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THE BROKEN GROUND

Unpacking Pakistan's Climate Displacement Crisis

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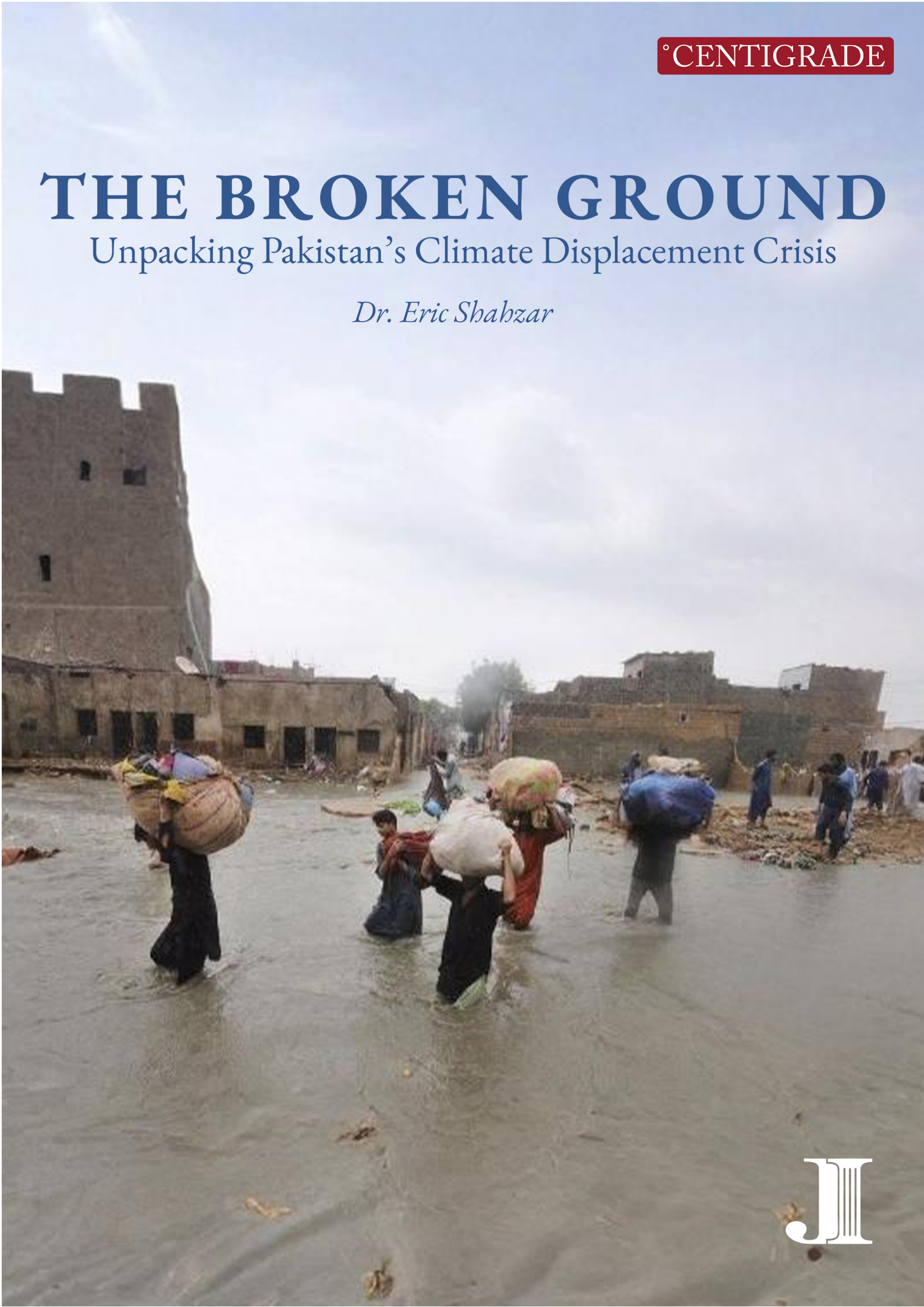

The Broken Ground: Unpacking Pakistan's Climate Displacement Crisis

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Introduction

Accelerated climate change is increasingly reshaping migration and displacement dynamics worldwide. This occurs in several ways, including extreme weather events that destroy homes, as well as rising sea levels and coastal erosion that render small islands and coastal areas uninhabitable. Through these processes, accelerated climate change is significantly disrupting displacement patterns.

Pakistan's approach to climate displacement has faced challenges in establishing a unified strategic direction. Without a clear policy focus, efforts remain disjointed, leaving affected communities without sustainable solutions. A consensus-driven, in-country strategy is essential, one that prioritizes climate displacement as a domestic challenge first, ensuring a structured response before seeking external interventions. The lack of a clear national narrative has resulted in fragmented efforts, reactive policymaking, and an absence of long-term rehabilitation plans.

The devastating 2022 floods highlighted the urgent need for action, with 8 million people displaced, 33 million affected, and 90 districts submerged[1]. These catastrophic events are not isolated incidents but part of a growing pattern of climate disasters reshaping Pakistan's landscape. Pakistan is among the most climate-vulnerable nations globally, situated in South Asia's most at-risk region. While its diverse geography offers natural resources and economic opportunities, it also presents severe climate risks: glacial melt in the north is displacing communities, drought-driven migration is intensifying in central regions, and rising sea levels are forcing coastal settlements to relocate.

Climate-induced displacement in Pakistan is intricately linked with other forms of displacement, such as those driven by poverty and food insecurity. As communities are forced to migrate due to environmental stressors, such as rising sea levels or extreme weather events, they often find themselves trapped in a cycle of impoverishment. The cumulative cost of inaction by 2050 is estimated at USD 80 billion for population displacement in Pakistan[2]. The scale and frequency of climate displacement demand immediate and targeted policy intervention. Delays in action only deepen the crisis, pushing affected populations into cycles of poverty, insecurity, and further migration. Climate displacement governance cannot be postponed, and localized interventions are crucial. Simply revising policy frameworks

[1] UNICEF. (2023). *Devastating floods in Pakistan.* Retrieved from https://www.unicef.org/emergencies/devastating-floods-pakistan-2022

[2] UK International Development. (2024, November). *Bridging Pakistan's adaptation financing gap: Developing evidence-based climate adaptation and resilience solutions.* Foreign, Commonwealth & Development Office (FCDO). Retrieved February 13, 2024, https://assets.publishing.service.gov.uk/media/673b38e6a804531e2f499ab9/20241115_-FCDO_Bridging_Pakistan_s_Adapatation_Financing_Gap-_vDesign.pdf

without addressing the institutional and governance gaps will yield little progress.

The Global South has been disproportionately impacted by the climate crisis, yet the 1951 Refugee Convention does not offer protection to climate-displaced individuals, nor does it propose amendments to address the unique status of climate displaced people. Therefore, Pakistan must develop a comprehensive and robust policy framework to address internal displacement, prioritizing the immediate needs of affected populations. This approach should ensure effective management of displacement and provide long-term solutions for those affected by climate-induced disruptions at home.

The following sections in this policy brief present key areas of concerns and recommendations for policymakers and stakeholders, offering a roadmap for a more coordinated and proactive response to climate displacement in Pakistan.

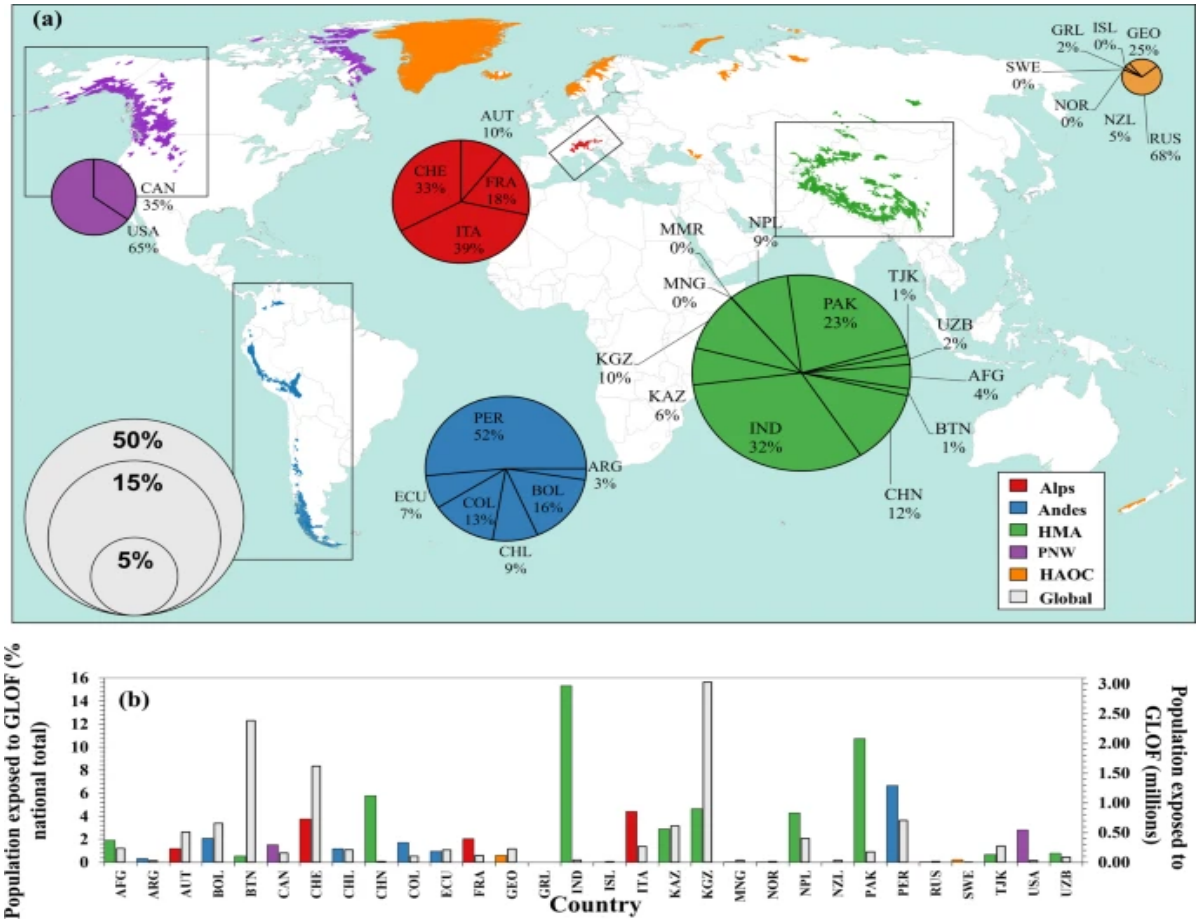
People on the move: Climate induced disasters

Glacial retreat and climate displacement in Pakistan's northern regions

The Himalayan glaciers are now losing ice at an unprecedented rate, melting ten times faster in recent decades compared to the average ice loss over the past 400-700 years. Alarmingly, this rapid decline has led to a 40% reduction in glacier mass, shrinking from 28,000 km² to just 19,000 km².[3] As glaciers continue to retreat at a devastating pace, they are fueling a major climate-induced displacement crisis. Glacial Lake Outburst Floods (GLOFs) release millions of cubic meters of water and debris across mountainous regions, wiping out entire settlements and triggering humanitarian crises for already marginalized communities.

As seen in **Graph 1**, India and Pakistan contain the highest number of exposed people (3 million and 2 million people respectively, or one-third of the global total combined).

[3] Priestley Centre for Climate Futures. (2022). *Study reveals Himalayan glaciers melting at "exceptional rate."* Retrieved from https://climate.leeds.ac.uk/news/study-reveals-himalayan-glaciers-melting-at-exceptional-rate/



Graph 1: Global Distribution of GLOF exposure. (A) The global distribution of glacial basins is illustrated, color-coded by mountain range. The 'High Arctic and Outlying Countries' (HAOC) category encompasses all basins outside the four primary mountain ranges examined in this study: the Alps, Andes, High Mountains Asia (HMA), and Pacific Northwest (PNW). Pie charts represent the proportion of the exposed population in each range, with individual country contributions highlighted. The size of each pie chart corresponds to the percentage contribution to the 2020 global total. (B) Grey bars indicate the exposed population as a percentage of the national total (left axis), while colored bars depict the absolute exposed population per country (right axis). ***Source: Nature Communications.***[4]

Pakistan is home to over 7,000 glaciers, one of the largest concentrations globally. However, due to the accelerating impacts of global warming, it is projected that up to 80% of their volume could be lost this century if global greenhouse gas emissions are not drastically reduced[5]. This dramatic glacial melt is expected to trigger a severe displacement crisis. Already, more than 48,000 people across Gilgit-Baltistan and Chitral are at high risk from glacial lake outbursts and landslides, which are further

[4] C Taylor, T Robinson, M Westoby, 2023 "Glacial lake outburst floods threaten millions globally *"Nature Communications* (14).https://doi.org/10.1038/s41467-023-36033

[5] Adhem, J. (2023, June 28). *'Washed away': Pakistan's melting glaciers threaten millions with dangerous flooding.* Euronews. Retrieved from https://www.euronews.com/green/2023/06/28/washed-away-pakistans-melting-glaciers-threatens-millions-with-dangerous-flooding

exacerbating the region's vulnerability to climate-induced disasters.

As these glacial lakes reach critical thresholds, they overflow, releasing torrents of water and debris that devastate local communities. The scale of such disasters leaves remote populations with no option but to migrate to safer areas, further straining already vulnerable regions. This mounting threat emphasizes the urgent need for comprehensive mitigation and adaptation strategies to address both the immediate and long-term challenges posed by climate-induced displacement.

The economic toll of climate-induced disasters continues to escalate, surpassing $18 billion in damages, with projections suggesting it could soar to $40 billion soon[6]. With glacial melt accelerating, the urgency for disaster mitigation and proactive climate policies has never been greater.

Adapting on the move; coastal belt displacement

Climate displacement in Pakistan's coastal zone is a gradual and complex process, consisting of a mix of temporary, forced and voluntary migration. Coastal communities are now increasingly at risk from the negative impacts of climate change, including more intense storms, floods, coastal erosion, and sea intrusion. These communities already living below the poverty line are highly vulnerable, as even a minor shock can push them into perpetual poverty. As a result, climate change disproportionately impacts these marginalized regions, deepening their socio-economic struggles.

The people with the worst vulnerability to the climate crisis are the ones that remain at Pakistan's coastal belts near the Indus Deltaic region. The Indus Delta, the fifth-largest delta in the world, is rapidly vanishing due to the compounded effects of rising sea levels, water intrusion, and escalating soil erosion along Pakistan's coastal belts. Simultaneously, reduced water flow from the once-thriving Indus River has further exacerbated the delta's decline. Since 1993, the deltaic coastline has shifted significantly 22km inland, posing a severe threat to lives and livelihoods.[7] However, due to the absence of comprehensive demographic data and the ad-hoc nature of displacement tracking, typically conducted only during disasters, it remains unclear how many

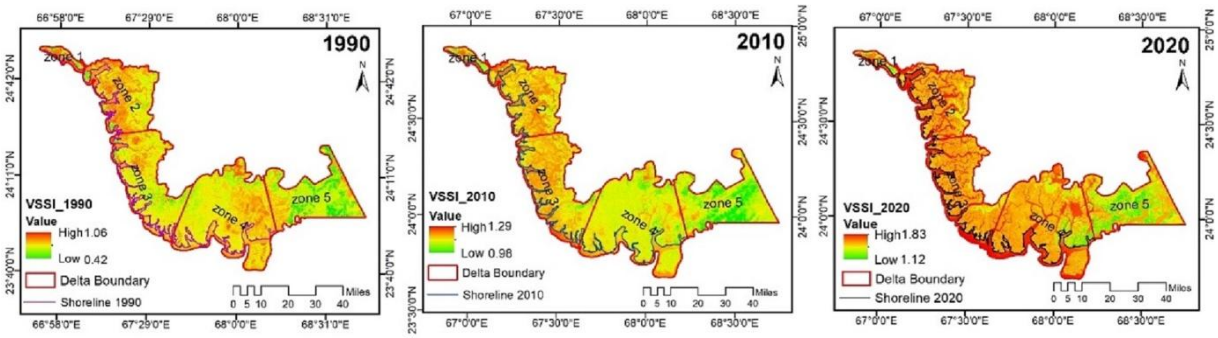
[6] Kelley, A. (2021, September 2). *Damage from IDA estimated to cost $18B.* The Hill. Retrieved from https://thehill.com/changing-america/resilience/natural-disasters/570493-damage-from-ida-estimated-to-cost-18-billion/
[7] Braam, D. (2021.). *Adapting on the move.* Internal Displacement Monitoring Centre

people and homes have been affected over the years.

This lack of systematic data collection hampers effective policy responses and long-term planning for those at risk. However, conservative estimates suggest that over 1.2 million people have already been displaced, with approximately 4.2 million acres of land lost to the sea. These figures, likely underreported, highlight the urgent need for effective climate adaptation strategies to address the growing displacement crisis in the region.

Graph 2 illustrates the impact of seawater intrusion on land erosion in the Indus Delta region. Coastal intrusion not only heightens the vulnerability of local communities but also leads to the degradation of mangroves and the loss of essential ecosystem services in Pakistan.

Graph 2 illustrates how seawater intrusion has caused land erosion in the Lower Indus Deltaic region. **Source: USGS Global Visualization Viewer (GloVis)**



Career transitions and the strain on urban centers

Climate change is forcing people to shift professions as an adaptation strategy. In the past, residents of the Indus Delta worked in agriculture, but now, with sea intrusion, many have turned to fishing as their primary livelihood. 90% of households in Keti Bundar now rely on fish stocks. However, with the depletion of the Indus Delta and the accelerating climate change disrupting marine life, Keti Bundar's fish stocks have declined by a staggering 70%[8], leaving people with no choice but to move elsewhere in search of new livelihoods. This sharp decline in a vital source of income highlights the growing climate refugee crisis in South Pakistan, driven by the combined effects of rising sea levels and reduced water flow in the Indus Delta.

As the fishing communities face increasing difficulty in maintaining their traditional way of life, migration in search of new livelihood opportunities has become inevitable. The mass exodus from these coastal areas marks the early signs of a climate refugee crisis, where people are displaced due to environmental factors. Displaced individuals and families often encounter hardships and uncertainty in their new locations. The rise of urban slums or *katchi abadis* due to this migration has compounded socio-economic challenges. The loss of traditional livelihoods has disrupted the social fabric of these communities and placed additional strain on urban centers as people flock to cities in search of work and resources.

In Pakistan, coastal erosion and rising sea levels are driving widespread displacement, forcing many to relocate to urban slums in Karachi, which is already ranked as one of the least liveable cities. Small towns and villages have been submerged, and communities such as Keti Bundar are steadily retreating. Similarly, in Bangladesh, an estimated 1,000 to 2,000 climate-displaced individuals are migrating to urban slums in Dhaka, the country's most populous city. Projections suggest that Karachi could experience a similar influx, with around 3 million internal climate migrants by 2050[9].

Karachi is ranked among the top 10 cities globally most vulnerable to climate migration, alongside cities such as Bogotá (Colombia), Amman (Jordan), and Freetown (Sierra Leone). To mitigate the economic and social disruptions caused by this influx, it is imperative that cities like Karachi are empowered with the necessary resources and

[8] Raman, D. (2017). Damming and infrastructural development of the Indus River Basin: Strengthening the provisions of the Indus Waters Treaty. Asian Journal of International Law, 8(2), 372–402. https://doi.org/10.1017/s2044251317000029

[9] PreventionWeb. *(2024, September 18). Eight million climate migrants predicted to arrive in ten global south cities by 2050 if emissions don't fall.*

decision-making powers to effectively address climate migration.

The climate-water nexus and its impact on displacement

One of the principal consequences of climate displacement will be the intensification of water scarcity. In urban settings, water scarcity heavily strains the delivery of essential social services and disrupts the functioning of healthcare systems. In rural areas, prolonged and more severe droughts place immense pressure on farmers and others reliant on already limited water resources to sustain food production for both local markets and subsistence.

Pakistan is grappling with a severe water crisis, transitioning from a water-stressed to a water-scarce nation. With its annual water availability now falling below 1,000 cubic meters per person[10]Pakistan has likely already crossed this critical threshold. The country's water storage capacity is alarmingly low, with only a 30-day supply, far below the recommended 1,000-day storage capacity for nations with similar climatic conditions. A key driver of this depletion is climate-induced factors such as extreme heatwaves, prolonged droughts, and rising sea levels.

These environmental stressors are not only exacerbating water scarcity but are also setting the stage for widespread displacement, particularly in vulnerable regions. The growing water shortage, compounded by climate change, threatens livelihoods, agriculture, and overall food security, forcing communities to migrate in search of resources.

International framework

The operationalization of the Fund for Loss and Damage (FRLD) at COP29, with the aim to begin financing projects by 2025, marks a crucial step forward. However, current pledges, totalling just $731 million, represent only a small portion of the estimated $724.43 billion required annually to address both economic and non-economic losses in developing countries.[11] Importantly, these pledges fail to account for climate displacement costs, which are often overlooked in loss and damage strategic assessments. Governments must significantly increase their pledges to the Fund to ensure that these resources can be rapidly deployed as real support for the

[10] Parry, J.-E., Terton, A., Osman, H., Ledwell, C., & Asad, S. (2016). *Making every drop count: Pakistan's growing water scarcity challenge.* International Institute for Sustainable Development. Retrieved from https://www.iisd.org/articles/insight/making-every-drop-count-pakistans-growing-water-scarcity-challenge
[11] Internal Displacement Monitoring Centre (IDMC). (2024). *COP29: Key outcomes on displacement and implications for climate policy.* Retrieved from https://www.internal-displacement.org/policy-analysis/cop29-key-outcomes-on-displacement-and-implications-for-climate-policy/

countries most affected by climate change. In 2023, 82% of displacement occurred in nations highly vulnerable to climate change.

Yet, these countries continue to receive disproportionately low levels of climate finance. According to a report from UNHCR, in partnership with IDMC and others, fragile states receive just $2 per person annually for climate adaptation, compared to $161 in more stable, non-fragile states.[12] This stark disparity highlights the urgent need for more equitable distribution of climate finance to ensure that the most vulnerable populations are adequately supported in adapting to the changing climate. Countries will develop or revise their Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs) by COP30.

Despite its relevance, displacement is largely overlooked in the current commitments, with fewer than one-sixth of NDCs and only half of NAPs making concrete provisions for addressing it. The revision process provides a great opportunity to better incorporate displacement into Nationally Determined Contributions (NDCs) through targeted measures. Existing resources, such as the UNFCCC's Technical Guide on integrating human mobility and climate change linkages into national climate change planning processes, developed by the Warsaw International Mechanism for Loss and Damage (WIM) Task Force on Displacement, can support these efforts.

Pakistan's governance response to climate displacement

The Government of Pakistan decided to close the National Flood Response and Coordination Centre (NFRCC) after it had fulfilled its mandate. Established in 2022 to oversee the national response to the devastating monsoon rains and floods, the NFRCC served as a critical bridge between government institutions, disaster management authorities, and international donors. However, its closure raises concerns about the continuity and effectiveness of Pakistan's flood response mechanisms.

While its responsibilities have presumably been transitioned to other agencies, such as the National Disaster Management Authority (NDMA), the absence of a centralized coordinating body such as the NFRCC may further strain an already fragmented disaster management system. One of Pakistan's key structural challenges in disaster response is the lack of institutional

[12] United Nations High Commissioner for Refugees (UNHCR). (2024, November 12). *UNHCR report reveals climate change is a growing threat to people already fleeing war*. Retrieved from https://www.unhcr.org/news/press-releases/unhcr-report-reveals-climate-change-growing-threat-people-already-fleeing-war

coordination. The NDMA and Provincial Disaster Management Authorities (PDMAs) frequently operate in silos, leading to delays and inefficiencies. This disconnect was evident during the 2022 floods, when poor coordination between federal and provincial governments significantly slowed relief efforts, leaving displaced communities without essential aid, such as food, clean water, and medical support, or weeks.

The Resilient Recovery, Rehabilitation, and Reconstruction Framework (4RF) is the Government of Pakistan's strategic policy and prioritisation document which will guide the recovery, rehabilitation and reconstruction of the country. The 4RF has primarily focused on post-disaster recovery initiatives but has placed less emphasis on addressing the long-term needs related to internal displacement caused by climate change due to high adaption costs. The 2022 floods caused an economic loss of $30 billion in Pakistan, with recovery costs estimated at $16.2 billion, yet international pledges have reached only $10.9 billion, leaving a significant gap of $5.3 billion[13].

While the framework provides progressive strategies for recovery and rebuilding after disasters, it does not sufficiently address the pre-emptive measures or long-term solutions for the displaced populations. This gap can leave climate-displaced communities without the support they need for resettlement or adaptation, further exacerbating their vulnerability.

In 2024, Pakistan introduced the Climate Refugees Rights and Protection Bill in its National Assembly. If enacted, this legislation would make Pakistan the first country to formally recognize and protect climate refugees through a structured and legally binding framework. However, the efficacy of such a bill may be undermined by the lack of international alignment, as current global conventions fail to address or provide legal protection for climate-displaced individuals.

Many countries, particularly in the Global North, have adopted restrictive immigration policies, hindering efforts to secure legal protections for climate refugees. In this context, Pakistan must prioritise practical, actionable measures over symbolic legislative efforts. Rather than focusing solely on rhetoric, the country needs to implement a comprehensive, decentralized policy approach to address climate hotspots, regions most susceptible to displacement.

[13] World Bank Group. (2022, October 28). Pakistan: Flood damages and economic losses over USD 30 billion and reconstruction needs over USD 16 billion – new assessment. World Bank. https://www.worldbank.org/en/news/press-release/2022/10/28/pakistan-flood-damages-and-economic-losses-over-usd-30-billion-and-reconstruction-needs-over-usd-16-billion-new-assessme

Recommendations

1. Investing in systematic data to evaluate climate induced disasters

The availability of systematic data to assess the impacts of climate change in Pakistan remains limited, especially concerning the increasing severity of weather events in the region and the effectiveness of previous climate adaptation efforts. Collecting this data is essential to inform local government officials about the climate adaptation measures being implemented and their geographic focus across Pakistan. The lack of standardized monitoring and evaluation frameworks for tracking the progress of climate adaptation initiatives creates an additional challenge for governments, particularly those with limited time, resources, and facing governance challenges. Over 60% of countries with a National Adaptation Plan do not systematically assess its implementation, underlining the widespread gap in evaluating adaptation strategies.[14]

2. Climate Vulnerability Mapping (CVM)

Provincial governments must develop a comprehensive climate vulnerability map (CVM) to pinpoint regions most at risk from climate change. Such a mapping exercise would not only help prioritise climate adaptation measures in the most vulnerable areas but also identify regions where infrastructure needs strengthening to endure extreme weather events. Furthermore, this process can highlight areas where green infrastructure initiatives should be implemented to enhance resilience.

3. Strengthening Early Warning Systems for Climate-Induced Disasters

Once Climate Vulnerability Mapping (CVM) has identified the hotspots most vulnerable to displacement, it is crucial to implement Early Warning Systems (EWS) across the country. Currently, EWS are only operational in 24 of the most climate-vulnerable valleys in Gilgit-Baltistan and Khyber Pakhtunkhwa.[15] To effectively mitigate the impacts of climate-induced disasters, these systems must be expanded and implemented nationwide, especially in the coastal belts,

[14] Runde, D., Raphel, R., & Yusuf, M. (2023, February 1). *Pakistan and climate adaptation.* Center for Strategic and International Studies (CSIS). Retrieved from https://www.csis.org/blogs/development-dispatch/pakistan-and-climate-adaptation

[15] United Nations Development Programme (UNDP). (2023, February 14). *Ministry of Climate Change and UNDP building a resilient Pakistan through early warning systems.* Retrieved from https://www.undp.org/pakistan/press-releases/ministry-climate-change-and-undp-building-resilient-pakistan-through-early-warning-systems.

ensuring broader coverage and timely alerts for all at-risk regions.

4. Enhancing Climate Resilience Through Timely Cash Transfer

A more direct and constructive approach to climate adaptation involves just-in-time cash transfers to vulnerable communities in climate hotspots. These quick cash transfers empower recipients to enhance their resilience when climate-induced disasters occur. Data-driven forecasts can be used to predict extreme weather events, allowing for timely financial support to at-risk households. The effectiveness of such transfers lies in their timing, receiving financial aid even a day before a disaster can significantly improve resilience. Evidence shows that households that received timely cash transfers were 36% less likely to go a day without food compared to those that did not.[16] Implementing this approach as part of a broader climate adaptation strategy can help mitigate Pakistan's immediate and long-term impacts of displacement and loss of livelihoods.

5. Strengthening District-Level Climate Adaptation Interventions

The focus of climate adaptation efforts should be centered at the local level. Identifying strategic and operational priorities for adaptation at the division, district, and sub-national levels is likely to yield more impactful results than relying on a national strategy that depends on federal-level implementation in an environment marked by political disconnect between federal and provincial authorities. Moreover, the climate adaptation challenges and priorities at the sub-national level often differ significantly from those at the provincial or national levels, and therefore, require tailored interventions.

6. Advancing Planned Relocation

Unlike evacuations, which are intended as short-term measures to move people out of harm's way, planned relocations are intended to provide a permanent solution for people at risk. The first step, and a prerequisite for undertaking Planned Relocation, is to assess whether it is necessary. This decision should be based on scientific evidence. Pakistan must establish an institutional framework for Planned Relocation that aligns with the country's legal and policy structure. This

[16] Alsina, D. G., & Eldridge, D. (2025). The effectiveness of humanitarian aid in conflict zones: practitioner views on the transition from in-kind assistance to multi-purpose cash transfers. *Journal of International Humanitarian Action*, *10*(1). https://doi.org/10.1186/s41018-024-00165-6

framework should facilitate coordination across provincial ministries, departments, districts, and other relevant levels of government.

Conclusion

This policy brief has highlighted the urgent need for a comprehensive and coordinated approach to address climate displacement in Pakistan. With Pakistan's diverse geography, accelerated climate change causes faster glacial melting in the north, increases the frequency of droughts, and raises flood risks and salinity levels in its coastal belts. The lack of a clear and unified policy framework has led to fragmented responses, further exacerbating the challenges faced by climate displaced people.

To effectively mitigate and address climate displacement, this policy brief has recommended prioritizing localized climate adaptation strategies, investing in data collection, and implementing systematic climate vulnerability mapping. Strengthening early warning systems, enhancing resilience through timely cash transfers, and addressing the specific needs of districts are essential steps in the response. Additionally, planned relocation measures, based on scientific evidence, should be developed to ensure that communities at the highest risk are provided with sustainable solutions.

Collaboration between federal, provincial, and local authorities, alongside a clear national strategy, is crucial for creating a cohesive response. They must move away from working in silos and foster greater coordination across all levels of government. As climate induced displacement intensifies, this policy brief has outlined the necessary actions for Pakistan's climate policies to evolve and ensure that affected communities receive the appropriate support and solutions they urgently need for resilience and recovery.

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