Moving Towards Climate Justice – What is needed?

Karan Patil, Upasana Yadav, Dhruv Bhavsar, Meera Mehta, Dinesh Mehta

Center for Water and Sanitation (CWAS), CRDF, CEPT University

Email id: cwas@cept.ac.in

1. Introduction

The main themes for COP 30, hosted in Belém, Brazil, include implementation and action, particularly the Global Goal on Adaptation, just transition and the delivery of climate finance. In this note, we highlight a few issues that the COP 30 needs to discuss.

Unequal Burden

The climate framework overlooks differences between rich and developing nations. Developing countries, though least responsible, face severe climate impacts while struggling to cut emissions, secure energy and grow their economies with limited resources.

Climate change is not a distant threat; it is a crisis of the present. Rising temperatures, unpredictable rainfall, floods, landslides, forest fires, droughts and sea level rise are no longer rare events. They now dominate newspaper headlines at an alarming regularity. According to a World Bank report, around 4.5 billion people are currently vulnerable to climate-related disasters (Doan et al., 2023, p. 3). The International Chamber of Commerce reveals that from 2014 to 2023, the world experienced around 4,000 extreme events, which is about 83 % higher than the previous decade. These extreme events have resulted in financial loss of $ 2 trillion across the globe (International Chamber of Commerce and Oxera, 2024).

While the climate crisis is common for all countries, its impact varies across different countries. The developing countries are most vulnerable to these events, as 70% of the vulnerable population resides in these countries. Despite their small contributions to the climate crisis, they have to carry this burden and tackle this crisis with limited resources. This overall imbalance lies at the climate injustices. It shows how the countries with low responsibilities are facing the worst consequences.

Climate justice is therefore not only about reducing emissions; it is about ensuring fairness in responsibility, capability and vulnerability. It demands that those who contributed most to the problem and who possess the greatest resources take the lead in addressing it (UNDP Climate Promise, 2023). The principle of Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC), cited in Article 3(1) of the UNFCCC, provides the moral and legal

foundation for this approach. Yet, three decades later, the gap between commitments and delivery remains vast.

2. A Legacy of Emissions: Who Shaped the Climate Crisis?

The fight against climate change demands urgent and collective action. However, one fundamental question persists: Who is responsible for the current state of our environment? Developed nations, which have historically been the largest contributors to greenhouse gas (GHG) emissions, are now compelling developing countries to adopt decarbonisation policies and programmes. Yet, as developing countries struggle and cope with economic challenges, they are impacted by policies designed to protect the planet. Thus, they face the dual challenge of meeting stringent climate targets while also pursuing economic growth.

For centuries, the path to prosperity for many nations was fuelled by industrial emissions. Available data suggest that between 1750 and 1900, the United Kingdom and the United States were responsible for over 90% of global CO2 emissions, a staggering share considering their relatively small population at the time (Ritchie and Roser, 2020). These countries were in the throes of their Industrial Revolutions, powered largely by coal and oil, the fossil fuels that became the primary drivers of the climate crisis. By the early 20th century, the developed nations, particularly those in Europe and North America, accounted for 70% of global emissions (Wei et al., 2012, p. 12912).

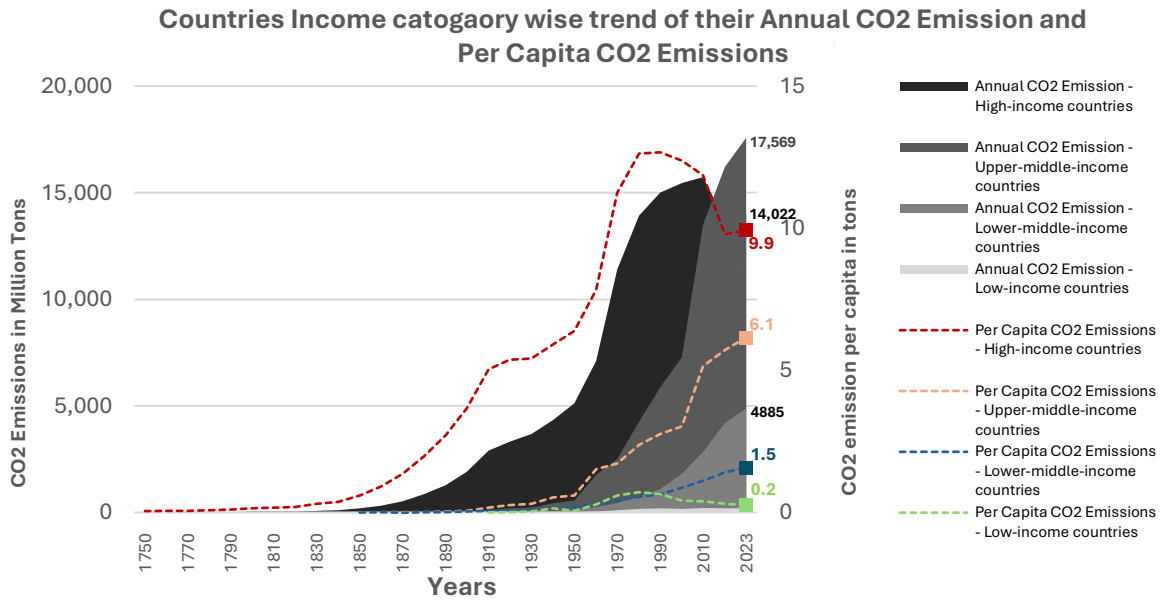

Figure 1: Temporal variation of annual CO2 emission and per capita CO2 emission across countries in different income categories

Data Source: Friedlingstein et al., 2023; Global Carbon Project, 2023 Our World in Data, 2023

Emissions reduction in developed countries: There is some variance in the efforts made by the developed countries. For instance, the European Union (EU) and the United Kingdom (UK) have made significant progress towards reducing emissions by 32% and 49%, respectively, compared to their 1990 emissions. On the other hand, the United States of America, one of the largest contributors to global emissions, achieved a reduction of mere 7% (Van Deursen et al., 2023, p. 4–5). Looking at the overall global climate commitments, very few developed countries are on track towards the climate commitments made under the Paris agreement.

The recent International Court of Justice (ICJ) advisory opinion on climate change (July 2025) reinforces this historical argument. Responding to a request by Vanuatu and 132 UN member states, the ICJ held that states have a legal obligation under international law to prevent and mitigate climate harm and that failure to act, including continued subsidies or approvals for fossil-fuel expansion, may constitute an internationally wrongful act (ICJ, 2025). The Court linked these obligations to both treaty and customary international law, affirming that countries with the greatest historical responsibility must take the strongest action. This judgment translates moral responsibility into a legal duty for the climate system, shifting global accountability from voluntary pledges to obligations enforceable through domestic and international law.

3. Global Climate Commitments under COPs

As climate change began to dominate global conversations, a series of international climate frameworks/agreements were established to curb emissions. However, these frameworks were largely shaped by the developed nations that have emitted carbon unchecked for centuries. It is the developing nations that are now bearing the brunt of the regulations.

In 1992, at the Rio Earth Summit, the UN Framework Convention on Climate Change (UNFCCC) was established. It categorised countries into 3 categories: i) Annex 1 are the developed economies, ii) non–Annex 1 included developing and underdeveloped economies, and iii) Annex 2 included countries that were in Annex 1 but are not economies in transition (non–EIT). These countries were required to provide finance to the non-Annex 1 countries to undertake emissions reduction and to help them adapt to the adverse effects of climate change. It also highlighted that developed countries should bring their emissions down to the level of the late 1990's. In 1997, the Kyoto Protocol set binding emissions reduction targets for Annex I countries (developed nations), but exempted developing countries from these obligations, giving them the flexibility to continue industrialisation.

In 2015, the Paris Agreement set target for global warming to 1.5°C. For the first time, it required all countries, including developing countries, to submit their Nationally Determined Contributions (NDCs) for emission reduction. While acknowledging the responsibility of developed nations, this new agreement placed the burden of future emission reductions on all countries, regardless of their past emissions or current capacities (UNFCCC, 2015). The Agreement promised $100 billion annually by 2020 to support developing countries, but actual disbursements lagged by several years and fell far short of the need.

Table 1 highlights the milestones of various Conferences of the Parties (COP) convened by the UNFCCC, which have played a pivotal role in shaping global climate policies. While each COP introduced new mechanisms from the Green Climate Fund (COP16) to the Loss and Damage Fund (COP27), delivery has remained partial. COP28 initiated the first global stocktake, revealing that collective actions remain off-track for a 1.5 °C pathway. It is indeed ironic that while these events have helped accelerate action, developed nations have often fallen short in their commitment to emission reductions and financial assistance.

Table 1: Milestones of various COPs and impact on developing countries

Year / COP	Commitments Made	Positive Implications for developing and underdeveloped countries	Negative Implications for developing and underdeveloped countries
2009 – COP15 (Copenhagen)	Non-binding "Copenhagen Accord"; pledged $100 bn/year by 2020 under future negotiations	Recognised climate finance responsibility, setting the groundwork for future funds (e.g., Green Climate Fund in Cancun COP16).	Non-enforceable targets created distrust among developing nations; future goals lacked accountability.
2015 – COP21 (Paris)	Universal legally binding agreement: limit warming to well below 2 °C, pursue 1.5 °C; Nationally Determined Contributions (NDCs); climate finance & tech transfer.	Empowered developing countries to set their own mitigation/adaptation targets; unlocked climate finance mechanisms, e.g., adaptation funding.	Finance commitments are insufficient; implementation gap; disparities persisted in tech access.
2018 – COP24 (Katowice)	Adopted Paris implementation rules (Rulebook) for transparency, accounting, and reporting.	Provided clarity and technical support to build the institutional capacity of developing nations.	Resource-intensive complexity forced low-capacity countries to depend heavily on donor support.
2021 – COP26 (Glasgow)	Glasgow Climate Pact: enhanced NDCs, "phase-down" of coal, methane reduction, carbon markets, US rejoined Paris.	Strengthened global ambition, open carbon market opportunities, and tech transfer are accelerating clean energy.	Coal "phase-down" weaker; finance pledges still fell short; complex carbon trading posed governance risks.
2022 – COP27 (Sharm El-Sheikh)	First Loss & Damage Fund established; early warning system; adaptation planning support.	Historic recognition of climate justice; direct support to countries experiencing loss and damage, public health, and early warning help.	Only ~$18 bn raised vs. $70 bn annual need; fund operationalisation remained slow and insufficient.
2023 – COP28 (Dubai)	Global stock take; roadmap to end fossil fuel era; operationalised Loss & Damage Fund with ~$770 m pledges.	First-ever assessment drove renewed urgency; initial funding for vulnerable states, more inclusive health and food systems approach.	Funding was very limited as compared to $116–435 bn needed; fossil-fuel exit lacked a timeline; stock take lacked legal enforcement.
2024 – COP29 (Baku)	New Collective Quantified Goal (NCQG): $300 bn/year public finance + pledge for $1.3 tn total by 2035; Article 6 carbon market rules; adaptation, gender, indigenous inclusion workplans.	Tripled finance goal boosts confidence: carbon market rules could unlock private capital; strengthened adaptation, gender, and indigenous voices.	Criticised as "optical illusion" — only $300 bn upfront; too loan-centric; process accused of bypassing proper negotiation; mitigation stalled; resource strain for implementing countries.

Note: This analysis has been collated by the authors based on various COP discussions and summary reports.

Continued fossil fuel dependency: Despite ambitious declarations in the COPs, developed nations continue to subsidise fossil fuels at record levels. In 2023 alone, Annex II countries spent an estimated $1.5 trillion supporting coal, oil, and gas - five times the scale of their climate-finance commitments under COP29 (Ivetta, Tara, Nhat, Megan, & Natalie, 2024). The subsidy spending contradicts their climate commitments and pledges. According to the 2023 Council on Energy, Environment and Water (CEEW) report "Trust and Transparency in Climate Action", only five developed countries are currently on a linear trajectory to achieve their committed net-zero targets. Notably, none of the major developed economies or large emitters are among these five, highlighting lack of actions by developed countries towards climate commitments. This shows that despite having substantial financial resources, the funds are directed more towards carbon intensive activities rather than supporting climate action in developing countries. Developed nations, including the USA, continue to invest in oil, gas, and coal extraction, while outsourcing emissions-intensive production to developing countries.

Further, the alliances formed to support climate financing are investing in the fossil fuels, with two third of the world's largest banks committing $869 billion for investment in coal, oil and gas in 2024 (Milman, 2025). In addition to this, larger financial players, who had committed towards net zero alliance, have backed out due to unstable global geo-politics (McGowan, 2025).

Over the past three decades, COP meetings have created many agreements and targets, but progress has been slow and uneven. Rich countries still control most of the financing and decision-making, while developing countries continue to face the biggest risks and have the least resources. The global climate system looks strong on paper but weak in real action. To make climate justice real, countries must move from making promises to actually keeping them.

4. Climate finance transfer and realities

The Growing Divide: Are the developed countries contributing enough?

Despite the commitments made by various countries under the Paris agreement, very few are on track to meet their stated climate commitments. The OECD report (2024) highlighted that developed countries are two years behind their committed target of financing 100 billion dollars. The chart below (Figure-2) shows that while a few countries particularly France, Netherlands and Japan exceeded their climate finance commitments, major emitters such as the United States, UK, Canada and Australia contributed significantly less than their pledged responsibilities in 2020.

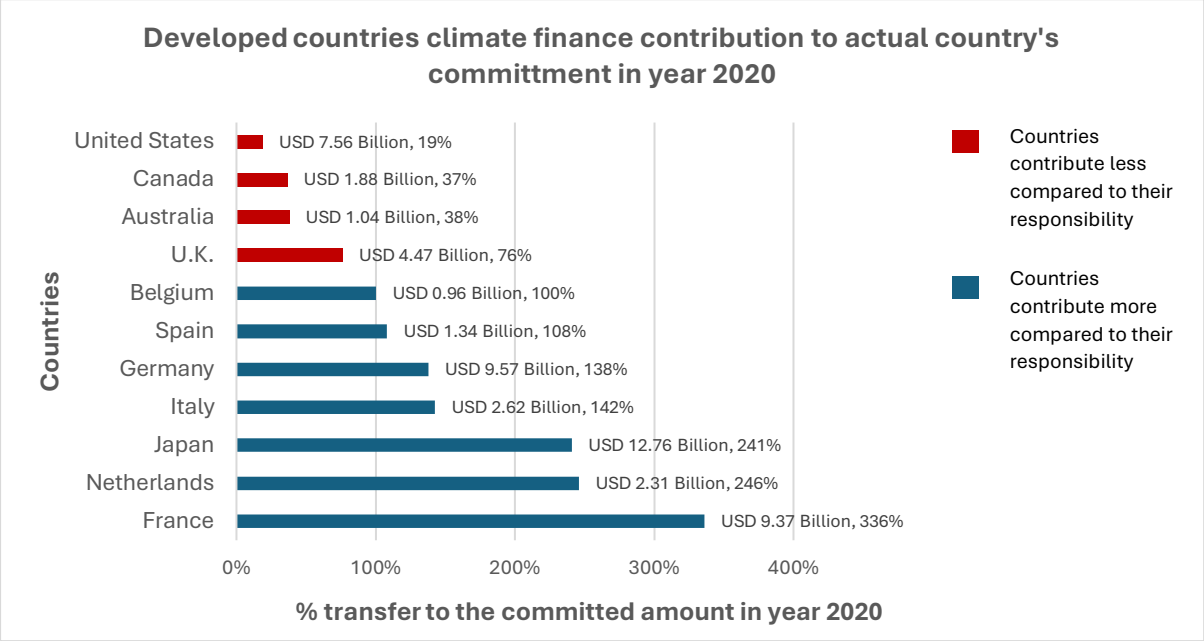

Figure 2: Country wise climate finance allocation in 2020, (Source – Gabbatiss et al., 2022)

Loss and Damage Fund: Still far from adequate

A Fund for Responding to Loss and Damage (FRLD) was established at COP 27 after more than two decades of advocacy and negotiation (Ghosh and Kumar, 2025). However, its design has drawn criticism for encouraging voluntary contributions from all countries. This contradicts the UNFCCC principle of "Common but Differentiated Responsibilities".

The financial shortfall of the fund is striking. Despite an urgent need for approximately USD 400 billion annually to address loss and damage in developing countries, less than USD 1 billion has been pledged by the developed countries (UNFCCC, 2025), which is less than 0.2 % of the fund required (Lakhani, 2023). In the initial phase, only USD 250 million was allocated, with half of the committed funds allocated to small island developing states (SIDS) (Rumble, 2025). The European Union has been the most consistent and significant contributor to the fund, contributing a major proportion of finance from November 2023 to April 2025. In contrast, other larger economies that are responsible for high GHG emissions have contributed a small amount to the fund (India Development Review, 2025).

During COP28, countries also discussed the allocation of finance for adaptation as part of broader climate finance commitments. This was further argued by developing countries that the actual flow of funds is far below what was pledged and that much of the finance is provided in the form of debt rather than grants. COP29 established a new goal of at least $300 billion annually by 2035, but implementation mechanisms remain unclear.

The International Court of Justice (ICJ) advisory opinion in 2025 has given new fillip to the demand for reparative climate finance. It explicitly recognised that countries suffering climate damage due to others' emissions have a right to seek redress, assistance, and compensation under international law. This has a major implication for future allocation of Loss and Damage as well as adaptation funds.

Role of financial alliances and Multilateral Development Banks (MDBs)

Several public–private alliances have been established to align financial flows with the goals of the Paris Agreement. Alliances such as Global Financial Alliance for Net-Zero, Net-Zero Banking Alliance, Net-Zero Insurance Alliance, Net-Zero Export Credit Agencies, Forum for Insurance Transition to Net Zero, Green Bank Network, Climate Finance Leadership Initiative, The International Development Finance Club, and Global Environment Facility, etc, focus on mitigation as well as adaptation measures across the developing countries. Most of these alliances were formed under the United Nation environment program finance Initiative.

While several alliances and corporations have publicly committed to net-zero targets, a growing number are now choosing silence over disclosure, a trend known as greenhushing. According to The Economist (2025), despite headlines suggesting that big business has abandoned climate action, around 67% of companies remain on track to meet their net-zero commitments. However, many companies have stopped publishing detailed sustainability metrics or progress updates. This quiet shift reflects a desire to avoid political backlash, regulatory scrutiny or reputational risk while still advancing internal decarbonisation strategies. While this trend indicates greater maturity and realism in private-sector climate action, it also reduces transparency and undermines collective climate ambition.

Multilateral development banks (MDBs), also play a critical role in bridging climate and development finance. However, their operations remain constrained by conservative lending frameworks. While MDBs provided a record $125 billion in climate finance in 2023, with 60% ($74.7 billion) directed to low- and middle-income countries, critical concerns persist regarding the quality, accessibility and equity of this financing (Thwaites, J,et al 2024). Recent debates call for MDB reform to integrate equity-based and grant-dominant instruments instead of debt-based funding mechanism. (World Bank, 2023)

Debt- climate Nexus

Most climate finance remains debt-based, with limited contribution from grants, credits and innovative financing channels (OECD, 2024, p. 17). This structure increases the risk of debt traps for developing countries that are already struggling with repayment pressures. In 2023, global

debt reached USD 97 trillion, with developing countries accounting for nearly one-third of total global debt (Down-to-earth, 2025). The increase in debt, in the name of climate finance, increases the burden on developing countries. In addition, least developed countries pay about twice what they receive in terms of committed climate finance (Sharman, 2024).

"An international mechanism for debt restructuring based on the solidarity and harmony of peoples, grounded in good faith, truth, and ethical dialogue. We must regain the conviction that we need one another, that we have a shared responsibility for others and the world" – *by Pope Francis addressing the debt crises in the Global South (The jubilee report)*

A similar issue was raised at COP 29, where it was emphasised that "new climate finance" must not undermine the ability of many countries that are already burdened with crippling economic debt to adapt to the impacts of the climate emergency. It was further argued that countries that have contributed most to greenhouse gas emissions must acknowledge the ecological debt which creates severe intra and inter-generational inequalities and developed countries should take a leading role in closing the gap in development finance. Negotiators should remember that ecological debt and foreign debt are two sides of the same coin" (*CAFOD*, 2024). It was argued that a new international financial architecture based on equity, justice and solidarity is needed to enable everyone to meet their respective NDC commitments.

5. How is the financial flow distributed?

The climate commitment is distributed across three categories i.e., Mitigation, Adaptation and cross-cutting initiatives. Mitigation activities focus on reducing and preventing GHG emissions in the atmosphere. It also considers enhancing the capacity of natural systems to absorb emissions. The adaptation aspect focuses on adjusting the existing ecological, social or economic systems to reduce the vulnerability of climate change on human settlements and the environment. The cross-cutting aspect focuses on building strategies and actions that fulfil the aim of mitigation as well as adaptation initiatives. The committed financial flow is primarily earmarked for mitigation related activities.

The financial flow is mainly from public finance and very little investment is from the private sector. As per the OECD report 2024, private financing has contributed only 18 to 21 % of the overall commitment (OECD, 2024). The lower contribution of private finance is due to the weak and uncertain climate policies in developing countries and the uncertainty of returns on investments.

Is the investment enough for mitigation and adaptation efforts? Examining how climate finance is distributed reveals the underlying priorities and imbalances in global action. While mitigation receives most funding, adaptation remains the neglected pillar of climate response.

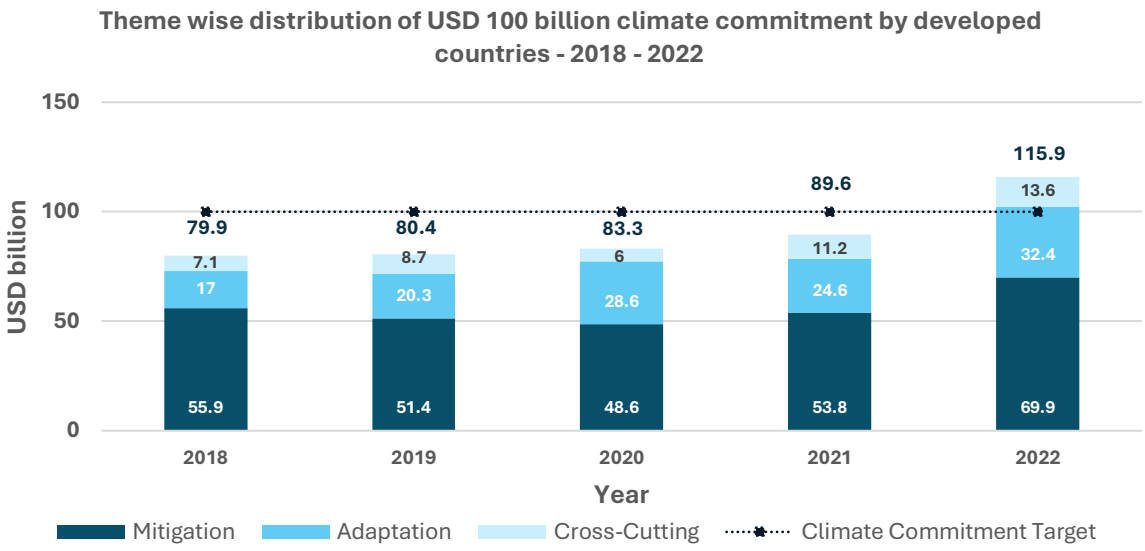

Figure 3: Theme wise climate finance allocation w.r.t. USD 100 billion commitment (Source: OECD, 2024, p.11)

Mitigation: To meet their emissions reduction targets, developing nations will need to invest significantly in infrastructure and technology upgrades. According to UNEP's 2024 Emissions Gap Report, developing countries need to invest USD 6.7 to 11.7 trillion per year by 2035 to move towards net zero, (Emissions Gap Report, UNEP, 2024 p. 43). As energy transition is one of the key aspects of mitigation efforts, several countries have taken efforts to shift their energy generation and use to non-fossil sources.

Over the last decade, investments across countries have increased in the renewable power sector (figure 5). The Bloomberg NEF report on energy transition investment, 2025 states that, China accounts for the largest share of global renewable energy investment. IEA report on World Energy Investment, 2025 highlights that regions are spending about 1.3 – 3.1 % of their GDP in renewables. Developed countries and regions invest about 1.3 – 1.9 % of their GDP in moving towards energy transition (IEA,2025, p. 184 - 238).

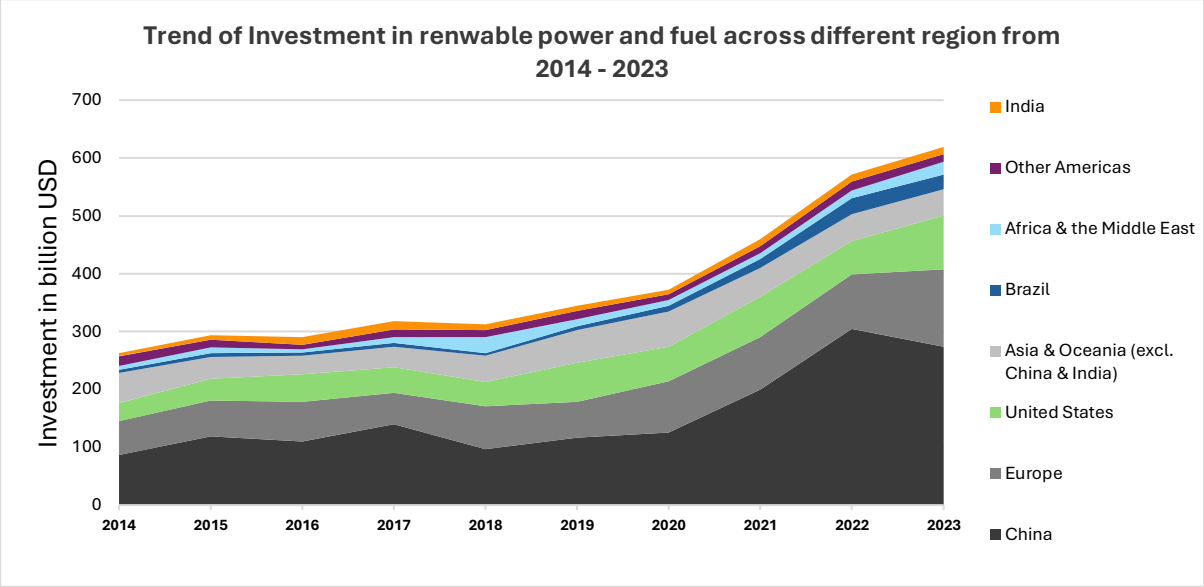

Figure 4: Region wise trend of investment renewable power and fuel since 2014 - 2023; (Source: Chart regenerated using BloombergNEF report on Energy Transition Investment Trends, 2025)

Beyond renewable energy, carbon reduction and other innovative technologies also needs to be scaled up and integrated into national climate strategies. To achieve this, technology transfer from developed to developing countries is an urgent necessity. The importance of technology development and transfer as a means of implementation for effective climate action is clearly recognised in Article 4.7 of the United Nations Framework Convention on Climate Change (UNFCCC) and in Articles 10.5 and 10.6 of the Paris Agreement.

Many developing countries have repeatedly emphasised the importance of technological innovation, research and capacity-building during successive COP negotiations, particularly highlighting that without equitable access to technologies, achieving global mitigation and adaptation goals remains unattainable (UNFCCC, 2024). Barriers such as the slow process of international technology transfers, Intellectual property rights, technology cost and regulatory obstacles hinder developing countries' efforts towards climate actions and also increase the burden on domestic resources (Press Trust of India, 2025).

Adaptation: As per the estimates of the Adaptation Gap Report 2025, developing countries will require USD 365 billion/year for adaptation measures (*Adaptation Gap Report*, UNEP, 2025). In contrast, the current public investment is around USD 26 billion, with further declining trend. The chart below shows the investment required for adaptation finance in different regions.

Table 2: Regional Adaptation finance needs across the globe

Region	Annual adaptation finance needs in US$ billion (2021 value)			Annual adaptation finance needs in an equivalent % of GDP		
	Median	Min	Max	Median	Min	Max
East Asia & the Pacific	158	27	439	0.69	0.12	1.9
South Asia	97	40	205	2.38	0.99	5.05
Latin America & the Caribbean	51	6	149	0.92	0.12	2.66
Sub-Saharan Africa	46	17	96	2.37	0.9	4.95
Middle East & North Africa	27	8	66	0.74	0.22	1.78
Europe & Central Asia	8	2	20	1.35	0.29	3.56
Global	**387**	**101**	**975**	**1**	**0.25**	**2.5**

Data Source: Adaptation Finance Gap Update Report, UNEP, 2023, p. 41,

https://doi.org/10.59117/20.500.11822/43796

As the above table shows, East Asia & the Pacific region countries require a major amount of financial demand. However, considering the financial need as a % GDP requirement, South Asia region emerges as the most vulnerable region, with funding requirement for adaptation efforts ranging between about 0.99 – 5.05 % of total GDP (*Adaptation Gap Report*, 2023). Without investment of a significant amount in adaptation, developing countries will face a significant impact. Additionally, adaptation finance must be integrated in technology transfer for climate-resilient agriculture, water management systems, early warning systems and disaster-risk infrastructure, areas where developing countries lack both resources and technical expertise.

6. Is a fairer global framework and equitable climate actions possible?

The urgency of climate action is undeniable, yet the current global framework remains inadequate in addressing fundamental inequities. Only a few developed nations like Denmark, Sweden and Norway are on track to meet their climate commitments. The climate crisis is rooted in historical emissions by developed nations, while developing countries least responsible yet most vulnerable continue to bear disproportionate burdens. Systemic reforms are needed to transform the global climate framework.

Reforming climate finance architecture stands as the most critical priority. Despite the commitments made by various countries under the Paris agreement, very few are on track to meet their stated climate commitments. The climate finance fund must be adequately capitalised based on historical responsibility rather than voluntary goodwill. The ICJ ruling provides developing countries with greater leverage in demanding accountability from developed nations. Developed countries must honour their legal and moral obligations through predictable and grant-based financing mechanisms.

Multilateral development banks (MDBs) require fundamental restructuring to align climate and development objectives effectively. Current lending frameworks remain excessively conservative, limiting their capacity to support transformative climate action. Recent proposals for MDB reform advocate shifting from debt-dominant instruments to equity-based and grant-dominant mechanisms (World Bank, 2023). These institutions must streamline approval processes and enhance responsiveness to the urgent needs of climate-vulnerable nations. Without such reforms, MDBs may end up adding to climate-debt crisis rather than solving it.

Another issue lies in the voluntary nature of climate commitments. Despite commitments made under successive COP agreements, enforcement mechanisms remain weak. Fossil fuel subsidies continue to dwarf actual climate finance transfers. Independent verification of climate finance flows should be mandated, with clear definitions to prevent double-counting and ensure transparency. Penalties for non-compliance should be integrated into the global governance architecture.

The reforms outlined above represent a fundamental shift towards recognising climate justice as inseparable from global security, human rights and shared prosperity. This inequalities and lack of rapid actions towards tackling the climate crisis in developing and underdeveloped countries can lead to increased climate induced migration in developed countries which can potentially lead to straining resources and national security issues (Shah, 2024).

7. Way Forward

The window for limiting global warming to 1.5°C has closed. COP30 must serve as a turning point and should focus on increasing global climate resilience, while respecting principles of equity and justice through political will and significant financial commitments. Developed countries must scale up their commitments not as an act of generosity, but as repayment of an ecological and historical debt. Developing countries must receive fair access to technology and affordable finance. Bridging the gap between climate ambition and financing is a special responsibility of developed nations. Climate justice must move from the margins of dialogue to the centre of policy and finance. COP30 must embed climate justice at the very centre of global decision-making, making it a binding pillar of policy, finance and implementation.

References

- Adeniyi, D. (2025, January 29). *The broken promise of loss and damage finance: Can Europe help?* ECDPM. Retrieved August 26, 2025, from https://ecdpm.org/work/broken-promise-loss-and-damage-finance-can-europe-help
- BloombergNEF. (2025, July 8). *Energy transition investment trends*. BloombergNEF. https://about.bnef.com/insights/finance/energy-transition-investment-trends/#download-report-summary
- Climate Action Tracker. (2023). COP28: Analysis and implications. https://climateactiontracker.org/publications/cop28-analysis/
- Climate Action Tracker. (2024). COP29: Progress and challenges. https://climateactiontracker.org/publications/cop29-progress/
- Crippa, M., Guizzardi, D., Pagani, F., Banja, M., Muntean, M., Schaaf, E., *et al.* (2024). *GHG emissions of all world countries, Publications Office of the European Union*, Luxembourg, 2024, doi:10.2760/4002897, JRC138862
- COP29: Pope Francis says climate finance mustn't add to debt crisis. (2024). cafod.org.uk. https://cafod.org.uk/news/campaigning-news/cop29-pope-francis-says-climate-finance-mustn-t-add-to-debt-crisis
- Doan, M. K; Hill, R.; Hallegatte, S.; Corral Rodas, P. A.; Brunckhorst, B. J.; Nguyen, M.; et al (2023) *Counting People Exposed to, Vulnerable to, or at High Risk From Climate Shocks — A Methodology (English)*. Policy Research working paper ; no. WPS 10619 Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/099602511292336760
- Down To Earth. (2025, June 30). *Debts-climate link: Global finance system keeping developing countries from prioritising growth & resilience*. *Down To Earth*. https://www.downtoearth.org.in/climate-change/debts-climate-link-global-finance-system-keeping-developing-countries-from-prioritising-growth-resilience
- Economic Times. (2023, June 7). *Developed countries spent more on fossil fuel subsidies in 2023 than new climate finance package*. Economic Times. https://energy.economictimes.indiatimes.com/news/oil-and-gas/developed-countries-spent-more-on-fossil-fuel-subsidies-in-2023-than-new-climate-finance-package/116487278
- Friedlingstein, P., O'Sullivan, M., Jones, M. W., Andrew, R. M., Bakker, D. C. E., Hauck, J., *et al.* (2023) Global Carbon Budget 2023, Earth Syst. Sci. Data, 15, 5301-5369, https://doi.org/10.5194/essd-15-5301-2023, 2023.
- Gabbatiss, J., Evans, S., & Carbon Brief. (2022, November 7). Analysis: US falling $32bn short on 'fair share' of $100bn climate-finance goal. *Carbon Brief*. https://www.carbonbrief.org/analysis-us-falling-32bn-short-on-fair-share-of-100bn-climate-finance-goal/
- Ghosh, N., & Kumar, V. (2025, February 27). *The Loss and Damage Fund: Questions, concerns, and suggestions*. orfonline.org. Retrieved August 26, 2025, from https://www.orfonline.org/research/the-loss-and-damage-fund-questions-concerns-and-suggestions
- Hannah Ritchie and Max Roser (2020) - "CO_2 emissions" Published online at OurWorldinData.org. Retrieved from: 'https://ourworldindata.org/co2-emissions' [Online Resource]
- IEA. (2025). Global Energy Review 2025. International Energy Agency. https://iea.blob.core.windows.net/assets/5b169aa1-bc88-4c96-b828-aaa50406ba80/GlobalEnergyReview2025.pdf

- India Development Review. (2025, March 18). *IDR Explains: The Loss and Damage Fund | IDR*. Retrieved August 26, 2025, from https://idronline.org/features/climate-emergency/idr-explains-the-loss-and-damage-fund/
- IEA (2025), World Energy Investment 2025, IEA, Paris https://www.iea.org/reports/world-energy-investment-2025, Licence: CC BY 4.0
- International Chamber of Commerce & Oxera. (2024). *The economic cost of extreme weather events*. International Chamber of Commerce. Retrieved September 9, 2025, from https://www.oxera.com/wp-content/uploads/2024/11/Oxera_The-economic-cost-of-climate-related-extreme-weather.pdf
- Ivetta, G., Tara, L., Nhat, D., Megan, D., & Natalie, J. (2024, December 18). *The Cost of Fossil Fuel Reliance: Governments provided USD 1.5 trillion from public coffers in 2023*. Retrieved from International Institute for Sustainable Development: https://www.iisd.org/articles/insight/cost-fossil-fuel-reliance-governments-provided-15-trillion-2023
- Sharman, J. (2024, October 16). World's least developed countries spend twice as much servicing debts as they receive in climate finance. International Institution for Environment and Development. Retrieved September 3, 2025, from https://www.iied.org/worlds-least-developed-countries-spend-twice-much-servicing-debts-they-receive-climate-finance
- Kotz, M., Levermann, A., & Wenz, L. (2024). The economic commitment of climate change. *Nature*, *628*(8008), 551–557. https://doi.org/10.1038/s41586-024-07219-0
- Lakhani, N. (2023, December 7). $700m pledged to loss and damage fund at Cop28 covers less than 0.2% needed. *The Guardian*. https://www.theguardian.com/environment/2023/dec/06/700m-pledged-to-loss-and-damage-fund-cop28-covers-less-than-02-percent-needed
- Ministry of Environment Forest and Climate Change (2025, July 2025). Nationally Determined Contributions. Retrieved from Press Information Bureau: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2146355
- OECD (2024), *Climate Finance Provided and Mobilised by Developed Countries in 2013-2022*, Climate Finance and the USD 100 Billion Goal, OECD Publishing, Paris, https://doi.org/10.1787/19150727-en.
  Our World in Data. (2023). CO2 and Greenhouse Gas Emissions. https://ourworldindata.org/co2-and-greenhouse-gas-emissions
- Rumble, O. (2025, May 19). *Loss and damage fund won't operate "At scale."* African Climate Wire. Retrieved August 26, 2025, from https://africanclimatewire.org/2025/05/loss-and-damage-fund-wont-operate-at-scale/
- Shah, V. (2024, September 2). *On Climate Justice: A Conversation with Mary Robinson, Former President of Ireland & Former UN High Commissioner for Human Rights*. Thought Economics. Retrieved August 26, 2025, from https://thoughteconomics.com/mary-robinson/
- The Economist. (2025, August 1). *The remarkable rise of "greenhushing."* The Economist. https://www.economist.com/business/2025/07/29/the-remarkable-rise-of-greenhushing
- The World Bank. (2023). Financing loss and damage: The role of multilateral development banks https://www.worldbank.org/en/topic/climatechange/publication/loss-and-damage-finance
- The Catholic Agency for Overseas Development (CAFOD). (2024, November 13). COP29: Pope Francis says climate finance mustn't add to debt crisis. *The Catholic Agency for Overseas Development*. https://cafod.org.uk/news/campaigning-news/cop29-pope-francis-says-climate-finance-mustn-t-add-to-debt-crisis

- UNDP Climate Promise. (2023, June 26). *Climate change is a matter of justice – here's why*. Retrieved October 29, 2025, from https://climatepromise.undp.org/news-and-stories/climate-change-matter-justice-heres-why
- United Nations Environment Programme (2024). Emissions Gap Report 2024: No more hot air … please! With a massive gap between rhetoric and reality, countries draft new climate commitments. Nairobi. https://doi.org/10.59117/20.500.11822/46404.
- United Nations Environment Programme (2025). A*daptation Gap Report 2025: Running on empty. The world is gearing up for climate resilience — without the money to get there* [Neufeldt, H., Hammill, A., Leiter, T., Magnan, A., Watkiss, P., Bakhtiari, F., Bueno Rubial, P., Butera, B., Canales, N., Chapagain, D., Christiansen, L., Dale, T., Milford, F., Niles, K., Njuguna, L., Pauw, P., Singh, C. and Yang, G.]. Nairobi. https://wedocs.unep.org/20.500.11822/48798.
- United Nations Framework Convention on Climate Change (UNFCCC). (1992). The United Nations Framework Convention on Climate Change (UNFCCC). https://unfccc.int/resource/docs/convkp/conveng.pdf
- United Nations Framework Convention on Climate Change (UNFCCC). (2015). The Paris Agreement. https://unfccc.int/sites/default/files/english_paris_agreement.pdf
- United Nations Framework Convention on Climate Change. (2025, April 7). *Pledges to the fund for responding to loss and damage*. Retrieved August 26, 2025, from https://unfccc.int/topics/climate-finance/funds-entities-bodies/fund-for-responding-to-loss-and-damage/pledges-to-the-fund-for-responding-to-loss-and-damage
- Van Deursen, M., Prasad, S., & Council on Energy, Environment and Water. (2023). *Trust and transparency in climate action: Revealing developed countries' emission trajectories*. Issue Brief. https://www.ceew.in/sites/default/files/Research-On-Trust-And-Transparency-In-Climate-Action.pdf
- Valerie Fajardo, Alyssa Huffman & Lorena Zenteno Villa*, Reassessing Common But Differentiated Responsibilities and Respective Capabilities: Climate Finance and the Paris Agreement at COP29*, *Völkerrechtsblog,* 12.11.2024, doi: 10.17176/20241112-235915-0.
- Wei, T., Yang, S., Moore, J. C., Shi, P., Cui, X., Duan, Q., *et al.* (2012). *Developed and developing world responsibilities for historical climate change and CO2 mitigation*. Proc Natl Acad Sci U S A. 2012 Aug 7;109(32):12911-5. doi: 10.1073/pnas.1203282109. Epub 2012 Jul 23. PMID: 22826257; PMCID: PMC3420160.
- Yu, A., Lu, S., O'Malia, K., & Prasad, S. (2024, July 11). *China continues to lead the world in wind and solar, with twice as much capacity under construction as the rest of the world combined - Global Energy Monitor*. Global Energy Monitor. https://globalenergymonitor.org/report/china-continues-to-lead-the-world-in-wind-and-solar-with-twice-as-much-capacity-under-construction-as-the-rest-of-the-world-combined/
- Zacharski, N. (2025, January 8). *Adaptation, loss & damage at COP29: Some progress made, much remains*. Center for Climate and Energy Solutions. https://www.c2es.org/2025/01/adaptation-loss-damage-at-cop29-some-progress-made-much-remains/