CLIMATE CHANGE IN INDIA: WHAT DO WE KNOW AND HOW?

GLOBAL CARBON BUDGET AND GLOBAL EQUITY

Climate science studies show that from 1850 to present, there is an almost direct proportional relationship between cumulative carbon dioxide emissions and global average surface temperature rise of the Earth. This provides a scientific basis to assign responsibilities among nations for global warming to date.

The final temperature increase depends on the historical cumulative emissions plus the cumulative emissions from now to when net emissions go to zero. What matters is not when this "net zero" is achieved but the cumulative emissions till then. The Global Carbon Budget, for a prescribed level of temperature rise, is the quantum of cumulative global anthropogenic CO_2 emissions allowed that would ensure that global temperature rise, from the pre-industrial era to net-zero emissions, stays within that limit. This global carbon budget is a limited and exhaustible global common resource to be shared equitably by countries.

	Share of Global Population (2019) (%)	Share of Global Cumulative Emissions (1850–1990) (%)	Share of Global Cumulative Emissions (1991–2019) (%)
Total Emissions		**856 GtCO2eq**	**843 GtCO2eq**
All Developed Countries	**18%**	**81%**	**49%**
USA	4%	29%	31%
Canada	0.50%	2%	2%
Australia	0.33%	1%	1%
Japan	2%	4%	4%
Germany	1%	8%	3%
UK	1%	7%	2%
EU (27)	6%	23%	12%
Russia	2%	9%	6%
All Developing Countries	**82%**	**19%**	**51%**
China	18%	5%	22%
Brazil	3%	1%	1%
S. Africa	1%	1%	1%
India	18%	2%	5%

In the United Nations Framework Convention on Climate Change, countries agreed to the principles of climate action: "on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities."

Developed countries have consumed far more than their fair share of the global carbon budget, depleting it substantially, and continue to do so today. To achieve global climate goals equitably, they need to take drastic measures, to reach net zero much earlier. Further, they should use their wealth to pay off their carbon debt.

Climate equity monitor jointly run by MSSRF and NIAS

	Current Declared/ Proposed year of reaching net zero	Year of reaching net zero for a fair share of the remaining carbon budget (assuming linear reduction)	
		1.5 deg. C (50% Probability)	2 deg. C (67% Probability)
USA	2050	2025	2032
Canada	2050	2025	2033
Australia	None	2024	2031
Japan	2050	2031	2046
Germany	2045	2030	2045
UK	2050	2035	2057
EU (28)	2050	2031	2047
Russian Fed	None	2026	2036
China	2060	2031	2047
World	Second half of century	2037	2062

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