

THE NET-ZERO PLEDGES IN THE LIGHT OF EQUITY

Distributing the Global Carbon Budget with Equity Criteria: An assessment of the net-zero pledges in the light of equity

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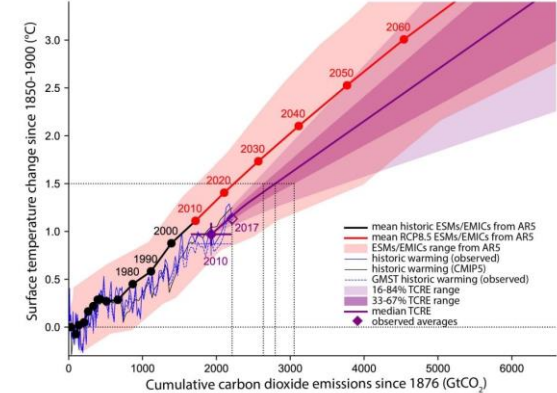


Introduction

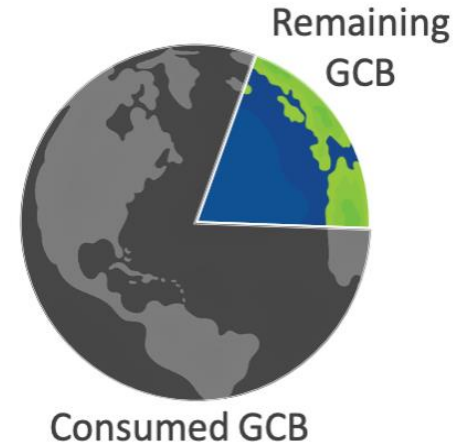
The Remaining Global Carbon Budget

- ❖ There is a direct relation between the global average temperature increase and cumulative CO₂ emissions released to the atmosphere since the industrial revolution.
- ❖ Therefore, in order to limit temperature increase in 1.5 - 2 °C there is a finite amount of CO₂ that we can release into the atmosphere.
- ❖ There is still some carbon space in the atmosphere where humanity can still release some CO₂ before crossing the CO₂ concentration threshold that will bring average temperature above 1.5 - 2 °C.
- ❖ Such carbon space is the remaining Global Carbon Budget (GCB).
- ❖ According to IPCC AR6 the remaining GCB is 400 GtCO₂. It means humanity can still release such amount of CO₂ to the atmosphere before crossing the 1.5 °C threshold (67% probability).
- ❖ **BIG QUESTION:** How much CO₂ should each country still emit?

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Temperature changes from 1850–1900 versus cumulative CO₂ emissions (IPCC AR6)



Equity in the Paris Agreement

- ❖ Article 2.2 of the PA states: :

“This Agreement will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capacities, in the light of different national circumstances”.



- ❖ Article 4 of the Paris Agreement on mitigation reinforces the equity idea in the context of the long-term goal for mitigation and sets a timetable for NDC ambition in the light of IPCC assessments of emissions cuts required to meet the long-term temperature goal. Article 4.1 states:

“In order to achieve the long-term goal ..., Parties aim to reach global peaking of GHG as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of GHG in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty”.

- ❖ Here at COP 27 we confirm the equity issue is a central element of the ongoing negotiation for some Parties (i.e.: GST and MWP). But how could equity be operationalized?



Equity in mitigation

Key dimensions of equity in mitigation (AR5, IPCC 2014)

EQUALITY

The same emissions per capita for everybody

RESPONSIBILITY

The historical contribution to the problem

CAPACITY

Those who can do more should do more

RIGHT TO SUSTAINABLE DEVELOPMENT

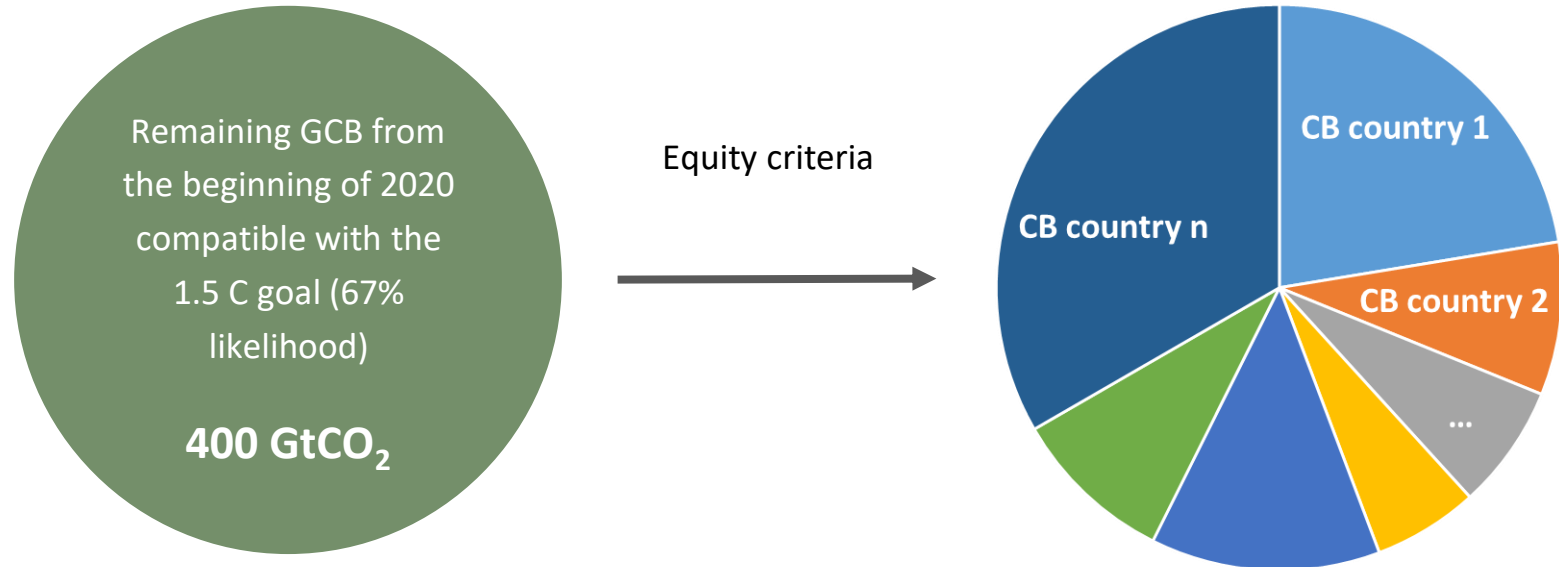
Countries must meet basic requirements



The Model of Climate Justice

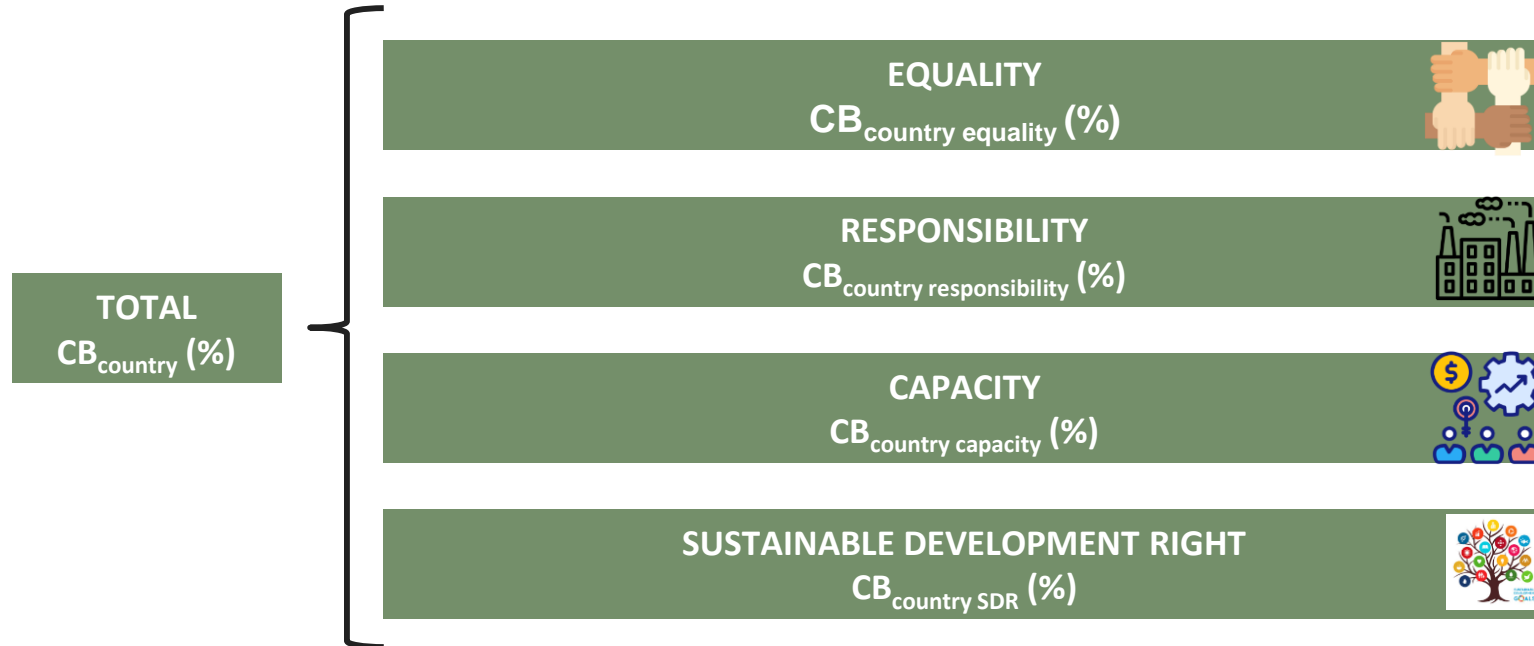
The Model of Climate Justice

The MCJ uses the four dimensions of equity to distribute the remaining GCB among different national Carbon Budgets (CB).



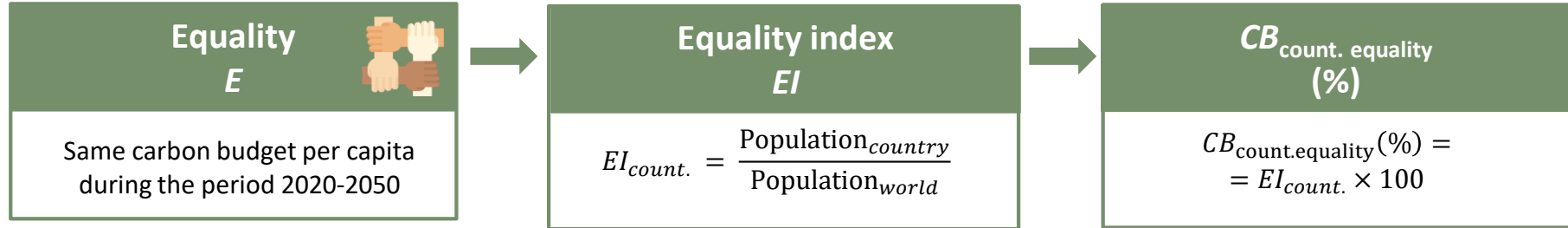
The Model of Climate Justice

We calculate the percentage of the remaining GCB that would correspond to each country by equally weighting the percentage that would correspond to it based on each of the equity criteria.



$$CB_{country} (\%) = 0.25 \cdot CB_{country\ equal.} + 0.25 \cdot CB_{country\ resp.} + 0.25 \cdot CB_{country\ capac.} + 0.25 \cdot CB_{country\ SDR}$$

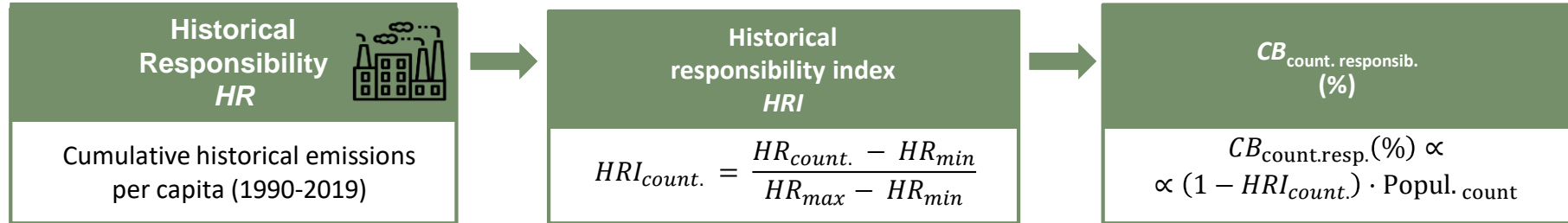
The Model of Climate Justice



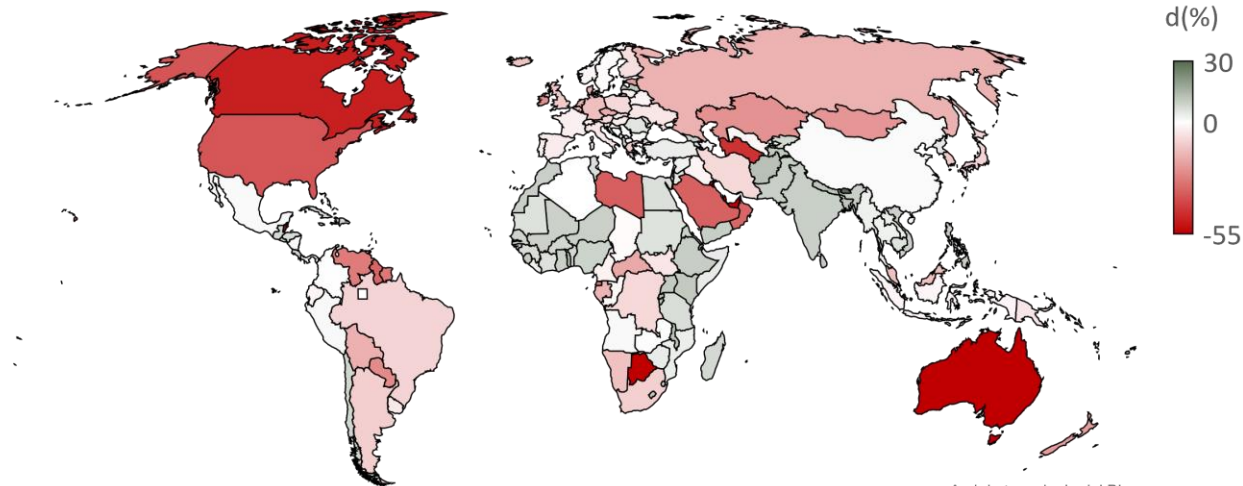
Percentual distribution of the global carbon budget according to equality



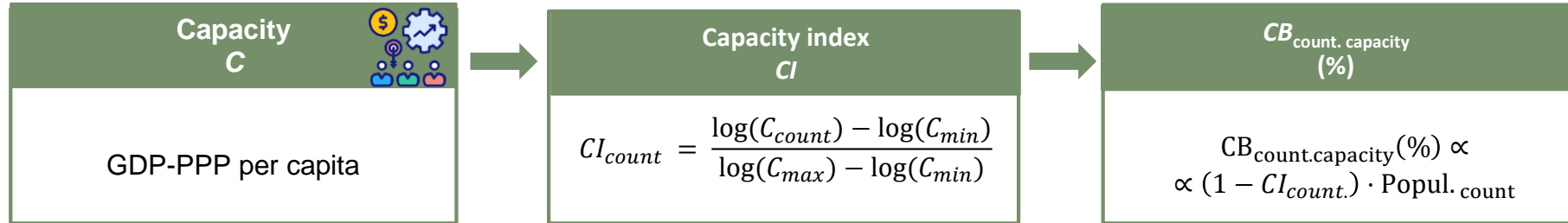
The Model of Climate Justice



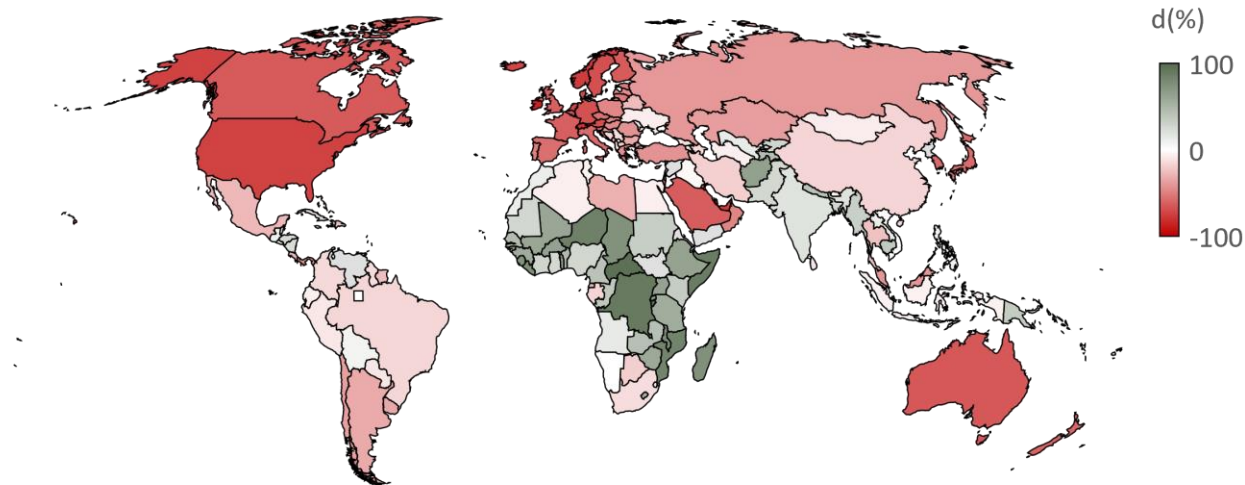
Percentual difference considering responsibility with respect to an egalitarian allocation



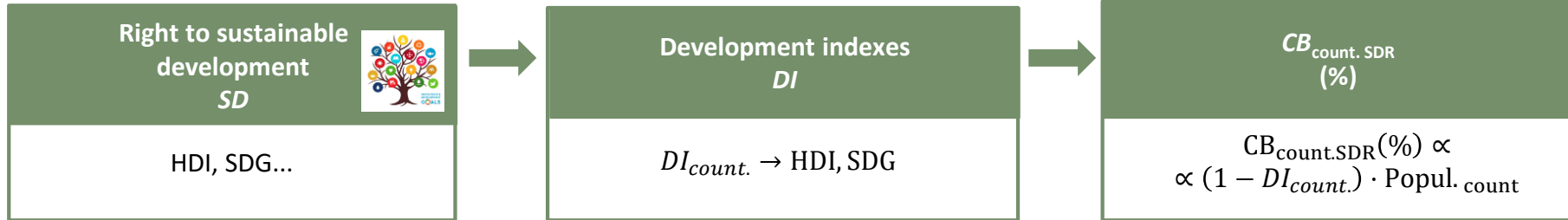
The Model of Climate Justice



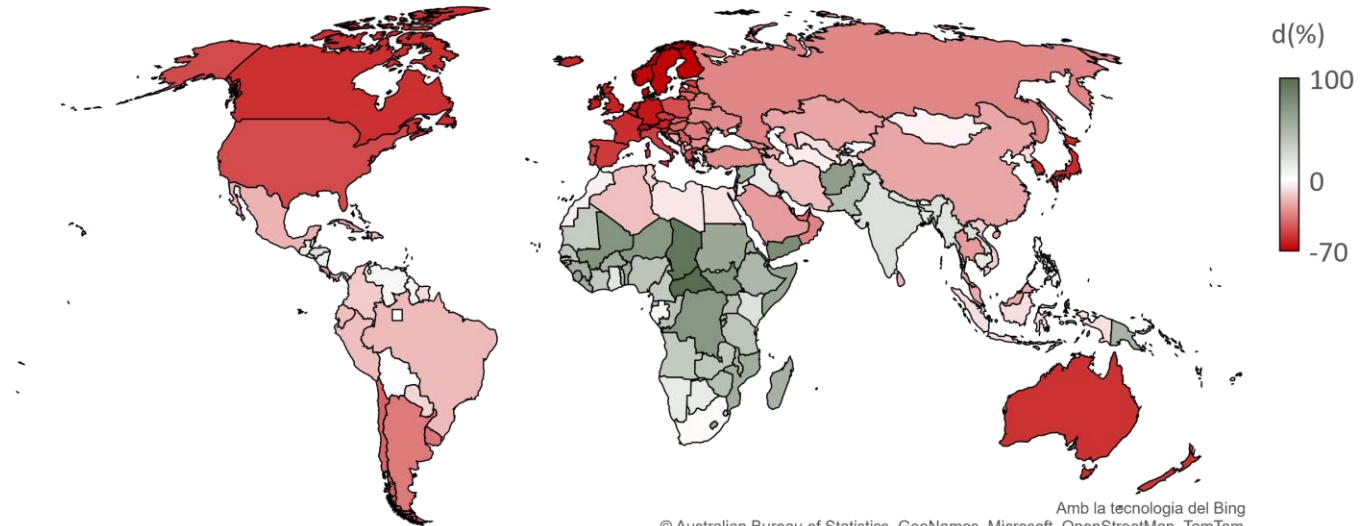
Percentual difference considering capacity with respect to an egalitarian allocation



The Model of Climate Justice

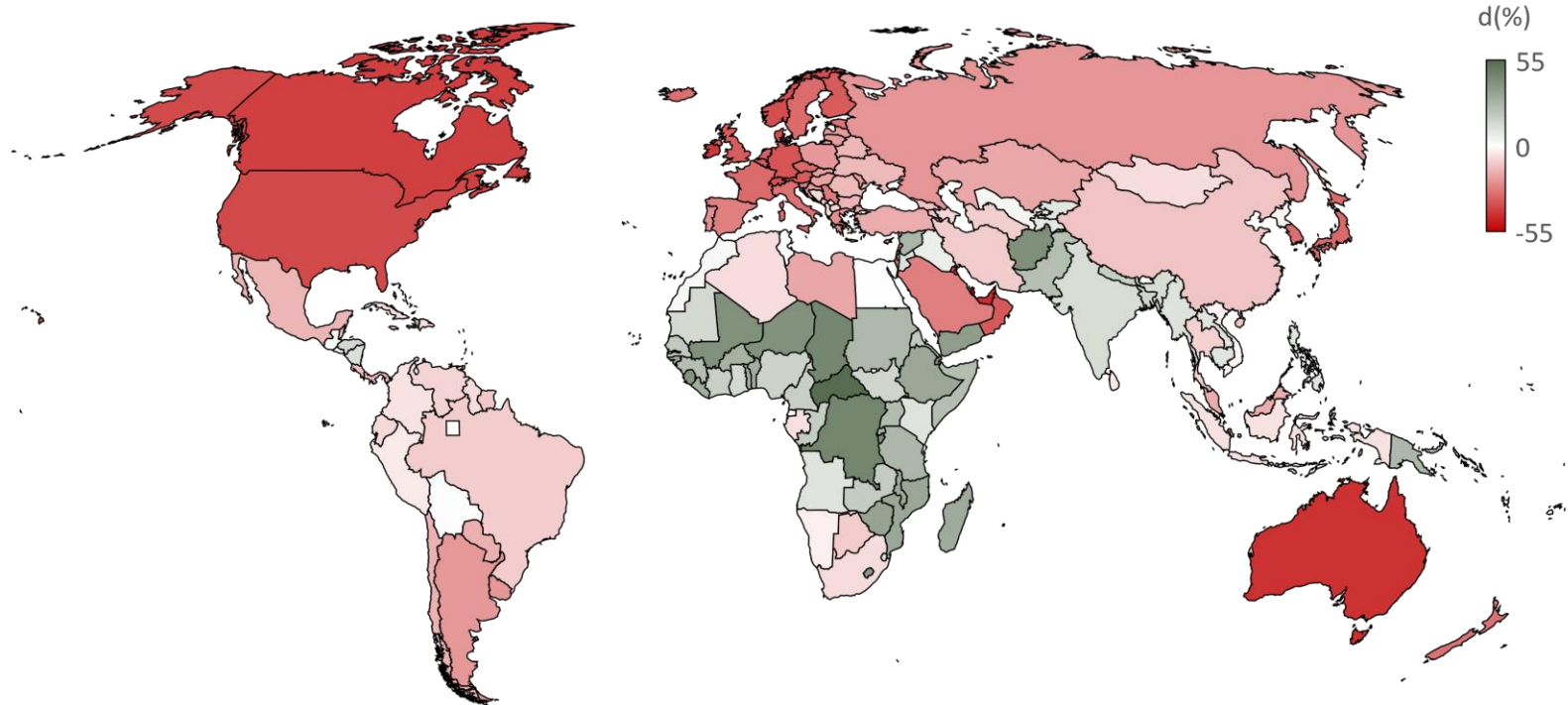


Percentual difference considering the right to development with respect to an egalitarian allocation



The Model of Climate Justice

Percentual discrepancy between the MCJ allocation and an egalitarian allocation





The Net-Zero Pledges in the Light of Equity

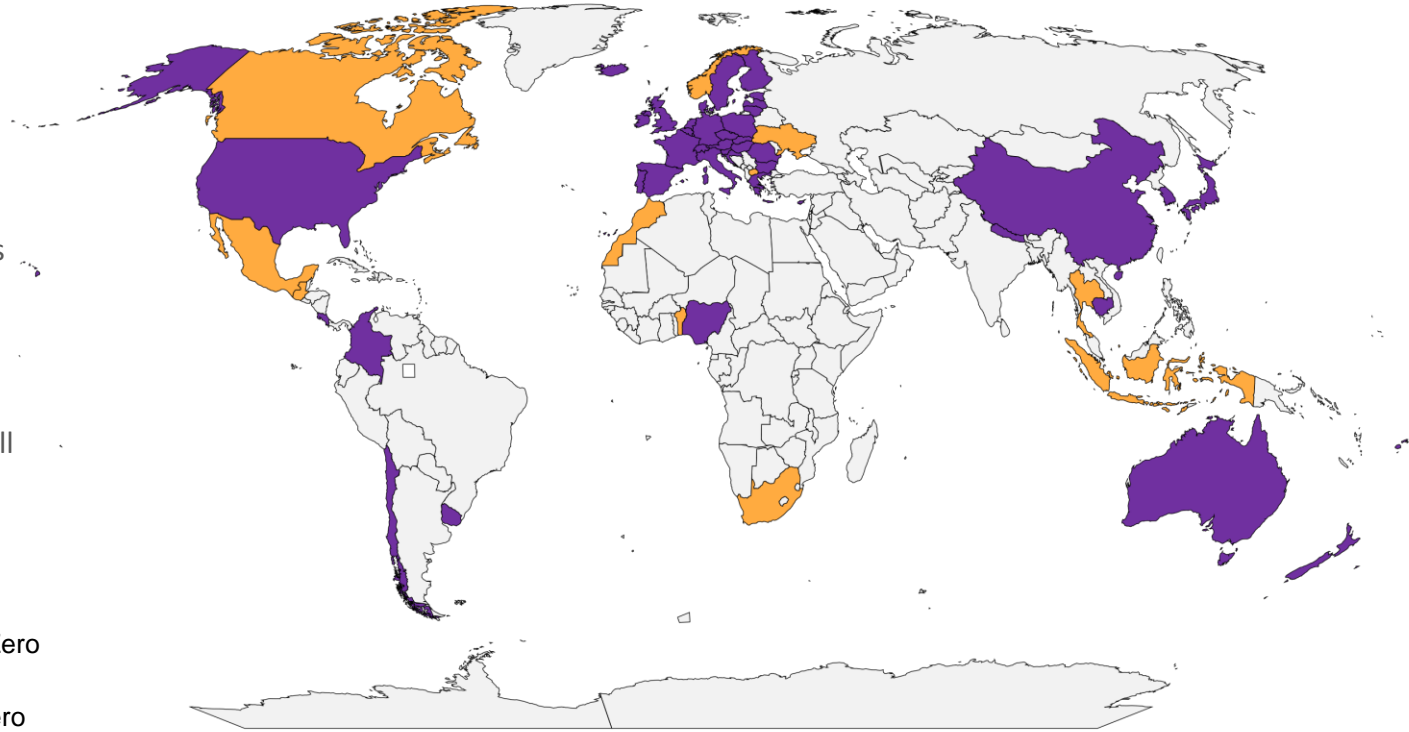
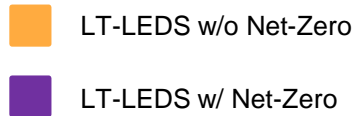
LT-LEDS and their Net-Zero Pledges

Annex I Parties:

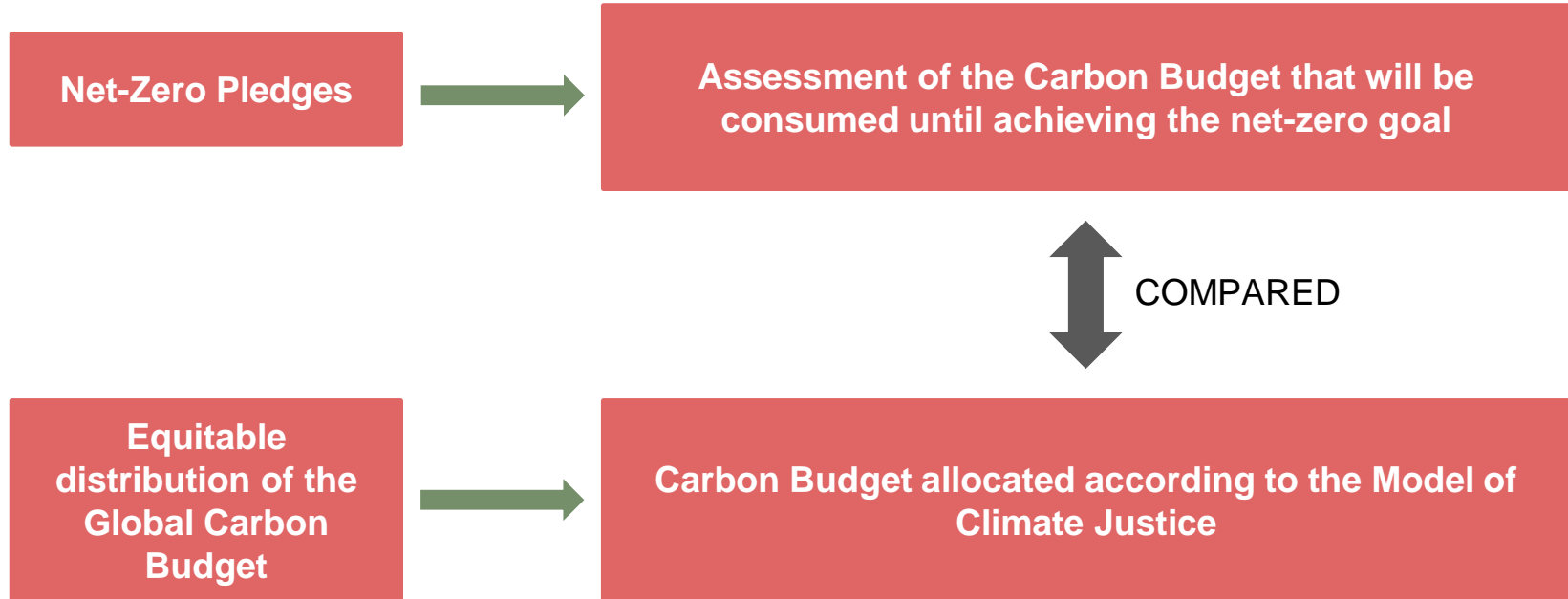
Australia, European Union (EU27), Iceland, Japan, New Zealand, Switzerland, United Kingdom, United States

Non-Annex I Parties:

Andorra, Cambodia, Chile, China, Colombia, Costa Rica, Fiji, Marshall Islands, Nepal, Nigeria, Republic of Korea, Uruguay

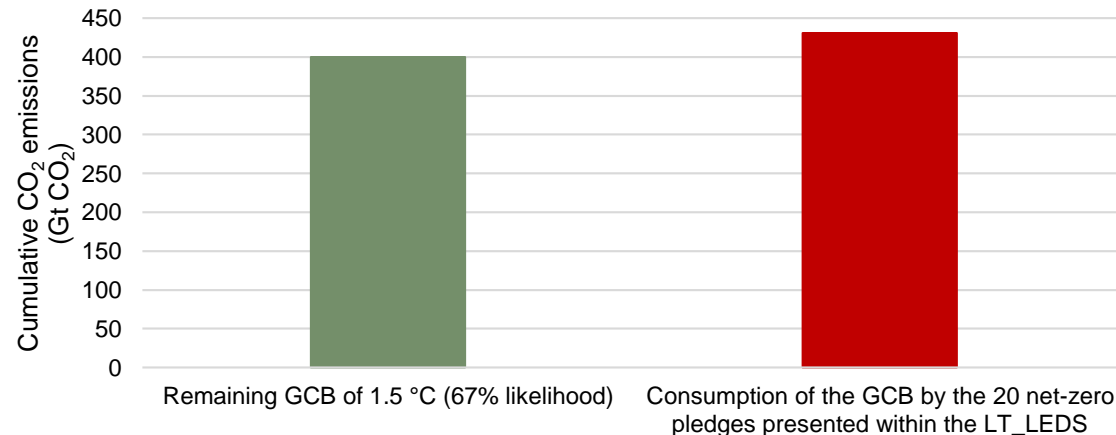


Net-Zero Pledges and the MCJ



Net-Zero Pledges and the Global Carbon Budget

- **20 Parties** presented Net-Zero Pledges within their LT-LEDs. In total they represent **37% of the global population** and **58% of the global emissions**.
- The **remaining Global Carbon Budget (GCB)** available from 2020 until reaching net-zero emissions with a **likelihood of 67%** of stabilizing the global temperature raise at **1.5°C** is **400 Gt of CO₂**.
- **20 Parties** will already consume **431 Gt of CO₂** from 2020 until they reach net-zero emissions according to their net-zero commitments.



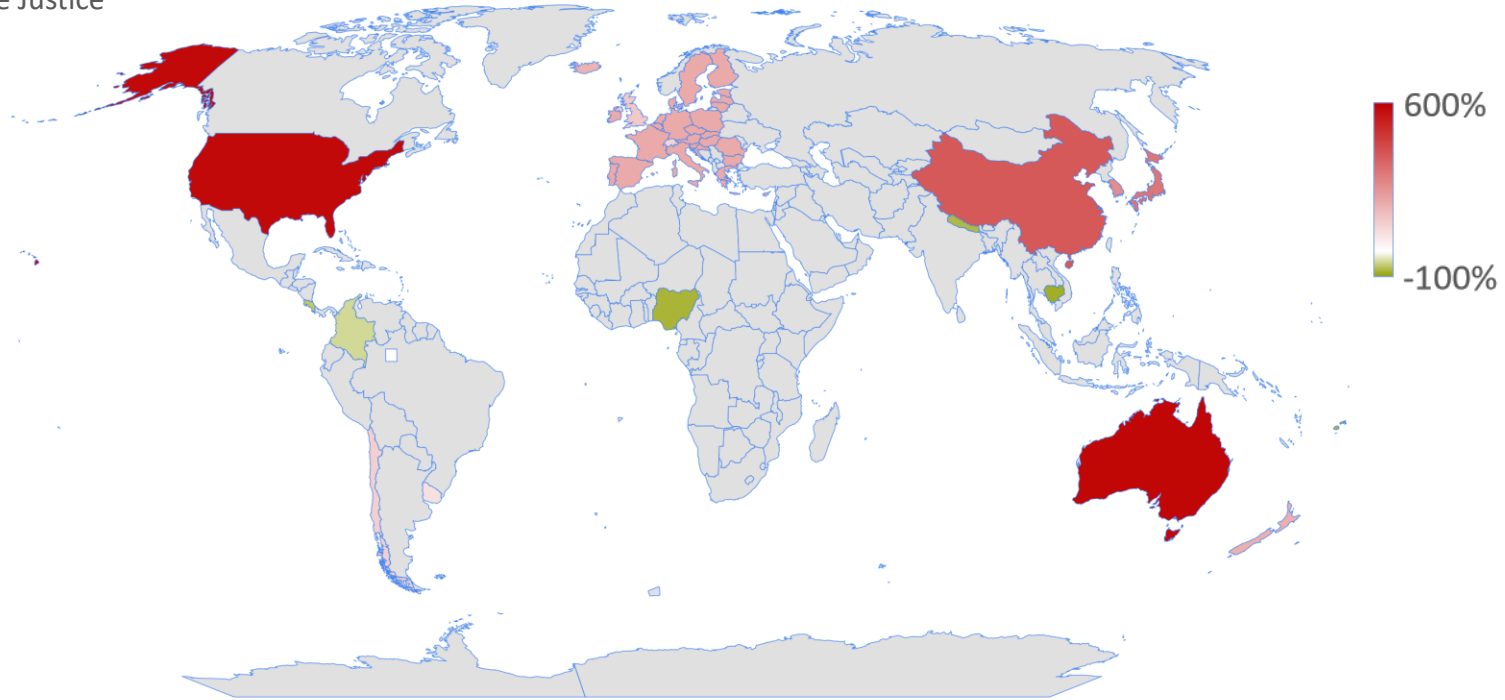
Net-Zero Pledges and the Global Carbon Budget

- **Egalitarian** distribution of the GCB would mean a **carbon budget of 1.47 tCO₂ per capita and year on average**.
- Group of **8 Annex I Parties** would go from historical emissions per capita of **12.06 tCO₂** to a carbon budget per capita of **4.25 tCO₂**. In line with **Article 4.4 Paris Agreement but not considering CBDR&RC**.
- Group of **12 Non-Annex I Parties** also reduce their emissions per capita but to a lesser extent.
- **Cambodia, Nepal, and Nigeria** show carbon budgets per capita and year from 2020 until net-zero CO₂ of **0.23 tCO₂**, **0.36 tCO₂**, **0.25 tCO₂**, respectively.

	Carbon Budget from 2020 to net-zero CO ₂ (GtCO ₂)	Carbon Budget per capita and year from 2020 to net-zero CO ₂ (tCO ₂)	Cumulative per capita and year emissions 1990-2019 (tCO ₂)	Carbon Budget per capita according to MCJ (tCO ₂)
TOTAL 20 Parties	431	3.91	7.24	1.22
TOTAL 8 Annex I Parties	135	4.25	12.06	0.97
TOTAL 12 Non-Annex I Parties	295	3.77	4.42	1.35
Remaining Global Carbon Budget	400	1.47	4.46	

Equity Assessment of the Net-Zero Pledges

Percentual discrepancy between net-zero pledges carbon budget and the carbon budget allocated according to the Model of Climate Justice





Final Remarks

Final Remarks

- The **Remaining Global Carbon Budget** compatible with the 1.5°C goal is the total quantity of CO₂ emissions that could still be emitted while keeping global warming below 1.5°C from now until reaching net-zero emissions globally.
- The **20 Parties that submitted net-zero pledges** (including the EU27 as a whole), represent **37% of the global population and 58% of the global emissions**.
- According to their pledges, these Parties would have **consumed 431 GtCO₂ before reaching carbon neutrality**.
- **When talking about ambition, rather than focusing on the target year of net-zero emissions, Parties must focus on the carbon budget they will consume until reaching carbon neutrality.**

Final Remarks

- **Absence of the principle of equity and CBDR&RC** within the net-zero commitments submitted.
- The results reveal that **Annex I Parties, with greater historical responsibility, will continue to have higher per capita emissions** than non-Annex I Parties.
- On the other hand, the **net-zero emission commitments of less developed countries** imply that **they will continue to maintain extremely low per capita emissions, which may call into question their right to develop.**
- A major, unsolved challenge is how to **fit the bottom-up nature of the Agreement into a constrained world with a limited remaining Global Carbon Budget.** Even greater is the challenge of achieving this **fit in an equitable way**, taking into account the huge inequalities and different development needs that exist in our world. **The Long-Term Strategies submitted are very far from achieving any of these challenges.**



Special thanks to...

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Cristián Retamal, Bàrbara Sureda and Albert Turon

And thanks to everyone in this room for your interest!

We will be pleased to receive your suggestions and comments at: olga.alcaraz@upc.edu



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