No Equity in the IPCC AR6 Global Modelled Scenarios

T. Jayaraman[1], Tejal Kanitkar [2]

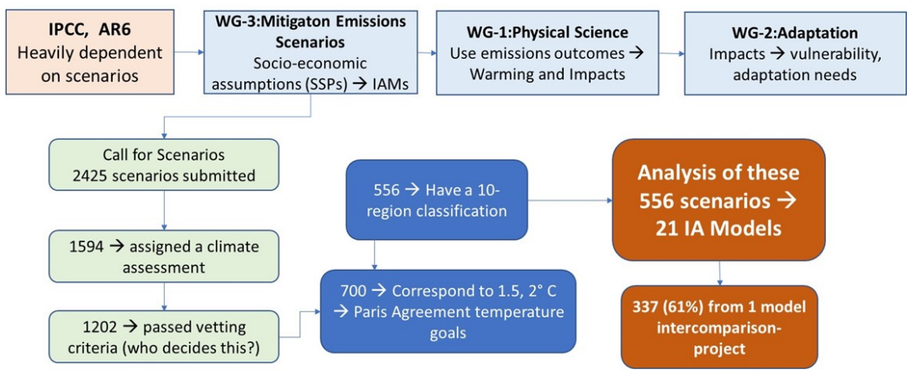
[1]MS Swaminathan Research Foundation

[2]National Institute of Advanced Studies

Equity and CBDR&RC

- **Do the AR6 scenarios incorporate the foundational principles of the Convention, viz. equity and the principle of CBDR&RC?**
- **What is the policy relevance of the scenarios for climate negotiations, especially in the Global Stocktake (GST)?**

Equity completely absent in the scenarios. Discussion about this is absent in WG-III and Synthesis Report of the IPCC AR6[1]. Weak qualifiers in both reports do not capture the extent of inequitable regional outcomes underlying the global scenarios.



Income inequality in 2050

Even by 2050, a significant level of inequality persists in per capita GDP between developed and developing regions.

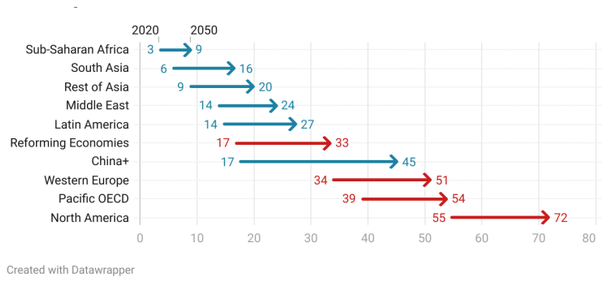


Figure: Per Capita GDP in C1 Scenarios [PPP, 2010-'000USD]

Per capita consumption of goods and services restricted even more severely for developing regions.

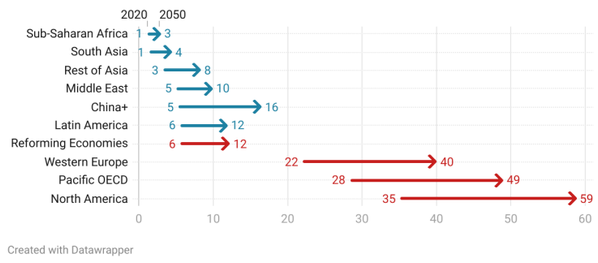


Figure: Per Capita Consumption of Goods and Services in C1 Scenarios [2010-'000USD]

Inequity in short-term emission reductions

The 2020-2030 emission reduction projections starkly contradict equity.

Emissions growth between 2020 and 2030 – (Average of all REMIND-C1 Scenarios)			Emissions growth between 2020 and 2030 -Average of all MESSAGE-C1 Scenarios)		
	Mean	Median		Mean	Median
Sub-Saharan Africa	-10%	-11%	Sub-Saharan Africa	-16%	-16%
China+	-7%	-7%	China+	-11%	-11%
Western Europe	-6%	-7%	Western Europe	-7%	-7%
South Asia	-3%	-3%	South Asia	-8%	-8%
Latin America	-8%	-7%	Latin America	-12%	-11%
Middle East	-2%	-2%	Middle East	-4%	-3%
North America	-7%	-7%	North America	-7%	-7%
Pacific OECD	-7%	-8%	Pacific OECD	-10%	-10%
Reforming Economies	-6%	-6%	Reforming Economies	-9%	-9%
Rest of Asia	-5%	-5%	Rest of Asia	-6%	-6%

Restricted energy use in developing countries

Across scenarios, per capita primary energy consumption in Annex-I regions remains well above that of non-Annex-I regions, even in 2050.

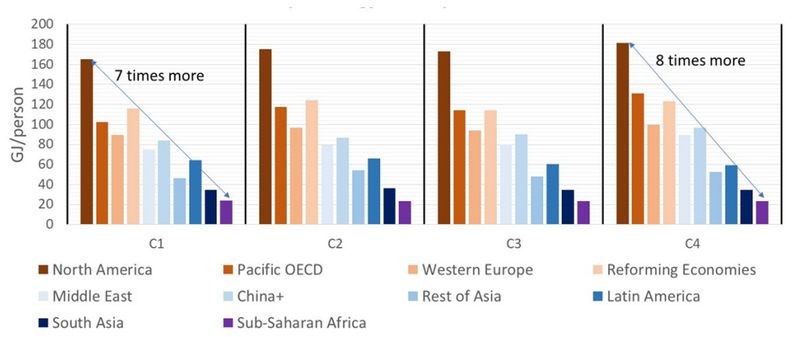


Figure: Per Capita Primary Energy Consumption in 2050 [GJ]

Per capita fossil fuel use remains higher in Annex-I Countries across scenarios and scenario categories.

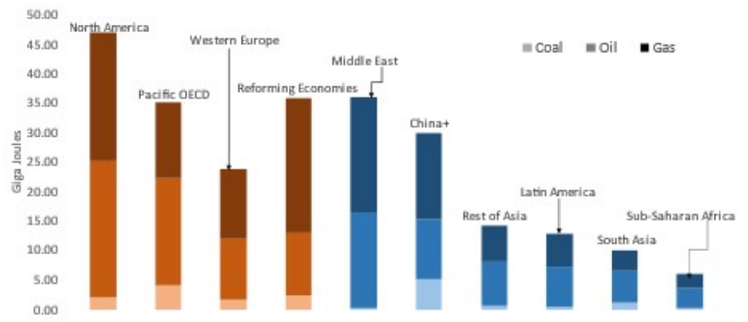
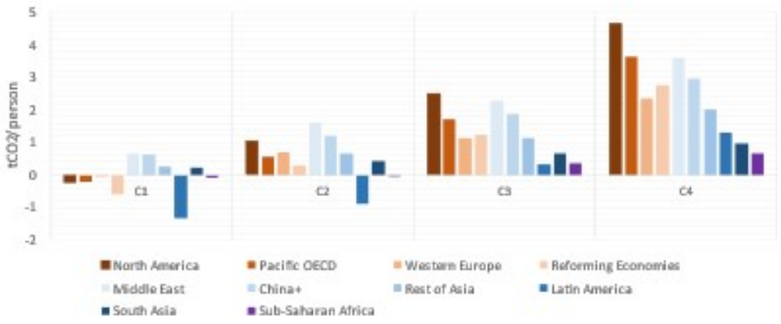


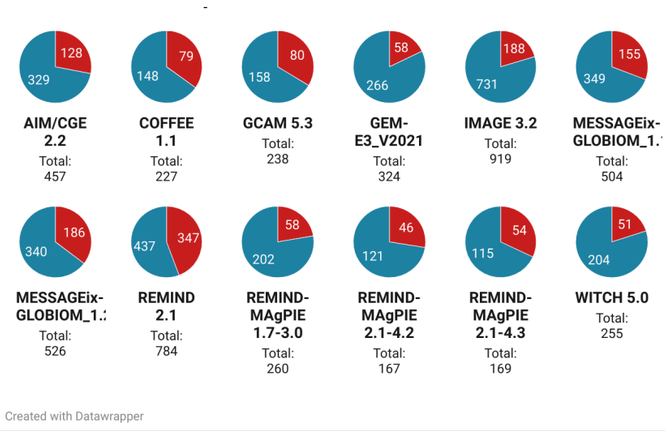
Figure: Per Capita Fossil Fuel Consumption in 2050 [GJ]

Per Capita Emissions Continue to Remain higher in Annex-I countries (except in C2 for some non-Annex-I regions)



Large scale CO2 sequestration

- The absolute values of global CO2 sequestration from CCUS, even before net-zero, are large, ranging between 171 to 474 GtCO2 in C1 scenarios and 112 to 724 GtCO2 in C3 scenarios.
- Of the total sequestration before net zero is reached, 65% to 85% is in developing countries in C1 scenarios with a very similar percentage, 66% to 84%, even in C3 scenarios.



Conclusion

- This analysis clearly shows the inequitable outcomes that underlie the summary assessments of the IPCC.
- The regional assumptions and outcomes and the methodologies used in these models perpetuate stark global inequalities between the developed and developing world. These untransparent assumptions and methodologies underlie the aggregate global targets, such as global emissions reductions by 2030, mid-century net-zero years, or peaking years.
- Both average and singular values taken out of context from the overall scenario results of the AR6 for inclusion in COP decisions, especially in the context of the GST, are untenable, as they violate the requirement of being guided by both the "best available science" as well as "equity".
- Our analysis underlines the need for new frameworks for emissions modelling, scenario building, and constructing a vision of a future that foregrounds equity and climate justice.

[1]This assessment is based on 556 scenarios that have an underlying 10-region classification and belong to C1, C2, C3, and C4 categories.

*C1 with model scenarios in which warming is projected to be limited to 1.5 deg. C, with a likelihood of 50% or greater (50%) with "no or limited overshoot".

*C2 with model scenarios in which warming is projected to be limited to 1.5 deg. C, with a likelihood of 50% or greater (50%) with "overshoot of 0.1-0.3 deg. C for up to several decades".

*C3 with model scenarios in which peak warming is projected to be limited to 2 deg. C with a likelihood of 67% or greater (67%).

*C4 with model scenarios in which peak warming is projected to be limited to 2 deg. C with a likelihood of 50% or greater (50%).