

# ARE G20 COUNTRIES DOING THEIR FAIR SHARE OF GLOBAL CLIMATE MITIGATION?

## COMPARING AMBITION AND FAIR SHARES ASSESSMENTS OF G20 COUNTRIES' NATIONALLY DETERMINED CONTRIBUTIONS (NDCS): SUMMARY

As the group of the world's largest economies and biggest emitters, G20 countries are central to implementing solutions to the climate emergency. This discussion paper assesses to what extent they are setting climate mitigation targets that are ambitious enough and/or meet their fair share of global emissions reductions consistent with limiting global heating to 1.5°C. It applies three different methodologies to assess their pledges. Despite some differences between these methodologies, the paper finds that the G20 countries – both collectively, and almost all of them individually – are failing to achieve their fair share of ambitious global mitigation required to limit global heating to 1.5°C, regardless of which assessment methodology is applied. Additionally, the assessment shows that the high-income G20 member countries are pledging to do a much smaller fraction of their fair share as compared to the middle-income countries. The G7 countries among the G20, in particular, appear to now be focusing their attention on the increase of ambition of middle-income and low-income countries while not recognising the need to also substantially increase the ambition in their own 2030 pledges. Additionally, the G7 countries continue to fail to recognise the need to commit to individual long-term climate finance to low and middle-income countries, at a scale much higher than what they currently provide, to enable rapid and just transitions to climate-resilient and low-carbon societies powered by renewable energy. This analysis highlights that G20 countries must both urgently, and before COP28 in December 2023, raise the ambition of their pledges for action by 2030, ramp up their provision of international climate finance and increase their international cooperation and support.

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<sup>1</sup> For transparency, it should be noted that the author of this discussion paper is an employee of the Climate Equity Reference Project (CERP) and a current author (with Tom Athanasiou and Sivan Kartha) of the Climate Equity Reference Framework, one of the assessment approaches discussed in this paper.

# EXECUTIVE SUMMARY

The climate crisis is accelerating, and the most disadvantaged communities are feeling the brunt of it. Whether the UK breaching 40°C temperatures for the first time ever, devastating typhoons in the Philippines, flooding in Pakistan, drought in East Africa or forest fires across North America, it is people living in poverty – both in lower- and higher-income countries – who suffer the worst consequences.

Limiting global heating to an average temperature increase of 1.5°C above pre-industrial levels is still possible, but in the words of the UN Secretary General, 'it will take a quantum leap in climate action'. According to the IPCC, cutting emissions to limit global heating to 1.5°C requires 'rapid and far-reaching transitions' across all sectors of the global economy by 2030.

Yet current emissions reductions targets put forward by the world's governments are nowhere near this level of ambition: instead of the 45% cut in global greenhouse gas (GHG) emissions by 2030 that the IPCC says is necessary to limit global heating to 1.5°C, the latest United Nations Framework Convention on Climate Change (UNFCCC) Nationally Determined Contributions (NDCs) synthesis report indicates that the current targets imply a 10.6% global rise in emissions by 2030.

In 2023, the Paris Agreement's Global Stocktake will take place. This will review whether countries' climate action targets, pledges and actions are on track to meet the Paris Agreement's objectives to limit global temperature increase to 1.5°C (and hold it to well below 2°C), to increase adaptation and resilience to climate impacts, and to make financial flows consistent with these mitigation and adaptation objectives. The Global Stocktake is explicitly tasked to conduct this review 'in the light of equity', with the intention to then guide countries to enhance the ambition of their actions and their international cooperation and support. The insights from this analysis can serve as useful contributions to the Global Stocktake.

The assessment in this paper is based on the explicit commitment that the world's governments have made under the Paris Agreement: to pursue efforts to ensure global temperature increase is limited to 1.5°C above pre-industrial levels. This metric is an important accountability tool, but the current level of heating, around 1.1°C–1.3°C, is already deeply unsafe for many communities across the globe, violating their human rights to life, food, water, housing, and many other rights, so 1.5°C should not be treated as a floor for climate ambition.

G20 countries are home to the world's largest economies as well as the majority of the people of this planet (63%). They also generate most of the world's greenhouse gas (GHG) emissions (78%). Their actions will therefore have a decisive impact on the global success of addressing the climate emergency.

The paper compares three approaches to assessing the fairness and/or ambition of governments' greenhouse gas reduction targets (NDCs). It then applies these methodologies to the most recently available G20 emissions reduction targets, to assess their ambition and/or fairness, and to discuss the significance of substantial differences in assessments between approaches. Utilizing different approaches is helpful in judging the strength of the conclusions: if all approaches share similar results and support similar conclusions, it suggests that they are robust. Conversely, if certain results are not shared across the approaches, then additional analysis and interpretation of the differences would be needed. We did not find the latter to be the case generally.

- The first of the benchmarking approaches, the Climate Action Tracker (CAT), has been selected because it is a widely used resource that assesses countries' mitigation pledges and policies. This report uses one element of the CAT's hybrid benchmarking system, the 'effort sharing range', which the CAT derives from effort sharing calculations extracted from a large body of academic effort sharing literature that reflects a broad range of views of what might be fairness in effort sharing.

- The second approach, the Climate Equity Reference Project (CERP) framework for fair effort sharing, has been selected because it is the effort sharing approach utilized by the Civil Society Equity Review, an ambition assessment initiative whose initiation Oxfam was centrally involved in. The CERP approach is based on the specific view that equitable effort sharing needs to incorporate all relevant equity principles of the UN climate regime: responsibility for creating the climate crisis; capabilities for addressing it; and the right to sustainable development.
- The third benchmarking approach, Equal-Per-Capita-Consumption-CO<sub>2</sub> (EPCCC), has been selected as it has been used in recent Oxfam research on carbon inequality. Importantly, this approach does not reflect any fairness or equity considerations, but it can serve as a 'quick glance' ambition metric (but not equity metric) to assess whether countries are planning to engage in a sufficient level of domestic mitigation in line with 1.5°C pathways.

The assessments of the fair share benchmarking approaches show that the G20 – both collectively, and almost all of them individually – are failing to achieve their fair share of ambitious global mitigation required to limit global temperature increase to 1.5°C. The assessments from all three approaches also show that none of the individual NDC targets of high-income G20 countries represent the level of ambition required for a 1.5°C global mitigation pathway, and their shortfalls are generally much bigger than for middle-income countries.

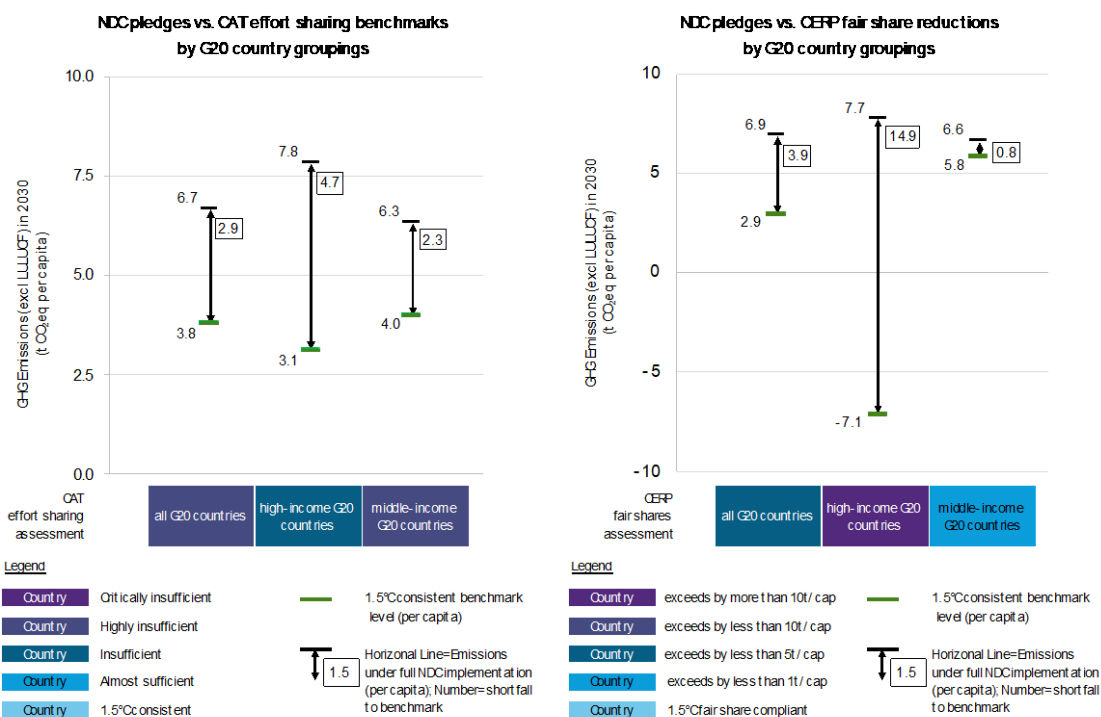
Figure 1 and Table 1 show the results for the CAT and CERP benchmarking approaches for the G20 as a group, as well as for high- and middle-income G20 countries separately. Note that these two approaches utilize different methodologies and rating systems (see section 2.2) and therefore cannot be compared directly. The shortfall of the G20, as a group, between its collective NDCs and the fairness and/or ambition benchmarks of the three approaches ranges from 2.8 tons of carbon dioxide (tCO<sub>2</sub>) per capita (EPCCC; not shown in Figure 1) to 2.9 tons of carbon dioxide equivalent (tCO<sub>2</sub>eq) per capita (CAT) and 3.9 tCO<sub>2</sub>eq per capita (CERP) in 2030. (Carbon dioxide equivalent, CO<sub>2</sub>eq, measures different greenhouse gases in a single unit. CO<sub>2</sub>eq signifies the amount of CO<sub>2</sub> that would have the equivalent global warming effect over a certain period of time as a particular quantity and type of one or more greenhouse gases, such as methane and nitrous oxide).

Given the projected population of the G20 of 5.1 billion people in 2030, this would translate to an overall absolute excess of emissions in 2030, in G20 countries alone, of 14.1bn tons of CO<sub>2</sub> (EPCCC) to 14.6bn tons of CO<sub>2</sub>eq (CAT) and 20.2bn tons of CO<sub>2</sub>eq (CERP). Comparing these figures with the global shortfall of 20–23bn tons of CO<sub>2</sub>, as calculated by the UN Environment Programme's Emissions Gap Report, shows how dramatically G20 countries will need to increase their mitigation ambition to be in line with limiting global temperature increase to 1.5°C.

However, it is important to also consider the results for G20 countries in a more nuanced and differentiated fashion. Even though all the G20 countries are among the largest economies in the world, there is a large degree of inequality between these countries. High-income G20 countries have the primary historic responsibility and technological capability and financial capacity to mitigate the climate crisis. There are also inequalities in terms of GHG emissions, wealth, per capita income levels and poverty rates. When looking at the high-income countries within the G20, across all three assessment approaches used, those countries' shortfall vis-à-vis their 1.5°C-consistent benchmarks is much, or very much, larger than the shortfall of middle-income G20 countries, ranging from about twice as large (CAT, EPCCC) to 18 times as large (CERP).

In high-income countries such as the USA and Australia, for example, the emissions levels that would result from implementing their pledged reductions are still far higher than what their fair share would dictate. To meet their fair share benchmark under the CERP framework, they would have to enhance their 2030 NDC targets to reduce an additional 240% (USA) and 170% (Australia), respectively, of their current NDC target emissions level. Likewise, under the CAT assessment, Germany and the UK would need to further enhance their 2030 NDC emission reduction targets by 160% (Germany) and 124% (UK), respectively, and Russia by 60%, to receive the '1.5°C compatible' CAT effort sharing rating for their 2030 target.

Figure 1. Left panel: Summary of results of the CAT effort sharing assessment; Right panel: Summary of results of the CERP fair shares assessment



Sources: Left panel: based on data from CAT; Right panel: based on data from the Climate Equity Reference Calculator. Both panels are aggregated for G20, high-income G20, and middle-income G20 countries. Green horizontal dashes show the 1.5°C-consistent per capita emissions levels in 2030 (benchmark) for each country aggregation. The horizontal black dash shows the per capita emissions level in 2030 that would result from the implementation of the NDCs of each country in the group. The arrow between the green and black dashes shows the shortfall between benchmarks and NDCs, and the number label box shows the size of this shortfall in tons of CO<sub>2</sub>eq per capita. Blue country group label boxes are colour-coded to reflect the assessment labels for each approach; black font and lighter shades for NDCs that are more, white font and darker shades for NDCs that are less, aligned with benchmarks. See Figure 7 for summary results for EPCCC approach. Australia, Canada, the EU, France, Germany, Japan, Italy, Saudi Arabia, South Korea, the UK and the USA are high-income G20 economies. The other G20 members are middle-income countries.

Perhaps counterintuitively, the CAT approach gives a less negative rating ('insufficient') to high-income G20 countries collectively than to middle-income G20 countries ('highly insufficient'), and to the G20 overall ('highly insufficient'), despite the latter two having less per capita shortfall between their NDCs and their CAT benchmark than high-income G20 countries. This is because the ranges of emissions corresponding to each of CAT's rating categories are much wider for higher-income countries compared to lower-income countries, making it easier for the former to receive more favourable ratings compared to the latter with the same absolute shortfall relative to the CAT 1.5°C benchmark (see section 2.3).

As illustrated by these results, assessment methods that foreground equity show that high-income countries would need to reduce emissions well above 100% by 2030 in order to be aligned with typical fair share results. Thus, even if these countries reduce their domestic emissions to zero by 2030, they would still fall short of these fair share benchmarks. This in turn means that to meet their fair share of global mitigation, they additionally would have to provide substantial amounts of climate finance and technological and other support, in order to facilitate further emissions reductions in other countries at a scale that corresponds to the remaining shortfall relative to their fair share. Importantly, however, providing such support would not be an alternative to reducing domestic emissions as rapidly and deeply as possible, but would be additional to such reductions, and reflects the fact that high-income countries have already emitted more than would be consistent with their fair share of global mitigation.

For the purpose of assessing high-income countries' contributions against their mitigation fair share, this means that ideally such assessments would include their domestic mitigation pledge

and their pledges, if available, for climate finance and support. However, since high-income countries have long refused, and continue to refuse, to make commitments at the UNFCCC about the finance and support each of them will provide in the future (beyond a very short timeframe of a few years), such complete assessments remain impossible.

**Table 1. Summary of main assessment metrics and ratings for aggregates of all G20, high-income G20, and middle-income G20 countries**

Approach Unit	G20			High-income G20 countries			Middle-income G20 countries		
	CAT tCO <sub>2</sub> eq/cap	CERP tCO <sub>2</sub> eq/cap	EPCCC tCO <sub>2</sub> /cap	CAT tCO <sub>2</sub> eq/cap	CERP tCO <sub>2</sub> eq/cap	EPCCC tCO <sub>2</sub> /cap	CAT tCO <sub>2</sub> eq/cap	CERP tCO <sub>2</sub> eq/cap	EPCCC tCO <sub>2</sub> /cap
Current emissions	7.4	7.7	6.1	12.0	12.3	11.6	6.1	6.3	4.4
NDC emissions 2030	6.7	6.9	5.1	7.8	7.7	6.8	6.3	6.6	4.5
1.5°C benchmark 2030	3.8	2.9	2.3	3.1	-7.1	2.3	4.0	5.8	2.3
Shortfall	2.9	3.9	2.8	4.7	14.9	4.5	2.3	0.8	2.2
Rating according to approach	Highly insufficient	Exceeds by less than 5t/cap	Exceeds by less than 4 times	Insufficient	Exceeds by more than 10t/cap	Exceeds by less than 4 times	Highly insufficient	Exceeds by less than 1t/cap	Exceeds by less than double

Table shows aggregates for each benchmarking approach: current per capita emissions, per capita emissions in 2030 under NDC implementation, per capita emissions under each approach's 1.5°C benchmark, per capita shortfall between NDC and benchmark, and rating according to each approach. Appendix provides the same information for each individual G20 country.

Middle-income G20 economies such as Indonesia, South Africa, Brazil, China and Mexico have lower historic responsibilities for the climate crisis and less financial capacity available to address it. But this analysis shows that middle-income G20 countries collectively, as well as many individually, are also failing to achieve their fair and/or ambitious share of global emissions targets; this needs to be addressed by countries adopting emissions reductions targets that are at least consistent with the benchmarks discussed here, if the world is to limit global heating to 1.5°C.

As a result of decades of insufficient climate action on the part of the high-income G20 countries, their fair share emissions reductions are now so large, often in excess of 100% of their current emissions by 2030, that they can no longer be carried out solely within the borders of these countries. For 1.5°C-consistent global mitigation to remain possible, middle- and low-income countries must therefore also be willing to implement mitigation that is more ambitious than what their fair share would require. However, as it would be unjust to expect middle- and low-income countries to implement these deeper cuts with their own resources, such additional cuts must be facilitated by substantial climate finance and support from high-income countries.

Based on this paper's overall approach, it is clear that all G20 countries need to enhance the ambition of their mitigation efforts. This is significant, because the three assessment methodologies follow substantially different approaches for assessing the ambition and/or fairness of countries' mitigation pledges, but this overall conclusion holds. Collectively, countries' mitigation targets are so far from the required level of ambition that increased domestic mitigation ambition and enhanced international cooperation is needed in every country. For the high-income G20 countries, in addition to enhancing domestic targets, this means significantly ramping up climate finance and other cooperation and support, so that middle-income G20 countries, as well as other middle- and low-income countries, can reduce their emissions even further than they could be fairly expected to, or would be practically able to, with their own resources alone.

These insights are important now as the Global Stocktake will be finalized by the end of 2023 at COP28. Since the Global Stocktake aims to guide countries in enhancing the ambition of their own climate action as well as, for high-income countries, ramp up their provision of international climate finance and international cooperation, the analysis can help identify which countries need to enhance their action and support the most, and by how much.

The continued failure of G20 countries to meet their ambitious and/or fair shares of global emissions reduction target is deepening the climate crisis. This not only has devastating consequences for people's lives, but it is also deeply unjust as it is low-income communities and marginalized groups that suffer the brunt of climate inaction. There is still time to prevent runaway climate change. G20 countries, as well as the rest of the world, have much to gain from increasing the ambition and equity of climate action. If mitigation ambition, including the provision of sufficient climate finance, is not enhanced in the next few years, the remaining 1.5°C carbon budget will have been used up and the window to hold heating below 1.5°C will have closed. The time to do so is now.

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