CSE@COP29

MITIGATION

Global greenhouse gas (GHG) emissions surged to a record 57.1 gigatonnes of carbon dioxide equivalent in 2023, marking a 1.3 per cent increase compared to 2022.

The urgency to scale up mitigation actions will be a key discussion point at COP29, through a few channels: tracking targets laid out in the first Global Stocktake, the Mitigation Work Programme (MWP), and the process of updating climate pledges or Nationally Determined Contributions (NDC).

Climate finance—the headline COP29 issue—is crucial to the mitigation debate since without financing, the expectation of more mitigation ambition from developing countries is a violation of climate justice.

The imperative to limit or prevent GHG emissions stems from the sobering fact that the world is currently veering off the course in its pursuit of the emissions reductions that are essential to curb global temperature rise to 1.5°C above pre-industrial levels. The latest *Emissions Gap Report* by the United Nations Environment Programme (UNEP) warns that if current mitigation policies continue, the world is on track for a 3.1°C temperature rise by the end of the century. Despite ongoing efforts, mitigation actions remain insufficient to prevent severe climate impacts.

Against this backdrop, discussions on mitigation become not just a scientific or policy imperative, but a crucial societal conversation aimed at reshaping our trajectory. Shifting from the broad imperative to take mitigation action, there is a need to understand where the responsibility lies.

The urgency to scale up mitigation actions will be a key discussion point at COP29, through a few channels. The Global Stocktake, which set global targets in 2023 (listed in Paragraph 28 of the decision document), has seen limited progress, aside from growth in renewable energy. The Mitigation Work Programme (MWP) remains stalled, with developed nations advocating for stronger actions and developing countries seeking financial support. Additionally, the process to update climate pledges (NDCs) will begin next year. Countries will be under pressure to announce ambitious NDCs with higher mitigation targets.

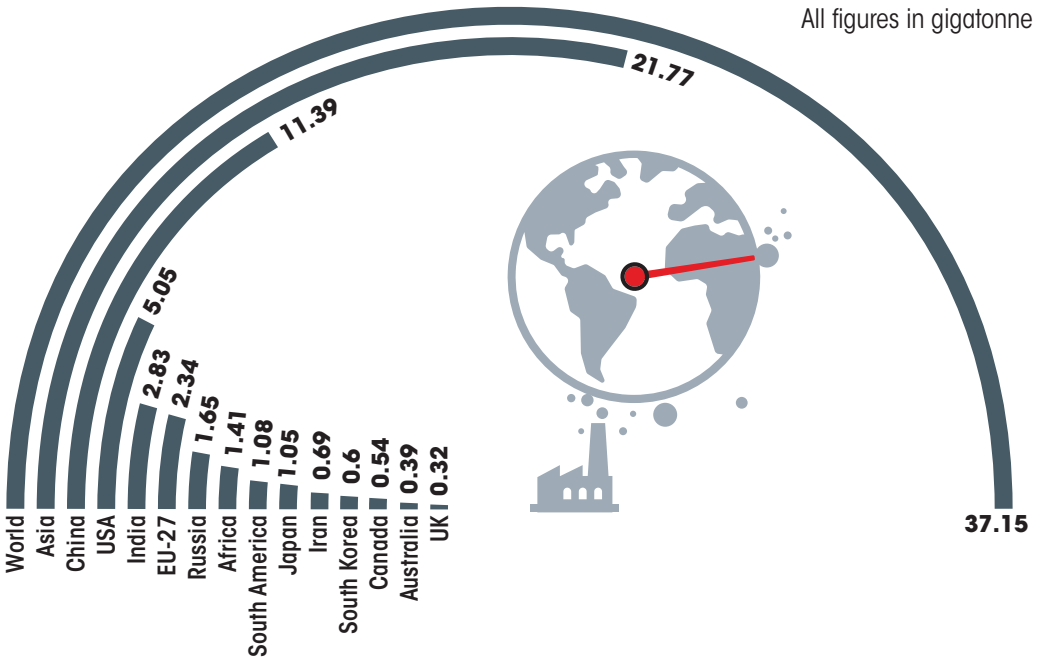
State of greenhouse gas emissions

While all nations share a common responsibility to shoulder the burden of mitigation action, they do so with differentiated responsibilities based on their historical contributions to emissions and their current levels of development.

The Centre for Science and Environment (CSE) analysed the latest carbon dioxide (CO_2) emissions data available, published by the Global Carbon Project.[1] The world emitted 37.15 gigatonne of CO_2 ($GtCO_2$) in 2022. The highest share of 2022 emissions were borne by China with 30.7 per cent (11.39 $GtCO_2$). Combined with the EU 27 (2.34 $GtCO_2$) and USA (5.05 $GtCO_2$), this share goes up to 50.6 per cent, more than half of global emissions. India contributed 2.83 $GtCO_2$ equivalent to 7.6 per cent of global emissions in 2022. The continent of Africa, with 17 per cent of the world's population, contributed less than 3.8 per cent to global emissions in 2022.

Graph 1: Annual CO_2 emissions — 2022

China was the world's prime emitter in 2022



Source: Our World in Data

Factoring in per capita emissions, in 2022, the average person in the USA emitted 15.17 tonnes of CO_2, while in India, the per capita emission was just 2.0 tonnes of CO_2. The wide gap in per capita emissions indicates that for developing nations like India, a growth in emissions is to some degree unavoidable for economic development and social wellbeing of a massive population, in the short to medium term. In contrast, for developed and less populated countries like the USA, high per capita emissions can represent luxury emissions.

Graph 2: Per capita emissions, 2022

Per capita emissions of USA were eight times that of India in 2022

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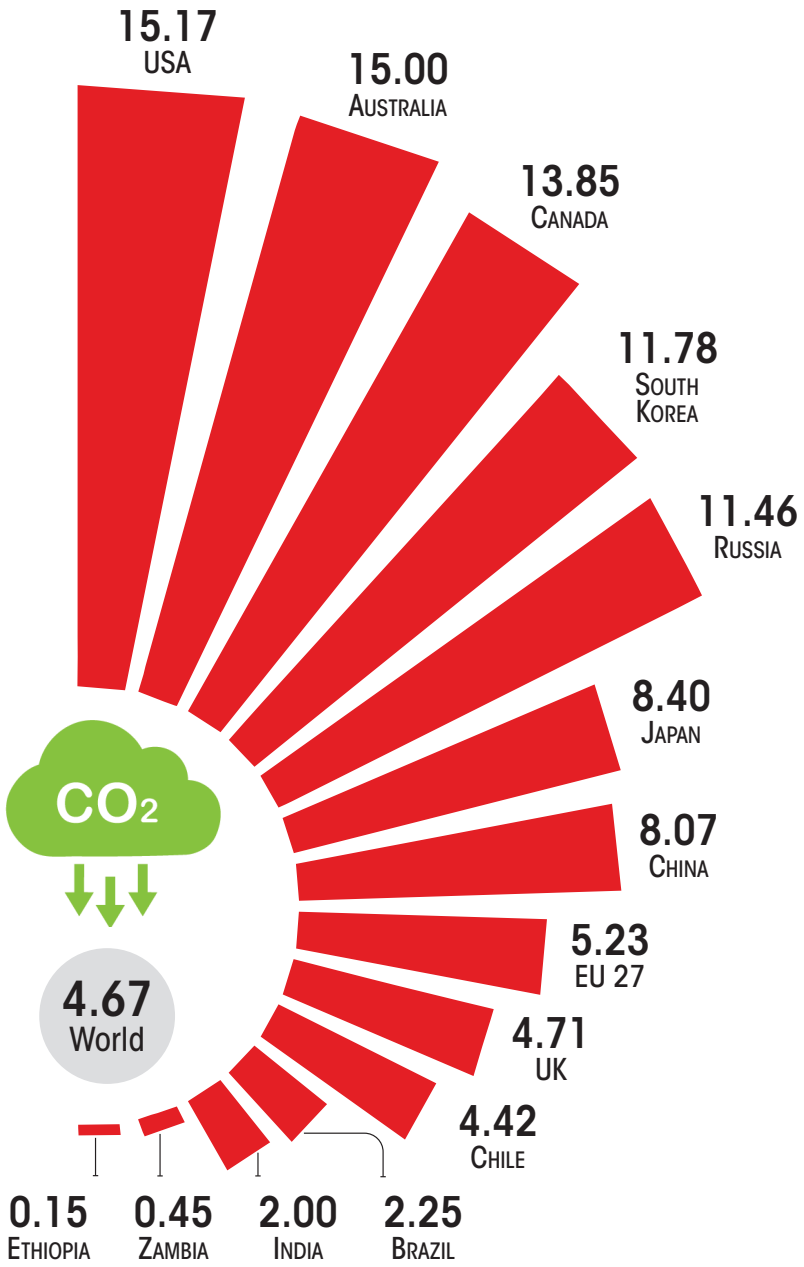
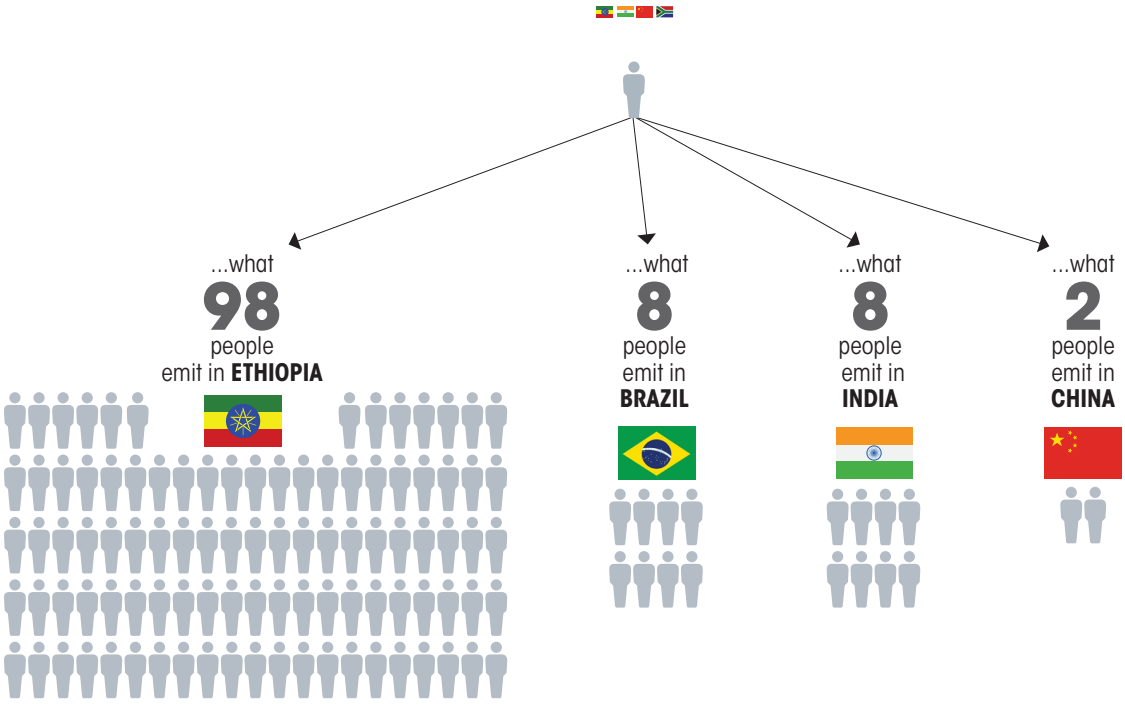


SOURCE: OUR WORLD IN DATA AND WORLD BANK

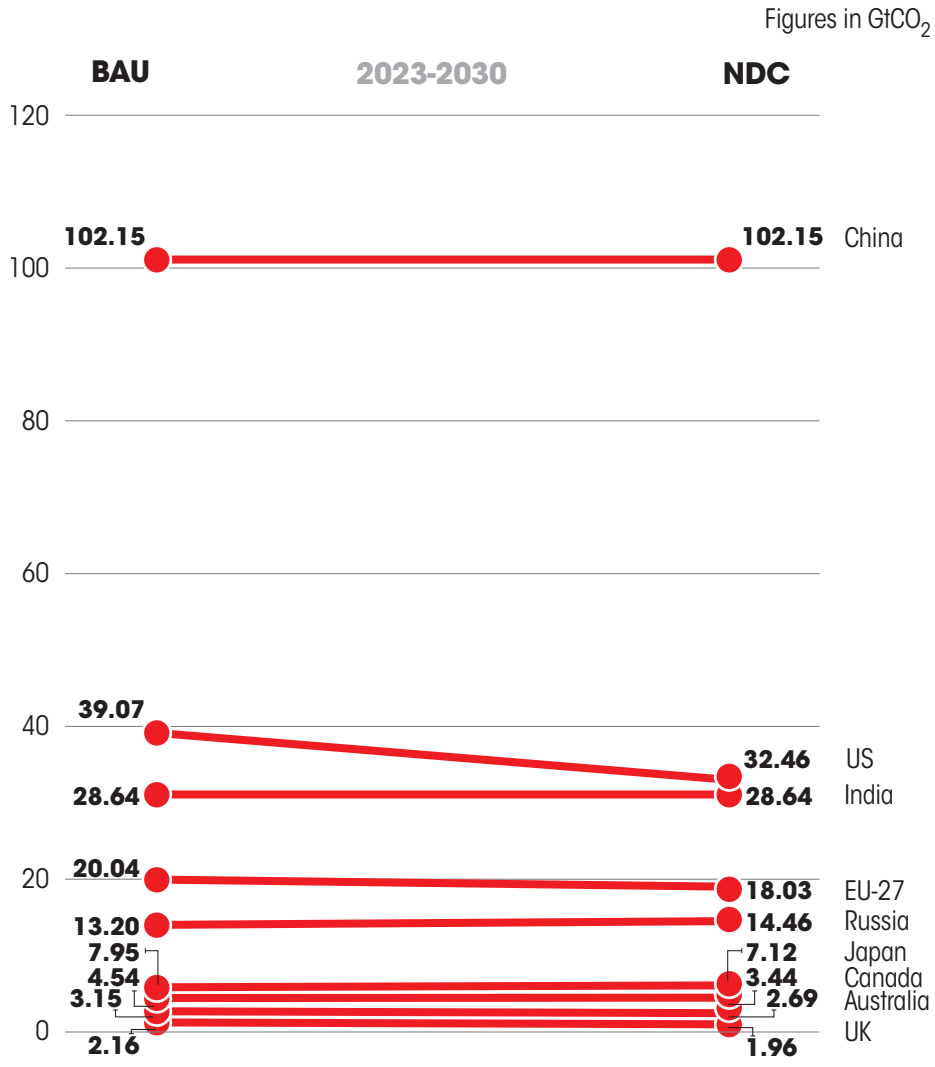
Graph 3: Per capita emissions—a comparison



Source: Our World in Data and World Bank

CSE analysed the NDCs of a subset of 47 countries representing 82 per cent of global CO_2 emissions in 2022 (methodology taken from *The Numbers Behind Climate Change, CSE 2021*[2]). Our analysis shows that if these 47 countries achieve their current NDCs, the world will emit 36.36 $GtCO_2$ in 2030, with 30.71 $GtCO_2$ coming from these 47 countries alone. This amounts to 293.65 $GtCO_2$ between the years 2023–2030. Under a business-as-usual (BAU) scenario, global emissions will reach 309.56 $GtCO_2$ over the next eight years, with 39.92 $GtCO_2$ emitted in 2030 alone. To meet the 1.5°C target, the IPCC recommends emissions in 2030 should be limited to 21.11 $GtCO_2$. Clearly, we are far from this target. The 47 NDCs will only reduce BAU emissions by about 15.91 $GtCO_2$ between 2023 and 2030.

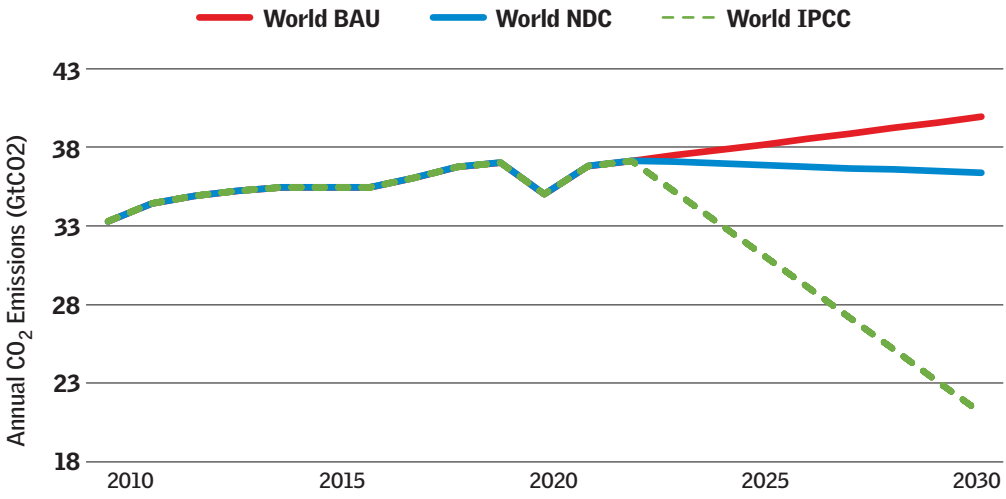
Graph 4: Projected emissions of the top emitters



Source: Analysis by the Centre for Science and Environment, Delhi, based on data from Climate Watch and Our World in Data

Graph 5: Not nearly enough

The world will emit 39.92 $GtCO_2$ in 2030 in a business-as-usual (BAU) scenario



The IPCC report (AR6) says that starting 2020, the world is left with a total carbon budget of 400 $GtCO_2$ for a 67 per cent chance of limiting temperatures to 1.5°C. This carbon budget includes emissions from land use, land-use change and forestry (LULUCF) of roughly 3.3 per cent. If this is deducted, then the world has a remaining carbon budget for fossil fuel emissions of 386.80 $GtCO_2$ from 2020.

Our analysis shows that the global carbon budget left starting 2023 is 278 $GtCO_2$: we will be substantially overshooting this number in both the BAU and NDC projections before 2030.

Table 1: Remaining carbon budget will be exhausted in this decade

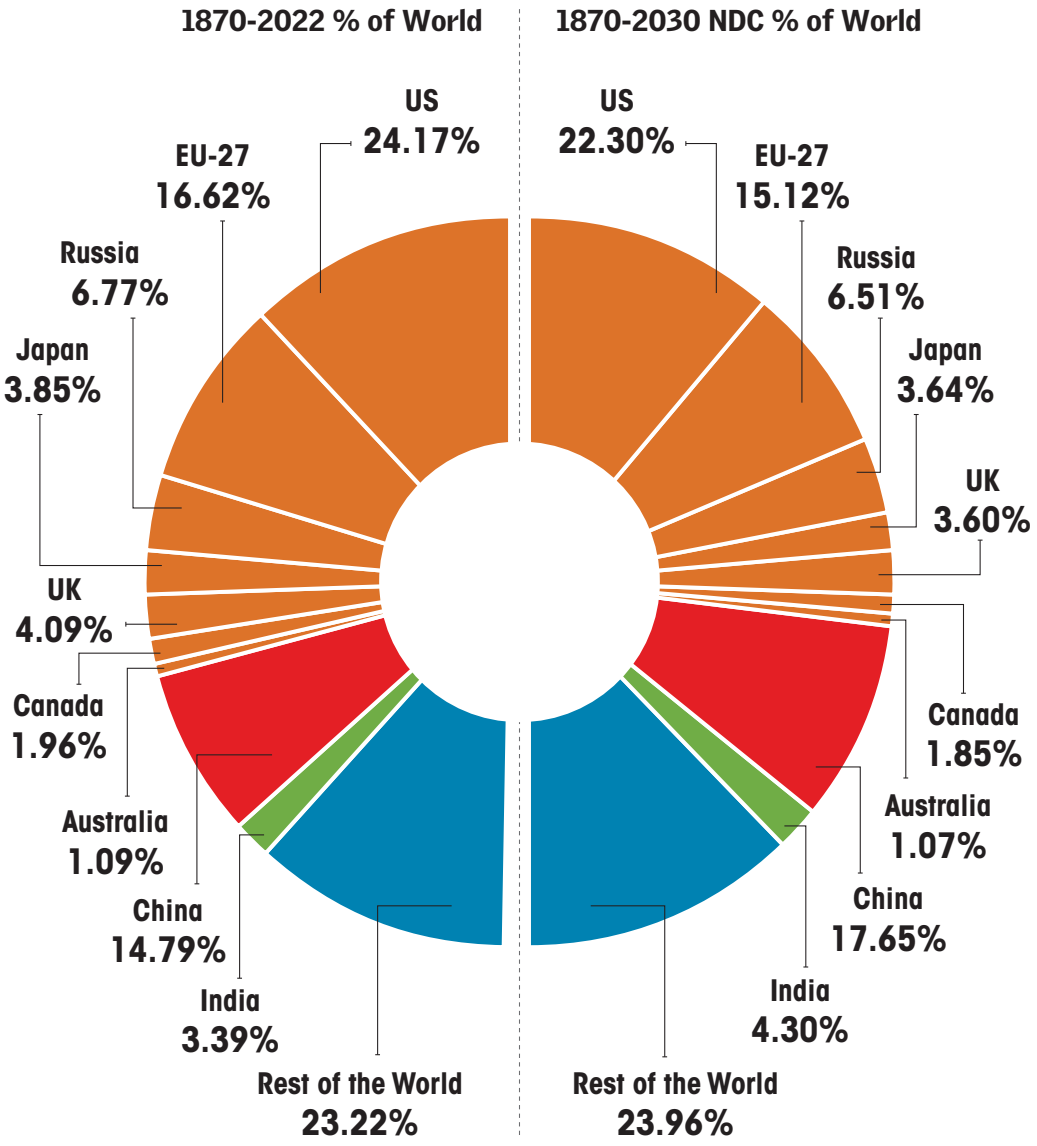
All figures in $GtCO_2$

Remaining IPCC AR6 budget to stay below 1.5C starting 2020. Deducting 3.3% for LULUCF out of 400		386.8
World CO_2 emissions in $GtCO_2$ (Fossil Fuel and Cement)	1870-2019	1652.7
	2020-2022	109.0
	1870-2022	1761.6
	BAU 2023-2030	309.6
	NDC 2023-2030	293.7
Remaining carbon budget 2023 onwards		277.8

*We assume that land-use, land-use change and forestry (LULUCF) emissions account for 3.3% of CO_2 emissions and have reduced the 400 Gt budget accordingly for this analysis; BAU: business and usual; NDC: Nationally Determined Contributions
Source: Our World in Data, IPCC and CSE Analysis

The concern, especially, is of the amount of the carbon budget still being consumed by historical emitters. According to our analysis, between 1870 and 2022, 76.74 per cent of world emissions came from nine countries. The rest of the world has collectively emitted only 23.22 per cent. Now from 2023 to

Graph 6: Appropriation of global emissions
% of total world emissions for the given period



Source: Analysis by *Down to Earth* and the Centre for Science and Environment, Delhi, based on data from Climate Watch and Our World in Data

2030, these nine countries are projected to emit 71.84 per cent of the emissions despite NDCs being implemented, while the rest of the world will emit 28.16 per cent. Basically, the large, developed countries will continue their current rate of consumption while the rest of the world is expected to remain where they are today, without taking up emissions necessary to industrialize and urbanize. This is precisely why the principles of equity and common but differentiated responsibility (CBDR) are central to the UNFCCC. The ongoing appropriation of the carbon budget reflects a disregard for these principles.

Mitigation discussions within the UNFCCC

Global Stocktake: Mitigation component

The outcome of the first Global Stocktake at COP28 in 2023 established key priorities for global climate action within this decade. Notably, it emphasized the need for 'transitioning away from fossil fuels in energy systems in a just, orderly, and equitable manner'—a first in any UNFCCC document. It also calls for a tripling of renewable energy capacity and doubling the annual rate of energy efficiency by 2030. That said, while coal is explicitly mentioned, there is no reference to oil and gas throughout the text. Moreover, while the GST text creates signals for world economies to decarbonize, it does not mention an equitable pathway where developed countries take the lead, and developing countries have a more lenient timeline to implement the mitigation actions mentioned.

The expectation that the GST should inform national plans through the NDC update process next year is barely being met, even as countries continue to expand fossil fuel production and consumption without restraint—developed economies featuring glaringly in this list.

Mitigation Work Programme

A key outcome of the COP26 Glasgow Climate Pact was the agreement over the Mitigation Work Programme (MWP) that would urgently scale up ambition and implementation of mitigation efforts. At COP27, it was further decided that the programme (Sharm el-Sheikh Mitigation Ambition and Implementation Work Programme) will host two global dialogues (GD) each year that will result in annual reports to be used for draft recommendations by subsidiary bodies to be adopted at the COP. Alongside the GDs, it will also include investment-focused events (IFE). The MWP therefore has a political track of the negotiation item under the CMA, and a technical track of the GD and IFEs.

Status of proceedings at COP28 and beyond

At COP28

At COP28, progress on the MWP negotiation was slow with discussions focused on procedural issues such as the need for submissions from Parties, and topics for Global Dialogues in 2024.[3] Since its inception in 2021, the MWP has seen pushback from developed countries who question its authority to place additional mitigation pressure on them, in the absence of adequate corresponding financial support from developed countries. At COP28, developed countries expressed eagerness to start discussions on substantive issues and the need to align NDCs with the 1.5°C goal of the Paris Agreement. Developing countries spoke of the barriers to accessing finance for the energy transition.

Intersessional work

Subsequently in 2024, two GDs/IFEs (the third and fourth instalments respectively) were held on the theme of 'Cities: Buildings and Urban Systems' in the technical track of MWP. The third GD focused on buildings, discussing thematic areas such as—a) reducing operational emissions (heating, cooling and appliances), b) designing building envelopes for efficiency (retrofitting, new construction), and c) reducing embodied emissions (building materials).

The fourth GD/IFE took place in October 2024, focusing on three key themes: a) spatial planning, b) electrification and the net-zero transition, and c) green and blue infrastructure. The discussions highlighted differences in how urbanization is viewed in the Global North and South, with the former emphasizing retrofit needs and the latter dealing with earlier stages of urban development. Discussions also addressed the impact of currency risk, which increases the cost of financing for the Global South.

What can be expected at COP29?

With the technical track of GD/IFE concluded for the year, the negotiation track at COP29 will aim to align country positions on scaling up mitigation ambition, using the insights gathered from the earlier technical discussions. The framing of mitigation ambition stands at the crossroads of two other major processes: the New Collective Quantified Goal (NCQG) outcome on climate finance, and the NDC update process due next year. Based on a historical reading of this thematic area, developing countries will focus on the need for an ambitious NCQG to enable mitigation ambition, while developed countries and some other blocs will likely emphasize the need to still keep the Paris goal of 1.5°C within reach by submitting ambitious updated NDCs. At Bonn in 2024, Brazil suggested discussing the operationalization of equity in the GST outcome within the MWP—a promising proposal. Further in a submission to the UNFCCC in September 2024, Brazil asked to "to shift the MWP from a negotiation-focused process to an implementation-focused programme, pragmatically and equitably centered on scaling-up and speeding-up the effective implementation of the Paris Agreement".[4] Further, it added that "Brazil envisions the MWP could support Parties in collectively implementing the GST". It is yet to be seen if this will gain traction in the political negotiations. The lack of trust that paralyses the MWP political process must be addressed in order for it to function as a constructive space where barriers and opportunities in the energy transition are discussed, and countries cooperatively work on solutions and enablers.[5]

References

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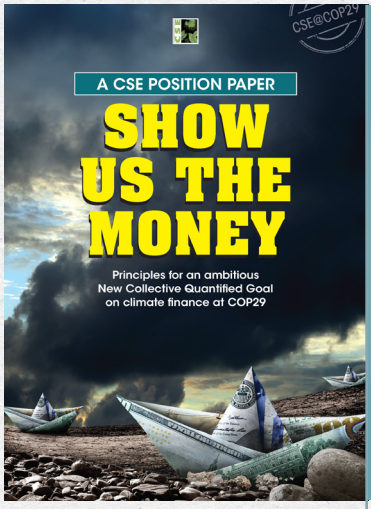

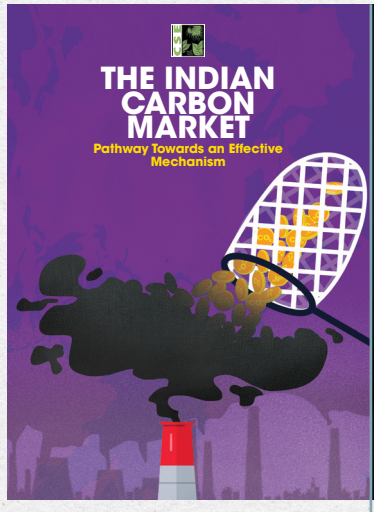

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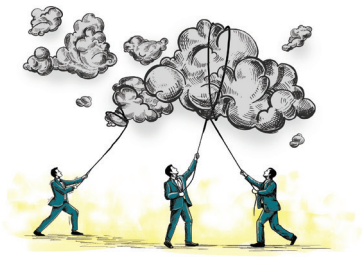
ARTICLE 6 OF THE PARIS AGREEMENT



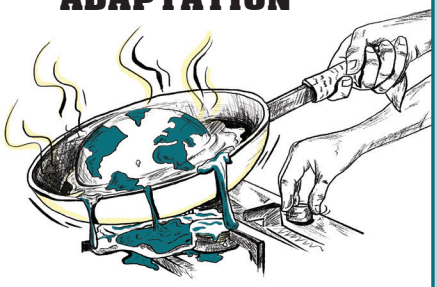
Article 6 of Paris Agreement is expected to take centrestage at COP29, as Parties seek to operationalise carbon markets. Article 6 establishes guidelines for cooperative approaches to reduce emissions and fulfil Nationally Determined Contributions (NDCs).

The rules surrounding emissions trading are important for accountability. If these rules are poorly framed, they could enable polluters to sidestep their obligations. On the other hand, if crafted well, they could enhance the integrity of global action.

The ongoing conversations are critical for a solid framework that prevents flawed mechanisms from redirecting efforts and investments away from meaningful climate action.

FACTSHEET

GLOBAL GOAL ON ADAPTATION



The growing frequency of extreme weather events highlights the urgent need for global climate adaptation. In 2024, India experienced extreme weather on 255 of 274 days across 34 states/union territories[1] From 1970 to 2019, there were over 11,000 extreme weather events worldwide, causing 2.06 million deaths and US $3.6 trillion in losses.[2]

The adaptation finance gap has kept increasing, and now stands at US $194–366 billion per year. This gap is 10–18 times greater than the current international public finance being provided towards adaptation, which stood at US $21 billion[3] in 2021. Moreover, the estimated requirements may increase as countries fail to achieve their mitigation targets.

Negotiations towards adopting a framework for the global goal on adaptation (GGA) have been tedious. Disagreements have revolved around the lack of measurable adaptation targets, tracking methods and calls for increased support.[4]

FACTSHEET

CLIMATE FINANCE

The headline issue for COP29 is the **New Collective Quantified Goal on Climate Finance** (NCQG). It is a goal for provision of finance to developing countries – countries need to agree upon it at COP29.

Apart from NCQG, finance discussions have included Article 2.1c of the Paris Agreement. Its interpretations within UNFCCC are as yet inconclusive. Though of a broader scope than NCQG, Article 2.1c is linked to all finance aspects of climate action, and decoding it is crucial.

In COP28, operationalising the Fund for Responding to Loss and Damage was at centerstage, with developed countries pledging US $661 million.[1] At COP29, countries need to work out the Fund's operation and management and how to scale it up.

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