

Environmental and Climate Economics

International Climate Policy

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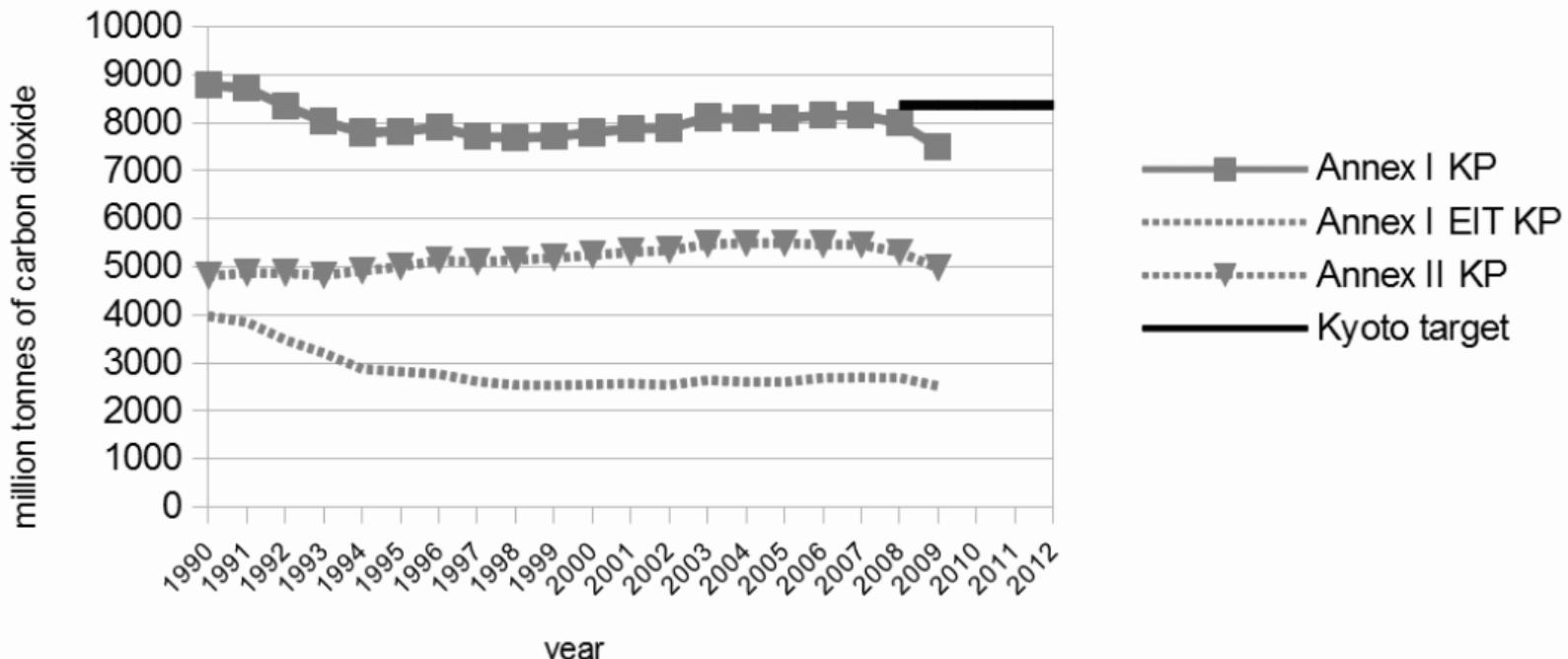
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Carbon dioxide emissions from fuel combustion of Kyoto Protocol Parties 1990-2009



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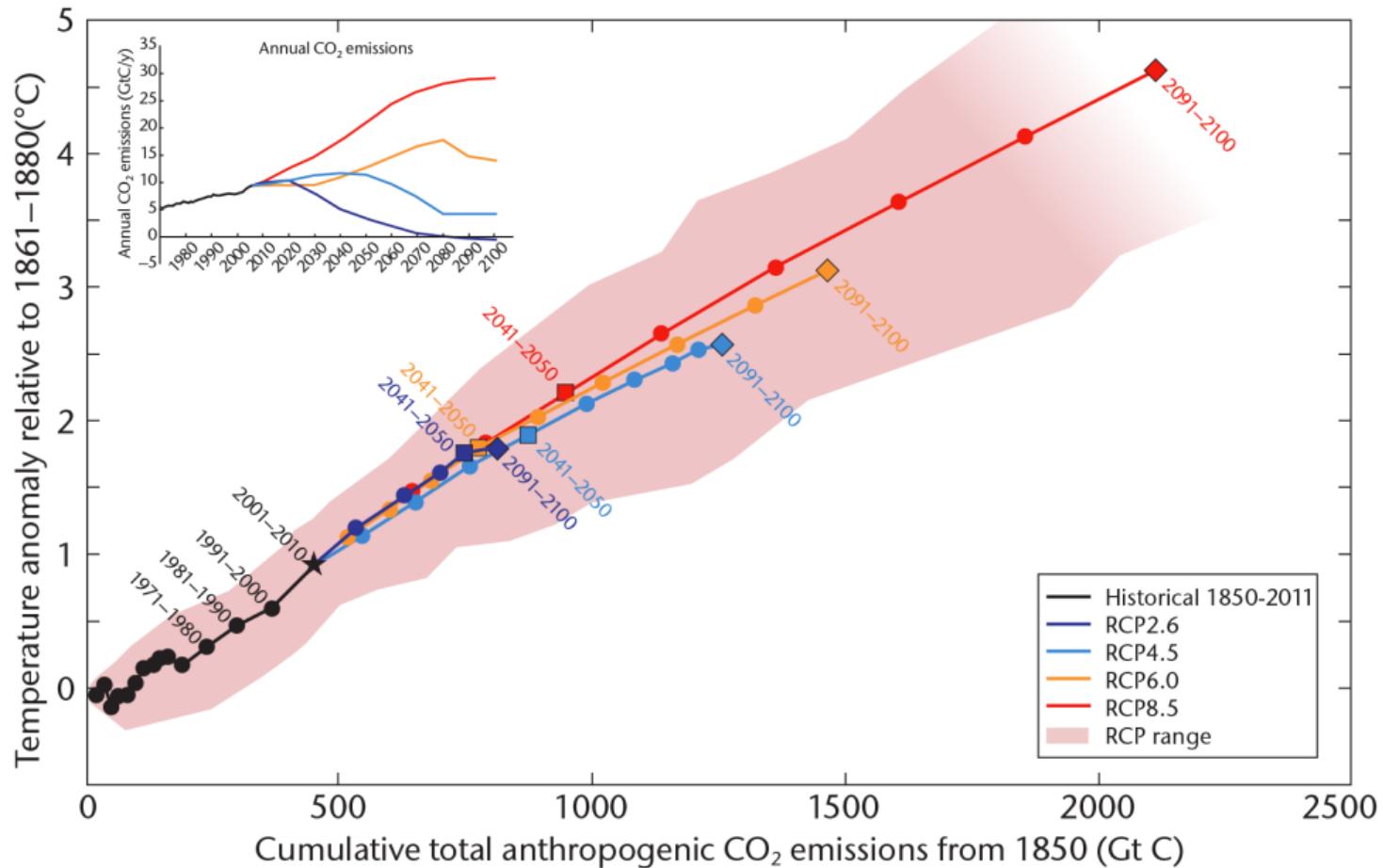
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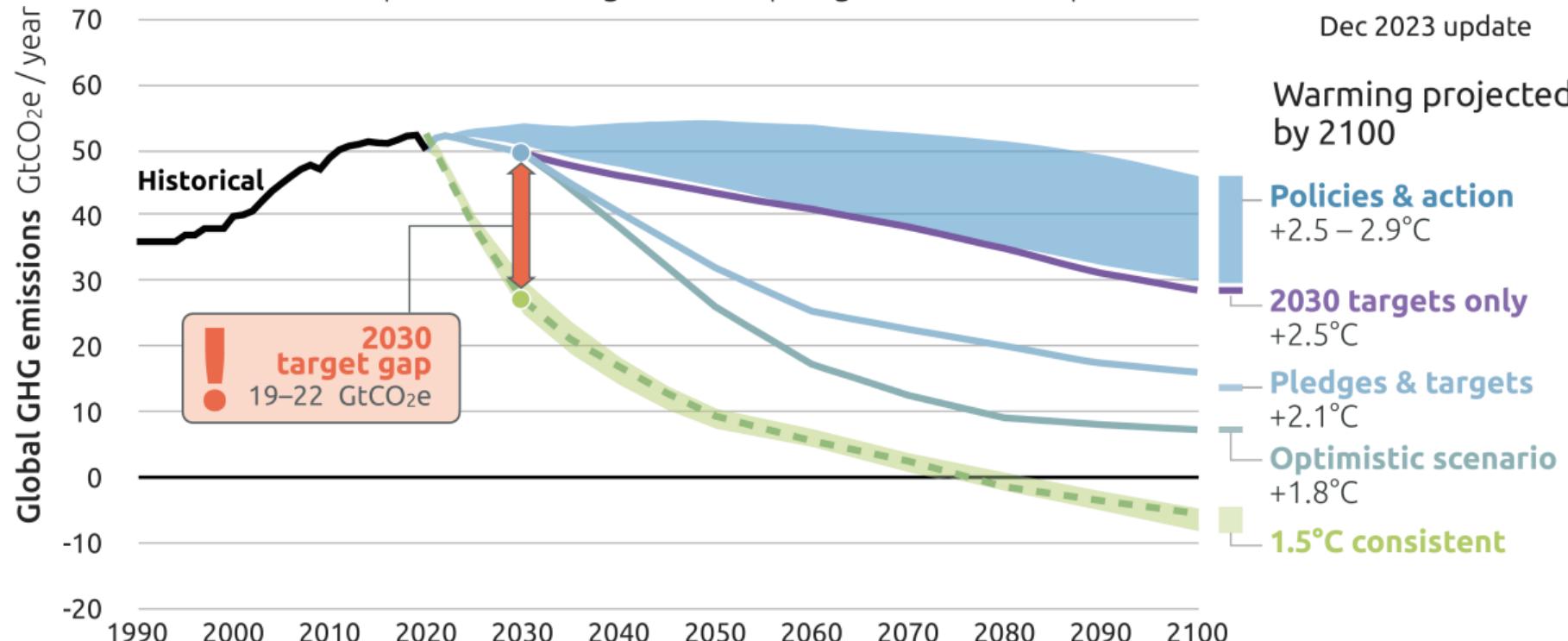
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Dec 2023 update

2100 WARMING PROJECTIONS

Emissions and expected warming based on pledges and current policies



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How to break the deadlock? IMHO, North–South transfers and give up on universal agreements.

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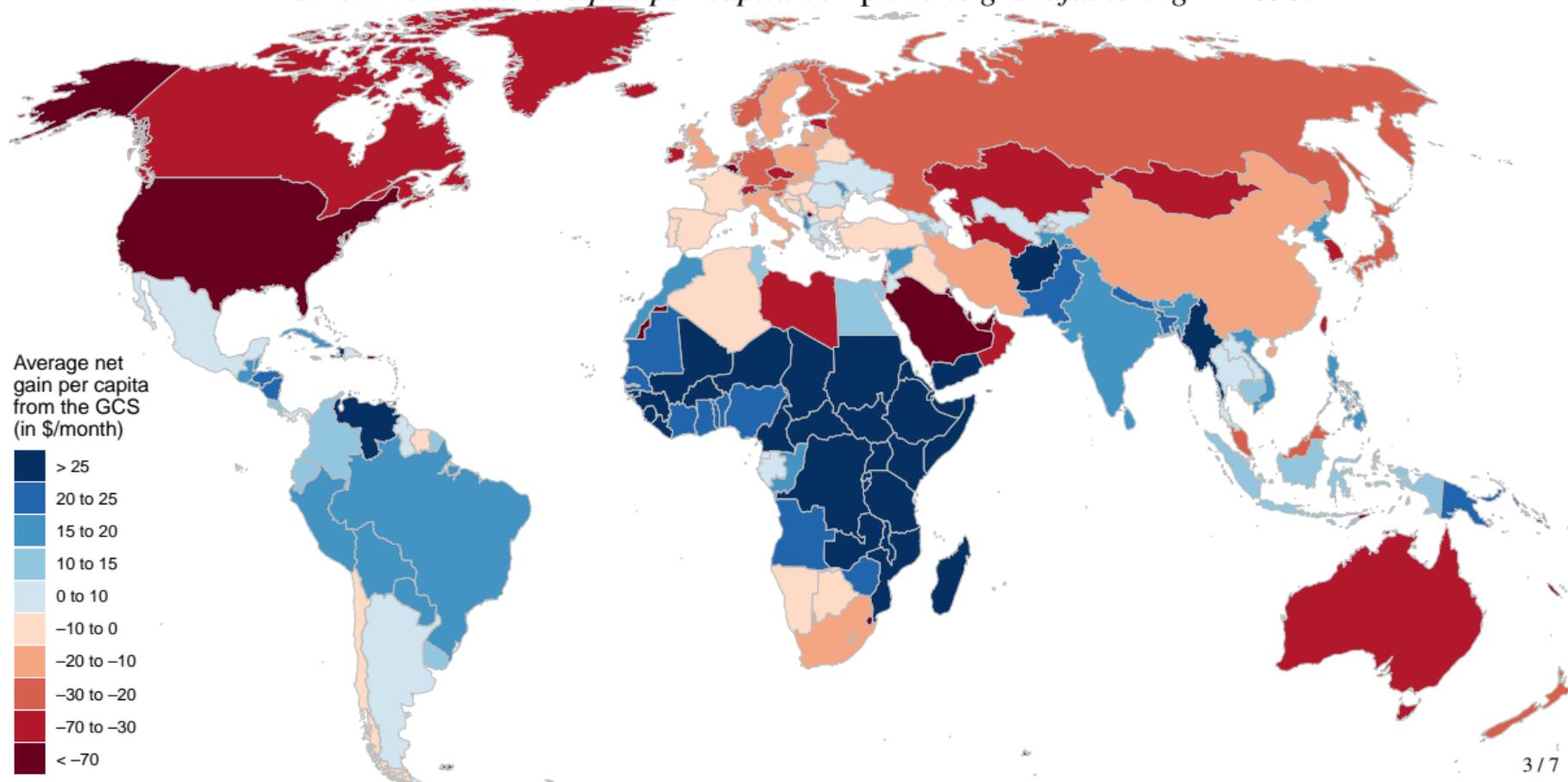
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Distributive effects of *equal per capita* compared to *grandfathering* in 2030.



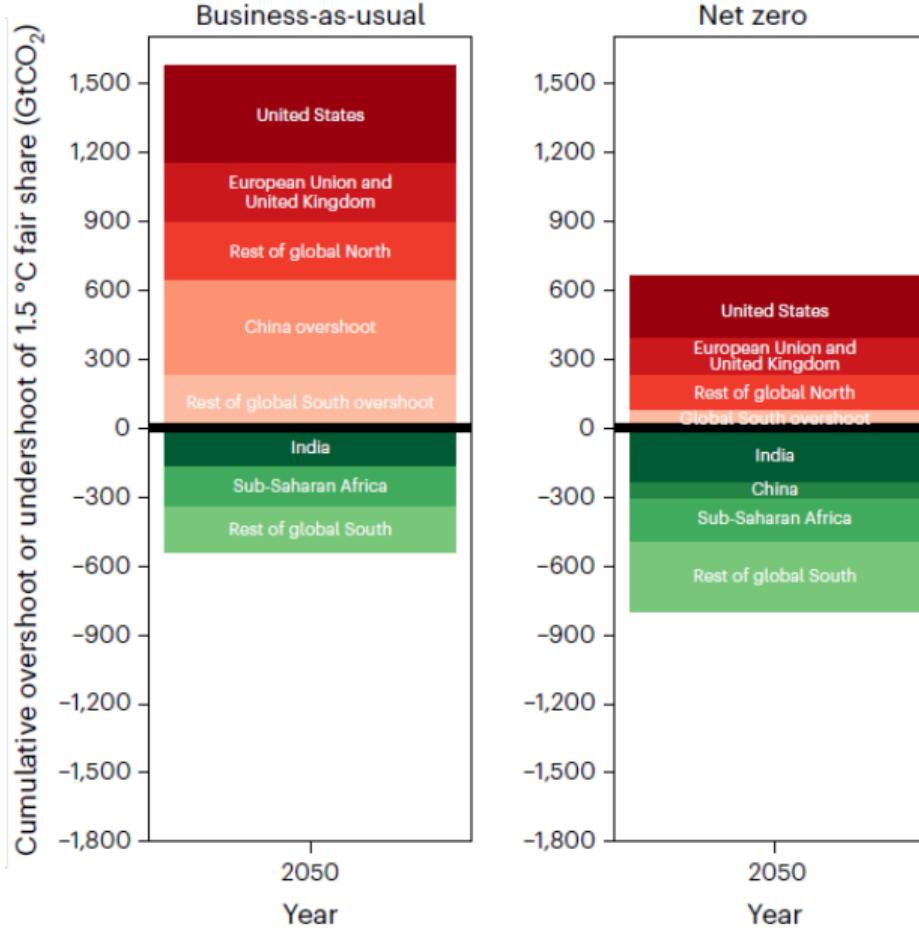
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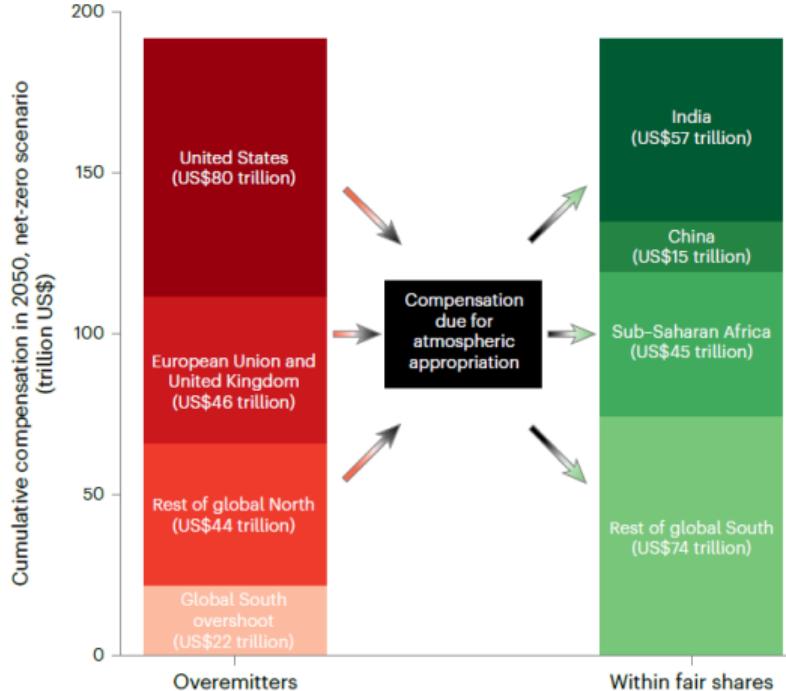
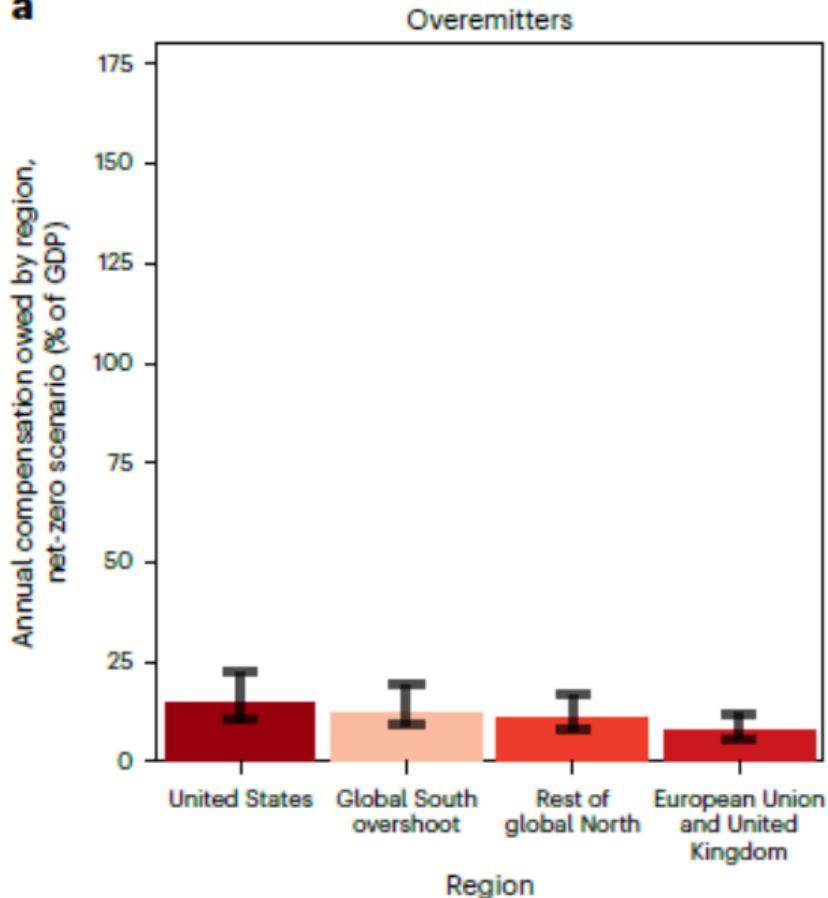
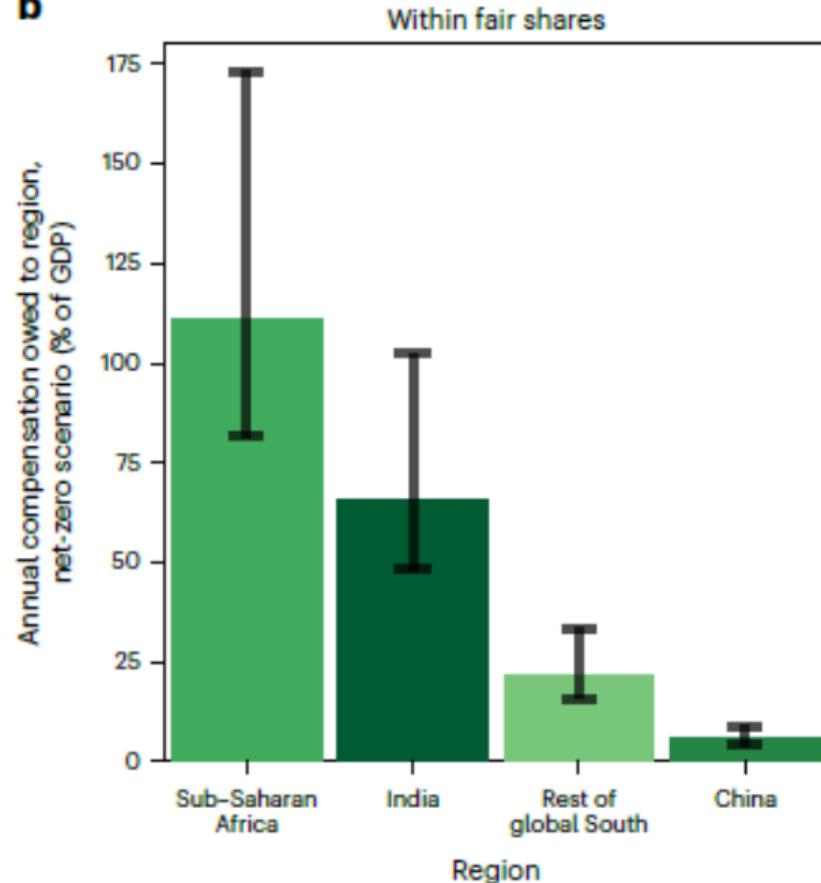


Fig. 4 | Cumulative compensation due from overshooting country groups to undershooting country groups (relative to 1.5 °C fair shares) based on the historical period from 1960 to 2019 and net-zero scenario from 2020 to 2050.
Cumulative compensation is expressed in constant 2010 prices. See Extended Data Fig. 5 for results with cumulative financial compensation by country group starting from 1850 and 1992 and Supplementary Data 1 for results for all countries.

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a**b**

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My view: alternative conventions make more sense BUT the North owes to the South for many other reasons.

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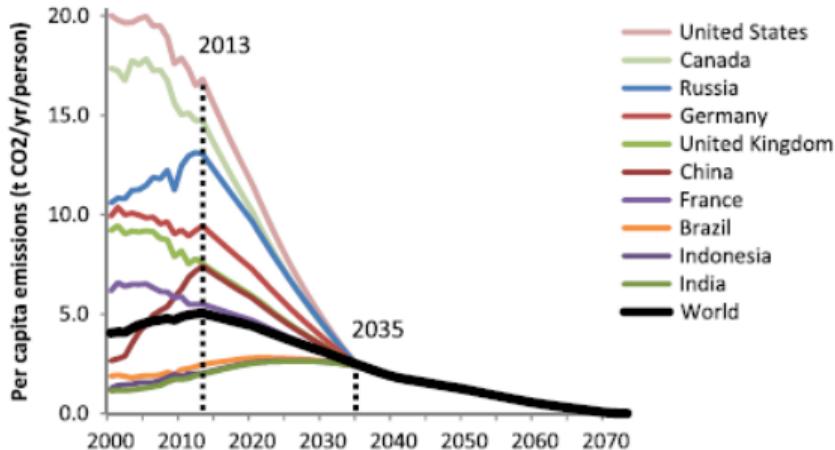
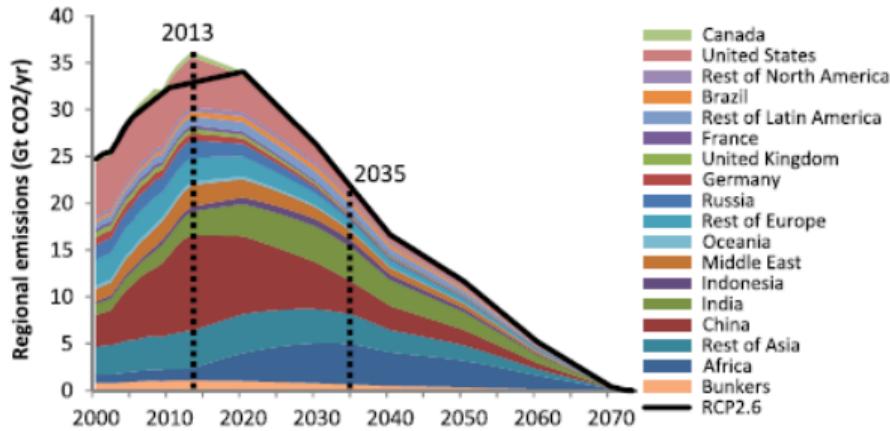
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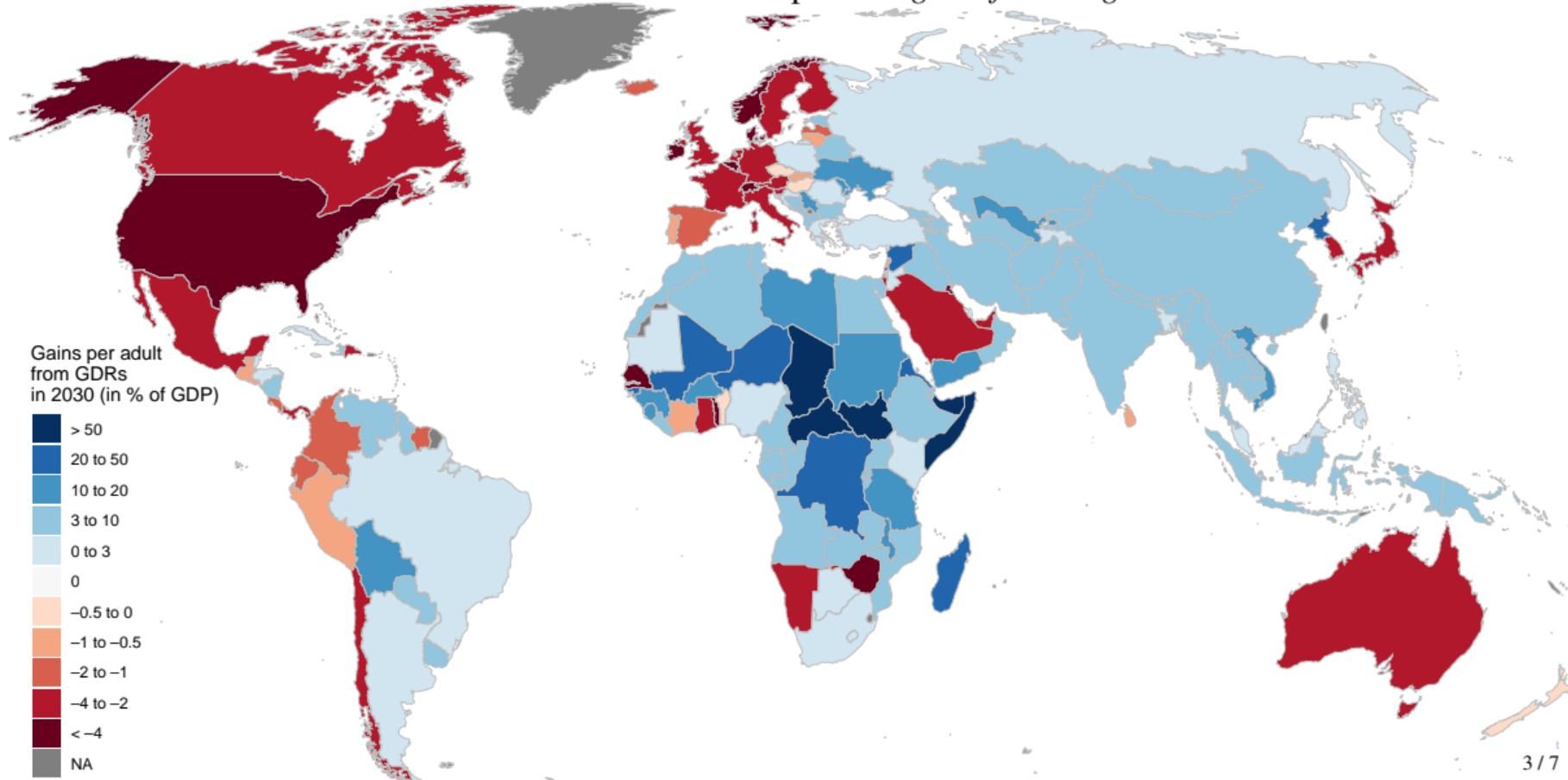
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Climate Equity Reference Framework (CERF, or *Greenhouse Development Rights*): blend of grandfathering, historical responsibility, and ability to pay.

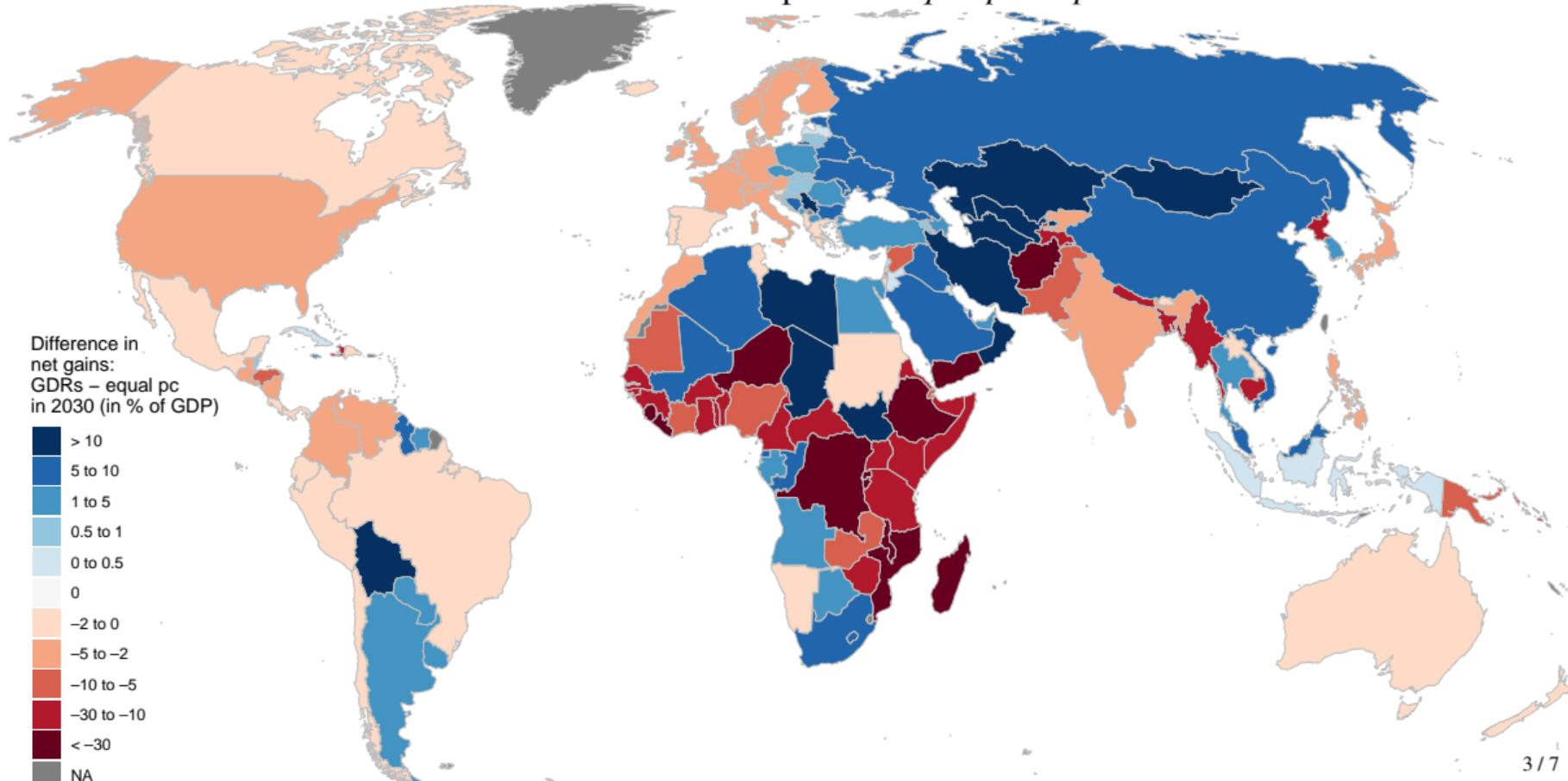
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Distributive effects of *CERF* compared to *grandfathering* in 2030.



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Three approaches on how to allocate the burden of climate mitigation between countries:

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“equity”: equal per capita?

“developed country”: binary and static notion. What about Saudi Arabia? South Korea? Slovenia? Greece?

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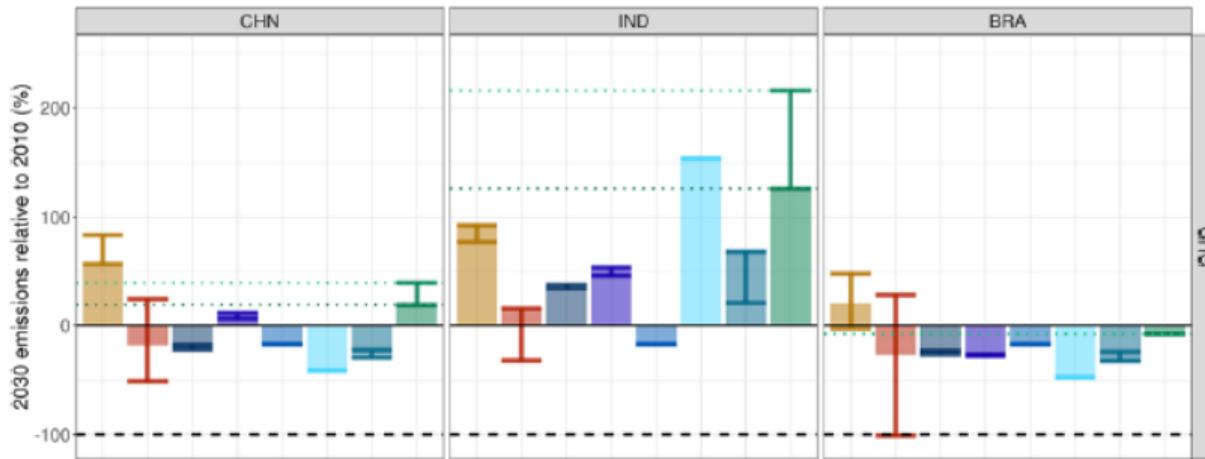
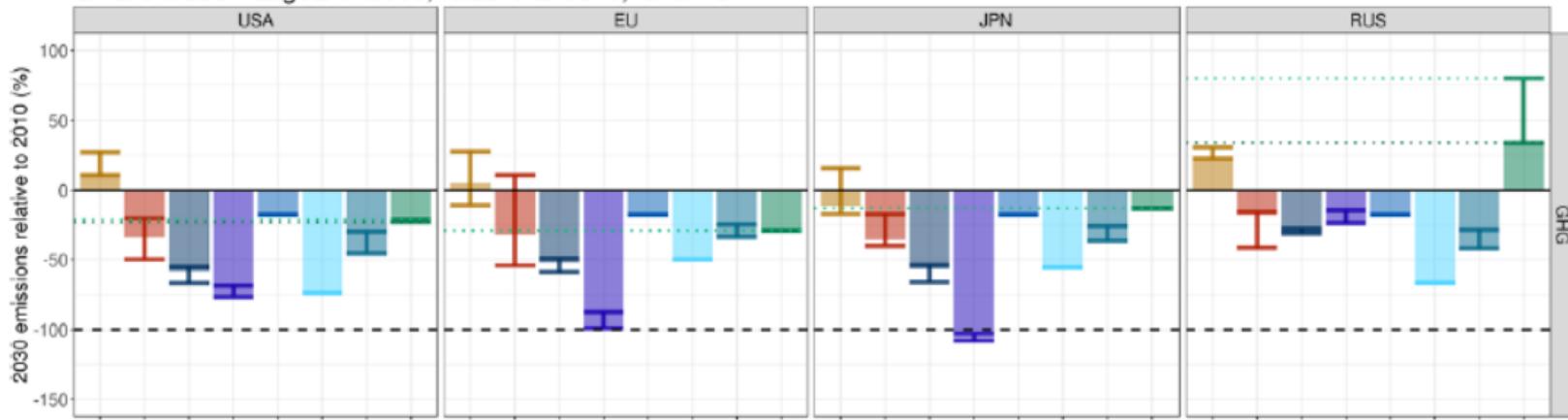
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How do Nationally Determined Contributions (NDCs) fare according to the different principles?

Climate mitigation burden-sharing approaches: NDCs assessment

GHG emission targets in 2030, relative to 2010, for 2 °C



- Approach
- BAU
 - CO
 - AP
 - GDR-1970/1850/1990
 - GF
 - IEPC
 - PCC
 - NDC

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⇒ Only lower income countries like India meet fairness criteria like IEPC (equal p.c.).

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Resource sharing: Who should have the right to emit? Best approach IMHO, solves above problems.

Climate negotiations are stuck with a vague and inconsistent compromise since 92: CBDR-RC.

How do Nationally Determined Contributions (NDCs) fare according to the different principles?

⇒ Only lower income countries like India meet fairness criteria like IEPC (equal p.c.).

In the Cost-Optimal approach, less emissions in lower income countries and more in HICs.

The future of international climate policy

Enhanced NDCs; New Collective Quantified Goal: more **climate finance** for the Global South.

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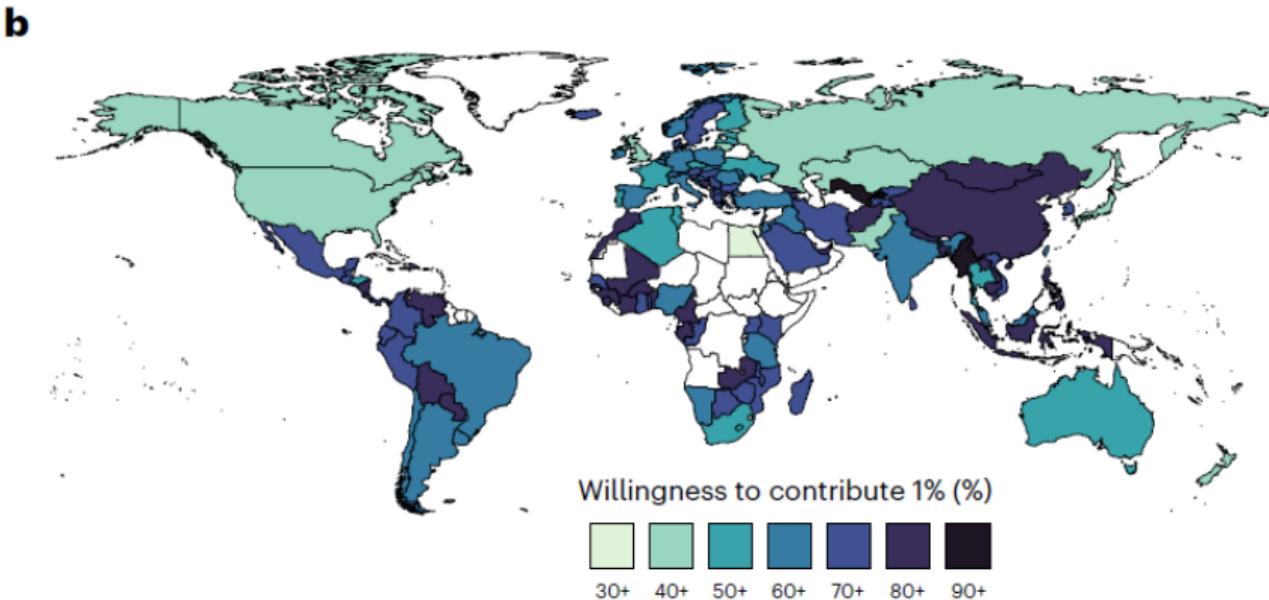
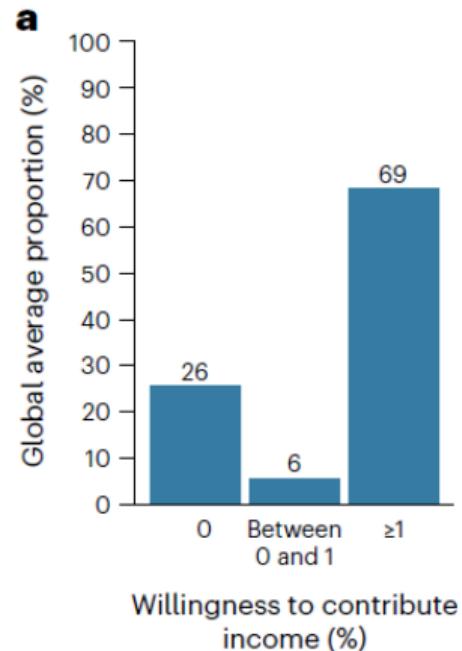
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The first best: a global emissions trading scheme financing equal per capita transfers?

Population attitudes on climate action

“Would you be [willing to contribute 1% of your income to fight global warming?](#)”

Population attitudes on climate action



Population attitudes on climate action

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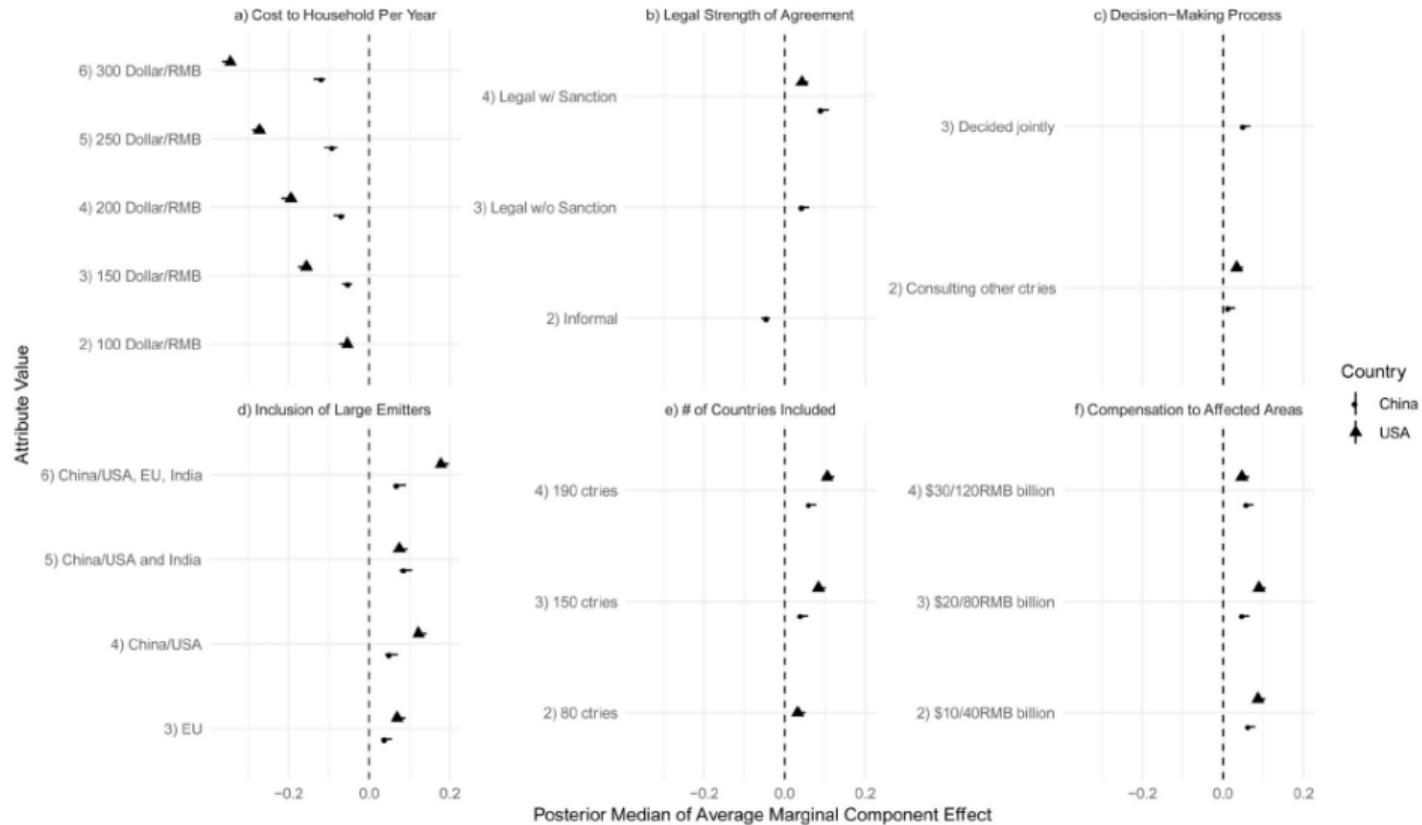
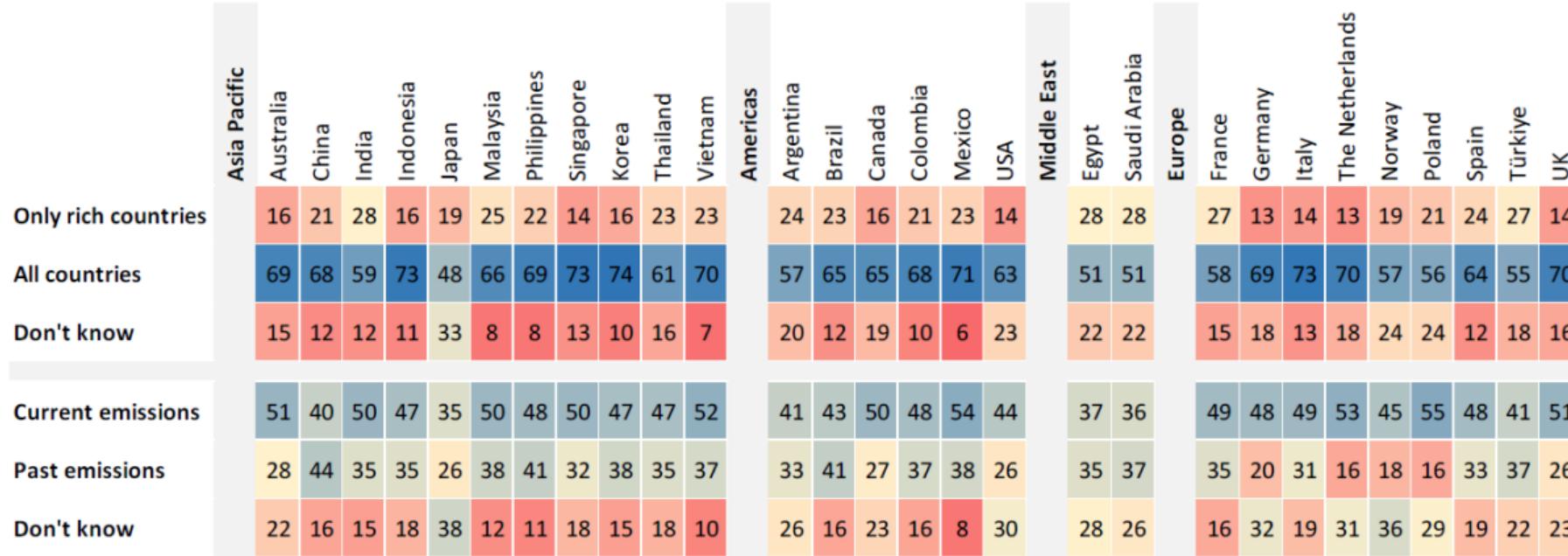


Figure 1. Public support for features of international climate agreements.

Population attitudes on climate action

Figure 20. International Burden Sharing: Who Should Pay?
 (Percent of responses)



Source: IMF staff calculations based on IMF-YouGov survey.

Note: This figure shows the share of responses (in percentage points) to the questions "Which countries do you think should be paying to reduce carbon emissions?" (top panel) and "Should countries be paying to reduce carbon emissions based on their current or accumulated historic levels of emissions?" (bottom panel).

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Population attitudes on climate action

Q.9 To what extent do you agree with the statement that countries which emitted a lot of carbon in the past have a right to continue emitting more than others in the future?

- I strongly agree
- I rather agree
- I rather disagree
- I strongly disagree

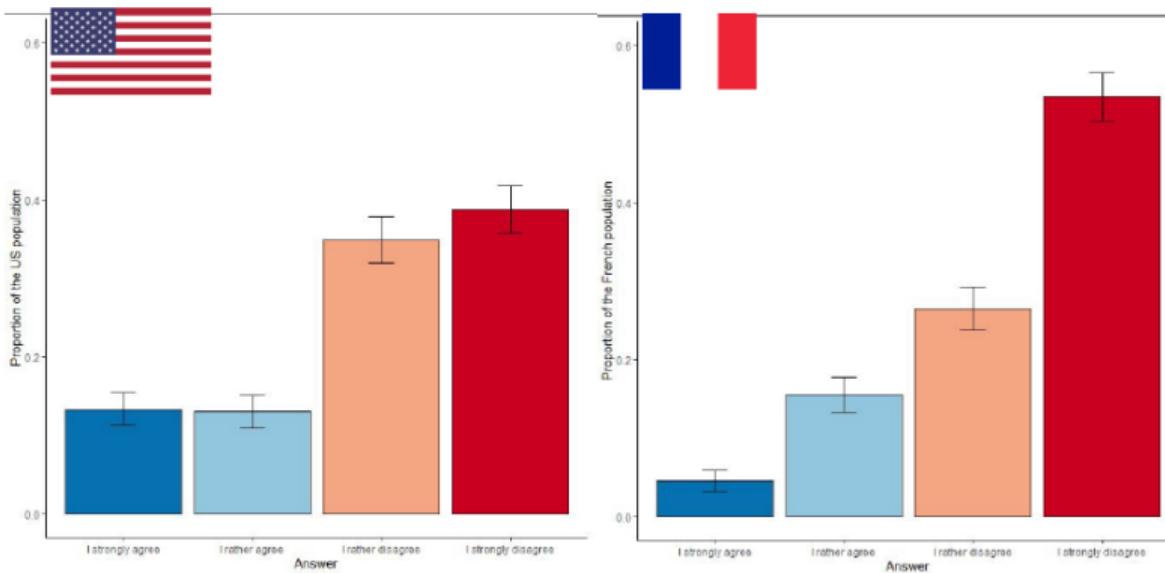


Figure 13 : Distribution of answers to question 9 among the US (left) and French (right) populations

Population attitudes on climate action

Q.14 Which of the following statements do you most agree with? *

- Countries should only be held accountable for their current emissions [label: Current emissions]
- Countries should be held accountable for their historical emissions since 1990, when it was scientifically established that climate change was real and caused by human activities [label: Since 1990]
- Countries should be held for their historical emissions since 1850, when humans started emitting large quantities of carbon in the atmosphere [label: Since 1850]

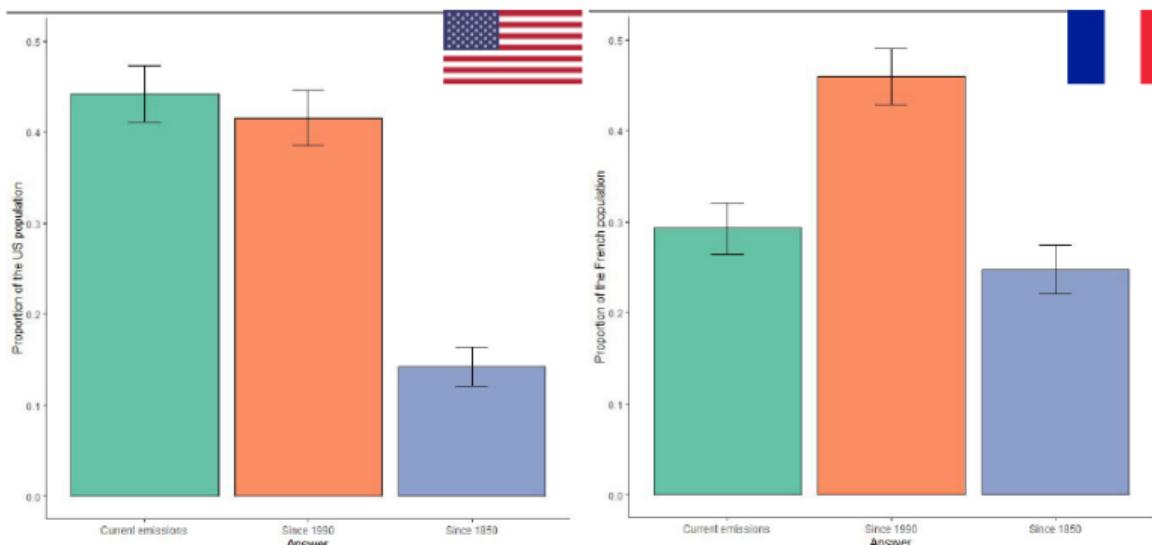


Figure 22 : Distribution of answers to question 14 among the US (left) and French (right) populations

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Factors for supporting a climate policy: perceiving it as 1. **effective**, 2. **fair**, 3. **in one's interest**.

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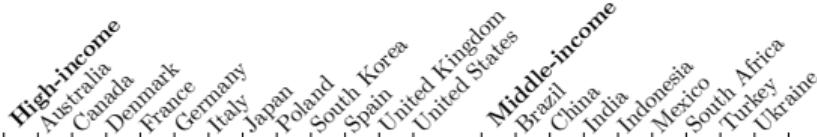
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Majorities support green infrastructure program, but oppose a national carbon tax.

Population attitudes on climate action



Support for Main Climate Policies

- Green infrastructure program
- Ban on combustion-engine cars
- Carbon tax with cash transfers

| | | | | | | | | | | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 79 | 68 | 77 | 76 | 77 | 58 | 94 | 78 | 82 | 95 | 86 | 78 | 71 | 93 | 90 | 98 | 91 | 97 | 94 | 89 | 92 | 87 |
| 56 | 50 | 61 | 49 | 39 | 40 | 74 | 59 | 56 | 73 | 62 | 60 | 55 | 81 | 77 | 95 | 86 | 88 | 76 | 70 | 83 | 70 |
| 56 | 50 | 60 | 45 | 45 | 39 | 72 | 60 | 55 | 79 | 59 | 55 | 52 | 79 | 70 | 96 | 85 | 89 | 71 | 73 | 73 | 63 |

Support for Other Climate Policies

- Subsidies to low-carbon technologies
- Mandatory and subsidized insulation of buildings
- Ban on polluting cars in city centers
- Funding clean energy in low-income countries
- Ban on combustion-engine cars w. alternatives available
- Tax on flying (+20%)
- Tax on fossil fuels (\$45/tCO2)

| | | | | | | | | | | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 87 | 82 | 86 | 89 | 76 | 84 | 96 | 91 | 91 | 93 | 87 | 90 | 78 | 90 | 86 | 94 | 84 | 94 | 87 | 93 | 90 | 90 |
| 84 | 86 | 83 | 84 | 81 | 77 | 90 | 83 | 88 | 95 | 86 | 89 | 71 | 90 | 98 | 98 | 98 | 98 | 98 | 91 | 87 | 83 |
| 75 | 70 | 76 | 78 | 69 | 67 | 89 | 85 | 78 | 71 | 73 | 80 | 65 | 85 | 78 | 93 | 87 | 96 | 85 | 82 | 72 | 78 |

Support for Carbon Tax With:

- Subsidies to low-carbon tech.
- Funding environmental infrastructures
- Reduction in personal income taxes
- Reduction in the public deficit
- Cash transfers to the poorest households
- Tax rebates for the most affected firms
- Cash transfers to constrained households
- Reduction in corporate income taxes
- Equal cash transfers to all households

| | | | | | | | | | | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 85 | 80 | 67 | 84 | 83 | 88 | 94 | 92 | 89 | 97 | 86 | 87 | 75 | 92 | 93 | 98 | 87 | 97 | 91 | 92 | 88 | 89 |
| 85 | 80 | 68 | 83 | 88 | 83 | 92 | 90 | 87 | 94 | 88 | 85 | 77 | 92 | 92 | 96 | 89 | 96 | 92 | 94 | 89 | 90 |
| 79 | 73 | 66 | 60 | 80 | 80 | 92 | 88 | 87 | 88 | 83 | 76 | 69 | 87 | 86 | 95 | 84 | 91 | 86 | 85 | 85 | 87 |

Support for Cattle-Related Policies

- Subsidies on organic and local vegetables
- Ban of intensive cattle farming
- Removal of subsidies for cattle farming
- A high tax on cattle products, doubling beef prices

| | | | | | | | | | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 75 | 59 | 69 | 72 | 73 | 74 | 90 | 72 | 89 | 84 | 78 | 70 | 64 | 82 | 77 | 96 | 90 | 72 | 72 | 91 | 69 |
| 57 | 44 | 56 | 40 | 69 | 66 | 81 | 31 | 60 | 66 | 54 | 66 | 51 | 51 | 49 | 80 | 61 | 59 | 36 | 42 | 31 |
| 49 | 44 | 51 | 43 | 41 | 61 | 65 | 26 | 50 | 52 | 52 | 54 | 55 | 54 | 60 | 78 | 71 | 65 | 38 | 36 | 31 |

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Factors for supporting a climate policy: perceiving it as 1. **effective**, 2. **fair**, 3. **in one's interest**.

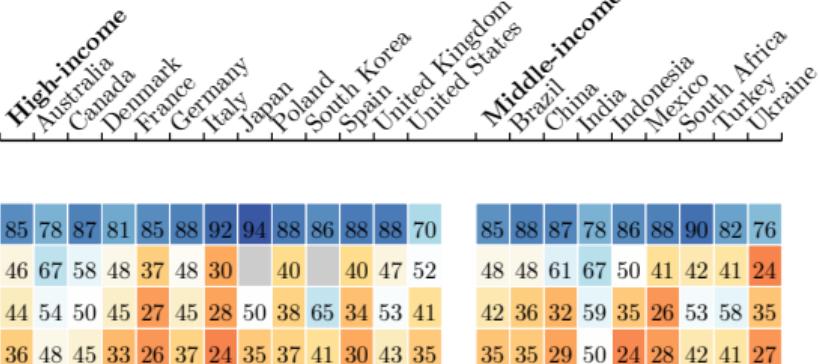
Majorities support green infrastructure program, but oppose a national carbon tax.

Majorities support a global emissions trading system with equal p.c. allocation.

Population attitudes on climate action

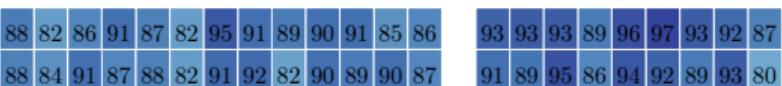
Level at which climate policies are needed

Global



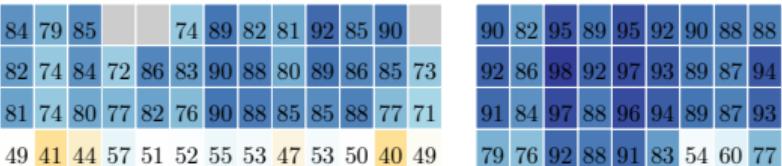
Dependence on what other countries do

If other do less, [country] should do more



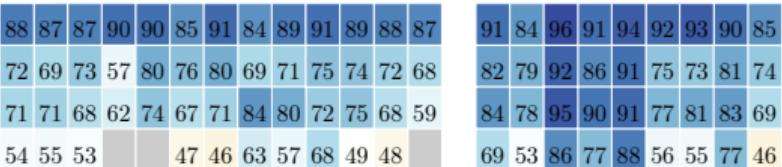
Global climate policies

Global carbon budget (+2°C) divided in tradable country shares



Burden sharing preferences for the global carbon budget

Emission share should be in proportion to population*

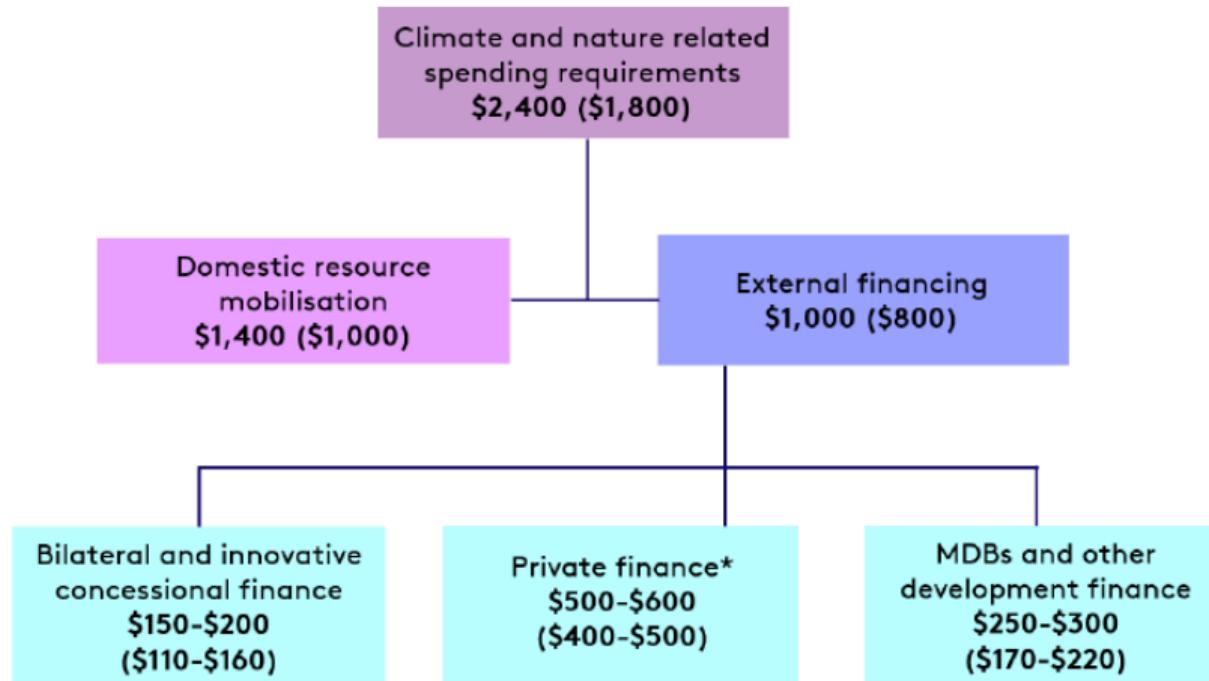


Climate Finance

\$2.4T/yr of additional climate finance needed in 2030 (Songwe et al., 2022, 2023).

Climate Finance

Figure 2. Mobilising the necessary financing for the green transition (\$ billion per year by 2030)



Notes: Incremental investment from current levels is indicated in parentheses. *More than half of this private finance would be directly and indirectly catalysed by MDBs, other development finance institutions, and bilateral finance.

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\$4T to achieve SDGs, incl. \$400-700G in LICs & LMICs.

Developed countries promise \$100G/yr for mitigation & adaptation + Loss & Damage Fund (L&D).

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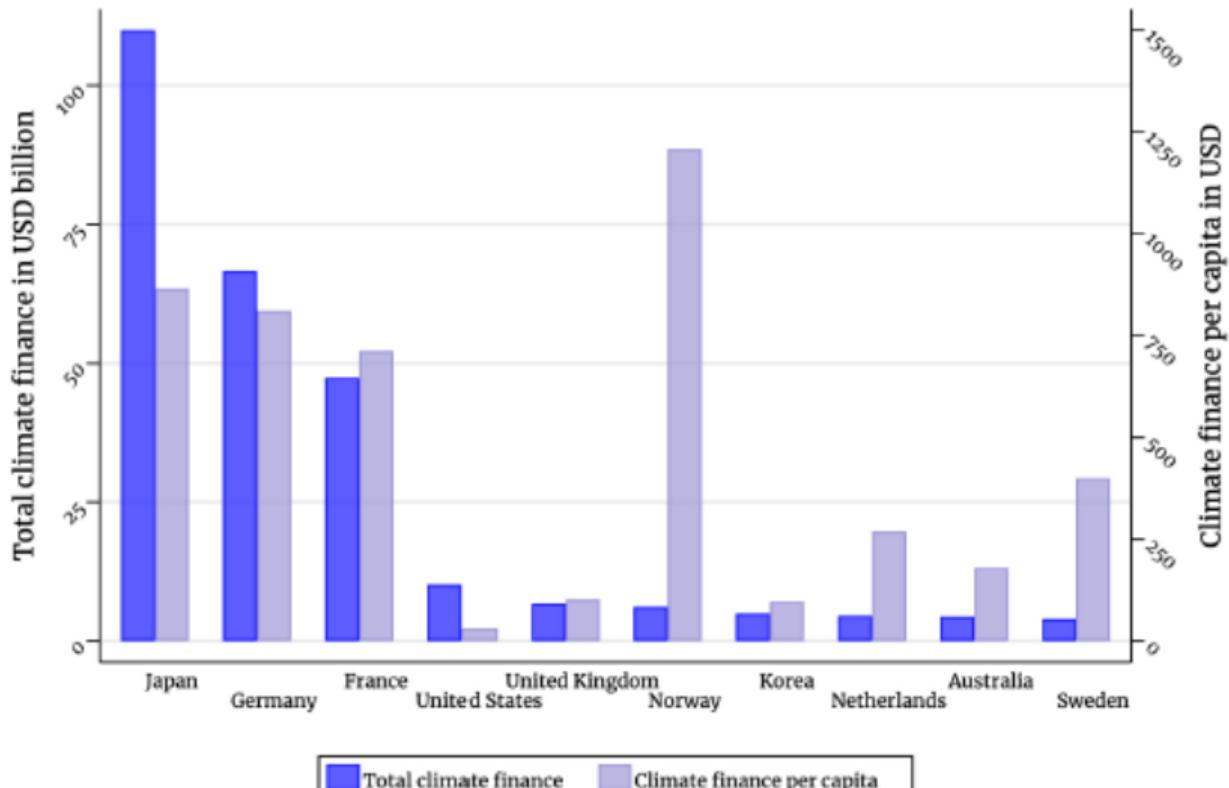
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U.S. are responsible for almost all shortfall of the pledge.

Climate Finance

Top 10 donor countries

(2000–2021)



Climate Finance

Table 3 Scorecard of progress towards a fair share of international climate finance (2017–2018)

| Country | Fair share based on a composite index (\$ billions) | Climate finance contributions (2017–2018 average, \$ billions) | Progress towards providing a fair share of climate finance (%) |
|----------------|--|--|--|
| Norway | 0.576 | 1.082 | 188 |
| Sweden | 0.906 | 1.372 | 151 |
| Germany | 8.274 | 9.236 | 112 |
| France | 5.402 | 4.854 | 90 |
| Japan | 11.740 | 9.372 | 80 |
| Denmark | 0.615 | 0.452 | 74 |
| Netherlands | 1.779 | 1.230 | 69 |
| Switzerland | 0.968 | 0.601 | 62 |
| Belgium | 1.125 | 0.611 | 54 |
| Finland | 0.560 | 0.281 | 50 |
| Luxembourg | 0.106 | 0.051 | 48 |
| United Kingdom | 5.873 | 2.812 | 48 |
| Austria | 0.826 | 0.388 | 47 |
| Iceland | 0.038 | 0.013 | 36 |
| Ireland | 0.597 | 0.199 | 33 |
| Italy | 4.737 | 1.195 | 25 |
| Spain | 3.445 | 0.787 | 23 |
| Canada | 4.153 | 0.697 | 17 |
| New Zealand | 0.430 | 0.071 | 17 |
| Australia | 2.948 | 0.477 | 16 |
| Portugal | 0.696 | 0.091 | 13 |
| Greece | 0.790 | 0.072 | 9 |
| United States | 43.416 | 1.856 | 4 |

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To de-risk development projects ⇒ public guarantees on credit and foreign exchange.

To amplify development finance ⇒ recapitalization of Multilateral Development Banks (MDBs) and re-channeling of Special Drawing Rights (latter requires either unilateral donation or 85% majority at IMF).

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\$4T to achieve SDGs, incl. \$400-700G in LICs & LMICs.

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Only \$700M pledged to L&D. Only \$40G (over-reported at \$80G) delivered instead of \$100G.

U.S. are responsible for almost all shortfall of the pledge.

UNSG support Bridgetown Initiative and SDG stimulus:

To de-risk development projects ⇒ public guarantees on credit and foreign exchange.

To amplify development finance ⇒ recapitalization of Multilateral Development Banks (MDBs) and re-channeling of Special Drawing Rights (latter requires either unilateral donation or 85% majority at IMF).

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V20's Accra-Marrakech Agenda also demands NDCs based on equal cumulative p.c. carbon budget.