The Climate-Vulnerable Suffer Most

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It was past midnight—November 24—in Baku, Azerbaijan. Negotiators at the 29th Conference of Parties (COP29) were still locked in tense negotiations to agree on a new climate finance deal. Outside, demonstrators chanted loud and clear: "Global North, pay up! Pay up for climate finance!" Their banners screamed what many inside were negotiating hard to achieve—"Not billions, but trillions."

The crowd chanted: "No deal is better than a bad deal," refusing to settle for anything less than what developing countries were demanding.

This was supposed to be the "Finance COP". The big moment. The one where world leaders would finally agree on a new climate finance goal to replace the USD 100 billion annual pledge. Developing countries had asked for at least USD 1.3 trillion a year to deal with the growing impact of climate change.

The result? A compromise: USD 300 billion a year by 2035, with an aim to reach USD 1.3 trillion by that same year. Not just from rich nations, but "all actors", including the private sector.

The negotiations dragged on for two days beyond the scheduled close on November 22. When the final deal was announced around 5:30 a.m. on November 24, some clapped, while others did not hide their frustration. India's delegate, Chandni Raina, called the agreement an "optical illusion" that failed to meet the scale of the crisis.

She was not alone.

For many participants from developing and vulnerable countries, it was *déjà vu*. Another year, another COP, another watered-down promise.

The new climate finance called NCQG—New Collective Quantified Goal—was meant to be a game-changer. It had been in the works since

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2015, designed to deliver climate finance that was new, clearly defined and collectively committed by developed countries.

Yet here was the scenario—no clear structure, no real delivery plan for the NCQG. The promise was that these would come at COP30 in Brazil.

Hope took the participants to Baku. Disappointment took many of them home. The climate crisis is global. But where is the global solidarity?

What is Climate Finance?

After all these years, there is no clear definition of climate finance. Seriously. It is at the heart of every climate negotiation, especially when it comes to the Global North supporting the Global South. Yet, under the United Nations Framework Convention on Climate Change (UNFCCC), and even the Paris Agreement, there is no official definition or a universally accepted one.

Depending on who you ask, climate finance can mean very different things. Developed countries count everything—from loans with interest to private investments. But for the Global South, it should be public, grant-based and definitely additional to existing aid.

Under the Paris Agreement, developed countries are mandated to provide financial support to developing nations for climate action, following the principle of "common but differentiated responsibilities."

The truth is, the Global North built its wealth on emissions, and now countries like Bhutan, Bangladesh and the Maldives are left dealing with the fallout. Climate finance is not charity; it is a responsibility.

And it is long overdue.

What is this NCQG Everyone is Talking About?

The NCQG is supposed to be the next big thing in climate finance. It is meant to replace the old USD100 billion-a-year promise. At COP29, countries finally set a number: USD 300 billion a year by 2035, but beyond that headline figure, the details are still fuzzy.

Who is paying? How much should go to grants, not loans? What is the split between money to cut emissions—mitigation—versus money to cope with climate disasters—adaptation? There are no real answers yet.

Rich countries seem to be pushing for private investments and emission cuts, but for the Global South—already feeling the heat—adaptation matters just as much, if not more. The countries are not just trying to cut carbon; they are trying to survive floods, droughts and rising seas.

In 2022, roughly 70 percent of North-South climate finance went to mitigation, while only 30 percent was allocated to adaptation. This imbalance reflects a political decision to prioritise mitigation over adaptation.

It has been mentioned before, and it is important to emphasise again: Developing countries like Bhutan are ready to contribute to mitigation efforts, but only if the necessary funding is provided to support a just transition - moving toward a greener, low-carbon world while ensuring no one is left behind. At present, it feels as though Bhutan is being asked to do more with fewer resources, once again.

Bhutan's Carbon Negative Status Comes at a Cost

In climate diplomacy like COP, the reality is that the highest polluters - the wealthy nations of the Global North - continue to fall short of their financial obligations to the Global South, where the most climate-vulnerable countries are located.

The Global South is most vulnerable to climate change because of limited resources, weak infrastructure and high dependence on agriculture. For example, Bangladesh faces frequent flooding and cyclones, while Bhutan's mountain communities are at risk from glacial lake outbursts flood (GLOF) and changing rainfall patterns. These regions struggle to adapt due to poor resources and lack of technology.

COPs are not just about climate but more like a political chessboard, where science meets economics, and negotiations attempt to bridge clashing ideologies. Achieving consensus? It is anything but simple. When negotiations are prolonged and promises unmet, countries like Bhutan suffer.

Moreover, Bhutan's carbon-negative status and its commitment to remain carbon neutral are extraordinary, yet these contributions often go unnoticed in the larger arena. It can feel as though the conference is not designed to recognise such quiet leadership, but instead revolves around larger powers negotiating gains.

Bhutan's achievement as a carbon negative country is rooted in decades of strong environmental stewardship, guided by the Monarch, and now enshrined in the Constitution, which mandates that at least 60 percent of the country's land remain under forest cover for all time. Although Bhutan does not contribute significantly to global carbon emissions and maintains its commitment to carbon neutrality under the current trajectory of emission, this status is at risk.

Bhutan's greenhouse gas (GHG) emissions currently stand at 1.7 million metric tonnes of carbon dioxide equivalent (MtCO2e), with 11.4 million (MtCO2e) carbon sequestration, resulting in net negative emissions of 9.7 million (MtCO2e).

While Bhutan remains carbon negative, it must scale its efforts to maintain this position. Emissions from industries are expected to increase threefold by 2035, and emissions from transport will rise by 2050, as Bhutan transitions from a least developed country (LDC) status to the middle-income group.

By 2050, emissions are projected to reach 7.5 million (MtCO2e, while carbon sequestration is expected to decline to 7.2 million (MtCO2e), according to Bhutan's Long-Term Low Greenhouse Gas Emission and Climate Resilient Development Strategy (LTS).

To maintain its carbon negative status and transition to a low-carbon economy, Bhutan must invest in renewable energy—an undertaking that comes with a significant price tag. The estimated financial support required for mitigation efforts is USD 220 million by 2050, while the financial needs to implement the National Adaptation Plan are projected at USD 14 billion.

Bhutan's National Adaptation Plan outlines key actions to tackle climate impacts across sectors.

In water, it focuses on securing sources, improving irrigation and ensuring safe drinking water. Agriculture plans include climate-resilient crops, better pest surveillance and stronger irrigation systems. The forest sector emphasises sustainable management and fire risk reduction, while urban planning aims to make settlements climate-smart and infrastructure more resilient.

In energy, Bhutan is diversifying into solar, wind, and waste-to-energy while safeguarding hydropower from climate risks. For health, the focus is on monitoring climate-sensitive diseases and boosting emergency response systems.

Securing climate financing to implement these plans remains a challenge, with lengthy bureaucratic processes delaying much-needed support from already reluctant contributors. Most renewable projects also depend heavily on loans.

Bhutan's recent graduation from the Least Developed Country (LDC) status has further complicated negotiations in COP. Now part of the broader G77 and China bloc, Bhutan must compete with other developing nations to highlight its vulnerabilities and advocate for fair climate finance mechanisms.

A major concern is the inclusion of loans from bilateral and multilateral development banks (MDBs) as climate finance in NCQG text. This practice often re-packages existing funds and increases the financial burden on countries like Bhutan. Renewable energy projects, such as hydropower and solar, are already heavily financed through loans, which adds to the nation's debt.

A clear definition of climate finance and faster access to funds are urgently needed. Private financing, while useful in some contexts, may not be viable for Bhutan, given its small size and limited scalability for investors.

Bhutan has long relied on clean energy sources like hydropower and, more recently, solar power. Yet, financing these projects has often involved significant debt. Hydropower projects such as Chukha, Tala and Kurichhu were financed with a mix of grants and loans from the Government of India. Punatsangchhu-I and Punatsangchhu-II hydropower projects have higher

loan components, with the latter carrying a 10 percent annual interest rate.

The PHPA-II, a joint venture between the governments of Bhutan and India, began in 2010 with an initial estimated cost of Nu 37 billion. The total project cost is now estimated at over Nu 94.45 billion. Meanwhile, the cost overrun for Punatsangchhu-I has surged to Nu 100 billion, up from the original project cost of Nu 35 billion. Both the Punatsangchhu-I and Punatsangchhu-II hydropower projects are financed with 70% loans and 30% grants.

Bhutan's first large-scale solar project, a 22.38 MW plant in Sephu, Wangdue Phodrang, is funded by the Asian Development Bank with a USD 10 million loan and USD 8.26 million in grants. The project aims to reduce Bhutan's reliance on hydropower and enhance resilience to climate impacts. The government has also contributed an additional USD 0.99 million.

All energy generated by the solar farm will be fed into the national grid. The first phase of the solar farm, with a capacity of 17.38 MW, will generate 25 million units of energy, enough to power approximately 3,476 urban households. Additionally, the plant will help reduce 24,495.5 tonnes of carbon dioxide emissions if the energy is exported. The generation capacity for the second phase of the solar farm will be determined after the completion of the first phase.

With Bhutan seeking funds from climate finance mechanisms and loans to meet its renewable energy targets, it may need to take on additional debt to meet its clean energy goals. Under the 13th Five-Year Plan, Bhutan plans to construct 10 large hydropower projects, 23 MW of wind power, and 500 MW of solar power across the country—an ambitious goal requiring substantial financial backing.

Carbon Markets: A New Opportunity for Bhutan

One of the most promising takeaways from COP29 was the full operationalisation of Article 6 of the Paris Agreement. Finally, after years of back and forth, countries can now properly trade carbon credits. For Bhutan, that is a big deal.

The idea is pretty straightforward: Countries that emit a lot of carbon can offset their pollution by buying credits from countries like ours that emit very little. Bhutan, being carbon negative, is in a great position to benefit from this.

Bhutan has already taken a step in that direction, having signed a deal with Singapore to sell carbon credits under Article 6.2, which allows direct trading between governments. This might sound technical, but here is why it matters: It is one of the few ways Bhutan can raise climate finance without going into more debt. That is a win for a small country that is trying to stay true to its carbon-neutral commitments.

But the clock is ticking. If it continues on the current path—especially with growing emissions from transport and industry—Bhutan could lose its carbon-negative status by 2048. And that is just around the corner.

The Environmental Accounts Statistics 2024 from the National Statistics Bureau paint a worrying picture. The country's electricity exports dropped by 28.95 percent, while fuel imports, particularly petrol and diesel, surged by 45.57 percent last year. Bhutan exported only 5,143.84 gigawatt hours (GWh) of electricity, generating Nu 17.79 billion—down from 7,240.21 GWh worth Nu 22.66 billion the previous year.

Overall, electricity production also saw a marginal decline of 2.03 percent, totaling 10,535.6 GWh. The primary reason for the drop in exports was a sharp increase in domestic consumption, largely driven by industrial demands.

This is why carbon markets are not just another policy detail—they are crucial. They offer a practical solution to generate the resources needed to decarbonise the economy, helping the country stay on track with the ambitious climate leadership role we have worked so hard to establish.

Bhutan's Struggles in a Warming World

The year 2024 marked a troubling milestone in the global climate crisis. The World Meteorological Organisation (WMO) reported that this was the warmest year on record, with global temperatures exceeding the critical

1.5˚C threshold above pre-industrial levels for the first time. For Bhutan, this warming trend is increasingly evident.

In 2024, Bhur, a meteorological station in Sarpang, for the first time recorded a temperature of 40˚C, the highest daily maximum. Until last year, only two other instances of 40˚C were recorded in Bhutan's history—one in Phuentsholing in 1997 and another in Tangmachu in 2018.

From 2019 to 2024, Bhutan has seen a steady rise in both annual average maximum and minimum temperatures. The average maximum temperature rose from 22.54˚C in 2019 to 23.31˚C in 2024, with 2023 at 23.18˚C. Similarly, the annual minimum temperature increased from 12.18˚C in 2023 to 12.51˚C in 2024.

These changes are not just numbers; they are linked to real threats.

The glaciers are melting at an accelerating rate, which threatens water security and increases the risk of GLOFs downstream. The Hindu Kush Himalaya, which Bhutan is part of, is home to 54,000 glaciers and nearly two billion people. These glaciers are melting faster than expected, and by 2100, they could lose 30-35% of their current volume under the current warming scenario.

In Bhutan, glaciers like Thana, Gangjula and Shodug have been retreating between 1990 and 2020, with the rate of retreat accelerating in recent years in response to increased heat. The glaciers in the east are shrinking faster than those in the west, with area losses ranging from 15% to 30% over the past 30 years.

Since 2003, Bhutan has lost around 1,038 gigatonnes of glacier ice. Thana alone has lost about 50 gigatonnes since 2016. To put that into perspective, that is enough water to fill around 415,000 Olympic-sized swimming pools, or provide 1.5 billion people with drinking water for an entire year.

The glaciers are not just disappearing quietly—they are causing dangerous GLOFs. The most notable event occurred on October 7, 1994, from Luggye Tsho in Phochhu. More recently, minor GLOFs have been recorded in 2015, 2019 and 2023.

While Bhutan has an early warning system for GLOFs, it is over 12 years old and faces challenges due to the remoteness of the affected areas and harsh weather conditions. This became painfully clear during the disastrous flood in Dechencholing, Thimphu, on August 10 last year, which showed how much more needs to be done to protect communities.

Recognising the importance of glaciers and to raise awareness and action, the United Nations declared 2025 the International Year of Glaciers Preservation.

Sadly, despite these global efforts, the continued inaction of major polluters, especially the United States, threatens to derail progress. Just days before the official launch of International Year of Glacier Preservation was announced, U.S. President Donald Trump signed an executive order beginning the U.S. withdrawal from the Paris Agreement. This move, coming from one of the largest contributors to the United Nations Framework Convention on Climate Change (UNFCCC) budget, undermines collective climate action.

For Bhutan, the stakes are high. While it remains committed to carbon neutrality, securing timely and adequate climate financing is essential to build resilience against the growing climate risks. Without urgent global action, nations like Bhutan—which are least responsible for the crisis—will continue to bear the brunt of the impact.

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