

THE UNEQUAL BURDEN OF CLIMATE CHANGE

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Introduction

Climate change is already reshaping livelihoods, public finances and development choices across the world. Floods, droughts, heatwaves, wildfires and glacier loss affect every region, but their consequences are not evenly distributed. Countries with stronger institutions, deeper insurance markets and greater fiscal space are generally better placed to absorb shocks. Many developing countries, by contrast, enter climate emergencies with weaker infrastructure, high debt burdens and a heavy dependence on climate-sensitive sectors such as agriculture.

This imbalance sits at the centre of the climate-justice debate. The distinction between the Global North and Global South is not a formal legal category under the UN climate regime, but it captures an important political reality: the countries that industrialised earliest generated a large share of the carbon dioxide that accumulated in the atmosphere, while many lower-emitting states now face severe adaptation and recovery costs. At the same time, the distribution of responsibility is no longer static. China and other emerging economies have become major emitters, which means historical responsibility, present-day mitigation obligations and climate vulnerability cannot be reduced to a single North–South divide.

Historical Responsibility: Who Built Up the Emissions Stock?

The climate impact of greenhouse gases depends on both the amount emitted and how long those gases remain in the climate system. Carbon dioxide can influence atmospheric concentrations for thousands of years. Methane lasts roughly a decade on average but traps far more heat per unit of mass, while nitrous oxide persists for more than a century. This long atmospheric legacy is why cumulative emissions matter when responsibility for climate change is assessed.¹

IPCC estimates show that developed countries accounted for about 57 per cent of cumulative fossil-fuel and industrial CO₂ emissions between 1850 and 2019, while least developed countries contributed only around 0.4 per cent. The figures do not imply that all developing countries have the same emissions profile, but they confirm that the historical contribution to warming has been highly unequal.²

Selected cumulative CO₂ emissions, 1750–2024

Fossil-fuel and industrial CO₂ only; land-use change excluded.

Country / region	Cumulative CO ₂
United States	434.9 Gt
European Union (27)	300.9 Gt
China	285.1 Gt
United Kingdom	80.1 Gt
India	66.1 Gt
Pakistan	5.74 Gt

The same dataset places Pakistan at about 0.31 per cent of global cumulative fossil-fuel and industrial CO₂ emissions, compared with roughly 23.5 per cent for the United States. These figures are useful for historical comparison, but they do not include land-use change and should not be treated as a complete measure of every country's climate responsibility.³

¹ "Understanding Global Warming Potentials," U.S. Environmental Protection Agency, Accessed on August 18, 2026, <https://www.epa.gov/ghgemissions/understanding-global-warming-potentials>

² "AR6 Working Group III, Chapter 2: Emissions Trends and Drivers," Intergovernmental Panel on Climate Change, 2022, <https://www.ipcc.ch/report/ar6/wg3/chapter/chapter-2/>

³ "Cumulative CO₂ Emissions, 1750–2024," *Global Carbon Budget 2025*, processed by Our World in Data, 2025, <https://ourworldindata.org/grapher/cumulative-co-emissions>

Why the Global South Bears Higher Costs

Historical emissions explain only one side of climate injustice. The other is vulnerability. Many low- and middle-income economies have a larger share of employment and household income tied to agriculture, fisheries and natural resources. Infrastructure is often less resilient, social protection systems cover fewer people, and governments have less room to borrow after a disaster. As a result, a climatic shock that is expensive in a high-income state can become a development setback lasting years in a poorer one.

The food system illustrates this asymmetry. The IPCC reports that human-induced warming and associated heat and rainfall extremes in West Africa reduced millet yields by an estimated 10–20 per cent and sorghum yields by 5–15 per cent. Losses of this kind are not confined to farm output: they feed into household incomes, food prices, nutrition, migration and fiscal pressure.⁴

Pakistan as a Case of Low Historical Emissions and High Exposure

Pakistan provides a clear example of the mismatch between historical contribution and climate exposure. According to the Global Carbon Budget data processed by Our World in Data, Pakistan has produced about 5.74 Gt of cumulative fossil-fuel and industrial CO₂ since the start of the record, around 0.31 per cent of the global total. Yet the country faces repeated floods, heatwaves, drought risk, glacier-related hazards and coastal stress.⁵

The 2022 floods affected about 33 million people, killed more than 1,700, displaced nearly eight million and damaged or destroyed more than two million houses. The Post-Disaster Needs Assessment placed physical damages above US\$14.9 billion and economic losses at about US\$15.2 billion, with reconstruction needs exceeding US\$16.3 billion.⁶

The pattern of repeated shocks continued. Official data compiled in the IMF's late-2025 review recorded 1,037 deaths, 6.9 million people affected, more than four million displaced and roughly 230,000 houses damaged during the 2025 floods.⁷ By 8 September 2026, the National Disaster Management Authority's monsoon dashboard had recorded 181 deaths and 515 injuries since 26

⁴ "AR6 Working Group II, Chapter 5: Food, Fibre and Other Ecosystem Products," Intergovernmental Panel on Climate Change, 2022, <https://www.ipcc.ch/report/ar6/wg2/chapter/chapter-5/>

⁵ "Cumulative CO₂ Emissions, 1750–2024," *Global Carbon Budget 2025*, processed by Our World in Data, 2025, <https://ourworldindata.org/grapher/cumulative-co-emissions>

⁶ "Pakistan Floods 2022: Post-Disaster Needs Assessment," Government of Pakistan and Development Partners, October 2022, <https://thedocs.worldbank.org/en/doc/4a0114eb7d1cecbbbf2f65c5ce0789db-0310012022/pakistan-floods-2022-pdna-main-report>

⁷ "Pakistan: Second Review Under the Extended Fund Facility, 2025," International Monetary Fund, 2025, <https://www.elibrary.imf.org/view/journals/002/2025/332/article-A001-en.xml>

June. The 2026 figures remain a seasonal snapshot rather than a final toll, but they underline the growing frequency with which Pakistan must divert resources from development to emergency response and reconstruction.⁸

Climate change does not remove domestic responsibility. Weak land-use enforcement, inadequate drainage, encroachment on floodplains, inefficient water management and gaps in disaster preparedness can turn extreme weather into larger human and economic losses. A credible climate-justice position therefore requires two arguments at the same time: stronger international support because Pakistan's historical contribution is small, and stronger domestic reform because vulnerability is also shaped by policy choices at home.

The Climate-Finance Gap

Adaptation finance remains far below the scale of need. UNEP's Adaptation Gap Report 2025 estimates that developing countries will require about US\$310–365 billion per year for adaptation by 2035. International public adaptation finance flows to developing countries were only US\$26 billion in 2023. On UNEP's calculation, estimated needs are already 12 to 14 times current public flows.⁹

This gap matters because the form of finance is as important as the headline amount. Loans can help fund productive investments, but relying heavily on debt to rebuild after climate disasters can worsen fiscal vulnerability in countries that already have limited borrowing space. For highly vulnerable states, a larger share of adaptation and loss-and-damage support needs to come as grants or deeply concessional finance, backed by predictable multi-year commitments.

Climate Justice in the UN Framework

The principle of Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC) provides the central legal and political basis for differentiated action under the UN climate regime. The UNFCCC states that developed-country Parties are to provide financial resources to assist developing countries and should continue to take the lead in mobilising climate finance. The principle does not remove obligations from developing countries; it recognises that responsibilities and capacities are unequal.¹⁰

⁸ "Monsoon Sitrep 2026 National Dashboard," National Disaster Management Authority, 2026, <https://sitreps.ndma.gov.pk/fdashboardn>

⁹ "Adaptation Gap Report 2025: Running on Empty," United Nations Environment Programme, 2025, <https://www.unep.org/resources/adaptation-gap-report-2025>

¹⁰ "Introduction to Climate Finance," UNFCCC, Accessed on August 18, 2026, <https://unfccc.int/topics/introduction-to-climate-finance>

Loss and damage have become an important part of this debate because some climate impacts cannot be avoided through mitigation or adaptation alone. The Fund for Responding to Loss and Damage was established at COP27 and operationalised at COP28 to assist developing countries that are particularly vulnerable to adverse climate impacts. Its value will ultimately be judged less by its institutional design than by whether it receives predictable resources at a scale that is meaningful relative to rising losses.¹¹

Policy Recommendations

- Scale up grant-based adaptation finance. Developed countries and multilateral institutions should increase the share of grants and highly concessional financing for the most climate-vulnerable states so adaptation does not deepen debt distress.
- Make delivery transparent. Climate-finance reporting should distinguish between pledges, approvals and actual disbursements, and should show the grant-equivalent value of loans. This would make it easier to judge whether promised support is reaching vulnerable countries.
- Strengthen the Loss and Damage Fund. Contributions should become more predictable and additional to existing development assistance. Access procedures should remain simple enough for countries facing acute disasters to use them quickly.^[10]
- Prioritise locally led adaptation. International finance should support early-warning systems, resilient housing, climate-smart agriculture, water management, urban drainage and heat-response measures designed with provincial and local institutions rather than only through large central projects.
- Expand technology and knowledge transfer. Better hydrometeorological systems, resilient seed varieties, water-efficient irrigation, renewable-energy storage and climate-risk analytics can reduce exposure while supporting development.
- Match Pakistan's international case with domestic reform. Pakistan should strengthen climate-budget tagging, provincial coordination, floodplain regulation, resilient infrastructure standards and post-disaster loss databases. A stronger domestic adaptation record would reinforce its claim for greater international support.

¹¹ "Fund for Responding to Loss and Damage," UNFCCC, Accessed on August 18, 2026, <https://unfccc.int/fund-for-responding-to-loss-and-damage>

Conclusion

Climate justice is ultimately about the distribution of responsibility, risk and capacity. Industrialised economies still account for a large share of the carbon dioxide accumulated since the nineteenth century, while many developing countries are paying a disproportionate share of the adaptation and recovery bill. Pakistan's experience captures that imbalance: its historical CO₂ contribution is small, yet repeated floods and other climate hazards impose large human and fiscal costs.

The response cannot rest on historical responsibility alone. Major emerging emitters also have growing mitigation obligations, and vulnerable countries must reduce the domestic weaknesses that magnify climate damage. A workable climate-justice agenda therefore combines faster emissions cuts, greater grant-based adaptation and loss-and-damage finance, technology transfer, and stronger governance in vulnerable states. Without progress on all four, the gap between those who contributed most to climate change and those least able to bear its costs will continue to widen.