
COP30
HITS & MISSES
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COP30

Hits & Misses

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Summary

COP30 has unfolded against a backdrop of scientific alarm and accelerating planetary instability. Thirty climate conferences on, global emissions continue to rise, fossil fuel use is at record highs, and the world is now tracking toward 2.7 to 3°C of warming. Leading scientific assessments confirm what frontline countries have long warned: the 1.5°C limit is no longer alive in practice, and the Paris Agreement, while historic in its intent, no longer holds under the weight of real-world emissions trajectories. The gap between what science demands and what major emitters deliver has grown into a structural breach, leaving vulnerable nations exposed to escalating climate shocks.

While COP30 produced some political advances, including support for the Belém Action Mechanism and renewed focus on agriculture, NAPs, and early warning systems, these gains remain marginal within a global system unable to secure the deep, rapid emissions cuts required to stabilise temperatures. The finance landscape is even starker. Adaptation contributions and the start-up facility for the Loss and Damage Fund remain symbolic in the context of trillion-dollar needs. Even with the Barbados Implementation Modalities adopted, the fund is not yet capable of predictable, rapid disbursement, leaving at-risk communities without real protection as heat extremes, flooding, and glacial melt intensify.

Across the summit, civil society and analysts underscored the structural imbalance of the UNFCCC process itself: fossil-fuel influence remains entrenched, texts are consistently diluted away from scientific imperatives, and access rules continue to slow money where it is needed most. COP30 delivered language and mechanisms but did not shift the power dynamics or material flows that determine climate outcomes for frontline states.

For Pakistan, already facing lethal heat, volatile monsoons, rapid glacial retreat, collapsing water security, and mounting economic losses, the stakes are existential. The country's updated NDCs estimate USD 565.7 billion in needs by 2035, far beyond

domestic capacity. With temperatures touching 53°C, carbon sinks weakening, and biodiversity and zoonotic risks rising, delayed or insufficient climate finance is no longer a development challenge; it is a direct threat to national survival.

Bottom line: COP30 exposes a world where the pace of planetary heating is outstripping the political system designed to contain it. The summit acknowledged parts of the implementation agenda but did not confront the core truth: without binding, responsibility-aligned emissions cuts from the largest polluters and predictable, justice-based finance for the most exposed nations, global climate governance cannot hold the line. A fundamental overhaul of the current system is now unavoidable if countries like Pakistan are to survive the accelerating age of climate extremes.

1. Adaptation Fund

- The concept of an adaptation goal has evolved to reflect its inherent complexity. During a UN-led global consultation, more than 5,000 possible adaptation indicators were suggested. These were eventually condensed into a list of 100, grouped under 11 thematic areas, in the proposal now heading to Belém[1].
- The Adaptation Fund remains significantly below the scale required for a world on track for 2.7 to 3°C of warming. Scientific assessments show that adaptation needs are rising far faster than current finance flows, leaving a widening protection gap for climate-vulnerable countries. Existing pledges provide some short-term relief but do not match the pace or magnitude of escalating impacts, especially in regions experiencing heat extremes, water stress, and ecosystem decline.[2]
- Countries will not be required to report on any single indicator; reporting will stay optional and will broadly depend on each nation's financial resources and technical capacity for tracking progress. Even so, this marks an important point of progress, signalling a turn from negotiation toward implementation[3]
- Roughly 135 million USDeq (134.9) in fresh pledges to the Adaptation Fund were unveiled early in the second week of the UN COP30 climate summit[4]
- Contributions to the Adaptation Fund have been shrinking over recent years — standing at $356 million in 2021; $243 million in 2022; $192 million in 2023; and just

[1] Berkhout, Frans. *Can COP30 bridge the adaptation gap?* King's College London, 18 Nov. 2025. Available at https://www.kcl.ac.uk/can-cop30-bridge-the-adaptation-gap

[2] United Nations Environment Programme (UNEP), *Emissions Gap Report 2025: Off Target*, 4 Nov. 2025, https://www.unep.org/resources/emissions-gap-report-2025

[3] World Economic Forum, *Why finance for climate adaptation must be a priority at COP30*, 2025, https://www.weforum.org/stories/2025/11/finance-climate-adaptation-cop30

[4] Adaptation Fund, "Adaptation Fund mobilizes over US$ 133 million for most vulnerable at COP30 in Brazil," Adaptation-Fund.org, 2025, https://www.adaptation-fund.org/adaptation-fund-mobilizes-over-us-133-million-for-most-vulnerable-at-cop30-in-brazil/

$133 million in 2024. The UN estimates that the global shortfall is around $310 billion annually. [5]

- The Fund's benefits are evident. It has allocated US$1.5 billion towards more than 200 hands-on adaptation initiatives across 108 countries, delivered through national systems and with local leadership. Approximately half of its project portfolio is in LDCs and SIDS. Its work has boosted resilience for more than 65 million people, safeguarded nearly 1 million hectares of ecosystems, and established upwards of 600 early warning systems. (Adaptation Fund) Nearly 30 projects have also been expanded either by the Fund itself or via additional financing, increasing these outcomes further[6]
- These new pledges will help the Fund continue strengthening and expanding climate resilience in communities most at risk. Announcements came from Germany (69.36 million USDeq), Spain (23.12 million USDeq), Sweden (13.81 million USDeq), Ireland (11.56 million USDeq), Luxembourg (5.78 million USDeq), Switzerland (5.26 million USDeq), the Walloon Region of Belgium (3.47 million USDeq), Portugal (1.16 million USDeq), South Korea (0.82 million USDeq) and Iceland (0.67 million USDeq)[7]
- Sustained resource mobilisation remains essential. The AF is aiming for a minimum fundraising target of US$300 million for 2025 to support progress towards tripling its annual disbursements by 2030, consistent with decisions from COP29, and to help finance a US$1.1 billion pipeline of projects currently under preparation[8]
- The unresolved issue, however, is finance. While the GGA's indicator system will provide a clearer picture of global adaptation funding flows, progress will ultimately depend on adopting a new commitment on adaptation finance. Even with better understanding of needs, COP30 cannot usher in a new era of implementation without concrete clarity on financing [9]

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[5] Earth.Org, *COP30: Six countries pledge US$58.5 million to the Adaptation Fund*, 2025, https://earth.org/cop30-six-countries-pledge-58-5-million-to-adaptation-fund/

[6] Adaptation Fund, "Adaptation Fund mobilizes over US$ 133 million for most vulnerable at COP30 in Brazil," Adaptation-Fund.org, 2025, https://www.adaptation-fund.org/adaptation-fund-mobilizes-over-us-133-million-for-most-vulnerable-at-cop30-in-brazil/

[7] Adaptation Fund, "Adaptation Fund mobilizes over US$ 133 million for most vulnerable at COP30 in Brazil," Adaptation-Fund.org, 2025, https://www.adaptation-fund.org/adaptation-fund-mobilizes-over-us-133-million-for-most-vulnerable-at-cop30-in-brazil/

[8] Adaptation Fund, "Adaptation Fund mobilizes over US$ 133 million for most vulnerable at COP30 in Brazil," Adaptation-Fund.org, 2025, https://www.adaptation-fund.org/adaptation-fund-mobilizes-over-us-133-million-for-most-vulnerable-at-cop30-in-brazil/

[9] World Economic Forum, *Why finance for climate adaptation must be a priority at COP30*, 2025, https://www.weforum.org/stories/2025/11/finance-climate-adaptation-cop30

- The last major positive step on adaptation finance occurred at COP26, when developed nations agreed to double their support for adaptation efforts. The Glasgow Climate Pact expires this year, leaving very limited time to establish a stronger, renewed commitment.[10]
- Recent findings from the Zurich Climate Resilience Alliance highlight the constraints on private-sector involvement in adaptation. Though there is room to expand private investment—particularly in agriculture, water infrastructure, and in middle-income countries—its overall scope remains limited. Coastal flood protection, for instance, is the world's costliest adaptation need but provides very little opportunity for financial returns, meaning public funding remains the only realistic option. In LDCs, private finance is expected to cover only about 5% of adaptation requirements [11]
- Private financing should be supported where it can add value, but it cannot replace the scale and dependability of public funds, which are vital to closing the annual US$300 billion adaptation finance gap [12]
- The 2025 UN Adaptation Gap Report estimates that climate-related losses will total between $310–365 billion annually by 2035. To maintain current economic conditions, it would be reasonable to invest at least this much to avoid those damages. Yet evidence shows a significant global shortfall in adaptation spending. The AGR concludes that adaptation finance must increase roughly twelvefold from current levels.[13]

Bottom line: The Adaptation Fund remains structurally misaligned with a world heading toward 2.7 to 3°C; without a dramatic scale-up in predictable, grant-based finance, frontline states will continue facing climate risks with tools that are too small, too slow, and too late.

[10] World Economic Forum, *Why finance for climate adaptation must be a priority at COP30*, 2025, https://www.weforum.org/stories/2025/11/finance-climate-adaptation-cop30
[11] World Economic Forum, *Why finance for climate adaptation must be a priority at COP30*, 2025, https://www.weforum.org/stories/2025/11/finance-climate-adaptation-cop30
[12] World Economic Forum, *Why finance for climate adaptation must be a priority at COP30*, 2025, https://www.weforum.org/stories/2025/11/finance-climate-adaptation-cop30
[13] United Nations Environment Programme (UNEP), *Adaptation Gap Report 2025: Running on Empty*, 29 Oct. 2025, https://www.unep.org/resources/adaptation-gap-report-2025

Pakistan:

- Without swift and substantial adaptation measures, the World Bank warns that Pakistan may face economic losses equivalent to 18–20 per cent of its GDP by 2050.[14]
- Pakistan's NDC 3.0 costing framework outlines an overall investment requirement of US$ 565.7 billion to move forward on adaptation, resilience, the low-carbon shift, and other cross-cutting priorities. Major spending categories include disaster risk preparedness (US$ 139.1 billion), universal water and sanitation access (US$ 89.5 billion), and transitioning the power sector to low-carbon energy (US$ 163.7 billion). Further resources are planned for clean transport, efficiency improvements in industry and buildings, clean cooking, wastewater management, and municipal waste systems.[15]
- The Global Climate Risk Index (CRI) produced by Germanwatch placed Pakistan among the ten countries most affected by climate impacts over the last twenty years, and the 2025 report identified Pakistan as the most severely hit nation in 2022 due to the catastrophic floods. The floods caused more than USD 30 billion in damages and reconstruction needs, displaced over 8 million people, and resulted in approximately 1,700 deaths. The analysis also highlighted that the poorest communities in the poorest districts bore the heaviest burden. Other global metrics reveal similar findings. The 2023 Notre Dame Global Adaptation Initiative (ND-GAIN) ranks Pakistan 150th in readiness and 146th in vulnerability [16].
- Collectively, these indicators illustrate a consistent trend: Pakistan's contribution to global emissions is minimal, yet it bears a disproportionate share of climate-related harm. With limited adaptive capacity, the country stands at the forefront of climate emergencies, facing hazards such as glacial melt, flooding, and other extreme weather. This imbalance highlights the urgent importance of strengthening national resilience and increasing global assistance under the

[14] World Bank, *Pakistan urgently needs significant investments in climate resilience to secure its economy and reduce poverty*, Press Release, 10 Nov. 2022, https://www.worldbank.org/en/news/press-release/2022/11/10/pakistan-urgently-needs-significant-investments-in-climate-resilience-to-secure-its-economy-and-reduce-poverty

[15] United Nations Framework Convention on Climate Change (UNFCCC), *Pakistan Third Nationally Determined Contribution (NDC 3.0)*, 24 Sept. 2025, https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24%20Sep.pdf

[16] United Nations Framework Convention on Climate Change (UNFCCC), *Pakistan Third Nationally Determined Contribution (NDC 3.0)*, 24 Sept. 2025, https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24%20Sep.pdf

principles of equity and common but differentiated responsibilities and respective capabilities (CBDR&RC), enabling Pakistan to manage a rapidly worsening climate threat [17]

- Following the destructive floods of 2022, the World Bank released the Pakistan Country Climate & Development Report, estimating indicative investments of USD 348 billion for mitigation and adaptation through 2030. Even with a substantial gap between projected financing needs and the international climate funds reaching Pakistan, the country has nevertheless taken several steps placing it on a low-emission pathway. Major progress has occurred in moving away from fossil-fuel-based electricity towards solar power. Import data shows Pakistan brought in 17 gigawatts of solar systems in 2024—more than twice the volume of the previous year—ranking it as the world's third-largest importer of solar panels. Additional assessments estimate that Pakistan's installed solar PV capacity is around 47 GW, representing investments above USD 10 billion[18]
- Pakistan remains dedicated to enhancing climate resilience for 10 million people across six priority zones in the Indus Basin through its flagship Recharge Pakistan programme. The project formally began by late 2024 across four sites with total financing of USD 72.8 million. Although still in the early stages of implementation, it is expected to strengthen the resilience of approximately 7.7 million people by rehabilitating ecosystems, improving groundwater recharge, and reducing flood hazards. Implementation has started, and full-scale work across the four sites is anticipated to significantly advance Pakistan's adaptation commitments.[19]
- Additional efforts include the creation of 110 recharge sites in Islamabad that have replenished 197 million gallons of rainwater. Likewise, 110 rainwater harvesting ponds in Cholistan have stored 440 million gallons of water. Comparable initiatives in other provinces are supporting water conservation and benefiting large numbers of people. Pakistan has also planted 6.3 million olive trees in marginal and arid regions, transforming previously unused lands into productive zones. This intervention promotes climate-resilient agriculture by

[17] United Nations Framework Convention on Climate Change (UNFCCC), *Pakistan Third Nationally Determined Contribution (NDC 3.0)*, 24 Sept. 2025, https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24%20Sep.pdf
[18] United Nations Framework Convention on Climate Change (UNFCCC), *Pakistan Third Nationally Determined Contribution (NDC 3.0)*, 24 Sept. 2025, https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24%20Sep.pdf
[19] United Nations Framework Convention on Climate Change (UNFCCC), *Pakistan Third Nationally Determined Contribution (NDC 3.0)*, 24 Sept. 2025, https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24%20Sep.pdf

curbing soil erosion and boosting carbon sequestration, while also generating co-benefits such as rural livelihoods, reduced reliance on imported edible oils, support for agribusiness, and long-term environmental and economic stability[20]

- At COP30, Pakistan showcased its existing frameworks—including its Nationally Determined Contributions, National Adaptation Plan, and the Climate Prosperity Plan developed with the V20 Group—which together form a foundation for climate-aligned development. Addressing the conference virtually, Federal Minister for Finance and Revenue Senator Muhammad Aurangzeb also referenced the launch of Pakistan's National Climate Finance Strategy issued in Baku last year, and welcomed the Green Taxonomy Guidelines released earlier this year by the State Bank of Pakistan [21]
- The Adaptation Fund has supported UNDP's initiative "Reducing risks and vulnerabilities from Glacier Lake Outburst Floods (GLOF) in Pakistan" since 2011 with financing of USD 4.1 million. The project aims to reduce risks from GLOFs and snowmelt-driven flash floods by strengthening the technical and human capacity of government institutions and vulnerable mountain communities in northern Pakistan to identify and manage GLOF dangers. In partnership with the Ministry of Climate Change and the Pakistan Meteorological Department, the project has introduced monitoring systems, installed weather stations, and increased public awareness of glacial lake outburst flooding, among various other actions [22]

Bottom line: Despite meaningful progress on solar deployment, water recharge and national planning frameworks, Pakistan's adaptation and mitigation ambitions remain dwarfed by a widening finance gap; without sustained external support, climate impacts will continue to outstrip the country's capacity to respond.

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[20] United Nations Framework Convention on Climate Change (UNFCCC), *Pakistan Third Nationally Determined Contribution (NDC 3.0)*, 24 Sept. 2025, https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24%20Sep.pdf

[21] The Express Tribune, *FinMin urges faster climate funding*, 16 Nov. 2025, https://tribune.com.pk/story/2577667/finmin-urges-faster-climate-funding

[22] United Nations Development Programme (UNDP), *Adaptation Fund*, UNDP Pakistan, 2025, https://www.undp.org/pakistan/adaptation-fund

Internationally Determined Contributions (IDCs):

- Senator Sherry Rehman has advocated for the concept of Internationally Determined Contributions (IDCs) as a way to enhance global accountability in addressing climate change. This idea builds upon the existing framework of Nationally Determined Contributions (NDCs), which are commitments made by individual countries to reduce emissions. This aims to introduce a parallel mechanism that focuses on the contributions of developed nations to support developing countries in their climate action efforts. [23]
- Internationally Determined Contributions would involve developed countries making specific commitments to provide financial, and capacity-building support to developing countries to help them achieve their NDCs.
- As proposed by Senator Sherry Rehman, "Pakistan should convene a meeting of the Global South states and alliances to build momentum and consensus for a new category of deliverables, pitched as Internationally Determined Contributions. These would cluster around all the unfulfilled financial pledges made by the developing countries, and measure them every year in a finance stocktake, for the simple reason that, while emissions continue to rise even at the 29th COP, the financing gap for the fractional emitters is also growing. If NDCs are to be measured, it's time IDCs were too." [24]
- IDCs must be legally binding or backed by enforceable compliance mechanisms to avoid the "pledge without delivery" problem that has plagued climate finance since Copenhagen 2009[25].

Bottom Line: IDCs represent the missing accountability mechanism in the global climate architecture: a system that tracks, measures, and enforces finance contributions with the same rigour applied to emissions. Without it, developing countries will continue carrying disproportionate climate burdens with insufficient support.

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[23] The Guardian, *COP29: 'We're here for life and death reasons,' says ex-climate minister of Pakistan*, 18 Nov. 2024, https://www.theguardian.com/environment/2024/nov/18/cop29-were-here-for-life-and-death-reasons-says-ex-climate-minister-of-pakistan

[24] The News, *A ten-point agenda for COP29*, 2024, https://www.thenews.com.pk/print/1248922-a-ten-point-agenda-for-cop29

[25] The Commonwealth, *Climate Change Declaration 2009*, 2009, https://thecommonwealth.org/climate-change-declaration-2009

2. Agricultural Resilience

- Discussions on sustainable agriculture continue to be hindered by disagreements over definitions and implementation pathways, but the underlying science is unequivocal: without scaled finance, climate-resilient technologies, and integrated land–water management, many agrarian economies face systemic breakdown. Analysts describe the current gap between policy language and actual implementation as one of the most dangerous fault lines in global climate action.
- Beyond the overarching action agenda, agriculture has a distinct track in formal talks through the Sharm El Sheikh Joint Working Group. This body works to develop consensus on sustainable agriculture and guide the transition toward it. Experts note that this group seeks integrated and holistic solutions. "So far, negotiations have been difficult, with strong disagreements on the definition and implementation of sustainable agriculture," says Stephanie Maw, senior UN policy and advocacy manager at ProVeg International. Maw emphasises that without actual implementation, discussions remain merely "words on paper," and financing will be essential to make these plans a reality[26]
- No UNFCCC decision on a just transition has formally acknowledged the central role of agrifood systems in ensuring inclusivity. Excluding smallholder farmers, fishers, and forest-dependent communities from decision-making risks sidelining them from funding and pathways for a just transition. COP30 offers a critical moment to reset this approach by incorporating them into the Action Agenda [27]
- FAO research indicates that climate change has heavily affected agriculture, causing losses amounting to hundreds of billions of dollars annually, equivalent to about 5%

[26] Cândida Schaedler, *COP30: Agriculture lands on the climate agenda*, ThinkLandscape (Global Landscapes Forum), 17 Nov. 2025, https://thinklandscape.globallandscapesforum.org/99846/cop30-agriculture-family-farming

[27] Food and Agriculture Organization of the United Nations (FAO), *COP30 2025 Key Messages: Climate Risks and Agrifood Systems*, FAO Knowledge Repository, 21 Nov. 2025, https://openknowledge.fao.org/items/3ec95b46-26f9-44df-9237-27e529cf5c73

of global agricultural GDP over thirty years. Between 2007 and 2022, agriculture represented 23% of total disaster-related losses, with droughts accounting for more than 65%[28]

- Nearly all countries include agriculture in their Nationally Determined Contributions (NDCs) as part of climate change solutions. A 2024 FAO study found that 94% of NDCs reference agriculture for adaptation, while 91% mention it for mitigation purposes[29]
- 97% of National Adaptation Plans (NAPs) report climate impacts on agrifood systems, highlighting cascading effects on food security and nutrition. These impacts span crop production, livestock and grasslands, forests, inland and ocean fisheries, and postharvest and supply chain systems. Consequences extend beyond agriculture, affecting productivity, ecosystem services, biodiversity, food security, nutrition, and raising risks of poverty and inequality[30]
- Investment in agrifood systems ranks highly within NAPs. Over half of the funding needed to operationalise these plans relates to agriculture. Yet, financing remains insufficient: by 2023, only 11% of total climate-related development finance for adaptation went to agrifood systems. For a sector sustaining 1.2 billion people against hunger and food crises, this represents a severe mismatch.[31]
- Least Developed Countries (LDCs), highly vulnerable to climate impacts, often have minimal resources to handle mounting risks and losses. In 2023, LDCs received only USD 7.7 billion—merely 5% of climate-related development finance directed toward agrifood systems.[32]
- The number of lobbyists representing industrial cattle, commodity grains, and pesticides rose 14% from last year's summit in Baku and surpassed the delegation of

[28] Busani Bafana, "Why food and agriculture should be at the centre of COP30 agenda," *Global Issues* (posted by Inter Press Service), 18 Nov. 2025, https://www.globalissues.org/news/2025/11/18/41666

[29] Busani Bafana, "Why food and agriculture should be at the centre of COP30 agenda," *Global Issues* (posted by Inter Press Service), 18 Nov. 2025, https://www.globalissues.org/news/2025/11/18/41666

[30] Food and Agriculture Organization of the United Nations (FAO), *COP30 2025 Key Messages: Climate Risks and Agrifood Systems*, FAO Knowledge Repository, 21 Nov. 2025, https://openknowledge.fao.org/items/3ec95b46-26f9-44df-9237-27e529cf5c73

[31] Food and Agriculture Organization of the United Nations (FAO), *COP30 2025 Key Messages: Climate Risks and Agrifood Systems*, FAO Knowledge Repository, 21 Nov. 2025, https://openknowledge.fao.org/items/3ec95b46-26f9-44df-9237-27e529cf5c73

[32] Food and Agriculture Organization of the United Nations (FAO), *COP30 2025 Key Messages: Climate Risks and Agrifood Systems*, FAO Knowledge Repository, 21 Nov. 2025, https://openknowledge.fao.org/items/3ec95b46-26f9-44df-9237-27e529cf5c73

Canada, the world's 10th largest economy, which sent 220 delegates to COP30 in Belém . [33]

- More than 75% of the global poor live in rural areas, often dependent on agrifood systems. Globally, 36% of working women and 38% of working men were employed in these sectors as of 2019. Much of this work is informal, seasonal, and precarious, leaving workers without social safety nets [34]
- Fragile and conflict-affected states receive only about half the climate finance they require, with bureaucratic hurdles preventing funds from reaching frontline communities. Even when funds are delivered, they sometimes ignore local conflict dynamics, potentially exacerbating tensions over resources. [35]
- In 2024, 176.6 million people needed humanitarian WASH support, but only 48 million received it. Around 80% of illnesses in crisis situations are linked to unsafe water and poor sanitation, which directly worsen malnutrition[36]
- As water becomes more scarce, the impacts to agriculture further threaten livelihoods and are already driving people from their homes. Water is essential to adapting, and every dollar invested in basic drinking water returns USD 4.30 in economic benefits. Yet, 93.4 per cent of WASH funding needs in crisis contexts remain unmet. [37]
- The industrialised food sector has celebrated the lack of action at recent climate summits, which failed to recommend binding targets for reductions in emissions, fossil fuel use or meat consumption. A 2020 study found that even if fossil fuels were immediately eliminated, business as usual in the food sector probably puts the goal of limiting global heating to 1.5C above preindustrial levels – and even the 2C goal – out of reach.[38]

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[33] Rachel Sherrington and Nina Lakhani, *More than 300 big agriculture lobbyists have taken part in COP30, investigation finds*, *The Guardian*, 18 Nov. 2025, https://www.theguardian.com/environment/2025/nov/18/big-agriculture-lobbyists-cop30-climate-summit

[34] Food and Agriculture Organization of the United Nations (FAO), *COP30 2025 Key Messages: Climate Risks and Agrifood Systems*, FAO Knowledge Repository, 21 Nov. 2025, https://openknowledge.fao.org/items/3ec95b46-26f9-44df-9237-27e529cf5c73

[35] Michelle Brown, *Agriculture Can't Be Left Behind in Climate Action: What COP30 Must Deliver*, *FairPlanet*, 3 Nov. 2025, https://www.fairplanet.org/op-ed/cop-30-belem-food-security/

[36] Michelle Brown, *Agriculture Can't Be Left Behind in Climate Action: What COP30 Must Deliver*, *FairPlanet*, 3 Nov. 2025, https://www.fairplanet.org/op-ed/cop-30-belem-food-security/ .

[37] Michelle Brown, *Agriculture Can't Be Left Behind in Climate Action: What COP30 Must Deliver*, *FairPlanet*, 3 Nov. 2025, https://www.fairplanet.org/op-ed/cop-30-belem-food-security/ .

[38] Rachel Sherrington and Nina Lakhani, *More than 300 big agriculture lobbyists have taken part in COP30, investigation finds*, *The Guardian*, 18 Nov. 2025, https://www.theguardian.com/environment/2025/nov/18/big-agriculture-lobbyists-cop30-climate-summit

- Meat and dairy sent the largest number, accounting for 72 of the total 302 delegates. This is almost double the number negotiating on behalf of Jamaica, the Caribbean island nation left devastated by Hurricane Melissa last month – a superstorm scientists say was made more intense by human-made global heating. India, a country of 1.45 billion people facing major climate challenges, sent a delegation of 87 negotiators.[39]
- According to a recent analysis from Friends of the Earth US, the emissions of the 45 largest meat and dairy companies are equivalent to those of Saudi Arabia, the world's largest oil producer. JBS, the world's largest meat company, which alone accounts for a quarter (24%) of the emissions, has eight lobbyists at COP30, including its CEO, Gilberto Tomazoni.[40]
- Agrochemicals – pesticides and synthetic fertilisers – account for 60 delegates, and biofuels have 38 representatives – a 138% jump since last year. The pesticide giant Bayer sent 19 lobbyists, the highest number, while Nestlé has nine.[41]
- Most synthetic fertilisers are derived from fossil fuels and emit nitrous oxide – a greenhouse gas 300 times more powerful than CO2, of which agriculture is the largest driver.[42]

Bottom line: Agriculture is already crossing climate thresholds, and without rapid investment in resilient, climate-smart systems, food insecurity will deepen across vulnerable regions long before global emissions peak.

[39] Sherrington, R., & Lakhani, N. (2025, November 18). *More than 300 big agriculture lobbyists have taken part in COP30, investigation finds. The Guardian*. https://www.theguardian.com/environment/2025/nov/18/big-agriculture-lobbyists-cop30-climate-summit

[40] Sherrington, R., & Lakhani, N. (2025, November 18). *More than 300 big agriculture lobbyists have taken part in COP30, investigation finds. The Guardian*. https://www.theguardian.com/environment/2025/nov/18/big-agriculture-lobbyists-cop30-climate-summit

[41] Sherrington, R., & Lakhani, N. (2025, November 18). *More than 300 big agriculture lobbyists have taken part in COP30, investigation finds. The Guardian*. https://www.theguardian.com/environment/2025/nov/18/big-agriculture-lobbyists-cop30-climate-summit

[42] Sherrington, R., & Lakhani, N. (2025, November 18). *More than 300 big agriculture lobbyists have taken part in COP30, investigation finds. The Guardian*. https://www.theguardian.com/environment/2025/nov/18/big-agriculture-lobbyists-cop30-climate-summit

Pakistan:

- The agriculture sector, having a share of 23.54% in GDP10 and employing around 37.45% of the labour force, is under growing pressure. Farmers face extreme heat and erratic rainfall, leading to water scarcity, which jeopardises agricultural losses and the overall welfare of the rural folk. [43]
- Water scarcity is becoming challenging. Projections suggest that by 2050, glacial melting could reduce Indus River flows by 20–30%. Groundwater levels are dropping rapidly, declining by up to 1 meter per year in Punjab, and a staggering 70% of aquifers in the province are over-exploited.[44]
- Coastal and marine communities face escalating threats as well. Rising sea levels, salinity intrusion, and ocean warming are eroding fisheries and coastal livelihoods, exacerbating economic risks in already vulnerable regions. When climate shocks hit, whether through disrupted irrigation, unstable power generation, or declining fisheries, their impacts cascade across food markets, energy supplies, and the wider economy.[45]
- Pakistan has successfully planted 6.3 million olive trees on marginalised and arid lands, transforming underutilised areas into productive landscapes. This initiative not only supports climate-resilient agriculture by preventing soil erosion and enhancing carbon sequestration, but also offers multiple co-benefits, including livelihood generation for rural communities, reduced dependence on imported edible oils, promotion of Agri based entrepreneurship, and long-term economic and environmental sustainability.[46]
- At the ecosystem level, adaptation actions have delivered tangible results. Nearly 23,000 hectares of mangroves have been planted in Sindh and Baluchistan, strengthening coastal defences and biodiversity while supporting livelihoods. Other

[43] Government of Pakistan. (2025, September 24). Pakistan NDC 3.0. United Nations Framework Convention on Climate Change. Retrieved from https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24 per cent20Sep.pdf

[44] Government of Pakistan. (2025, September 24). Pakistan NDC 3.0. United Nations Framework Convention on Climate Change. Retrieved from https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24 per cent20Sep.pdf

[45] Government of Pakistan. (2025, September 24). Pakistan NDC 3.0. United Nations Framework Convention on Climate Change. Retrieved from https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24 per cent20Sep.pdf

[46] Government of Pakistan. (2025, September 24). Pakistan NDC 3.0. United Nations Framework Convention on Climate Change. Retrieved from https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24 per cent20Sep.pdf

ecosystem restoration efforts include reforestation of over 3,000 hectares of riverine areas, restoration of 405 hectares of riverine forests, rehabilitation of degraded inland ecosystems, and large-scale mangrove plantations, yielding important co-benefits for adaptation and nature-based resilience. Urban greening initiatives have also gained prominence, with Miyawaki forests established across Lahore, Islamabad, Rawalpindi, Karachi, and Bahawalpur, helping to combat heat islands and improve local environmental quality.[47]

Bottom line: With falling river flows, collapsing aquifers, and widespread heat stress, Pakistan's food systems are crossing irreversible thresholds; even with strong local initiatives in mangroves, olive cultivation, and ecosystem restoration, resilience gains remain marginal compared to the accelerating climate risks.

[47] Government of Pakistan. (2025, September 24). Pakistan NDC 3.0. United Nations Framework Convention on Climate Change. Retrieved from https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24 per cent20Sep.pdf

3. Loss and Damage Realisation

- On the first day of COP 30, the FRLD launched the call for funding requests for its start-up phase —the Barbados Implementation Modalities (BIM). A total of 250 million USD is allocated to the BIM and once the call for funding requests officially opens on the 15th of December developing countries will have six months to submit their funding request for projects and programs of between 5-20 million USD. The Board of the Fund will then start approving requests at its ninth Board meeting in July, 2026. For developing countries preparing funding requests, technical assistance is available from the Santiago Network and will soon be available from the Fund itself.[48]
- The BIM provides a critical opportunity for the FRLD to learn through doing at the same time as the Fund's Board works to develop its long-term policies in parallel. The projects and programs delivered under the BIM will provide long overdue support to countries and communities that have until now picked up the bill for loss and damage wrought by a climate crisis they have done little or nothing to cause. It is also an important opportunity for developing countries to demonstrate how the Fund can deliver community access and rapidly release funds by putting in place national financial arrangements, despite the FRLD itself not being able to do this under the BIM.[49]
- The global loss and damage gap continues to widen as climate impacts intensify, with irreversible losses mounting faster than current mechanisms can respond. Technical work on governance and coordination, including the development of a Loss and Damage Gap Report, support for technical assistance requests, and improved alignment between the ExCom, Santiago Network, and Facility for Loss

[48] Loss and Damage Collaboration. (2025, November 15). *What happened on loss and damage in week one of COP 30?* https://www.lossanddamagecollaboration.org/resources/what-happened-on-loss-and-damage-in-week-one-of-cop-30
[49] Loss and Damage Collaboration. (2025, November 15). *What happened on loss and damage in week one of COP 30?* https://www.lossanddamagecollaboration.org/resources/what-happened-on-loss-and-damage-in-week-one-of-cop-30

and Damage, represents incremental progress, but does not resolve the core challenge. Experts stress that loss and damage frameworks remain heavily underfunded, slow to deploy resources, and oriented toward assessment rather than anticipatory protection. In climate-vulnerable countries, losses are now recurring annual events with cascading social and economic consequences

- 250 million USD is just a drop in the ocean compared to what is needed— scientists project that developing countries need 395 billion USD in 2025 alone. There is also much work to be done to make the Fund fit for purpose, including ensuring that the fund is filled with at least 400 billion USD a year, that it can respond within 48 hours of a climate-intensified disaster and that it guarantees direct access to small grants for communities.[50]
- The third review of the Warsaw International Mechanism for Loss and Damage (WIM) was scheduled to take place at COP 29 in Baku, Azerbaijan in November 2024, but agreement could not be reached and it has continued through the June 2025 Climate Meetings to COP 30. There were 14 hours of negotiations on the third review of the WIM this week, many of which happened behind closed doors. Possible areas of agreement include: 1). A State of Loss and Damage Report (aka Loss and Damage Gap Report); 2). Submission of and support for both developing countries and communities to access and prepare requests for technical assistance; 3). ExCom activities to enhance access to technical assistance and finance, including knowledge product on existing methodologies for assessing the economic and non-economic loss and damage; and; 4). Elements to enhance coordination and complementarity between the ExCom, Santiago Network and FRLD.[51]
- Critical components where Parties still need to find a resolution are: 1. Voluntary guidance on the inclusion of Loss and Damage in national plans, including Nationally Determined Contributions (NDCs); 2. Reference to Loss and Damage components within the decision on the first Global Stocktake; 3. Addressing the urgent need to scale up finance for Loss and Damage; 4. Preambular paragraphs that welcome the findings of the International Court of Justice's (ICJ) historic Advisory Opinion on

[50] Loss and Damage Collaboration. (2025, November 15). *What happened on loss and damage in week one of COP 30?* https://www.lossanddamagecollaboration.org/resources/what-happened-on-loss-and-damage-in-week-one-of-cop-30
[51] Loss and Damage Collaboration. (2025, November 15). *What happened on loss and damage in week one of COP 30?* https://www.lossanddamagecollaboration.org/resources/what-happened-on-loss-and-damage-in-week-one-of-cop-30

Climate Change (ICJAO) and acknowledge the central importance of human rights in the context of loss and damage.[52]

- At the end of week one of COP 30, only two pledges have been made. One from Spain, who has pledged 20 million Euros to the FRLD and one from Switzerland, who has pledged 1 million Swiss Francs to the Santiago Network. Whilst these pledges are very welcome indeed, they are a drop in the bucket compared to the scale of the Loss and Damage finance needs of developing countries. Our calculations suggest that at least 724.43 billion USD need to flow through the Loss and Damage support landscape each year.[53]
- With the delivery of the ICJ's historic Advisory Opinion on the Obligations of States in regards to Climate Change in June, it has been clarified that climate action is not optional — it's the law. This includes urgently scaling up support and action on avoiding (through emission reductions), minimising (through adaptation) and addressing loss and damage. That is because the ICJAO reaffirmed that states need to: 1). Prevent climate harm; 2). Co-operate to address loss and damage suffered by people and ecosystems; and; 3). Uphold human rights in their responses to the climate crisis.[54]

Bottom line: Loss and damage mechanisms are advancing procedurally but not financially; unless they deliver fast, accessible support at scale, millions will remain exposed to irreversible climate harms with no safety net.

[52] Loss and Damage Collaboration. (2025, November 15). *What happened on loss and damage in week one of COP 30?* https://www.lossanddamagecollaboration.org/resources/what-happened-on-loss-and-damage-in-week-one-of-cop-30
[53] Loss and Damage Collaboration. (2025, November 15). *What happened on loss and damage in week one of COP 30?* https://www.lossanddamagecollaboration.org/resources/what-happened-on-loss-and-damage-in-week-one-of-cop-30
[54] Loss and Damage Collaboration. (2025, November 15). *What happened on loss and damage in week one of COP 30?* https://www.lossanddamagecollaboration.org/resources/what-happened-on-loss-and-damage-in-week-one-of-cop-30

Pakistan:

- A high-level bilateral meeting was held between Pakistan's Head of Delegation to COP-30, Secretary, Ministry of Climate Change and Environmental Coordination (MoCC&EC), Ms Aisha Humera Chaudhry, and Mr Simon Stiell, Chief Executive of the UNFCCC Secretariat. During the meeting Secretary of Climate Change and Environmental Coordination Ministry also noted that Pakistan has increased its domestically financed mitigation contribution from 15% to 17%, reflecting a continued commitment to global climate goals .However, she stressed that Pakistan's ability to meet its full 50% emissions-reduction target is contingent on international climate finance, estimated at US$565 billion by 2035. The Secretary Ms Ayesha Humera underlined that earlier pledges of support have yet to materialise at the required scale, a gap that continues to hinder global progress towards the Paris Agreement objective of limiting warming to 1.5°C.[55]
- For Pakistan, the disappointment runs especially deep in light of recent disasters that sharpen the stakes. In mid-2025, torrential monsoon rains triggered flash floods in Khyber Pakhtunkhwa's mountainous regions, causing deadly landslides and inundations in districts like Swat, Buner and others, damaging thousands of houses, roads and isolating communities. Millions were impacted by floods across multiple provinces. Meanwhile in Punjab, flooding along the Ravi, Sutlej and Chenab rivers — exacerbated by heavy rainfall and upstream water releases from dams — inundated large swathes of farmland, villages and low-lying settlements, displacing hundreds of thousands of people, destroying crops on millions of acres, and causing food shortages.
- Enhancing transparency and capacity-building remains a critical enabler of climate action. Pakistan has made partial progress in establishing its national MRV system for GHG inventories. To assess climate-induced loss and damage, Pakistan has carried out comprehensive assessments during major disaster events, such as the 2022 floods, which caused an estimated USD 30 billion in economic losses & damages and displaced over 8 million people. Now, a national mechanism exists for loss and damage assessment, and NDMA and provincial governments make basic

[55] Press Information Department, Government of Pakistan. (2025, November 19). *Pakistan, UNFCCC leadership hold high-level meeting on climate finance, adaptation and COP30 priorities* (PR No. 190). https://pid.gov.pk/site/press_detail/31033

assessments, which are verified through a robust mechanism of door-to-door surveys. An assessment of the 2025 floods is currently ongoing; these floods affected approximately 6.3 million people, including over 2.9 million who were displaced.[56][57]

- Minister for Climate Change Musadik Malik confirmed that Pakistan did not receive a single dollar from the loss and damage fund despite the catastrophic losses it has faced due to global warming. Speaking to Dawn, Mr Malik said the fund decided to operationalise $250m for its call for proposals at COP30 in Belem, and 50 per cent of this amount was exclusive to Small Island Developing States (SIDS) and Least-Developed Countries (LDCs). This means about $100-150 million is set aside for the rest of the world, including Pakistan, he said, adding the government was working on some projects in light of this call for proposals. He said it was too early to share details as these ideas required time to shape up, adding that proposals worth up to $20m were under consideration.[58]
- Ali Tauqeer Sheikh suggested Pakistan adopt a proactive approach to secure rapid access to FRLD funds. He said the country can formally designate the nationally designated authority for official communication and proposal submission, and develop a national policy with the involvement of provinces.[59]
- Sherry Rehman, Pakistan's former climate minister, was lead negotiator on the contentious issue of loss and damage for the Group of 77 – a collection of 135 low- and middle-income countries – at the COP27 climate summit in Egypt, where a breakthrough deal saw a commitment to set up a dedicated fund to help countries suffering from the destructive impacts of climate change. But the negotiations to establish the practical workings of that loss and damage fund have since been fraught.[60]
- "Where is the $300 billion from the New Collective Quantified Goal (NCQG)? What are developed countries contributing to the South? Countries should not have to compete internationally for climate funds - it is a fundamental right. Even early

[56] United Nations Framework Convention on Climate Change (UNFCCC), *Pakistan Third Nationally Determined Contribution (NDC 3.0)*, 24 Sept. 2025, https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24%20Sep.pdf

[57] United Nations Office for the Coordination of Humanitarian Affairs. (2025, September 12). *Pakistan: Floods – Sep 2025 (FL-2025-000100-PAK).* ReliefWeb. https://reliefweb.int/disaster/fl-2025-000100-pak

[58] Abbas, Z. (2025, November 6). *Pakistan to tap Loss & Damage fund despite reservations. Dawn.* https://www.dawn.com/news/1953402

[59] Abbas, Z. (2025, November 6). *Pakistan to tap Loss & Damage fund despite reservations. Dawn.* https://www.dawn.com/news/1953402

[60] Worley, W. (2023, October 16). *It's up to rich countries to fix loss and damage finance problems, says former lead negotiator. The New Humanitarian.* https://www.thenewhumanitarian.org/news/2023/10/16/loss-and-damage-financial-burden

warning systems cost more than we can afford, and these are fundamental to survival now." said Senator Sherry Rehman.[61](Quote)

- "Between 2021 and 2025, Pakistan has already achieved a 37 per cent emissions reduction without external aid," she noted, but cautioned that the international climate finance conversation must translate into tangible relief for those on the frontlines. "The projected total cost of climate inaction in Pakistan is estimated at $250 billion by 2030 and $1.2 trillion by 2050," she warned.[62](Quote)

Bottom line: The combination of intensifying floods, unmet loss and damage commitments, and rising adaptation needs underscores a stark reality: Pakistan cannot bridge its USD 565 billion climate financing gap without a functioning global finance architecture.

[61] Abbas, Z. (2025, November 6). *Pakistan to tap Loss & Damage fund despite reservations. Dawn.* https://www.dawn.com/news/1953402

[62] Abbas, Z. (2025, November 6). *Pakistan to tap Loss & Damage fund despite reservations. Dawn.* https://www.dawn.com/news/1953402

4. Climate Financing

- UNEP estimates that developing countries need US$365 billion annually to implement their National Adaptation Plans and NDC-aligned adaptation measures, yet only US$26 billion was delivered in 2023, covering 7% of the requirement. The Baku-to-Belém roadmap aims to mobilize US$1.3 trillion per year by 2035, but interim progress is slow, with private sector contributions limited to roughly 20% of adaptation costs, leaving the majority dependent on public finance.[63]
- COP30 has made visible progress on country-led climate finance coordination. The launch of the Country Platforms Hub, with commitments from 13 countries and one regional bloc, aims to align global support with national priorities, linking technical assistance, financing, and knowledge-sharing.[64]
- Global public climate finance continues to fall far short of the scale demanded by climate science. With emissions still rising, the mismatch between the cost of climate action and the delivery of international finance has become a structural failure, not a temporary gap. Current projections indicate that vulnerable economies will require several trillion dollars in the coming decade to maintain development trajectories and climate stability.
- Finance for adaptation is highly uneven across regions. Asia-Pacific countries report 72% coverage of multi-hazard early warning systems, whereas small island developing states lag at 43%. Without scaling investment in adaptation finance and concessional funding mechanisms, countries at greatest risk will continue to face

[63] Climate Centre. (2025, October 30). *Ahead of COP 30, UN warns of 'yawning gap' in global adaptation finance.* Red Cross Red Crescent Climate Centre. https://www.climatecentre.org/16182/ahead-of-cop-30-un-warns-of-yawning-gap-in-global-adaptation-finance/

[64] Asian Development Bank. (2024, November 15). *Country platforms for climate action: Creating a common understanding and discussing a way forward.* ADB @ COP29. https://www.adb.org/cop/cop29/country-platforms-for-climate-action-creating-common-understanding-discussing-way-forward

spiralling losses. Analysts suggest that targeted financing could avert up to 30% of projected climate damage costs in vulnerable economies.[65]

- COP30 highlighted the urgency of simplifying climate finance access for vulnerable nations. Pakistan's Finance Minister, Muhammad Aurangzeb, emphasised that while developing countries like Pakistan have robust policy frameworks, including NDCs, National Adaptation Plan, and a Climate Prosperity Plan, their ability to implement these plans is constrained by bureaucratic hurdles in mechanisms such as the Green Climate Fund and the Loss and Damage Fund. He stressed that accelerating disbursement, improving accreditation processes, and providing stronger technical assistance are critical to translating pledged climate finance into actionable support.[66]
- Operationalising the Loss and Damage Fund is moving slowly despite the urgent need. The Fund for Responding to Loss and Damage issued its first call for proposals (USD 250 million) under the Barbados Implementation Modalities, but developing countries like Pakistan still face multi-billion-dollar gaps.[67]
- Finance pledges remain far below what is needed for developing countries. Current flows stand at USD 190 billion annually, whereas IHLEG projects USD 1.3 trillion needed by 2035; only USD 400 million of the FRLD's USD 800 million pledged has been disbursed.[68]
- Multilateral coordination is improving, yet bureaucracy persists. COP30 highlighted the GCF's slow accreditation and disbursement processes, echoing Finance Minister Aurangzeb's concerns, which delays timely climate support for vulnerable countries.[69]
- Some progress is visible in blended public-private projects. The IDB-AFD digital connectivity project in the Amazon (USD 324 million) combines public, private, and

[65] World Economic Forum. (2025, November 18). *Finance and climate adaptation at COP30.* https://www.weforum.org/stories/2025/11/finance-climate-adaptation-cop30/

[66] The Express Tribune. (2025, November 16). *FinMin urges faster climate funding.* https://tribune.com.pk/story/2577667/finmin-urges-faster-climate-funding

[67] Fund for Responding to Loss and Damage. (2025, November 10). *The Fund for responding to Loss and Damage launches call for funding requests at COP30, moving from promise to action.* WANE / EIN Presswire. https://www.wane.com/business/press-releases/ein-presswire/866679744/the-fund-for-responding-to-loss-and-damage-launches-call-for-funding-requests-at-cop30-moving-from-promise-to-action/

[68] Hashem, H. (2025, November 17). *Climate finance at COP30: Can developing countries expect a breakthrough?* EnergyTracker Asia. https://energytracker.asia/climate-finance-at-cop30/

[69] Arab News. (2025, November 16). *Pakistan urges overhaul of global climate finance at COP30, warns delays hinder vulnerable nations.* https://www.arabnews.com/node/2622795/pakistan

grant-based finance, linking climate adaptation with development, education, and early warning systems.[70]

Bottom line: The climate finance regime is no longer credible at current levels; justice-aligned, responsibility-based finance from major emitters is now the precondition for keeping global mitigation and adaptation pathways alive.

[70] Inter-American Development Bank. (2025, November 12). *IDB and AFD Groups co-finance $324 million to connect 15 million people in the Amazon region.* https://www.iadb.org/en/news/idb-and-afd-groups-co-finance-324-million-connect-15-million-people-amazon-region

Pakistan:

- Pakistan's climate ambitions under NDC 3.0 rely on a combination of domestic resources and international support, with a total investment requirement projected at US$565.7 billion by 2035. This includes US$348 billion by 2030 dedicated to mitigation, adaptation, and cross-cutting initiatives, emphasising the urgency of mobilising financial flows to meet climate targets. Approximately 33% of Pakistan's projected 2035 emissions reductions (844 $MtCO_2e$) is conditional upon the availability of grants-based, additional international climate finance, alongside technology transfer and capacity-building support. The remaining 17% is to be achieved through domestic, unconditional measures, reflecting Pakistan's commitment to pursue low-carbon, climate-resilient development within national economic constraints.[71]
- To strengthen financial governance, Pakistan is establishing a comprehensive MRV and climate finance tracking system through the Pakistan Climate Transparency Platform, allowing detailed reporting and monitoring of investments across federal, provincial, and local levels. This system supports accountability for inclusive delivery of climate actions and ensures alignment with the Paris Agreement's Enhanced Transparency Framework. Climate finance is being targeted toward priority areas such as low-carbon power generation, climate-resilient agriculture, ecosystem restoration, water security, and disaster risk preparedness.[72]
- Innovative finance mechanisms are emerging but remain limited in scale. Initiatives like debt-for-resilience swaps in the Caribbean and Pakistan's planned green Panda bond show promise, yet they are still a fraction of the global funding required.[73]

Bottom line: Pakistan's climate finance needs are vast, with a third of its emissions reductions contingent on external support. Without a dramatic scale-up of predictable, grant-based funding and strengthened delivery mechanisms, domestic efforts alone cannot achieve low-carbon, climate-resilient development.

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[71] Government of Pakistan. (2025, September 24). Pakistan NDC 3.0. United Nations Framework Convention on Climate Change. Retrieved from https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24 per cent20Sep.pdf

[72] Government of Pakistan. (2025, September 24). Pakistan NDC 3.0. United Nations Framework Convention on Climate Change. Retrieved from https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24 per cent20Sep.pdf

[73] Kiani, K. (2025, August 19). *Sustainable bonds planned amid tight global markets. Dawn.* https://www.dawn.com/news/1931784

5. Early Warning Systems

- Early warning systems save lives and reduce economic losses, yet only 60% of countries globally report having multi-hazard systems, and less than one-third have robust risk knowledge capabilities. Strengthening these systems requires at least US$15 billion annually, including investments in monitoring, AI-driven forecasts, and local community engagement.[74]
- Africa, despite a 72% increase in comprehensiveness since 2015, still reports the lowest early warning capacity scores. In contrast, Asia-Pacific leads with 72% coverage, demonstrating a significant regional disparity in disaster preparedness. Bridging this gap is critical to reducing mortality, which is at least six times higher in countries with limited EWS capabilities.[75]
- Emerging hazards, extreme heat, wildfires, and glacial lake outburst floods pose risks that many systems are not yet equipped to address. Pre-emptive action, including community-based alert systems and locally led adaptation, is essential. The DELTA Resilience disaster tracking system is expected to bolster risk knowledge globally, but widespread deployment will require sustained long-term financing and technical support.[76]
- CREWS' 2030 Strategy was showcased as a COP30 highlight, emphasising universal coverage. Plans to reach all LDCs and SIDS with early warning and climate services demonstrate COP30's commitment to systemic early warning transformation.[77]

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[74] World Meteorological Organization & UN Office for Disaster Risk Reduction. (2025, November 12). *Early warning systems reach new heights, but critical gaps jeopardize global progress.* https://wmo.int/news/media-centre/early-warning-systems-reach-new-heights-critical-gaps-jeopardize-global-progress

[75] **United Nations.** (2025, October 22). *Amid climate crisis, early warning systems vital to protecting communities, Secretary-General tells World Meteorological Organization High-Level Event* (SG/SM/22873). United Nations Press. https://press.un.org/en/2025/sgsm22873.doc.htm

[76] World Meteorological Organization & UN Office for Disaster Risk Reduction. (2025, November 12). *Early warning systems reach new heights, but critical gaps jeopardize global progress.* https://wmo.int/news/media-centre/early-warning-systems-reach-new-heights-critical-gaps-jeopardize-global-progress

[77] World Meteorological Organization. (2025, November 10). *CREWS launches 2030 strategy at COP30 to scale early warnings for all.* https://wmo.int/media/news/crews-launches-2030-strategy-cop30-scale-early-warnings-all

- Integration of next-generation technologies is a COP30 success. AI-based forecasting and mobile alert systems were spotlighted, offering scalable models for anticipatory action in vulnerable regions.[78]
- Implementation timelines and funding remain uncertain. While CREWS aims to mobilise USD 1 billion by 2030, the current pace of country uptake and financial disbursement is slow, limiting immediate impact.[79]
- COP30 elevated the profile of impact-based forecasting. Case studies from Tonga and other SIDS illustrate the importance of linking forecasts to real-world action, signalling a positive COP30 narrative shift towards operational readiness.[80]
- Partnerships are strengthened but still selective. COP30 highlighted collaborations with local organisations and WMO, yet coverage remains patchy in South Asia, leaving high-risk flood zones underprepared.

Bottom line: Early warning saves lives, but warnings alone cannot protect communities without strong local systems and sustained financing; climate-era survival demands fully funded, end-to-end readiness.

[78] COP30 Brasil. (2025). *COP30 highlights technology as a strategic ally in tackling the climate crisis.* https://cop30.br/en/news-about-cop30/cop30-highlights-technology-as-a-strategic-ally-in-tackling-the-climate-crisis

[79] United Nations Framework Convention on Climate Change. (2025). *TC2 Synthesis Report* (Transitional Committee). https://unfccc.int/sites/default/files/resource/TC2_SynthesisReport.pdf

[80] Dupar, M., Mlisa, A., & Green, L. (2025, November 12). *What Pacific islands can teach COP30 about measuring resilience.* Overseas Development Institute. https://odi.org/en/insights/what-pacific-islands-can-teach-cop30-about-measuring-resilience/

Pakistan:

- Pakistan is intensifying efforts to develop robust early warning and disaster preparedness systems to reduce climate-induced risks across sectors and communities. Extreme events, including floods, droughts, heatwaves, and glacier lake outburst floods in northern areas, pose escalating threats to agriculture, water security, energy systems, and human health. To address this, Pakistan is deploying real-time monitoring networks, GIS-based mapping tools, and community-level alert systems, ensuring the timely dissemination of climate information to vulnerable populations.[81]
- Institutional strengthening at national and provincial levels is a key priority, with training programs enabling officials to integrate climate risk screening into development planning. Local governments, municipalities, and district authorities are being supported to enhance response capacities, despite varying levels of technical expertise. Complementary programs, including community-based disaster preparedness and climate-smart education initiatives, aim to improve awareness and participation, particularly among youth, women, persons with disabilities, and marginalised communities.[82]

Bottom line: Pakistan is building early warning and disaster preparedness systems, but without faster scaling and fully resourced support, communities will remain highly exposed to climate shocks.

[81] Government of Pakistan. (2025, September 24). Pakistan NDC 3.0. United Nations Framework Convention on Climate Change. Retrieved from https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24 per cent20Sep.pdf

[82] Government of Pakistan. (2025, September 24). Pakistan NDC 3.0. United Nations Framework Convention on Climate Change. Retrieved from https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24 per cent20Sep.pdf

6. Real Emissions Trajectory and Sectoral Impacts at COP30

- COP30 partially addressed the fossil fuel phase-out, a critical gap. Over 80 countries pushed for a roadmap, and the draft text included it as an option, yet opposition from petrostates like Saudi Arabia and Russia weakens enforcement potential.[83]
- Current NDC submissions indicate that even with full implementation, global emissions reductions by 2035 will reach only 10%, far short of the 60% reduction needed to align with the 1.5°C goal. COP30 negotiations must consider sector-specific pathways, particularly for oil, gas, and coal, where continued exploitation risks locking in 50 billion tons of CO_2 by 2035.[84]
- Independent scientific assessments indicate that the world is no longer on a trajectory compatible with 1.5°C. Emissions remain at record highs, fossil fuel expansion continues, and current national commitments collectively point toward 2.7 to 3°C of warming by the end of the century. This divergence between climate targets and real-world trajectories reflects the central failure of the global mitigation regime.
- The sectoral consequences of this trajectory are already visible: weakening carbon sinks, heightened biodiversity and zoonotic risks, crop failures linked to heat and water stress, urban livability challenges under extreme wet-bulb temperatures, and mounting strain on energy, health, and food systems. Analysts warn that if global mitigation continues to stall, adaptation and resilience financing needs will escalate beyond the capacity of most vulnerable states, overwhelming existing institutions and protection systems
- The fossil fuel roadmap remains a contested issue, with over 80 countries pushing for inclusion, but some states are "very reluctant" to commit to phase-down targets. This divergence threatens to undermine the credibility of COP30 outcomes and delays

[83] Harvey, F. (2025, November 18). *More than 80 countries join call at COP30 for roadmap to phasing out fossil fuels. The Guardian.* https://www.theguardian.com/environment/2025/nov/18/more-than-80-countries-join-call-at-cop30-for-roadmap-to-phasing-out-fossil-fuels

[84] Red Cross Red Crescent Climate Centre. (2025, October 30). *Ahead of COP30, UN warns of 'yawning gap' in global adaptation finance.* Climate Centre. https://www.climatecentre.org/16182/ahead-of-cop-30-un-warns-of-yawning-gap-in-global-adaptation-finance/

economic and social planning for just transitions, particularly in energy-intensive sectors like steel, cement, and aluminium.[85]

- Energy transition will have uneven regional impacts. Developing countries require tailored support totalling at least US$150 billion annually for infrastructure, job retraining, and equitable access to renewable power. Delays in sectoral mitigation risk compounding climate finance needs and adaptation gaps, with developing nations facing mounting exposure to loss, damage, and debt crises.[86]
- The conference exposed the inadequacy of NDCs against global temperature targets. Annual assessment proposals were floated to accelerate tracking, but current pledges remain far from what's required to keep 1.5°C within reach.[87]
- South Asian vulnerabilities were highlighted but not fully addressed. Pakistan's 2025 floods and regional typhoons demonstrate escalating sectoral impacts, yet COP30 outcomes focus more on discussion than on concrete mitigation and adaptation measures for the region.[88]
- COP30's energy transition discussions show mixed signals. While the roadmap signals intention, Brazil's internal conflicts over oil and gas expansion reveal political and economic obstacles to a clear emissions trajectory.[89]
- Global solidarity remains partial. Developed countries pledged modest funds for loss-and-damage and adaptation, but COP30 reveals continued imbalance: vulnerable nations bear the brunt of emissions-driven damage while receiving a fraction of needed support.[90]

Bottom line: With emissions still rising and 1.5°C slipping out of reach, the world is heading toward systemic climate disruption; without decisive fossil-fuel phase-down and

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[85] Argus Media. (2025, November 19). *Cop: Some 'reluctant' on shift from fossil fuels.* Argus Media. https://www.argusmedia.com/en/news-and-insights/latest-market-news/2755721-cop-some-reluctant-on-shift-from-fossil-fuels

[86] Trayler-Smith, A. (2025). *COP30 – a turning point for climate, human rights and the finance sector?* United Nations Environment Programme Finance Initiative (UNEP FI). https://www.unepfi.org/themes/climate-change/cop-30-a-turning-point-for-climate-human-rights-and-the-finance-sector/

[87] Abbas, Z. (2025, November 17). *G20 NDCs 'come nowhere close' to climate commitments: Greenpeace. Dawn.* https://www.dawn.com/news/1955666

[88] Climate Action Network. (2025, November 15). *Global marches call on governments at COP30 to deliver climate justice.* https://climatenetwork.org/2025/11/15/global-marches-call-on-governments-at-cop30-to-deliver-climate-justice/

[89] Harvey, F., Watts, J., & Milman, O. (2025, November 16). *Have courage to create fossil fuel phaseout roadmap at COP30, Brazilian minister urges. The Guardian.* https://www.theguardian.com/environment/2025/nov/16/have-courage-to-create-fossil-fuel-phaseout-roadmap-at-cop30-brazilian-minister-urges

[90] Khan, A. (2025, November 8). *COP30: promise to performance. Dawn.* https://www.dawn.com/news/1953857

rapid investment in resilience, the hardest-hit sectors, food, water, health, and energy, will face escalating risks.

Pakistan:

- Pakistan's projected business-as-usual GHG emissions of 2,559 $MtCO_2e$ by 2035 represent a significant increase from the 2015 baseline of 405.07 $MtCO_2e$. The NDC 3.0 target is to reduce these emissions by 50%, with 17% achieved unconditionally through domestic measures and 33% conditional on adequate international support. The strategy covers all major sectors, including energy, industry, transport, AFOLU, and waste, and encompasses carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons. Emission reductions are being pursued through renewable energy expansion, energy efficiency improvements, industrial mitigation, sustainable agriculture, and ecosystem restoration.[91]
- The energy sector, which dominates emissions, is set to expand renewable and clean energy capacity to 38.5 GW by 2035, supported by energy efficiency measures in industry, transport, and buildings, potentially reducing emissions by 35 $MtCO_2e$ by 2030. The AFOLU sector contributes to mitigation through initiatives such as the Upscaled Green Pakistan Programme, which promotes reforestation, mangrove restoration, and sustainable land management, delivering both carbon sequestration and livelihood co-benefits. Ecosystem restoration efforts include 23,000 hectares of mangrove plantations in Sindh and Balochistan, over 3,000 hectares of riverine reforestation, and urban greening through Miyawaki forests in major cities, enhancing climate resilience and biodiversity.[92]
- NDC 3.0 aligns Pakistan's emissions trajectory with global low-carbon pathways while acknowledging the country's high vulnerability to climate extremes, despite contributing less than 1% to global emissions. Adaptation measures target water security, climate-smart agriculture, nature-based solutions, health, and ecosystem

[91] Government of Pakistan. (2025, September 24). Pakistan NDC 3.0. United Nations Framework Convention on Climate Change. Retrieved from https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24 per cent20Sep.pdf

[92] Government of Pakistan. (2025, September 24). Pakistan NDC 3.0. United Nations Framework Convention on Climate Change. Retrieved from https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24 per cent20Sep.pdf

restoration, ensuring sectoral co-benefits. The approach also mainstreams GEDSI principles, empowering women, youth, children, the elderly, persons with disabilities, and marginalised communities as active participants in mitigation and adaptation. By integrating green skills development, youth ecopreneur programs, and inclusive participation in climate governance, Pakistan aims for a socially equitable, economically viable, and environmentally ambitious pathway that contributes to both regional and global climate stabilisation.[93]

Bottom line: Pakistan's sectoral mitigation and adaptation efforts are ambitious and inclusive, but without conditional international support, the full 50% emissions reduction target and low-carbon transition cannot be realised.

[93] Government of Pakistan. (2025, September 24). Pakistan NDC 3.0. United Nations Framework Convention on Climate Change. Retrieved from https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24 per cent20Sep.pdf

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