

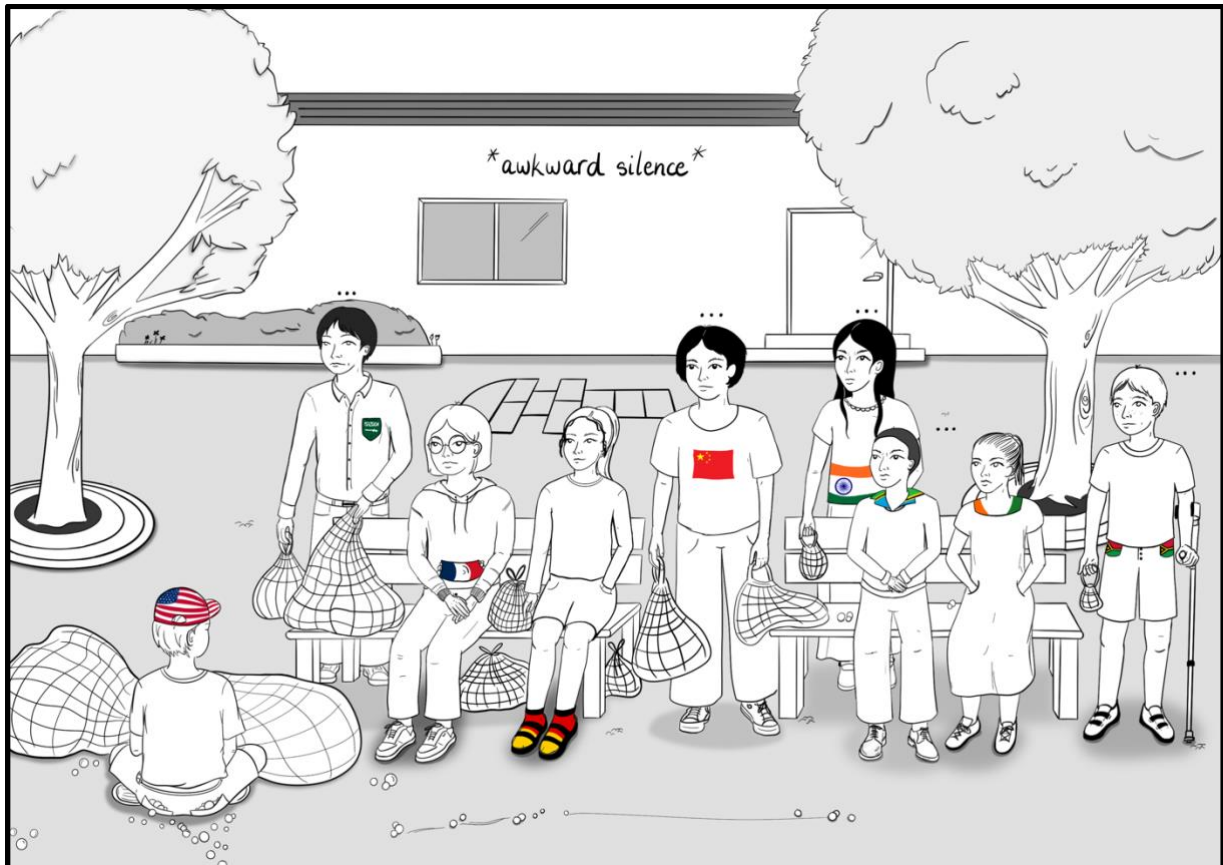


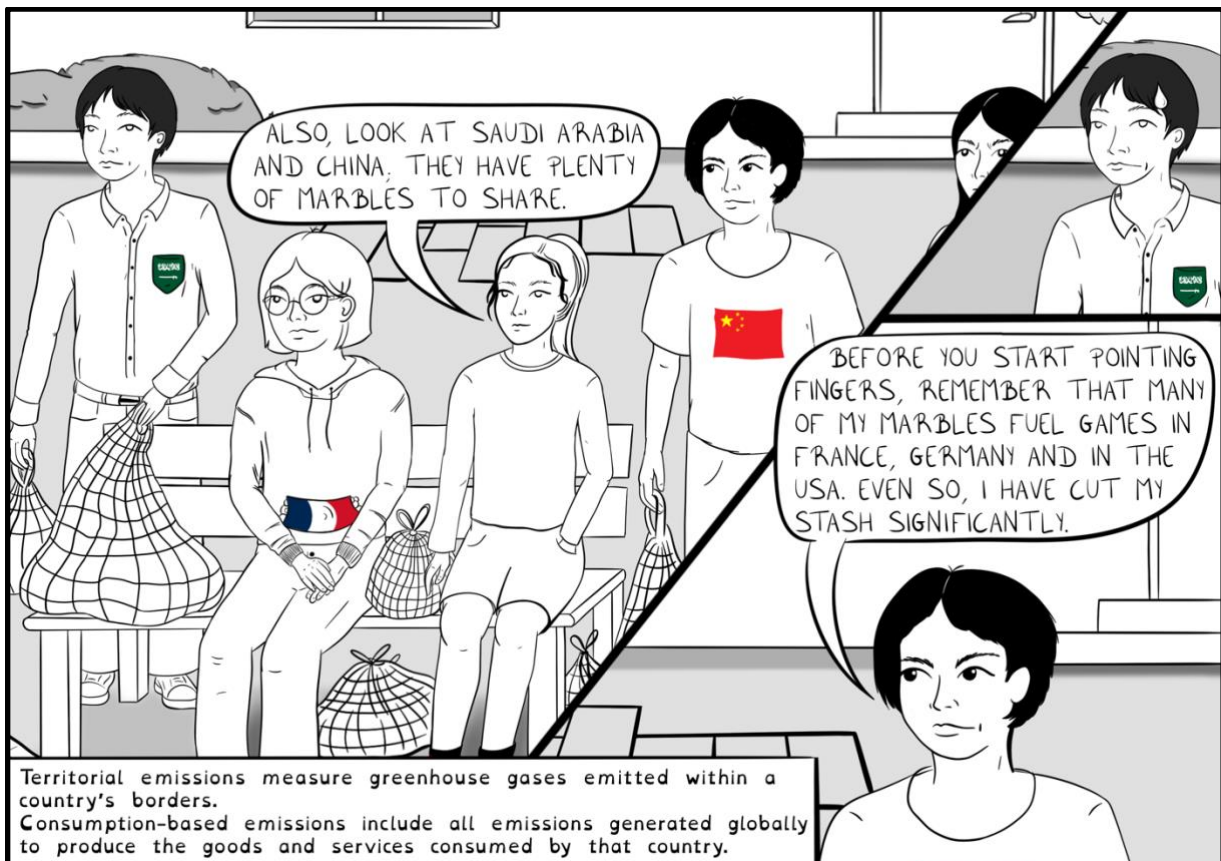
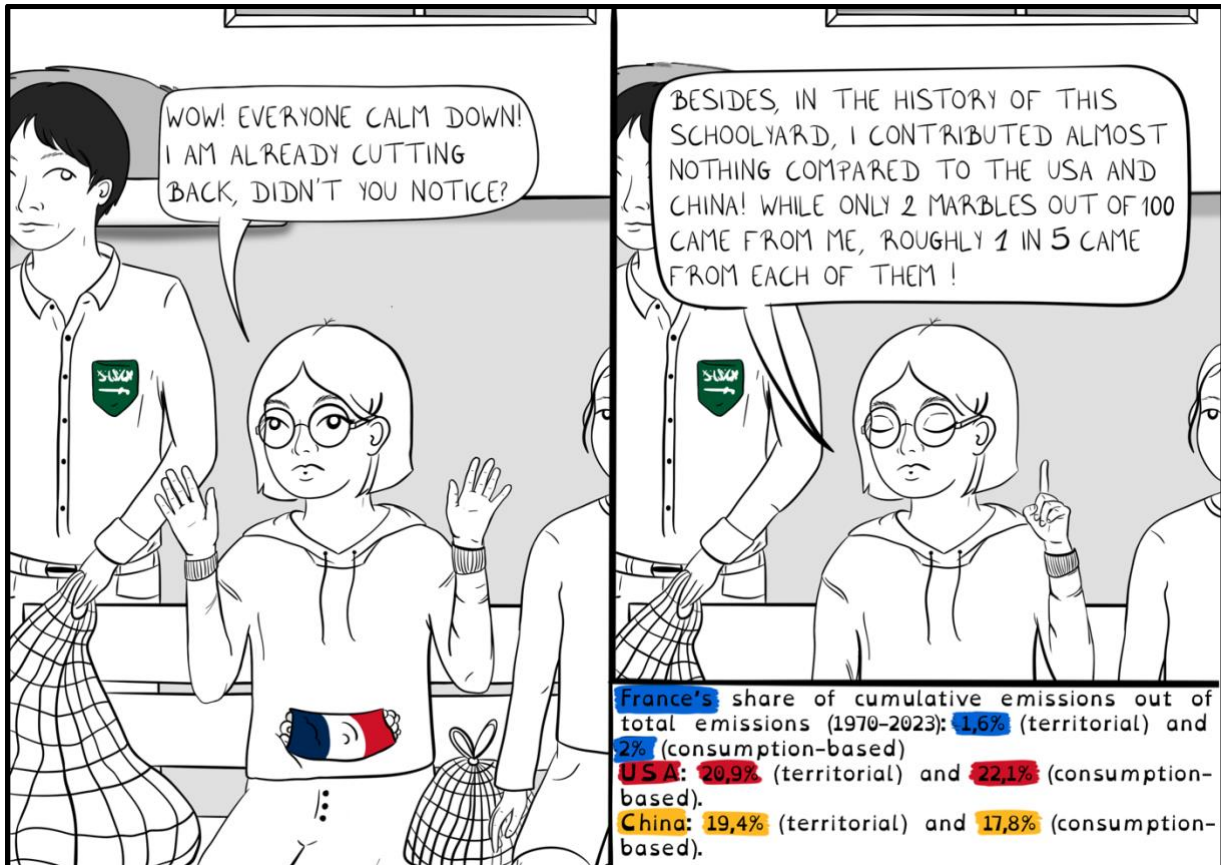
*“The comic strips back up the already interactive Zero Carbon for All tool by making the conclusions of the World’s Sufficiency Lab accessible by a wide audience, in a quick and entertaining way. While children in the story debate their fair share of marbles, the reader can picture how to apply the same dynamic to countries’ responsibilities”, - **Emma Domingues**, author of the comic strips.*

*“Our children remind us that climate justice is, at its core, about sharing fairly. With the Zero Carbon for All comics, complex data is transformed into simple, engaging stories using marbles, helping the youngest generation understand both the stakes and their role in protecting the planet.” - **Yamina Saheb**, WSL CEO.*



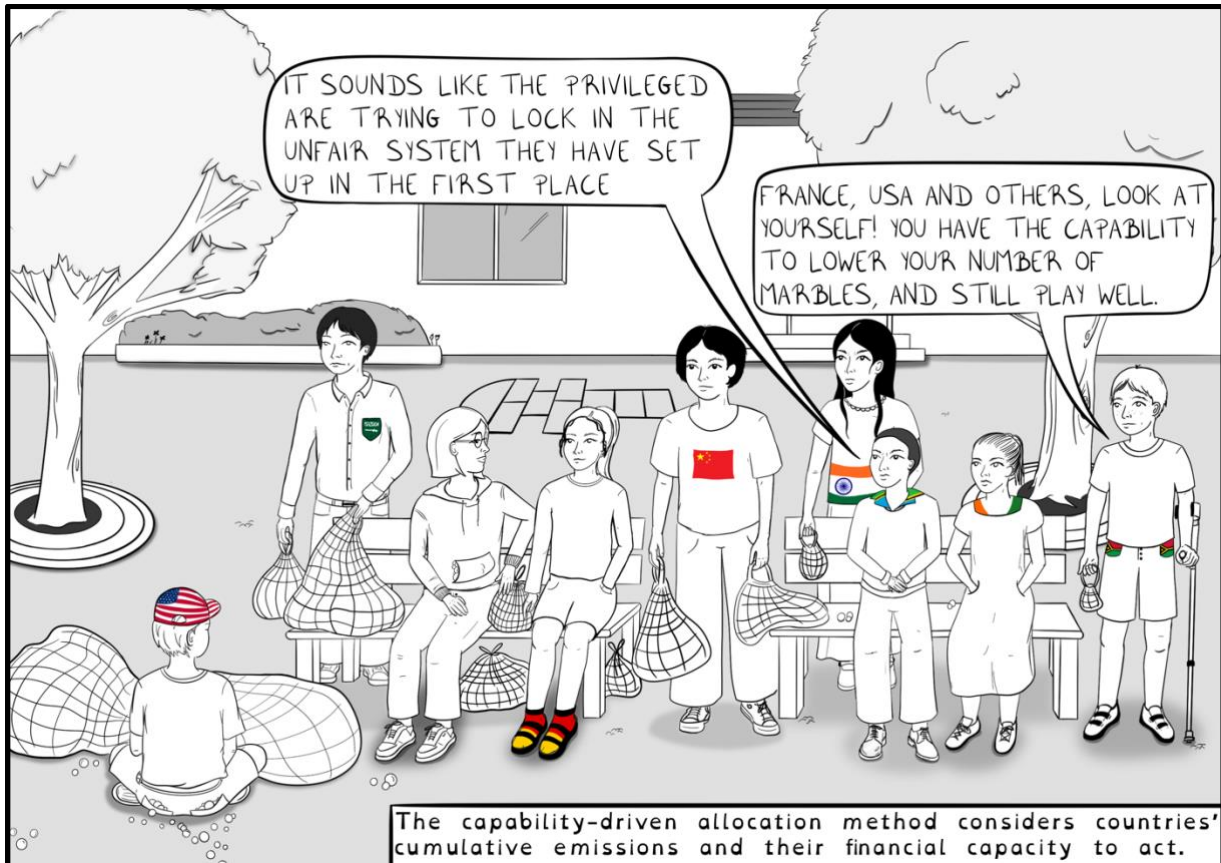








The responsibility approach accounts for countries' historical cumulative emissions and holds that those who contributed most to climate change must take proportionally greater action.

























The Responsibility Approach

Assignment: Grounding Climate Action in Historical Accountability

The Responsibility Approach allocates the remaining global carbon budget by considering each country's cumulative emissions and its share of the global population between 1970 and 2050 (capturing both historical responsibility and projected demographic trends, offering a fair and intergenerational lens for climate accountability)					
	According to the responsibility allocation method, the USA should have achieved carbon neutrality in 1984 (territorial emissions)/ 1985 (consumption-based emissions)		According to the responsibility allocation method, Germany should have achieved carbon neutrality in 1985 (territorial emissions)/ 1987 (consumption-based emissions)		According to the responsibility allocation method, Tanzania should achieve carbon neutrality by 2100 (territorial and consumption-based emissions)
	According to the responsibility allocation method, Saudi Arabia should have achieved carbon neutrality in 2003 (territorial emissions)/ 2007 (consumption-based emissions)		According to the responsibility allocation method, China should have achieved carbon neutrality in 2024 (territorial emissions)/ should achieve it by 2026 (consumption-based)		According to the responsibility allocation method, Ivory Coast should achieve carbon neutrality by 2100 (territorial and consumption-based emissions)
	According to the responsibility allocation method, France should have achieved carbon neutrality in 1999 (territorial emissions)/ 1997 (consumption-based emissions)		According to the responsibility allocation method, India should achieve carbon neutrality by 2063 (territorial emissions)/ 2080 (consumption-based emissions)		According to the responsibility allocation method, Vanuatu should achieve carbon neutrality by 2100 (territorial - no data for consumption-based emissions)

The Capability-Driven Allocation

Assignment: Linking Economic Capacity to Climate Responsibility

The capability-driven allocation method distributes the remaining global carbon budget based on each country's historical emissions and its capacity to act (based on its cumulative population from 1970, and its latest GDP per capita (PPP-adjusted), reflecting both demographic weight and economic strength).					
	According to the capability-driven allocation method, the USA should have achieved carbon neutrality in 1976 (territorial emissions) / 1977 (consumption-based emissions)		According to the capability-driven allocation method, Germany should have achieved carbon neutrality in 1980 (territorial emissions)/ 1979 (consumption-based emissions)		According to the capability-driven allocation method, Tanzania should achieve carbon neutrality by 2100 (territorial and consumption-based emissions)
	According to the capability-driven allocation method, Saudi Arabia should have achieved carbon neutrality in 1986 (territorial emissions)/ 1990 (consumption-based emissions)		According to the capability-driven allocation method, China should have achieved carbon neutrality in 2022 (territorial emissions)/ 2024 (consumption-based emissions)		According to the capability-driven allocation method, Ivory Coast should achieve carbon neutrality by 2100 (territorial and consumption-based emissions)
	According to the capability-driven allocation method, France should have achieved carbon neutrality in 1985 (territorial emissions)/ 1986 (consumption-based emissions)		According to the capability-driven allocation method, India should achieve carbon neutrality by 2063 (territorial emissions) / 2083 (consumption-based emissions)		According to the capability-driven allocation method, Vanuatu should achieve carbon neutrality by 2100 (territorial - no data for consumption-based emissions)

About: Zero Carbon for All is the first carbon fair-share tool aligned with the UNFCCC/Paris Agreement principles of responsibility and capability and reaffirmed by the International Court of Justice's (ICJ) July 2025 Advisory Opinion.

Developed by [Yamina Saheb](#) and [Valentin Stuhlfauth](#) ([World Sufficiency Lab](#)) with [Louis Tronel](#) ([Data for Good](#)), the Zero Carbon for All tool is the first and only tool to generate country-specific zero-carbon pathways grounded in sufficiency as an equity-based interpretation of Common but Differentiated Responsibilities and Respective Capabilities (CBDRRC), reaffirmed in the [International Court of Justice's \(ICJ\) July 2025 Advisory Opinion](#).

Complementing the tool, comic strips by [Emma Domingues](#) offer an accessible illustrated translation of the scientific results to broaden reach and civic engagement.

REFERENCES

COP26: Sufficiency Should be First. (2021, October 10). Buildings and Cities. <https://www.buildingsandcities.org/insights/commentaries/cop26-sufficiency.html>

International Court of Justice. (2025). Advisory Opinion of 23 July 2025. Dans ICJ-CIJ. <https://www.icj-cij.org/sites/default/files/case-related/187/187-20250723-adv-01-00-en.pdf>

DATA SOURCES OF THE ZERO CARBON FOR ALL TOOL

Territorial Historical CO₂ emissions from 1970 to 2023: Andrew, R. M., & Peters, G. P. (2024). The Global Carbon Project's fossil CO₂ emissions dataset (2024v18) <https://doi.org/10.5281/zenodo.14106218>

Consumption-based Historical CO₂ emissions from 1970 to 2022: Fanning, A., & Hickel, J. (2023). a-fanning/compensation-atmospheric-appropriation: First release (v1.0.0) <https://doi.org/10.5281/zenodo.7779453>

Remaining Carbon Budgets from 2023 to stay within 1.5°C with likelihood of 50% and 67% Lamboll (2023) Assessing the size and uncertainty of remaining carbon budgets. <https://www.nature.com/articles/s41558-023-01848-5>

GDP, PPP (constant 2021 international \$), World Bank, <https://data.worldbank.org/indicator/NY.GDP.MKTP.PP.KD>

Historical and forecasted population data, United Nations Population Division Data Portal <https://population.un.org/dataportal/home?df=5861db48-97ff-4374-9cca-e8c81ccb64f4>

