**Global Carbon Budget:**

**An International Political Economy Approach   
to Global Climate Governance**

# Appropriation or sharing? Cumulative anthropogenic CO2 emissions by country and corporations

This section aims to present how countries and large corporations in Oil and gas sector, major emitters of CO2, appropriated the common resource known as *global carbon budget*. In addition, the discussion in this section raises a reflection on the responsibilities described in the Kyoto Protocol regime and should be expanded and refined so that other actors involved in the appropriation of the resource are part of the negotiations and that in some way responsibilities. Beside this, countries that have historically appropriated little of this resource and are at risk of "losses and damages" due to climate change, should have their rights observed, especially those associated with climate justice (NEWELL & PATERSON, 2010).

Using CAIT (WRI) data[[1]](#footnote-1), the cumulative anthropogenic CO2 emissions from the pre-industrial era until 2010 were found to be concentrated in Annex I countries, around 70.42% of emissions. It is estimated that these countries consumed about 44.30% of the global carbon budget. It is noted that Small Island countries such as the AOSIS[[2]](#footnote-2) cluster, that contributed little to the problem of global warming, consuming approximately 0.17% of the total carbon budget in the period (Table 1).

**Table 1 – Historical emissions of CO2 (in GtCO2) and consumption of the carbon budget (in %) by country grouping (1850-2010)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Grouping of Countries** | **GtCO2 Emission** | **Share (%)** | **Number of countries** | **Global Carbon Budget Consumed (%)** |
| **World** | 1284.58 | 100.00% | - | 44.30% |
| **Annex I** | 904.60 | 70.42% | 39 | 31.19% |
| **BASIC** | 185.25 | 14.42% | 4 | 6.39% |
| **AOSIS** | 4.91 | 0.38% | 38 | 0.17% |
| **Others** | 153.79 | 11.97% | 110 | 5.30% |

Source: prepared by the authors

The Kyoto Protocol was the framework that ineffectively governed global climate governance in this context of uneven historical appropriation of the global carbon budget. This was due to the assignment to that set of countries (Annex I) of mandatory mitigation, technology transfer and financing of the pursuit of renewable energy and clean technologies for a low carbon future. One of the principles that governed this structure of the international climate regime was the Principle of Historical Responsibilities, a Brazilian suggestion to the Protocol's architecture (VIOLA, 2002; BUENO RUBIAL, 2016).

Table 2 shows the estimates of cumulative CO2 emissions for top ten *Carbon Majors Countries*, according to CAIT data, and for the ten largest *Oil Carbon Majors* (oil and gas) companies, in the period 1850-2010. We note that the US economy emitted the equivalent of 353.86 GtCO2 in the period analyzed. This amount exceeds the sum of 181 other countries, that is, there is an unequal appropriation between countries. It reinforces the idea that poor countries, which have contributed little (or not appropriate) to the consumption of the global carbon budget – here we call *Carbon Minors* *Countries* – do not have the same responsibilities as those countries that industrialized through the excessive appropriation of this common resource.

**Table 2 – Top ten carbon-emitters *Countries Carbon Majors* and   
top ten carbon-emitters *Oil Carbon Majors* (1850-2010)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Country** | **GtCO2** |  | **Company** | **GtCO2** |
| **USA** | 353.86 |  | **ChevronTexaco** | 51.10 |
| **China** | 129.02 |  | **ExxonMobil** | 46.67 |
| **Russia** | 98.83 |  | **Saudi Aramco** | 46.03 |
| **Germany** | 82.99 |  | **BP** | 35.84 |
| **United Kingdom** | 69.50 |  | **Gazprom** | 32.14 |
| **Japan** | 47.78 |  | **Royal Dutch Shell** | 30.75 |
| **France** | 33.34 |  | **National Iranian Oil** | 29.08 |
| **India** | 31.46 |  | **Pemex** | 20.03 |
| **Canada** | 26.89 |  | **ConocoPhillips** | 16.87 |
| **Ukraine** | 26.63 |  | **Petroleos de Venezuela** | 16.16 |
| **Others¹** | 348.66 |  | **Others²** | 277.79 |
| **World** | 1,248.95 |  | **Total** | 602.46 |

Note: ¹ Sum of 181 countries; ² Sum of 71 oil, gas, coal and cement companies

Source: prepared by the authors

We argue that large and intensively polluting companies, especially those in the oil and gas sector, have appropriated a significant portion of the carbon budget. To these *Carbon Major Companies*, about 602 GtCO2 of accumulated emissions are attributed during 1850-2010, according to Heede (2014). Note that ChevronTexaco has appropriated a larger share of the budget than Japan, for example. Emissions attributed to four private companies (ChevronTexaco, Exxon, British Petroleum and Shell) total approximately 164 GtCO2, more than China consumed over the same period.

Corporations have been conspicuously absent from any international arenas in which mandatory measures to address climate change are discussed, especially in thinking of adaptation measures and compensation for losses and damages of vulnerable populations.

# References

Heede, R. (2014). Tracing anthropogenic carbon dioxide and methane emissions to fossil fuel and cement producers, 1854–2010. *Climatic Change*, *122*(1-2), 229-241.

IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151p.

Matthew, P. (1996). *Global Warming and Global Politics*. London and New York, Routlege.

Newell, P., & Paterson, M. (2010). *Climate capitalism: global warming and the transformation of the global economy*. Cambridge University Press.

Newell, P., Bulkeley, H., Turner, K., Shaw, C., Caney, S., Shove, E., & Pidgeon, N. (2015). Governance traps in climate change politics: re‐framing the debate in terms of responsibilities and rights. *Wiley interdisciplinary reviews: climate change*, 6(6), 535-540.

Nicholson, W., & Snyder, C. (2011). *Microeconomic theory: Basic principles and extensions*. Nelson Education.

Rogelj, J., Schaeffer, M., Friedlingstein, P., Gillett, N. P., Van Vuuren, D. P., Riahi, K., & Knutti, R. (2016). Differences between carbon budget estimates unravelled. *Nature Climate Change*, 6(3), 245-252.

Rubial, M. D. P. B. (2016). El Acuerdo de París:¿ una nueva idea sobre la arquitectura climática internacional?| The Paris Agreement: a new idea about the international climate architecture?. *Relaciones Internacionales*, (33), 75-95.

Viola, E. (2002). O regime internacional de mudança climática e o Brasil. *Revista Brasileira de Ciências Sociais*, *17*(50), 25-46.

1. CAIT database provides cumulative emissions data on MtCO2 (megatons of carbon dioxide) to 191 countries between 1850 and 2014. We use data up to 2010 to match the cumulative emissions of Oil Carbon Majors corporations (major global polluters in oil and gas sector), made available by Heede (2014). [↑](#footnote-ref-1)
2. Alliance of Small Island States. [↑](#footnote-ref-2)