty International that he still works as a farmer because if he does not work, he would starve.¹⁵⁴ Day-wage workers like delivery riders, and security guards have no choice but to go to work even if they feel ill due to the heat wave and despite the general medical advice to stay indoors during periods of extreme heat. The higher temperatures also leads to other challenges in finding work, since construction site operators shut down operations when it is impossible to work outdoors due to the heat wave.¹⁵⁵ This puts daily-wage workers at higher risk and endangers access to a livelihood when they are unable to find regular work.

“It’s difficult to drive a rickshaw in hot weather. I have no choice, so I drive. Otherwise, who would want to drive a rickshaw in this heat?”

86-year-old male rickshaw driver¹⁵⁶

In the meantime, according to the ILO, extreme heat will result in the loss of more than 5.5% of working hours in 2030 in Pakistan, the equivalent to over 4.6 million fulltime jobs.¹⁵⁷ The implications of this on individual earnings could be catastrophic, particularly for those already living in poverty or on low or precarious incomes.

Guidelines on climate responsive social protection measures have been issued by the World Bank and others. The World Bank, for example, advises that social protection programs are scalable and flexible, focus on climate targeting, invest in building adaptive capacity, and promote institutional capacity and coordination to manage climate risks. Among practical measures included in the guidance are “registry, and payment systems that can identify, enroll, and make transfers to additional eligible participants as well as funding arrangements that can mobilize adequate resources on short notice” and supporting viable livelihoods.¹⁵⁸ The International Institute for Environment and Development has identified three key shifts in the design and delivery of social protection to make them more climate resilient, including enhancing the effectiveness of

¹⁵¹ Interview in person with a tractor driver, 18 August 2021, Jacobabad; Interview in person with a brick kiln worker, 18 August 2021, Jacobabad; Interview in person with a hairdresser, 2 July 2022, Lahore; Interview in person with a rickshaw driver, 5 July 2022, Lahore.

¹⁵² Interview in person with a cook, 3 July 2022, Lahore.

¹⁵³ Tribune, “PM Imran launches universal healthcare scheme”, 26 January 2022, tribune.com.pk/story/2340519/pm-imran-launches-universal-healthcare-scheme

¹⁵⁴ Interview in person with male farmer, 18 August 2021, Jacobabad.

¹⁵⁵ Interview in person with male farmer who also works in other jobs, 18 August 2021, Jacobabad

¹⁵⁶ Interview in person with a rickshaw driver, 5 July 2022, Lahore

¹⁵⁷ ILO, “Working on a warmer planet, The impact of heat stress on labour productivity and decent work”, 2019, https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_711919.pdf p 55

¹⁵⁸ World Bank, “Climate-Responsive Social Protection” Background Note for the World Bank 2012–2022 Social Protection and Labor Strategy, April 2012, <https://documents1.worldbank.org/curated/en/150051468325261748/pdf/685230BRI0Box3000SPL0Policy0Note010.pdf>

existing social protection efforts, integrating climate risk management components into social protection provision and adequately resourcing them, and converging and layering social protection instruments with other risk management instruments.¹⁵⁹

There are no specific studies on the extent to which social protection programs in Pakistan are climate responsive. However, its social security programs have been criticized. A 2021 ILO report on building an inclusive social protection system in Pakistan noted several shortcomings including limited coverage for workers in the informal economy, who make up 71.7% of the labour force, and lack of unemployment benefits. The ILO also raised concerns about the design of existing social security systems which are designed for poverty targeting. This, according to the ILO, is problematic for several reasons including because the lists and database of people to be covered is “static” and does not easily include people who fall into poverty in times of crises, including as a result of climate induced disasters, or prevent people from falling into poverty by providing necessary support before a crisis hits, and because the methodology used for determining poverty - proxy means testing – is inadequate.¹⁶⁰

These and other shortcomings became apparent during the height of the Covid-19 pandemic when, although the government introduced some short-term measures, the ILO pointed to the need for bold reform to make social protection more inclusive and to build an agile, shock-responsive system. The study recommended a “shift away from poverty-targeted programmes and towards a universal, rights-based approach, among other improvements”.¹⁶¹ Universal social protection, which involves an “integrated set of policies designed to ensure income security and support to all people across the life cycle – paying particular attention to the poor and the vulnerable”¹⁶² is a crucial step to ensuring a more climate responsive social protection system in Pakistan through providing broader coverage. It will ensure that more people are registered with the state in case support needs to be scaled up during an emergency or climate-related event, and would ensure that people were better protected even before a crisis, so they are more able to adapt in case of a crisis or shock.

To date, social protection has not been adequately integrated into climate change mitigation and adaptation plans in Pakistan. Robust social protection was not included in the heatwave and disaster management plans reviewed for this briefing. For example, there is no provision for income support for people who are unable to work normal hours heat or who suffer sickness due to extreme heat. Amnesty International wrote to the Ministry of Climate Change and Environmental Coordination to ask for information about any specific social protection measures to address the likely impact of climate change and extreme heat on people in affected regions. At the time of publication, we had not received a response.

In March 2021, the government announced a two year project to develop a National Adaptation Plan for Pakistan aimed at “[reducing] vulnerabilities to climate impacts by creating comprehensive medium- and long-term plans, including the integration of adaptation measures into national policy”.¹⁶³ Amnesty International requested an update on the status of the plan and a draft copy, the process by which it was developed, the consultation processes involved, and whether they included representatives of the most impacted communities, but had not received a response at the time of publication.

¹⁵⁹ International Institute for Environment and Development, “Climate resilience through social protection”, 2019, <https://gca.org/wp-content/uploads/2020/12/ClimateResiliencethroughSocialProtection.pdf>. Integrating climate risk management components into social protection provision could include linking social protection with existing national disaster or humanitarian response mechanisms and using public works programs to build climate resilient infrastructure. Converging and layering social protection instruments with other risk management instruments could include combining social protection measures with other risk management options, such as insurance, to increase protection.

¹⁶⁰ ILO, “A Social Protection Profile of Pakistan: Building an Inclusive Social Protection System”, 1 June 2021, www.ilo.org/islamabad/whatwedo/publications/WCMS_802498/lang-en/index.htm. The study notes that proxy means tests are a form of targeting where instead of determining eligibility of the individual, eligibility is determined based on household characteristics deemed more easily observable, used as proxies, such as household composition, type of housing, consumer durables such as radio, television or refrigerators, productive assets such as farmland or cattle, or level of education of household members.

¹⁶¹ ILO, “A social protection profile of Pakistan, Building an inclusive social protection system”, June 2021, https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-islamabad/documents/publication/wcms_802498.pdf

¹⁶² There are different approaches to guaranteeing the right to social security and providing social protection cover. Broadly speaking, there are two main approaches to provide coverage – by using a means tested approach (also known as poverty targeting) or using a universal approach. Universal Social Protection moves away from a narrow targeting based on people’s incomes. According to the ILO, “universal social protection refers to the integrated set of policies designed to ensure income security and support to all people across the life cycle – paying particular attention to the poor and the vulnerable.”

¹⁶³ UNEP, “Pakistan to develop National Adaptation Plan for climate change”, 25 March 2021, <https://www.unep.org/gan/news/press-release/pakistan-develop-national-adaptation-plan-climate-change>



© ↑ *Refrigerators are an inaccessible commodity for most, and for those that do have them, the unreliable supply of electricity remains an issue. As a result, buying ice is a necessary expense for many in Jacobabad, where many use it to cool concrete floors. Photo: Shakil Adil/ Amnesty International*

5.3 LIMITED INTERNATIONAL ACTION

5.3.1 INADEQUATE ACTIONS TOWARDS CLIMATE CHANGE MITIGATION

Tackling the climate crisis requires global action. All states, including Pakistan, have obligations under international law, to mitigate climate change by tackling its cause: the emissions of greenhouse gases and their accumulation in the atmosphere. However, according to the principle of common but differentiated responsibilities and respective capabilities,¹⁶⁴ wealthy industrialized countries¹⁶⁵ must take the lead in climate mitigation efforts by decarbonizing their economies faster than others, as they have contributed more to the climate crisis and have more resources to tackle it.¹⁶⁶

It is not the focus of this briefing to analyse the adequacy of Pakistan's climate change mitigation strategies. However, it appears clear that global climate action is lagging far behind. Greenhouse gas emissions continue to rise. In 2021, atmospheric levels of the three main greenhouse gases - carbon dioxide, methane

¹⁶⁴ The principle of common but differentiated responsibilities and respective capabilities is included in the UN Framework Convention on Climate Change and the Paris Agreement, and in other international environmental law treaties. It acknowledges the different capabilities and differing responsibilities of individual countries in addressing climate change.

¹⁶⁵ This document uses the term "wealthy industrialized countries" to refer to countries included in Annex 1 of the UN Framework Convention on Climate Change. These are the industrialized countries that were members of the OECD (Organisation for Economic Co-operation and Development) at the time of the adoption of the UNFCCC in 1992, plus countries with economies in transition (the EIT Parties), including the Russian Federation, the Baltic States, and several Central and Eastern European States. See UNCC, "Parties and observers", <https://unfccc.int/parties-observers>

¹⁶⁶ Amnesty International, "Any tidal wave could drown us", 2022, <https://www.amnesty.org/en/documents/ior40/6145/2022/en/>

and nitrous oxide reached new record highs in 2021.¹⁶⁷ States continue to approve new fossil fuel projects, despite warnings by the IPCC and the International Energy Agency (IEA) about the need to wean economies away from fossil fuels.¹⁶⁸ Not a single wealthy industrialized country or other high-emitting country is reducing emissions fast enough to effectively protect people's human rights.¹⁶⁹ Overall, existing pledges will lead to an increase of global average temperature of 2.5°C by the end of the century or earlier, which will be catastrophic for people around the world, especially those in the global south.¹⁷⁰ Policies that are currently being implemented at the national level are inadequate to meet countries' pledges.¹⁷¹

5.3.2 GAPS IN CLIMATE FINANCING

However, not only are wealthier countries failing to reduce emissions fast enough to keep the increase of global average temperature as low as possible and no higher than 1.5°C above pre-industrial levels, but they are also not providing adequate finance and other support to developing countries¹⁷² to reduce their carbon emissions or to help them to adapt to current and future impacts of climate change. They have so far failed to meet their commitment to deliver USD 100 billion in climate finance annually from 2020 to 2025 to developing countries¹⁷³ – an amount which, in any case, falls far below what is actually needed.¹⁷⁴

According to recent estimates from the Organisation for Economic Co-operation and Development (OECD), climate finance from developed countries amounted to US\$83.3 billion in 2020.¹⁷⁵ Of these funds, 73% was in the form of loans rather than grants, which increases debt in recipient countries' while reducing resources needed to put in place measures to protect human rights, including in the context of extreme heat and heatwaves.

Moreover, climate finance to date has largely focused on supporting climate change mitigation measures in relatively high-emitting countries, while funding for adaptation in small, climate-vulnerable and low-income countries remained limited. According to UN Environment Programme's (EP) 2022 Adaptation Gap Report, while adaptation finance to developing countries continues to rise, "the adaptation finance gap in developing countries is likely five to 10 times greater than current international adaptation finance flows and continues to widen". The report called for significant acceleration in adaptation finance, noting that international adaptation finance represented a 34% share of total climate finance to developing countries in 2020.¹⁷⁶ While on the increase, climate finance for climate change adaptation projects remains limited compared to the global need and to the Paris Agreement's call for a balance between mitigation and adaptation finance flows.¹⁷⁷

Funding for the implementation of effective heat management plans should be covered by climate finance for adaptation. According to the Pakistan's 2021 NDC, "Pakistan's adaptation needs in 2016 were placed in

¹⁶⁷ World Meteorological Organization, "More bad news for the climate: greenhouse gas levels hits new high," 26 October 2022, <https://public.wmo.int/en/media/press-release/more-bad-news-planet-greenhouse-gas-levels-hit-new-highs>

¹⁶⁸ IPCC, "Synthesis Report of the IPCC Sixth Assessment Report (AR6), Summary for Policymakers", March 2023, https://reliefweb.int/attachments/dd4beacc-1f69-4231-aa6e-85c0f767f6bf/IPCC_AR6_SYR_SPM.pdf; IEA, "Net Zero by 2050 – A Roadmap for the Global Energy Sector", May 2021, <https://www.iea.org/reports/net-zero-by-2050>

¹⁶⁹ United Nations Environment Programme, "Emissions Gap Report 2022", October 2022, <http://www.unep.org/resources/emissions-gap-report-2022>

¹⁷⁰ United Nations Framework Convention on Climate Change, "Climate Plans Remain Insufficient: More Ambitious Action Needed Now", 26 October 2022, unfccc.int/news/climate-plans-remain-insufficient-more-ambitious-action-needed-now

¹⁷¹ World Meteorological Organization and others, "United in Science 2022: A Multi-Organization High-Level Compilation of the Most Recent Science Related to Climate Change, Impacts and Responses", 2022, library.wmo.int/index.php?lvl=notice_display&id=22128#.Y1fppXbMI2z

¹⁷² This document uses the term "developing countries" to refer to all countries that are not included in Annex 1 of UNFCCC. However, there are substantial differences between developing countries. Many non-Annex 1 countries are classified as upper-middle income by the World Bank.

¹⁷³ OECD, "Aggregate Trends of Climate Finance Provided and Mobilised by Developed Countries in 2013-2020", 2022, oecd.org/climate-change/finance-usd-100-billion-goal/aggregate-trends-of-climate-finance-provided-and-mobilised-by-developed-countries-in-2013-2020.pdf

¹⁷⁴ According to information compiled by the UNFCCC's (United Nations Framework Convention on Climate Change) Standing Committee on Finance, 78 of 153 Nationally Determined Contributions (NDCs) have costed needs, and these amount to USD 5.8–5.9 trillion up until 2030. Only 11% of the costed needs specify whether finance has to be domestic or international; of these USD 502 billion is identified as needs requiring international sources of finance. See UNFCCC Standing Committee on Finance, "First Report on the Determination of the Needs of Developing Country Parties Related to Implementing the Convention and the Paris Agreement", 2021, para. 16, unfccc.int/topics/climate-finance/workstreams/needs-report. These figures were as of 31 May 2021.

¹⁷⁵ OECD, "Aggregate Trends of Climate Finance Provided and Mobilised by Developed Countries in 2013-2020", 2022, oecd.org/climate-change/finance-usd-100-billion-goal/aggregate-trends-of-climate-finance-provided-and-mobilised-by-developed-countries-in-2013-2020.pdf

¹⁷⁶ UNEP, "Adaptation Gap Report 2022", 1 November 2022, <https://www.unep.org/resources/adaptation-gap-report-2022>

¹⁷⁷ OECD estimated that adaptation finance reached US\$28.6 billion in 2020. The United Nations Environment Programme estimated in 2022 that finance needs for adaptation amount to US\$71 billion per year between now and 2030. See UNEP, "Adaptation Gap Report 2022", 1 November 2022, (previously cited), <https://www.unep.org/resources/adaptation-gap-report-2022>

the range of between US\$7–14 billion per annum to 2050”,¹⁷⁸ but it also noted that “Pakistan has enjoyed very limited access to international climate finance”.

A 2022 briefing by Development Initiatives, an international non-governmental organization, found adaptation finance in Pakistan to be “insufficient and inaccessible”. According to the briefing “adaptation finance from multilateral climate funds and bilateral grant official development assistance (ODA) committed to Pakistan since 2016 is somewhere between US\$220.5 million and US\$517.7 million”, which Development Initiatives consider to be inadequate.¹⁷⁹ Data specific to financing required and received for excessive heat and heat wave management is not available, and Amnesty International had received no response from the Ministry of Climate Change, the Environment, Climate Change and Coastal Development Department, Government of Sindh, and the Environment Protection Department, Government of Punjab to written questions about whether there have been assessments on financing needs for implementing effective national and local heat management strategies, and how much is currently being spent on adaptation measures.

In addition to providing adequate funds to support adaptation to heat extremes, it is also crucial to provide remedy for the loss and damage people have experienced or will experience as a result of climate-exacerbated extreme heat. Although there is no universally accepted definition, most sources define loss and damage as climate impacts that cannot or will not be prevented by mitigation or adaptation measures and can include economic and non-economic consequences.¹⁸⁰

The 2021 Pakistan’s NDC states that “Pakistan will also need support to bear increasing climate-induced Loss and Damage (L&D), particularly from Glacial Lake Outburst Floods (GLOFs), seawater intrusions, droughts, heatwaves, tropical storms, landslides, and riverine floods”. The financing needs for these and other losses and damages will be enormous. The cost of the damage caused by the 2022 floods alone is estimated at US\$14.9 billion, with losses of US\$15.2 billion, and total reconstruction needs of US\$16.3 billion.¹⁸¹

In January 2023, in the aftermath of the 2022 floods, the Government of and the UN co-hosted an International Conference on Climate Resilient Pakistan, “to review the recovery needs of the affected population, and to identify support required to reconstruct and rehabilitate the damaged infrastructure in a resilient manner”.¹⁸² Over US\$9 billion was committed by bilateral and multilateral partners during the conference, although 90% were in the forms of loans.¹⁸³

It is not clear if assessments of loss and damage caused by extreme heat and heat waves have been undertaken in Pakistan. At the time of publication, Amnesty International had not received a response from the Ministry of Climate Change about whether such assessments have been conducted and, if so, what methodology was used and what the results were.

The importance of assessments for all aspects of loss and damage (economic and non-economic, sudden-onset and slow-onset impacts) cannot be underestimated. Recognizing and assessing the scope and extent of all kinds of loss and damage, as well as the differentiated impacts based on gender, age, socio-economic status and other factors is essential for achieving climate resilience and providing effective remedies for all, including marginalized groups. When assessing the loss and damage caused by climate change-related events, and especially non-economic losses, detailed consideration should be given to the impact of heatwaves and other adverse effects of climate change on the enjoyment of human rights including rights to

¹⁷⁸ Government of Pakistan, “Updated Nationally Determined Contributions 2021” <https://unfccc.int/sites/default/files/NDC/2022-06/Pakistan%20Updated%20NDC%202021.pdf>

¹⁷⁹ Development Initiatives, “Filling the gap: Addressing climate-driven crises in Pakistan” 3 November 2022 <https://devinit.org/resources/filling-the-gap-addressing-climate-driven-crises-pakistan/>

¹⁸⁰ Stockholm Environment Institute, “Defining Loss and Damage: The Science and the Politics around one of the most contested issues within the UNFCCC”, 2016, <https://www.sei.org/publications/defining-loss-and-damage/> For a literature review of definitions, see International Center for Climate Change and Development, “Defining Loss and Damage: Key Challenges and Considerations for Developing an Operational Definition”, 2015, [icccad.net/wp-content/uploads/2015/08/Defininglossanddamage-Final.pdf](https://www.icccad.net/wp-content/uploads/2015/08/Defininglossanddamage-Final.pdf)

¹⁸¹ Ministry of Planning Development & Special Initiatives, “Pakistan Floods 2022 - Post-Disaster Needs Assessment”, 28 October 2022, <https://reliefweb.int/report/pakistan/pakistan-floods-2022-post-disaster-needs-assessment>.

¹⁸² UNDP, “Co-Chairs Summary International Conference on Climate Resilient Pakistan”, 9 January 2023, <https://www.undp.org/pakistan/news/international-conference-climate-resilient-pakistan>; Amnesty International, “Pakistan: Pledges for flood recovery must be followed through with meaningful climate action”, 10 January 2023, <https://www.amnesty.org/en/latest/news/2023/01/pakistan-pledges-for-flood-recovery-must-be-followed-through-with-meaningful-climate-action/>

¹⁸³ Dawn, “Almost 90pc of Geneva pledges are project loans, Dar reveals”, 15 May 2023, <https://www.dawn.com/news/1731101>

life, health, food, adequate housing, education and work,¹⁸⁴ for which the full participation of affected communities and marginalized groups is essential.¹⁸⁵

The decision at COP27 in November 2022 to establish a Loss and Damage Fund marks a potentially very significant development for delivering support to developing countries such as Pakistan to pay for the massive costs resulting from climate-induced damage, and Pakistan played a crucial role in the advocacy to secure it.¹⁸⁶ It is now crucial that the Fund is rapidly made operational and that wealthy countries adequately contribute to it. The Loss and Damage Fund should be rooted in human rights principles such as non-discrimination, substantive equality, inclusion, and effective redress and remedy.¹⁸⁷ All responses to loss and damage should be inclusive, intersectional, gender-responsive, and aim to achieve substantive equality for individuals who are already marginalized or in vulnerable situations. The objective of the Loss and Damage Fund should be to provide effective remedy to those most affected by the climate crisis, in such a way that it does not put additional pressure on public budgets of developing countries. Participation of affected communities is essential in the process of determining effective and meaningful remedy. Furthermore, the resources provided to the fund must be new and additional and, based on human rights obligations.



👁️ ↑ *Agricultural wastewater gathers in low-lying fields, which are used as pools to cool cattle off. Children who assist as farmhands often jump into the same water, leaving them susceptible to waterborne diseases. Photo: Shakil Adil/ Amnesty International*

¹⁸⁴ Amnesty International, “Any tidal wave could drown us- Stories from the climate crisis”, 3 November 2022, <https://www.amnesty.org/en/documents/ior40/6145/2022/en/>

¹⁸⁵ Amnesty International, “Any tidal wave could drown us- Stories from the climate crisis”, 3 November 2022, (previously cited) <https://www.amnesty.org/en/documents/ior40/6145/2022/en/>

¹⁸⁶ Reuters, “Flood-hit Pakistan seeks loss and damage ‘compensation’ at COP27”, 4 November 2022, <https://www.reuters.com/business/cop/flood-hit-pakistan-seeks-loss-damage-compensation-cop27-2022-11-04/>

¹⁸⁷ Amnesty International and Centre for International Environmental Law, “Human Rights as a Compass for Operationalising the Loss and Damage Fund”, 21 February 2023, <https://www.amnesty.org/en/documents/ior40/6463/2023/en/>

5.3.3 THE NEXUS BETWEEN THE CLIMATE CRISIS AND PAKISTAN'S DEBT

“Pakistan is doubly victimized by climate chaos and a morally bankrupt global financial system. That system routinely denies middle-income countries the debt relief and concessional funding needed to invest in resilience against natural disasters.

UN Secretary-General, António Guterres, January 2023¹⁸⁸

At the end of the financial year 2020/2021, Pakistan's total public debt amounted to US\$268,410 million, or 88.6% of GDP at that time.¹⁸⁹ Around 34% of this debt was to external actors. According to UN Development Programme (UNDP), as of June 2021, 48% of Pakistan's external public debt was held by multilateral actors (primarily the World Bank, the International Monetary Fund (IMF) and Asia Development Bank (ADB); 30% was bilateral debt; and 22% of it was held by commercial actors.¹⁹⁰ According to the IMF, total debt servicing (both domestic and externally held debt) amounted to US\$71,830 million, or 24% of GDP, in 2020/2021.¹⁹¹ A large percentage of government expenditure therefore goes on debt servicing. In the Federal Budget 2022-2023, for example, around 45% of the total expenditure was allocated to servicing external and domestic debt.¹⁹²

According to Development Initiatives, Pakistan's external debt levels “were extremely high even before the floods in 2022, reaching US\$76 billion”.¹⁹³ Using data on borrowing following floods in 2010 when Pakistan had to borrow “between an estimated US\$20–40 billion more than would have been the case, which resulted in annual interest payments of between US\$1.6 and US\$3.1 billion”, the report illustrates the devastating pressure of climate-related disasters on countries already under the burden of debt.¹⁹⁴ In April 2023, the NGO Debt Justice estimated that between 2022 and 2024, Pakistan will spend 43% of its revenue on external debt payments.¹⁹⁵

According to UNDP, Pakistan is among the 54 most debt vulnerable countries in the world.¹⁹⁶ According to media reports, a draft paper by the UNDP in September 2022 argued that “Pakistan should seek to suspend international debt repayments and restructure loans.”¹⁹⁷

¹⁸⁸ UNSDG, “Guterres urges radical global finance shake-up to help Pakistan after deadly floods”, 09 January 2023, <https://unsdg.un.org/latest/announcements/guterres-urges-radical-global-finance-shake-help-pakistan-after-deadly-floods>

¹⁸⁹ International Monetary Fund, “Pakistan, 2021 Article IV Consultation, Sixth Review under the Extended Arrangement under the Extended Fund Facility, and Requests for Waivers of Applicability and Nonobservance of Performance Criteria and Rephrasing of Access-Press Release; Staff Report; and Statement by the Executive Director for Pakistan”, February 2022, <https://www.imf.org/en/Publications/CR/Issues/2022/02/04/Pakistan-2021-Article-IV-Consultation-Sixth-Review-Under-the-Extended-Arrangement-Under-the-512715>.

¹⁹⁰ UNDP, “Financing Climate Action in Pakistan: Solutions and Way Forward”, 20 June 2022, <https://www.undp.org/pakistan/publications/financing-climate-action-pakistan-solutions-and-way-forward>

¹⁹¹ International Monetary Fund, “Pakistan, 2021 Article IV Consultation, Sixth Review under the Extended Arrangement under the Extended Fund Facility, and Requests for Waivers of Applicability and Nonobservance of Performance Criteria and Rephrasing of Access-Press Release; Staff Report; and Statement by the Executive Director for Pakistan”, February 2022, <https://www.imf.org/en/Publications/CR/Issues/2022/02/04/Pakistan-2021-Article-IV-Consultation-Sixth-Review-Under-the-Extended-Arrangement-Under-the-512715>

¹⁹² Government of Pakistan, “Federal Budget 2022-23, Budget in Brief”, https://www.finance.gov.pk/budget/Budget_2022_23/Budget_in_Brief_English.pdf

¹⁹³ Development Initiatives, “Filling the gap: Addressing climate-driven crises in Pakistan”, 3 November 2022, <https://devinit.org/resources/filling-the-gap-addressing-climate-driven-crises-pakistan/#note-source-oxMKi8ozH>

¹⁹⁴ Development Initiatives, “Filling the gap: Addressing climate-driven crises in Pakistan”, 3 November 2022, (previously cited) <https://devinit.org/resources/filling-the-gap-addressing-climate-driven-crises-pakistan/#note-source-oxMKi8ozH>

¹⁹⁵ Debt Justice, “Lower income country debt payments to hit highest level in 25 years”, 11 April 2023, <https://debtjustice.org.uk/press-release/lower-income-country-debt-payments-set-to-hit-highest-level-in-25-years>

¹⁹⁶ UNDP, “50 percent of world's poorest need debt relief now to avert major systemic development crisis, warns UN Development Programme”, 11 October 2022, <https://www.undp.org/press-releases/50-percent-worlds-poorest-need-debt-relief-now-avert-major-systemic-development-crisis-warns-un-development-programme>

¹⁹⁷ B Parkin, “Flood-hit Pakistan should suspend debt repayments, says UN policy paper” *Financial Times* 23 September 2022, <https://www.ft.com/content/31061741-16a1-49fe-a495-6d7dbd3c886a>

In a joint press conference with the Prime Minister of Pakistan, in November 2022, the UN Secretary General Guterres stressed that “Pakistan deserves massive support directly from the international community” for losses and damage caused by climate-change. He appealed to international financial institutions and G20 countries “to create the conditions for mechanisms of debt relief of middle-income countries impacted by natural disasters the size of the one Pakistan had, in order to allow resources to be devoted to the investments in resilience and in recovery and reconstruction that are necessary”, and went on to emphasize the need for Pakistan to have access to effective debt relief and the concessional funding that is necessary for the huge levels of reconstruction and rehabilitation.¹⁹⁸

It is worth considering that debt payments are currently occupying significant amounts of government revenues and expenditure. This detracts essential resources from social spending and climate adaptation, both needed to protect economic and social rights. The absence of adequate debt relief is one of many barriers to the introduction of necessary climate adaptation and mitigation, including heat management plans, and the brunt of this will be borne by people living in poverty.



☺ ↑ *Children fill water bottles outside a closed government school, most of which remain poorly equipped to protect students from the heat. The absence of a public transport system forces children to walk to school in the heat, or if they can afford it, a shared taxi. This leads to students dropping out. Photo: Shakil Adil/ Amnesty International*

¹⁹⁸ UN, “UN Secretary-General remarks at joint press encounter with Prime Minister of Pakistan Shehbaz Sharif”, 07 November 2022, <https://www.un.org/sg/en/content/sg/press-encounter/2022-11-07/un-secretary-generals-remarks-joint-press-encounter-prime-minister-of-pakistan-shehbaz-sharif>

6. INTERNATIONAL AND DOMESTIC LEGAL STANDARDS

6.1 PAKISTAN'S OBLIGATIONS TO PROTECT ECONOMIC AND SOCIAL RIGHTS

Pakistan has ratified a range of international human rights instruments that require it to respect, protect and fulfil economic and social rights, including the rights to health and to social security. These include the International Covenant on Economic, Social and Cultural Rights, the Convention on the Elimination of All Forms of Discrimination against Women, the International Convention on the Elimination of All Forms of Racial Discrimination, the Convention on the Rights of the Child, and the Convention on the Rights of Persons with Disabilities.

The right to health extends to the protection of the underlying determinants of health, such as food and nutrition, housing, access to safe and potable water and adequate sanitation, safe and healthy working conditions, and a healthy environment.¹⁹⁹ Many of these are also independently recognized human rights.²⁰⁰ The right to health requires that health-care facilities, goods and services be sufficiently available, accessible, and affordable for all persons. Health facilities, goods and services must be accessible to all, especially the most marginalized sections of the population, in law and in fact, without discrimination on any of the prohibited grounds. It also includes the right to healthy natural and workplace environments, meaning the “the prevention and reduction of the population’s exposure to ... other detrimental environmental conditions that directly or indirectly impact upon human health”.²⁰¹

Similarly, Pakistan has an obligation to protect the right to social security. This includes the right to access and maintain benefits, to secure protection, inter alia, from a lack of work-related income caused by sickness, disability, employment injury, unemployment, or old age, and unaffordable access to health care. The Committee on Economic, Social and Cultural rights makes it clear that social security systems should cover all workers, including part-time workers, casual workers, seasonal workers, and the self-employed, and those working in atypical forms of work in the informal economy. The Committee has clarified that benefits should be provided to cover periods of loss of earnings by persons who are requested not to report for work during a public health or other emergency.²⁰² This includes people who are advised to not work due to extreme weather, such as a heat wave. Similarly, “attention should be given to ensuring that the social security system can respond in times of emergency, for example during and after natural disasters, armed conflict and crop failure”.²⁰³

Furthermore, the Committee on Economic, Social and Cultural rights has emphasized that preventing occupational accidents and disease is a fundamental aspect of the right to just and favourable conditions of work. To this end, States should adopt a national policy for the prevention of accidents and work-related health injury by minimizing hazards in the working environment, and ensuring broad participation in the

¹⁹⁹ UNOHCHR, “CESCR General Comment No. 14: The Right to the Highest Attainable Standard of Health (Art. 12)”, 11 August 2000, <https://www.refworld.org/pdfid/4538838d0.pdf>

²⁰⁰ See articles 6 and 11 of the ICESCR. The right to a clean, healthy, and sustainable environment has been recognized as a human right by the United Nations Human Rights Council and the United Nations General Assembly, respectively in 2021 and 2022. See UN Human Rights Council, Resolution: The Human Right to a Clean, Healthy and Sustainable Environment, adopted on 8 October 2021, UN Doc. A/HRC/RES/48/13; UN General Assembly (UNGA), Resolution: The Human Right to a Clean, Healthy and Sustainable Environment, adopted on 26 July 2022, UN Doc. A/76/L.75

²⁰¹ UNOHCHR, “CESCR General Comment No. 14: The Right to the Highest Attainable Standard of Health (Art. 12)”, 11 August 2000, <https://www.refworld.org/pdfid/4538838d0.pdf>

²⁰² CESCR, “General Comment No. 19: The right to social security (art. 9)”, 4 February 2008, E/C.12/GC/19.

²⁰³ CESCR, “General Comment No. 19: The right to social security (art. 9)”, 4 February 2008, E/C.12/GC/19

formulation, implementation and review of such a policy.²⁰⁴ They have further noted that “Access to safe drinking water, adequate sanitation facilities that also meet women’s specific hygiene needs, and materials and information to promote good hygiene are essential elements of a safe and healthy working environment”.²⁰⁵

The right to life can also be relevant where extreme heat and heatwaves result in heat-related deaths. The UN Human Rights Committee has clarified that states have the obligation to respect and protect the right to life from reasonably foreseeable threats and life-threatening situations that can result in loss of life, including adverse climate change impacts.²⁰⁶

The Constitution of Pakistan reflects several economic and social rights in its chapter on Principles of Policy, but these principles are not justiciable rights. These include the promotion of the economic and educational interests of “backward classes or areas”; make “provisions for securing just and humane conditions of work” and under article 38, “provide basic necessities of life, such as food, clothing, housing, education and medical relief, for all such citizens, irrespective of sex, caste, creed or race, as are permanently or temporarily unable to earn their livelihood on account of infirmity, sickness or unemployment”.²⁰⁷ The Principles of Policy as stated in the Constitution of Pakistan, when read with its international legal obligations, creates a persuasive domestic obligation to guarantee the right to health, food, housing, work and social security among several economic and social rights as outlined above.²⁰⁸ The Supreme Court has also held that the right to life and dignity include the right to a healthy environment.²⁰⁹

6.2 OBLIGATIONS TO PROTECT HUMAN RIGHTS IN THE CONTEXT OF THE CLIMATE CRISIS

6.2.1 PAKISTAN’S OBLIGATIONS

All states, including Pakistan, have the obligation, under international human rights law, to minimize the harmful effects of climate change on human rights. This includes taking all adequate and human rights-consistent steps to the full extent of their abilities to reduce GHG emissions within the shortest possible time-frame, both nationally and through international co-operation and in a manner compatible with the imperative of keeping the global average temperature rise as low as possible and no higher than 1.5°C above pre-industrial levels.

States must also adopt all necessary measures to assist those within their jurisdiction to adapt to the foreseeable and unavoidable effects of climate change, thus minimizing the impact of climate change on their human rights.²¹⁰ All states have this obligation, regardless of the extent to which they are responsible for the climate crisis, as states have an obligation to protect human rights from harms caused by third parties.²¹¹ States that are unable to take sufficient adaptation measures in a manner that would ensure continued enjoyment and progressive realization of economic, social and cultural rights for their population must seek (and cannot arbitrarily refuse) international assistance and co-operation to do so. Adaptation measures should give priority to the most marginalized groups, communities and individuals and be gender responsive.²¹² In designing climate change adaptation and disaster risk reduction strategies and measures, states must take into account the needs and requirements of different groups. This includes identifying and

²⁰⁴ UNCESCR, “General comment No. 23 (2016) on the right to just and favourable conditions of work (article 7 of the International Covenant on Economic, Social and Cultural Rights)”, 27 April 2016, E/C.122/GC/23, para 25

²⁰⁵ UNCESCR, “General comment No. 23 (2016) on the right to just and favourable conditions of work (article 7 of the International Covenant on Economic, Social and Cultural Rights)”, 27 April 2016, E/C.122/GC/23, para 30

²⁰⁶ UN Human Rights Committee (HRC), “General Comment 36: Right to life (Art 6)”, 3 September 2019, UN Doc. CCPR/C/GC/36, para. 62; UNHRC, Views Adopted by the Committee Under Article 5 of the Optional Protocol, concerning Communication Number 3624/2019, 22 September 2022, UN Doc. CCPR/C/135/D/3624/2019, para. 8.3.

²⁰⁷ National Assembly of Pakistan, “The Constitution of the Islamic Republic of Pakistan”, 12 April 1973, art. 37 and 38.

²⁰⁸ Benazir Bhutto v. Federation, PLD 1988 SC 416

²⁰⁹ ESCR-Net, “Ms. Shehla Zia v. WAPDA, PLD 1994 SC 693”, 12 February 1994, <https://www.eschr-net.org/caselaw/2015/ms-shehla-zia-v-wapda-pld-1994-sc-693>

²¹⁰ UNGA, “Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy, and sustainable environment”, 1 February 2016, UN Doc. A/HRC/31/52, para. 68

²¹¹ See UNHRC, “General Comment 31: The Nature of the General Legal Obligation Imposed on States Parties to the Covenant”, 26 May 2004, UN Doc CCPR/C/21/Rev.1/Add. 13, para. 8; UNCESCR, “General Comment 12” (previously cited), para. 15.

²¹² See for example, UNGA, “The right to adequate housing, Note by the Secretary-General”, 6 August 2009, UN Doc. A/64/255, para. 74; UNGA, “Human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment”, 15 July 2019, UN Doc. A/74/161, para. 85.

supporting livelihoods that are resilient to disasters and climate change,²¹³ as well as providing necessary technical and material support to livelihoods particularly at risk of climate change impacts. It also includes investing in social protection and social services to reduce vulnerability to and mitigate the risks of disasters and climate-induced stresses.²¹⁴ For example, the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment has asked that states “provide social protection mechanisms to reduce vulnerability to climate-related disasters and stresses, enabling people to become more resilient”.²¹⁵

An important aspect of these obligations is around facilitating public participation in environmental decision-making, such as in the development of policies, laws, regulations, projects and activities.²¹⁶ When planning and designing climate strategies, national adaptation plans, and specific climate mitigation and adaptation projects and initiatives, states must conduct adequate and meaningful public consultation, particularly ensuring the participation without discrimination of those most affected by climate change and by the proposed decisions.²¹⁷ To be effective, public participation must occur early on in the process and must “provide real opportunities for the views of the affected members of the public to be heard and to influence the decision-making process”.²¹⁸ States should ensure that relevant authorities take into account the views expressed and provide clear and justified explanations of the decisions taken.²¹⁹

Furthermore, under human rights law, all persons who suffer human rights violations are entitled to access an effective remedy. Relevant human rights bodies and independent experts have clarified that this principle extends to human rights violations caused by environmental harm. Therefore, Pakistan has an obligation to ensure the right to access to remedy for those whose rights are affected by climate change or climate-related measures.²²⁰ This includes ensuring that the victims of loss or damage have access to adequate resources and support, including financial compensation. However, the obligation to provide effective remedy, including compensation, lies primarily with states which are most responsible for the climate crisis. obligations of the international community

Based on the principle of common but differentiated responsibilities and respective capabilities under environmental law and the duty of international co-operation under human rights law, all states in a position to do so must provide financial resources, capacity-building and technology transfer to developing countries according to their capacity, capability and respective responsibility in causing climate change.²²¹ This financing and support is necessary to allow lower-income countries to meet their climate mitigation targets and implement effective climate change adaptation measures.

Wealthy states have a greater responsibility for the climate crisis – due to their higher than average per capita current and past emissions. They are therefore jointly responsible for ensuring remedies for the losses and damages people have already suffered due to the climate crisis based on the extent of their contribution to

²¹³ UN CEDAW, “General Recommendation No. 37 (2018) on Gender-related dimensions of disaster risk reduction in the context of climate change”, UN Doc. CEDAW/C/GC/37, para. 46(c).

²¹⁴ UNGA, “Interim report of the Special Rapporteur on the right to food”, 5 August 2015, UN Doc. A/70/287, para. 89(k); UN CEDAW, “General Recommendation No. 37 (2018)” (previously cited), UN Doc. CEDAW/C/GC/37, para. 64(a); UNGA, “Human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment”, (previously cited) UN Doc. A/74/161 para. 86(c).

²¹⁵ UN Human Rights Special Procedures, “Safe Climate, A Report of the Special Rapporteur on Human Rights and the Environment”, UN Doc A/74/161, <https://www.ohchr.org/sites/default/files/Documents/Issues/Environment/SREnvironment/Report.pdf>

²¹⁶ UNGA, “Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment” 24 January 2018, UN Doc. A/HRC/37/59, paras 23-26.

²¹⁷ Groups disproportionately affected by the climate crisis and response measures include women, children, older persons, workers and communities particularly affected by the decarbonization process, people living on low income or in poverty, Indigenous Peoples, rural communities, refugees and migrants, people discriminated on the basis of race, work and descent, persons with disabilities, LGBTI people, and other minorities, particularly those facing discrimination on multiple and intersecting grounds. For specific recommendations about ensuring this participation, see for example UN Committee on the Rights of the Child, “General Comment 12: The right of the child to be heard”, 20 July 2009, UN Doc CRC/C/GC/12, para. 134; UN Committee on the Rights of the Child, “General Comment 14: The right of the child to have his or her best interests taken as a primary consideration (Art. 3, para. 1)”, 29 May 2013, UN Doc CRC/C/GC/14, para. 91; UN CEDAW, “General Recommendation 37” (previously cited), para. 36; OHCHR, “Analytical Study on the Rights of Persons with Disabilities in the Context of Climate Change” (previously cited). For recommendations about participation in the Concluding Observations of certain treaty bodies to countries under review, see CIEL and GI-ESCR, “States’ Human Rights Obligations in the Context of Climate Change”, 2020

²¹⁸ UNGA, “Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment,” (previously cited)1 February 2016, UN Doc. A/HRC/31/52, para. 59

²¹⁹ UNGA, “Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment”, 24 January 2018, UN Doc. A/HRC/37/59, para. 26.

²²⁰ UNGA, “Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment,” (previously cited)1 February 2016, UN Doc. A/HRC/31/52, para. 62.

²²¹ See for example: UNGA, “Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment,” (previously cited)1 February 2016, UN Doc. A/HRC/31/52, para. 46; UNGA, “International solidarity and climate change: Report of the Independent Expert on human rights and international solidarity”, 1 April 2020, UN Doc. A/HRC/44/44, para. 8.

this harm.²²² Ensuring that victims of human rights violations related to climate change receive adequate compensation is not only an obligation under human rights law but also an imperative to achieve climate justice, ensuring that the costs of losses and damages are borne by the states and companies responsible rather than the victims.²²³

²²² Amnesty International, “Stop burning our rights! What governments and corporations must do to protect humanity from the climate crisis”, June 7, 2021, Index Number: POL 30/3476/2021, <https://www.amnesty.org/en/documents/pol30/3476/2021/en/>

²²³ See M. Wewerinke-Singh, “Remedies for human rights violations caused by climate change”, 2019, *Climate Law*, Volume 9.



👁️↑ A man bears through one of many frequent power cuts in his workshop in Jacobabad. Photo: Shakil Adil/ Amnesty International

“We can barely survive in this weather. We don’t want our children to go through the same.”

Food delivery rider, Lahore¹

7. CONCLUSIONS AND RECOMMENDATIONS

Climate-exacerbated extreme heat is a reality in Pakistan today. Several parts of the country including Jacobabad and Lahore experience high temperatures and heatwaves with some regularity. There is a lack of adequate action on extreme heat and limited climate responsive social protection. Due to this, many people continue work in environments that do not protect them enough from the heat, are unable to access cooling mechanisms and other forms of heat protection, and face difficulties accessing necessary care. For marginalized groups, particularly those living in poverty and on lower incomes, living and working in extreme heat can be debilitating, and can have grave and long-lasting impacts on their health and lives. Climate-exacerbated extreme heat is resulting in vast losses and damages, particularly with respect to people's health and livelihoods. This situation is projected to worsen as the impacts of climate change intensify in coming years. To guarantee people's human rights in this challenging time, the federal and provincial governments of Pakistan need to urgently introduce measures to protect people from the on-going impacts of extreme heat.

The Pakistan government cannot do this alone. Governments from other, particularly wealthier countries, have a significant role to play. Climate injustice is starkly visible in Pakistan with its population facing severe consequences, despite its disproportionately small contribution to global climate change. Climate finance to date has largely focused on supporting climate change mitigation measures in relatively high-emitting countries, while funding for adaptation remains limited. This needs to change. Wealthier countries need to step up, act in accordance with their human rights obligations, and provide the financing and support needed for Pakistan to put in place adequate adaptation measures, provide effective remedies for loss and damage, and guarantee human rights protections.

7.1 RECOMMENDATIONS

7.1.1 THE GOVERNMENT OF PAKISTAN SHOULD

Heat action policy and plans

- Design and implement a national heat action policy, consistent with international best practices, guidance from the ILO and World Health Organization, and international human rights law and standards. Until this policy is in place, put in emergency measures to ensure that people are supported and empowered to take the necessary steps to adequately protect themselves from extreme heat.
- The federal government and provincial governments, including authorities in Punjab and Sindh, should take all necessary steps to develop comprehensive heat action plans consistent with human rights law and standards, that ensure that:
 - People have information in an accessible format about the health impacts of extreme heat and heatwaves, and know how they can protect themselves.
 - Groups that are especially vulnerable to the health impacts of heat waves and extreme heat are identified through specific assessments, and specific measures to keep them safe are put in place and accessible. Groups includes children, older people, people with disabilities and chronic health conditions, people living in poverty, who are experiencing homelessness, who work outdoors, who have precarious jobs and/or work in the informal sector. Keep in mind that women in these groups are likely to face multiple and intersecting forms of discrimination.
 - All people can access affordable and timely health care.

- Health facilities are prepared for the specific challenges people face during periods of extreme heat, and have necessary infrastructure for patients at health clinics and hospitals.
- All places of work are supported to adequately respond to periods of extreme heat including by adapting work hours and methods, and ensuring access to cooling technologies and protective equipment where applicable. The safety of people working outdoors, or who are otherwise exposed to extreme heat at work, should be a key priority area in heat management plans.
- People are adequately protected against loss of income due to heat and heat-related sickness, through social protection measures.
- All health facilities monitor and report patterns in heat-related illnesses, and this data is publicly available.
- Heat action plans are conceptualized, designed and implemented in a consultative and participatory manner. Inputs from the people most impacted by extreme heat should be reflected, and the full and equal participation of women and marginalized groups should be guaranteed.
- Assess the funding required to effectively implement a heat action plan and allocate adequate amounts to all involved departments. Where the government cannot afford to finance this, it should seek international assistance from other states.
- Assess and monitor the impact of extreme heat on marginalised groups to see what other rights may be impacted.
- Regularly monitor and evaluate heat action plans and put in place processes to revise them based on how they are working.
- While developing the National Adaptation Plan, ensure that:
 - The management of extreme heat and heatwaves are a priority area, and the elements of a human rights consistent heat action plan (as outlined above), are prioritized.
 - The National Adaptation Plan is developed in a transparent and participatory manner, and all affected groups are able to participate in the process.
- Ensure people have access to other determinants of health, and technologies that will help cope with heat, including adequate water, affordable electricity, access to other cooling mechanisms, as appropriate.
- Investigate and invest in measures that would contribute to reducing temperatures in areas vulnerable to extreme heat, including increasing vegetation cover and restoring degraded forests and ecosystems.
- Collect, update and disseminate information about climate change and its impacts, including early warning information regarding climate effects and climate-related disasters and events, including heatwaves and extreme rainfall.

Climate responsive social protection

- Urgently enhance existing social protection programs and increase expenditure on them to ensure that everyone who needs it, has access to social protection, and everyone can access their economic and social rights, and an adequate standard of living. Where the government is unable to meet the funding requirements, it should request specific international assistance to this end as a priority.
- Revise existing social protection strategies and plans in Pakistan, keeping in mind climate-related risks, and ensure that they move away from narrow poverty targeting, and towards universal social protection.

- Integrate social protection in all climate adaptation and mitigation strategies, and in conversations around loss and damage, and ensure these plans are developed consistent with human rights, and in a transparent and participatory manner.
- Ensure that climate responsive social protection is a priority in the National Adaptation Plan, keeping in mind the potential impact of climate change on job losses and livelihoods.

Loss and Damage

- Conduct human rights-based, inclusive and participatory Loss and Damage Needs Assessments which reflects the adverse effect of climate change, including heat waves and extreme heat, on the enjoyment of human rights, such as the rights to life, health, food, water, a clean, healthy and sustainable environment, adequate housing, education, work.
 - Such as assessment should include economic and non-economic forms of loss and damage.
 - Attention should be paid to the effective participation of marginalized groups.
- Provide access to effective remedies to people facing loss and damage, including access to financial resources that will be mobilised for loss and damage, and ensure all responses to loss and damage are inclusive, intersectional, gender-responsive and promote equality for peoples and individuals who are already marginalized.

7.1.2 THE INTERNATIONAL COMMUNITY, IN PARTICULAR WEALTHIER COUNTRIES, SHOULD

- In line with obligations of international assistance and cooperation, support the government of Pakistan with adequate long-term and predictable technical and financial assistance, to guarantee economic and social rights throughout the country.
- Significantly increase funding for human rights-consistent climate mitigation and adaptation initiatives in developing countries, including for loss and damage. This includes:
 - making concrete pledges reflecting their level of responsibility and capacity with a specific timeline for delivery, to jointly meet and go beyond the agreed annual target of USD\$100 billion and provide USD 500 billion between 2022-2025 to make up for earlier gaps.
 - ensuring a balance between mitigation and adaptation funding and present a clear plan to do so and to achieve and surpass the goal set at COP26 to at least double adaptation finance from 2019 levels by 2025, taking into account that a doubling of 2019 adaptation finance would still be insufficient to enable developing countries to adequately support people to adapt to climate change.
 - Adopting a higher quantified collective goal for climate finance that matches actual needs for support from developing countries at international climate negotiations within the UN Framework Convention on Climate Change (UNFCCC).
- Operationalise the newly established Loss and Damage Fund by COP28 and provide adequate and additional financial resources to developing countries including through the Fund, to remedy climate-induced loss and damage, ensuring most affected groups, including women, Indigenous peoples, children and other marginalized groups can effectively access resources and other form of remedies.
- Ensure that climate funding is additional to existing commitments for overseas development assistance, that finance for climate change mitigation, adaptation and loss and damage to low-income countries is in the form of grants, not loans.
- Accelerate their emission reduction efforts, particularly by rapidly phasing out fossil fuels and adopting more ambitious emission reduction targets that reflect their historical responsibility for the climate crisis and their higher level of resource, and are aligned with the imperative to keep the

increase of global average temperature as low as possible and no higher than 1.5°C above pre-industrial levels.

More specifically wealthier states should support Pakistan by:

- Significantly increasing climate funding for human rights-consistent initiatives in Pakistan, ensuring a better balance between climate mitigation and adaptation funding.
- Providing specific funding and technical support for climate adaptation measures in Pakistan aimed at protecting people from the impacts of extreme heat and heat waves, and particularly for those who are at particular risk.
- Providing adequate support and remedy to people who have suffered or will suffer loss and damage as the result of heat extremes and other climate-induced impacts, including assistance to carry out human rights-consistent Loss and Damage Needs Assessments and additional resources through the Loss and Damage Fund and other mechanisms.

7.1.3 PAKISTAN'S CREDITORS SHOULD

- Proactively offer debt relief, and consider all options for debt relief including debt cancellation, to enable Pakistan to protect people's economic and social rights, particularly in the context of the economic and climate crisis it faces;
- Ensure that their human rights responsibilities and Pakistan's human rights obligations are central to any future commitments around Pakistan's debt, and in particular, ensure that such future commitments:
 - do not undermine the government's ability to fulfil its human rights obligations; and
 - support the government to put in place timely and meaningful measures to ensure that marginalized groups and people vulnerable to disproportionate harm due to the economic crisis have access to sufficient social security and support, so they can access an adequate standard of living.

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A BURNING EMERGENCY

EXTREME HEAT AND THE RIGHT TO HEALTH IN PAKISTAN

Climate injustice is starkly visible in Pakistan, with its population facing severe consequences despite the country's disproportionately small contribution to global climate change. Increased exposure to heat, and more heatwaves, have been identified as one of the key impacts of climate change in Pakistan, with people experiencing extreme heat and seeing some of the highest temperatures in the world in recent years. Based on secondary literature and interviews with people from marginalized groups in Jacobabad and Lahore, this report examines the impact of extreme heat on the right to health. The health impacts of extreme heat, combined with the lack of adequate protection from extreme heat at work, difficulties in accessing affordable cooling mechanisms, and inadequate state responses, mean that people's right to health, especially for marginalized groups, is adversely impacted. The government of Pakistan should put in place adequate heat action plans, consistent with human rights law, and ensure that climate responsive social protection is available to everyone. Furthermore, tackling the climate crisis requires global action, and wealthier countries must play an important role. This includes increasing climate funding, especially for climate adaptation measures, and providing adequate support and remedy to people for loss and damage resulting from heat extremes and other climate-induced impacts.