



**HAL**  
open science

# The potential of wealth taxation to address the triple climate inequality crisis

Lucas Chancel, Philipp Bothe, Tancrède Voituriez

► **To cite this version:**

Lucas Chancel, Philipp Bothe, Tancrède Voituriez. The potential of wealth taxation to address the triple climate inequality crisis. *Nature Climate Change*, 2024, 14 (1), pp.5-7. 10.1038/s41558-023-01891-2. hal-04385157

**HAL Id: hal-04385157**

**<https://hal.science/hal-04385157>**

Submitted on 10 Jan 2024

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License

# The potential of wealth taxation to address the triple climate inequality crisis

Lucas Chancel, Philipp Bothe & Tancrède Voituriez



The triple climate inequality crisis, or disparities in contributions, impacts and capacity to act within and between countries, is a central issue in addressing climate change. This Comment advocates for progressive wealth taxation as a viable solution to the finance gap.

The climate crisis impacts human societies profoundly, especially in regions with low historical emissions and income levels<sup>1,2</sup>. Such impacts exacerbate economic disparities within countries, with climate-related losses primarily affecting the economically vulnerable<sup>3,4</sup>. Research finds that a small fraction of the global population in emerging and high-income countries is responsible for a disproportionate share of greenhouse gas emissions<sup>5,6</sup>. This group also controls a substantial portion of global wealth and holds the key to effective global climate finance and meaningful adaptation strategies<sup>7</sup>. Better understanding the joint distribution of carbon emissions, climate-related losses and capacities to finance the transition is pivotal to accelerating societies' response to climate change.

Q1  
Q2  
Q3  
Q4

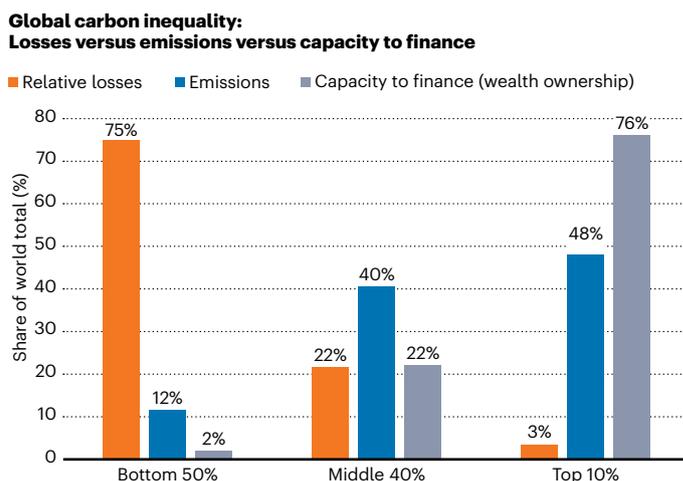
## Mapping out the triple climate inequality crisis

All individuals contribute to emissions, but not in the same way. Society is faced with triple climate inequality, including emissions, income loss and capacity. At the global level, the top 10% of the population (ranked according to income, consumption or emissions) emit between 43% and 49% of global emissions based on recent studies, while the bottom 50% emit 7% to 13% of the total<sup>5,6</sup>. Therefore, the global top 10% of emitters generates three to five times as much carbon as the bottom half of the world, albeit they are five times less numerous. By contrast, the exposure of the top 10% of emitters to climate-induced relative income losses appears to be very limited—only 3% of relative income losses are borne by this group. The capacity to finance climate action of the global top 10% of wealth owners, proxied by their share of global wealth, also reveals an extreme level of inequality. The comparison of the global bottom 50%, middle 40% and top 10% in terms of losses, emissions and capacity to finance global climate action provides a clear snapshot of three intertwined climate inequality crises and a reasonable guide to identify the key contributors to the funding of climate policies (Fig. 1).

Q5

Q6

While there is a delay in tackling climate inequalities head on, climate change contributes to economic and material deprivation in a myriad of ways, now well documented. Climate-related disasters and slow-onset events aggravate low agricultural productivity in poorer countries, as well as water scarcity and security<sup>8,9</sup>. Heatwaves have substantial impacts on mortality, particularly in vulnerable



**Fig. 1 | The triple climate inequality crisis.** Distribution of climate-related relative income losses, carbon emissions and wealth across the global population. The graph shows that the bottom 50% of the world population, ranked by emissions level, contributes to 12% of global emissions but is exposed to 75% of relative income losses due to climate change. Emissions inequality data are based on the World Inequality Database for 2019. Losses can be measured in many different ways. In this simple representation, we use country-level gross domestic product losses (in 2030 and relative to a world without climate change) from existing studies. We attribute, to each emitter group within each country, a per capita percentage income loss score. We assume that the bottom 40% of the distribution is 20% more exposed to losses than the average population in a given country, a conservative estimate based on recent studies (see ref. 3). The sum of these loss scores, weighted by population, gives a total global relative income loss burden, which is distributed across groups of emitters. These estimates of the global inequality in income losses should be interpreted with great care given the stylized approach taken to construct them. They nonetheless provide a useful representation of the large global inequality in climate change impacts found in the literature. Capacity to finance is here proxied by the distribution of net wealth across the world population, ranked by net wealth. Figure adapted from ref. 7, under a Creative Commons license CC BY 4.0.

urban centres<sup>10</sup>. Tropical cyclones and floods will continue to displace millions of people, mostly in low-income countries, and rising sea levels will make large swaths of coastal land uninhabitable<sup>11</sup>. While such events will affect regions as a whole, studies point to a strong socioeconomic relationship between exposure (and especially vulnerability) and current living conditions, whereby the worst off are more affected than the rest<sup>3</sup>. The wide set of already visible climate change impacts reveal that every fraction of a degree matters. It follows that every tonne of carbon matters as much as every dollar of adaptation funding.

## Why inequalities in emissions matter

Understanding how groups may win and lose from the transition to net-zero emissions is key to accelerating it. Established environmental policies such as emissions trading schemes are somewhat agnostic to distributional concerns. We argue instead that modern climate policy needs to live up to empirical realities and consider inequality more systematically in policy design, as certain countries have started to do.

The different pathway of each group to net zero within countries will matter for political and economic reasons. Knowing the triple inequalities of different groups is paramount to providing an equitable answer to questions such as: at what pace should various actors bring down their emissions? Efficiency questions are also at stake: the ‘marginal effort’ required to mitigate emissions might be lower for high-emitting and high-wealth groups, which could create an incentive for policies that target this group first. Last, as top emitters are likely to be (although not always) relatively well protected from the adverse consequences of climate change, their incentives to reduce emissions are not necessarily aligned with the damage those emissions cause. Quantifying inequalities in carbon emissions, exposure to damages and capacities to act allows to be more explicit about these issues and can help accelerate the transition to net zero.

## A 1.5% wealth tax for 1.5 °C

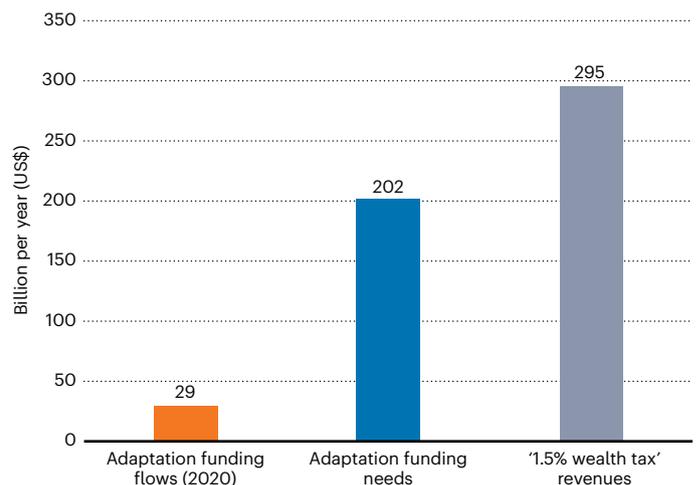
To tackle these challenges, it is necessary that rich countries fulfil their climate finance commitments from the Paris Agreement. However, this condition is not sufficient to decrease inequality both in capacities to adapt and in climate-induced losses. The Loss and Damage Fund initiated at Sharm el-Sheikh COP27 represents a step in the right direction. Yet the timeline for operationalizing the fund is short (COP28) and politically sensitive questions remain on who benefits and who pays. Similarly, the adaptation funding gap remains yawningly wide open. The Summit for a New Global Financing Pact held in Paris in June 2023 gave renewed impetus to reform development banks, with a plan to draw on more of their current assets. However, the financing commitments and debt relief plans agreed on are marginal compared with the true financing needs in the face of the looming climate collapse<sup>12</sup>. New resources need to be mobilized, and Fig. 1 illustrates where these resources could be found.

Adaptation funding needs in developing countries have been estimated at nearly US\$200 billion per year while funding flows were US\$29 billion in 2020<sup>14</sup>. Our estimations suggest that a very small annual wealth tax of 0.06% of the value of assets owned by the residents of rich countries would entirely close this gap. While such a proposal considers inequality between countries, it considers neither within-country inequalities in wealth ownership nor inequality in contributions to climate change. A progressive wealth tax targeted at very top wealth holders can be envisaged to factor in such inequalities to some extent. As an illustration, we consider a 1.5% wealth tax for 1.5 °C on the world’s very richest individuals (that is, a tax base of roughly 65,000 centimillionaire individuals globally) with tax rates increasing from 1.5% of net personal wealth, to a top rate of 3%. Such a tax scheme, if implemented successfully, could raise about US\$300 billion every year globally, and thus entirely close the current adaptation funding gap<sup>7</sup> (Fig. 2).

## Factoring in inequality in climate policy design

Turning to the overall climate finance gap, estimates indicate that finance for the Global South should escalate to an additional US\$1.8 trillion annually by 2030, from public or private sources. To put this number

**Adaptation funding needs in developing countries versus revenues from global wealth tax on centimillionaires**



**Fig. 2 | Potential revenues from progressive taxation of global centimillionaires versus current adaptation funding flows and needs.**

Adaptation finance flows to developing countries reached US\$29 billion. Finance needs amount to about US\$200 billion. A wealth tax on centimillionaires could generate US\$295 billion per year, enough to close the gap and generate additional revenues. Finance needs are based on ref. 12. Annual wealth tax revenues for 2021 are from the World Inequality Database. Wealth tax rates are as described in the text. Figure adapted from ref. 7, under a Creative Commons license CC BY 4.0.

in perspective, climate finance flows from rich countries to developing countries amounted to US\$83 billion in 2020. A look at cumulative historical greenhouse gas emissions reveals that most affluent nations in the Global North have exceeded their population-weighted carbon budgets, thereby disproportionately consuming the global 1.5 °C carbon budget. Consequently, the compelling question of compensating countries that have preserved their rightful share of the 1.5 °C budget emerges as a focal point of public discourse about funding the net-zero transition in developing countries.

Recent research proposed that countries in the Global South, which have not overshot their carbon allocations, should be entitled to a total of US\$192 trillion in climate compensation by 2050—this is calculated using marginal abatement costs of carbon from IPCC Sixth Assessment Report scenarios consistent with 1.5 °C, and a monetization of overshoot emissions since 1960<sup>13</sup>. If this compensation were to be paid between 2020 and 2050, an annual compensation of around US\$6.4 trillion from the over-emitters would thus be required to support the countries that have kept within their carbon limits. Translated into palpable terms, we find that this compensation mirrors a 2% yearly tax on the total assets held by the Global North in 2022 (equivalent to 12% of their national income every year) spread across three decades. Alternatively, this amount could be sourced through a 3.5% yearly wealth tax targeting the richest 10% in the Global North, sparing the rest of the population. Tweaking rates within this top echelon could distribute the burden more fairly. Harnessing revenues from a top-up rate on multinational corporate profits could also help go in this direction<sup>7</sup>.

These figures might appear staggering, especially when contrasted against the current official development aid (typically around 0.6% of annual national income of rich countries, or 0.1% of their wealth).

Q7

However, **they** highlight the chasm between existing financial contributions by the Global North and the amounts genuinely needed in the Global South for equitable climate action. These metrics underscore the sheer magnitude of climate finance needs and further illuminate the profoundly distributional essence of the climate change challenge.

**Lucas Chancel** <sup>1,2,3</sup> , **Philipp Bothe** <sup>3</sup> & **Tancrède Voituriez**  

<sup>1</sup>Harvard Kennedy School, Harvard University, Cambridge, MA, USA.

<sup>2</sup>Sciences Po, Paris, France. <sup>3</sup>World Inequality Lab, Paris School of Economics, Paris, France. <sup>4</sup>CIRAD, Paris, France.

 e-mail: [lucas.chancel@sciencespo.fr](mailto:lucas.chancel@sciencespo.fr)



## References

1. Diffenbaugh, N. S. & Burke, M. *Proc. Natl Acad. Sci. USA* **116**, 9808–9813 (2019).
2. Kalkuhl, M. & Wenz, L. *J. Environ. Econ. Manag.* **103**, 102360 (2020).
3. Hallegatte, S. & Rozenberg, J. *Nat. Clim. Change* **7**, 250–256 (2017).

4. Palagi, E., Coronese, M., Lamperti, F. & Roventini, A. *Proc. Natl Acad. Sci. USA* **119**, e2203595119 (2022).
5. Bruckner, B., Hubacek, K., Shan, Y., Zhong, H. & Feng, K. *Nat. Sustain.* **5**, 311–320 (2022).
6. Chancel, L. *Nat. Sustain.* <https://doi.org/10.1038/s41893-022-00955-z> (2022).
7. Chancel, L., Bothe, P. & Voituriez, T. *Climate Inequality Report 2023, Fair Taxes for a Sustainable Future in the Global South* (World Inequality Lab, 2023).
8. IPCC *Climate Change 2022: Impacts, Adaptation, and Vulnerability* (eds Pörtner, H.-O. et al.) 3056 (Cambridge Univ. Press, 2022).
9. Ortiz-Bobea, A., Ault, T. R., Carrillo, C. M., Chambers, R. G. & Lobell, D. B. *Nat. Clim. Change* **11**, 306–312 (2021).
10. Carleton, T. et al. *Q. J. Econ.* **137**, 2037–2105 (2022).
11. Jevrejeva, S., Jackson, L. P., Grinsted, A., Lincke, D. & Marzeion, B. *Environ. Res. Lett.* **13**, 074014 (2018).
12. Songwe, V., Stern, N. & Bhattacharya, A. *Finance for Climate Action: Scaling up Investment for Climate and Development* (Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science, 2022).
13. Fanning, A. L. & Hickel, J. *Nat. Sustain.* **6**, 1077–1086 (2023).

## Competing interests

The authors declare no competing interests.

Q8

# QUERY FORM

<b>Manuscript ID</b>	<b>[Art. Id: 1891]</b>
<b>Author</b>	<b>Lucas Chancel</b>

## AUTHOR:

The following queries have arisen during the editing of your manuscript. Please answer by making the requisite corrections directly in the e-proofing tool rather than marking them up on the PDF. This will ensure that your corrections are incorporated accurately and that your paper is published as quickly as possible.

<i>Query No.</i>	<i>Nature of Query</i>
Q1:	Please check your article carefully, coordinate with any co-authors and enter all final edits clearly in the eproof, remembering to save frequently. Once corrections are submitted, we cannot routinely make further changes to the article.
Q2:	Note that the eproof should be amended in only one browser window at any one time; otherwise changes will be overwritten.
Q3:	Author surnames have been highlighted. Please check these carefully and adjust if the first name or surname is marked up incorrectly, as this will affect indexing of your article in public repositories such as PubMed. Also, carefully check the spelling and numbering of all author names and affiliations, and the corresponding author(s) email address(es). Please note that email addresses should only be included for designated corresponding authors, and you cannot change corresponding authors at this stage except to correct errors made during typesetting.
Q4:	Please check Figures for accuracy as they have been relabelled. Please markup minor changes in the eProof. For major changes, please provide revised figures. (Please note that in the eProof the figure resolution will appear at lower resolution than in the pdf and html versions of your paper.)
Q5:	Please check that the edits to the sentence beginning 'By contrast, the exposure...' have retained your intended meaning.
Q6:	Please check that the edits to the sentence beginning 'While there is a...' have retained your intended meaning.
Q7:	Please confirm that US\$ is the correct currency throughout.
Q8:	For ref. 10, please confirm that the volume number and page range are correct as added.