A new scenarios framework for equitable and climate-compatible futures

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with

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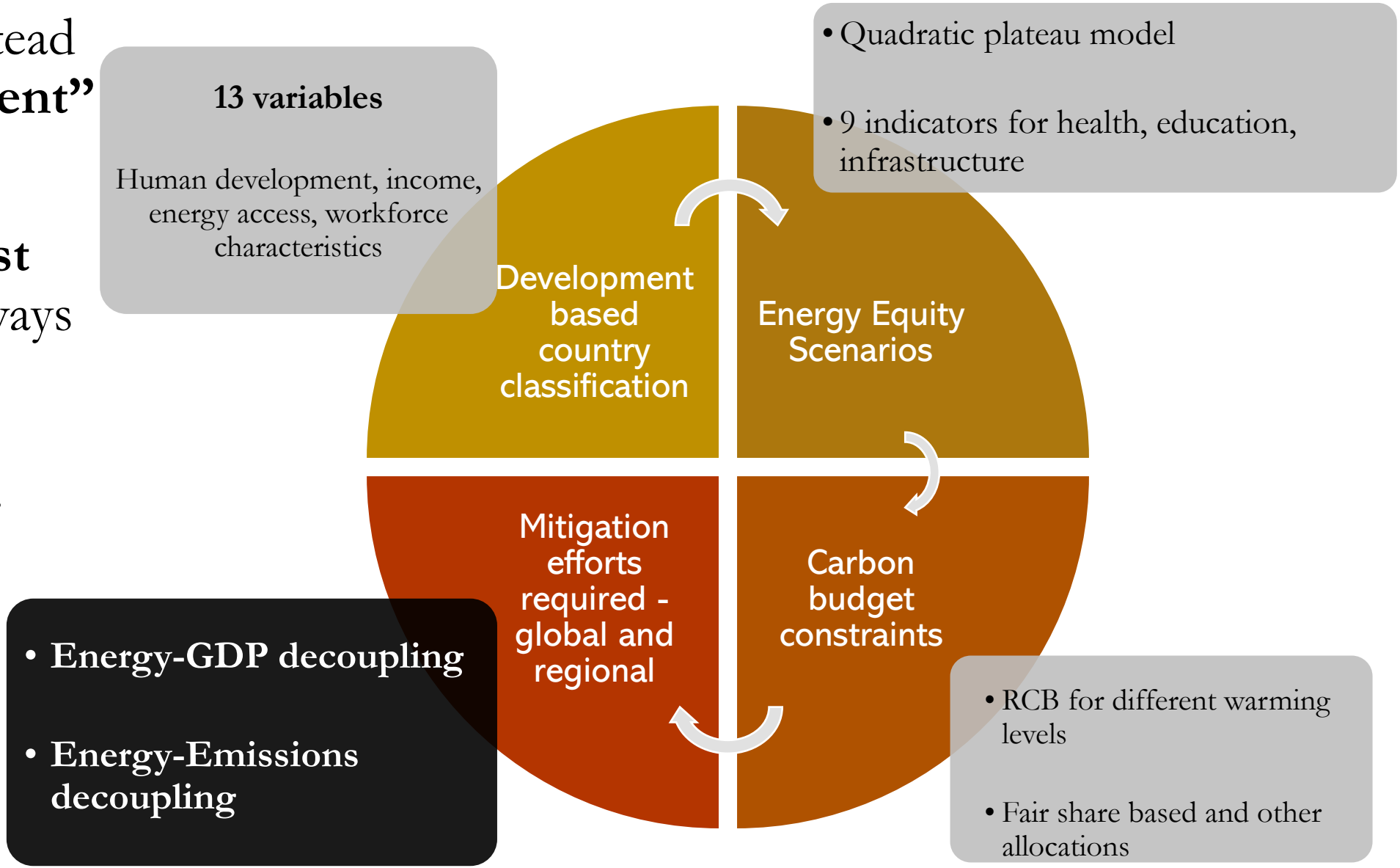
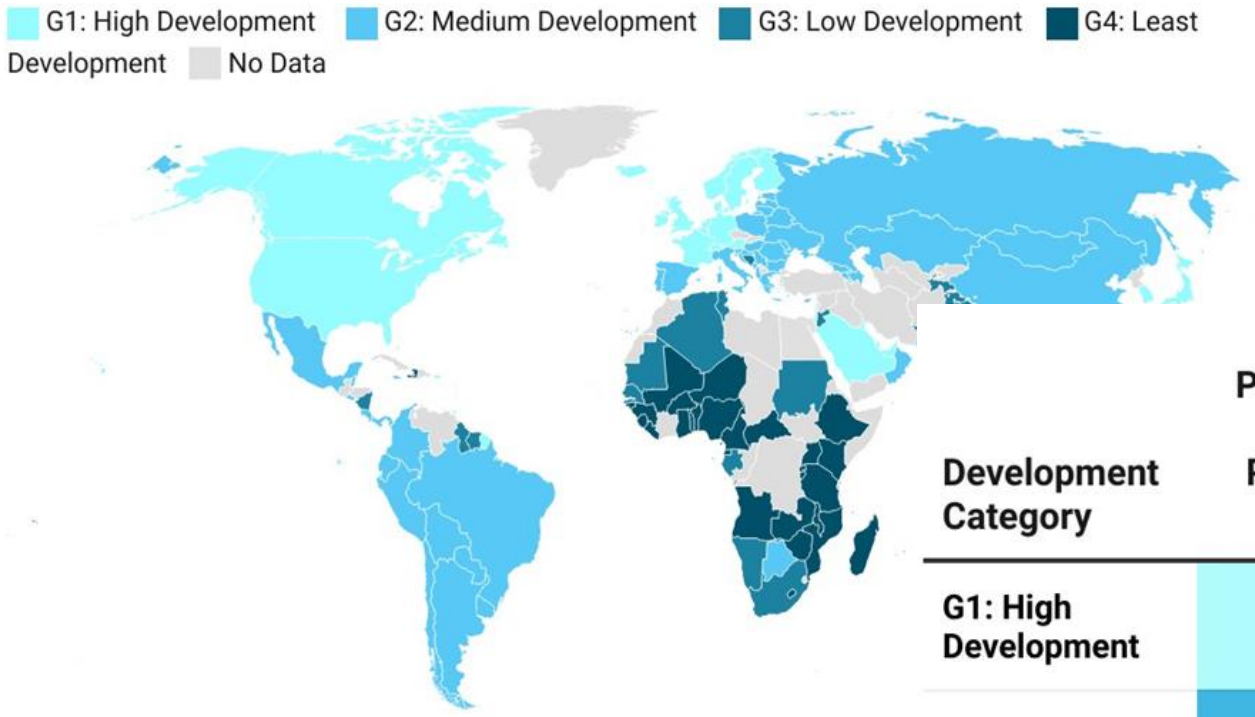
Ranjan, A., Kanitkar, T., & Jayaraman, T. (2023, September 12). A New Scenario Framework for Equitable and Climate-Compatible Futures. https://doi.org/10.31219/osf.io/ge92t

- Begin with what is "**necessary**", instead of what is **"efficient"**
- Explore the **"most equitable"** pathways to climate action, instead of the **"cheapest"** ones.



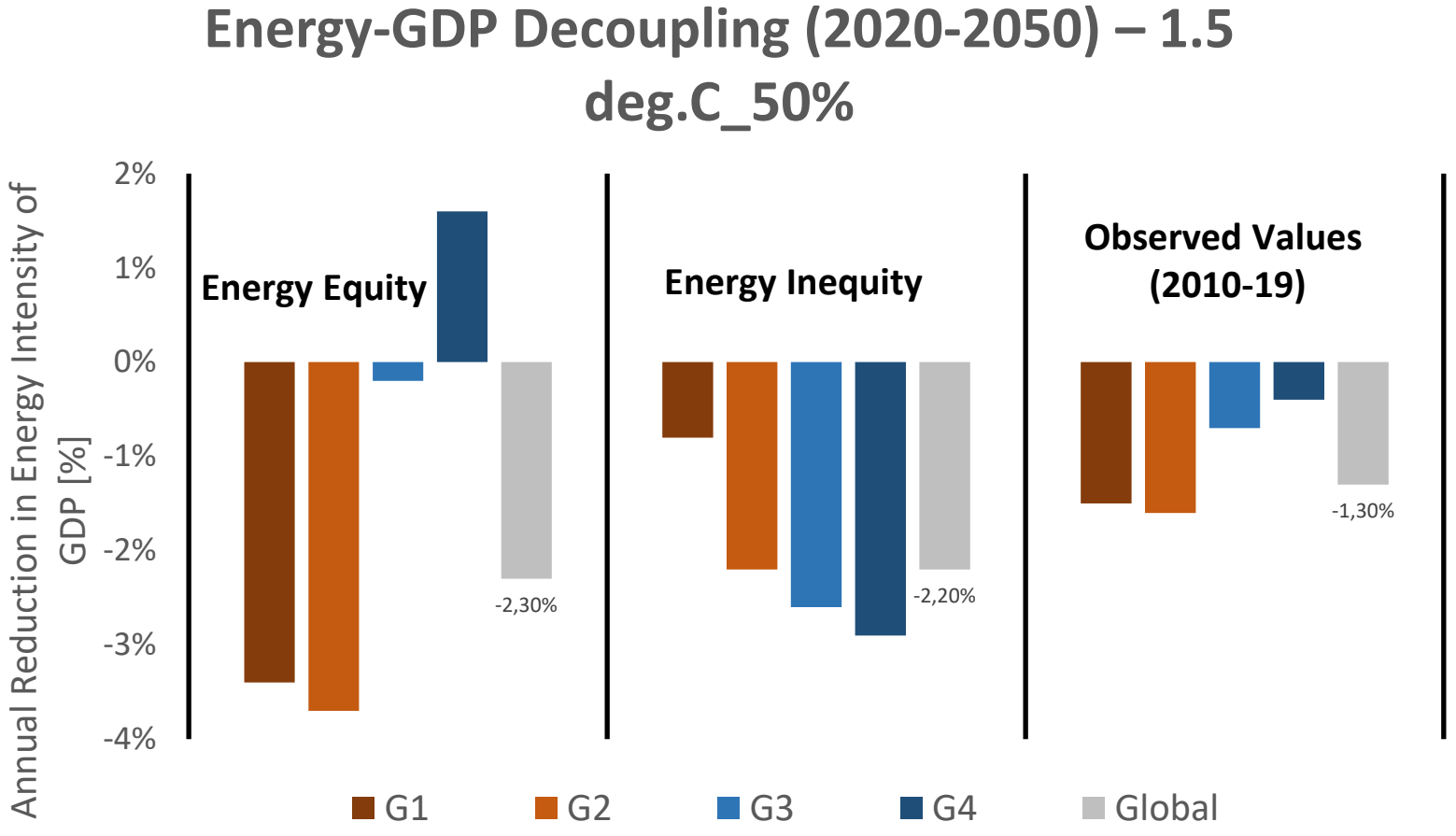
Principle Component Analysis (PCA) → **k-means clustering** → **Classification**

G1: High development
G2: Medium development
G3: Low development
G4: Least development



Development Category	Percentage of Global Population (%)	Share of Global GDP (%)	Per Capita GDP (PPP$)	Per Capita Energy Use (GJ)	Per Capita CO2 Emissions (tCO2)
G1: High Development	14	44	51,448	236	12
G2: Medium Development	39	40	16,550	90	6
G3: Low Development	35	14	6,626	24	2
G4: Least Development	12	2	3,318	7	1

Results



GDP Scenarios

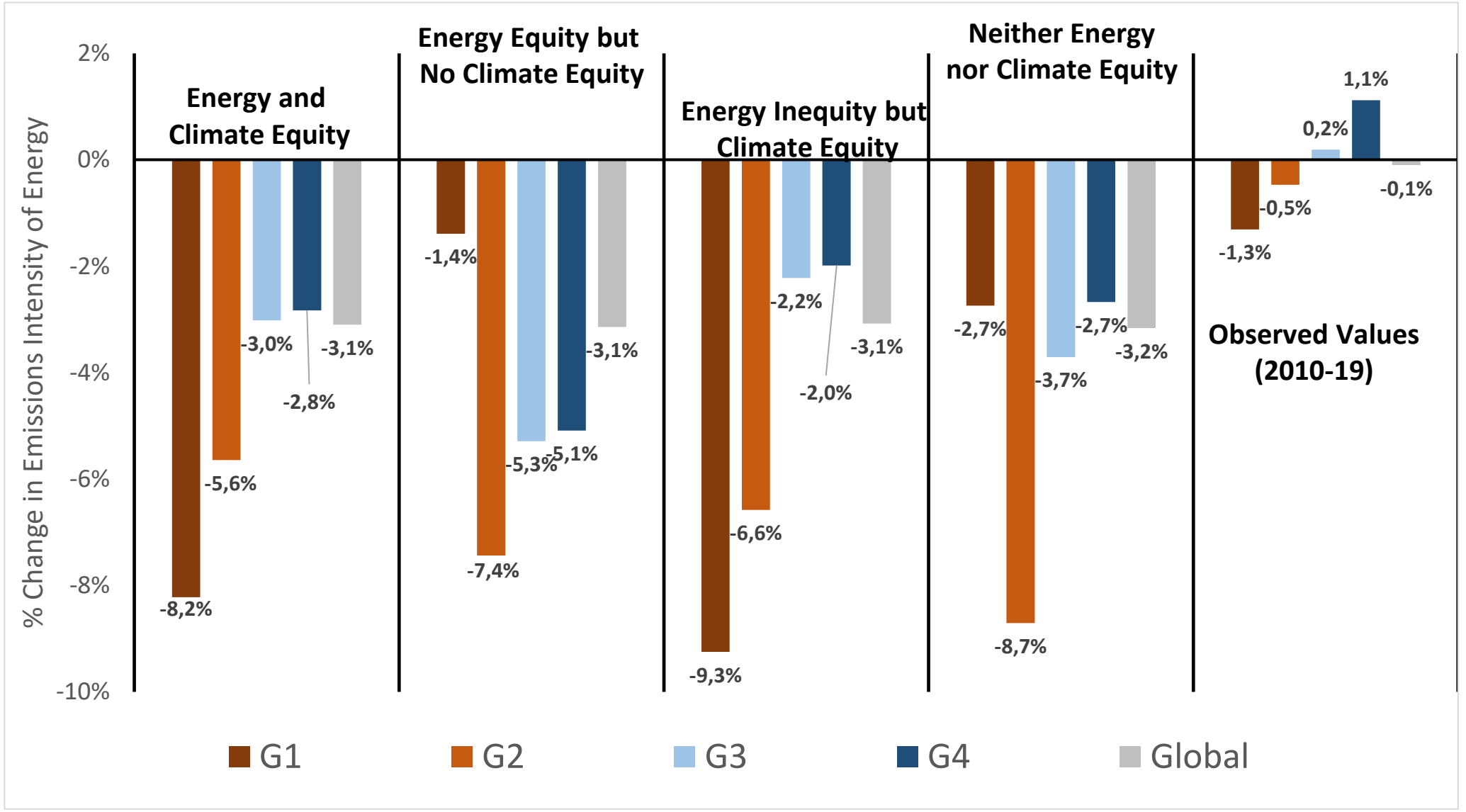
Scenarios for Energy Targets

- **Equity:** Convergence to **94 ±15** (Author's estimates)
- **Inequity:** Current Inequity continues with minor increases for G3 and G4 (IPCC)

- Per capita GDP of all development categories must at least be **$28,000** by 2050
- Degrowth assumptions possible but not considered here due to intra-country implications

Results

Energy-Emissions Decoupling (2020-2050) – 1.5 deg. C_50%



Same global effort but differentiated across regions based on equity considerations