Investigating the Effects of Socio-Economic Development and Population on a Country's Climate Protection Performance

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Experts ring alarm bell

CLIMATE CONFCE

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REASONS
OBAL WAR

28,000
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storm
Climate change
save the planet
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Earth hottest now, and getting hotter

THE Earth is on track to be the hottest it has been at any time in the past 11,000 years — a period spanning the history of human civilisation — a

"Now we know that it is warmer than most of the past 11,300 years.

"This is of particular interest because (it) spans the entire period of human civilisation."

The data shows temperatures cooled by 0.8C over the last 5000 years, but have risen again in the past 100 years, particularly in the northern hemisphere, where land masses are larger.

Climate models project average global temperatures will rise 1.1C-6.3C by the end of the century, depending on the level of carbon dioxide emissions from human activities.

"What is most troubling is that this warming will be significantly greater

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l warming

IPPC

CLIMATE CHANGE NEWS

LET'S TALK TRASH!

Also Inside:

National Climate Change Action Plan 2012-2017

THE TIMES OF INDIA
TUESDAY, AUGUST 10, 2021

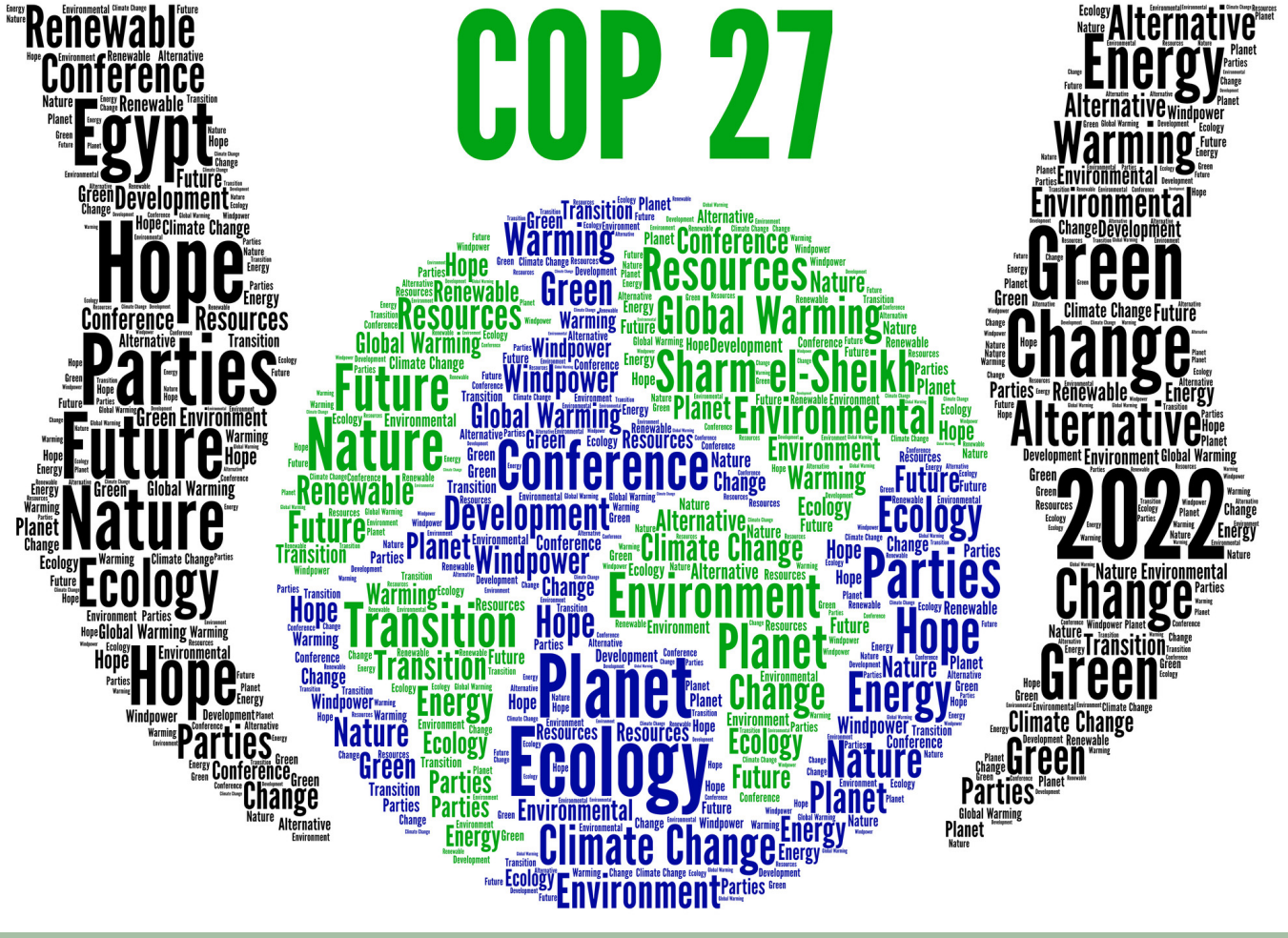
Grim IPCC Warning: Climate Extremes To Go Up & Up

India needs urgent disaster-proofing. Begin by quantifying the risks for every region

Carbon Dioxide Heats the Earth

DR. E. O. HULBURT, physicist of the naval research laboratory, Washington, has found conclusive mathematical evidence that the earth's temperature is being warmed by the increased amount of carbon dioxide present in the air. Smoke stacks emit huge volumes of this gas, which is also found in the breath and waste products of humans and animals.

COP 27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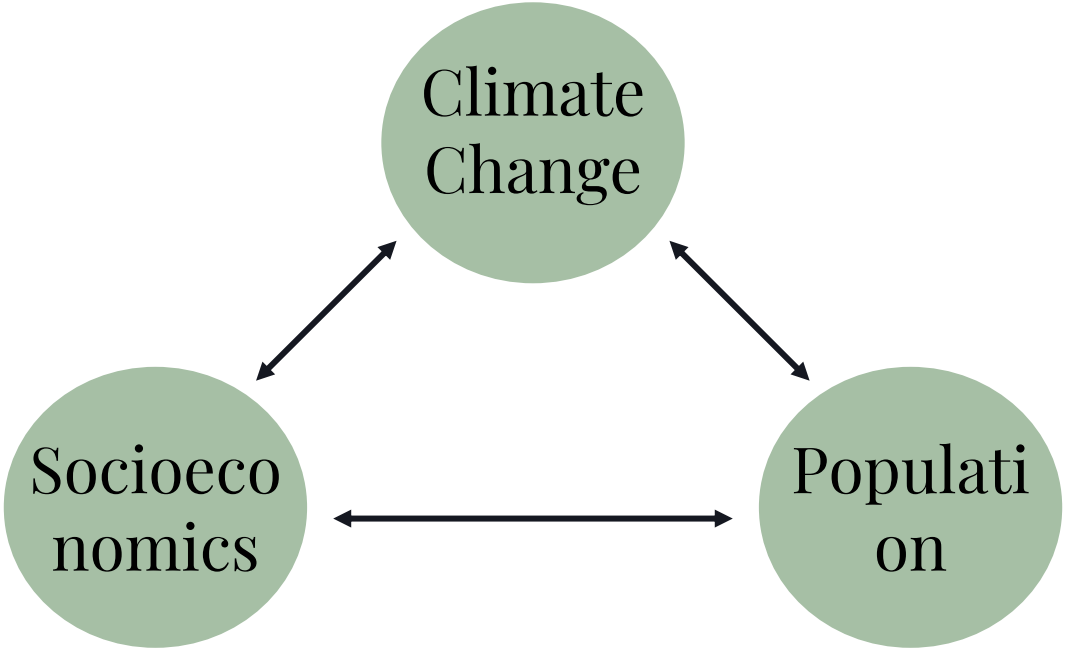
Climate Change, Socioeconomics and Population are intertwined



Effect of socioeconomics and population on Developed Countries

High Education Levels

High National Income per Capita

Low Unemployment

Low Population Growth

GOOD CLIMATE MITIGATION STRATEGIES

(United Nations Development Programme, 2015)

Hypothesis

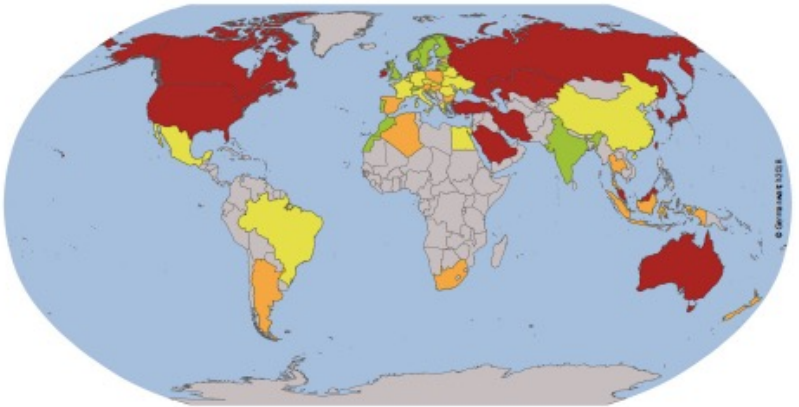
Countries possessing characteristics attributed to ‘developed’ countries will have good climate protection performance

Methodology – Backwards Model Selection

Explanatory Variable

Climate Change Performance Index (CCPI)

- Measure of a country's climate performance
- Measures greenhouse gas emissions, renewable energy use, conventional energy use and climate policy



Methodology – Backwards Model Selection

Response Variables

Socioeconomic Variables

- Ratio of School Enrolment
- Gender Parity Index of School Enrolment
- Digital technology usage
- Labour Participation Rate
- Unemployment
- GDP per Capita
- GDP Growth

Population Variables

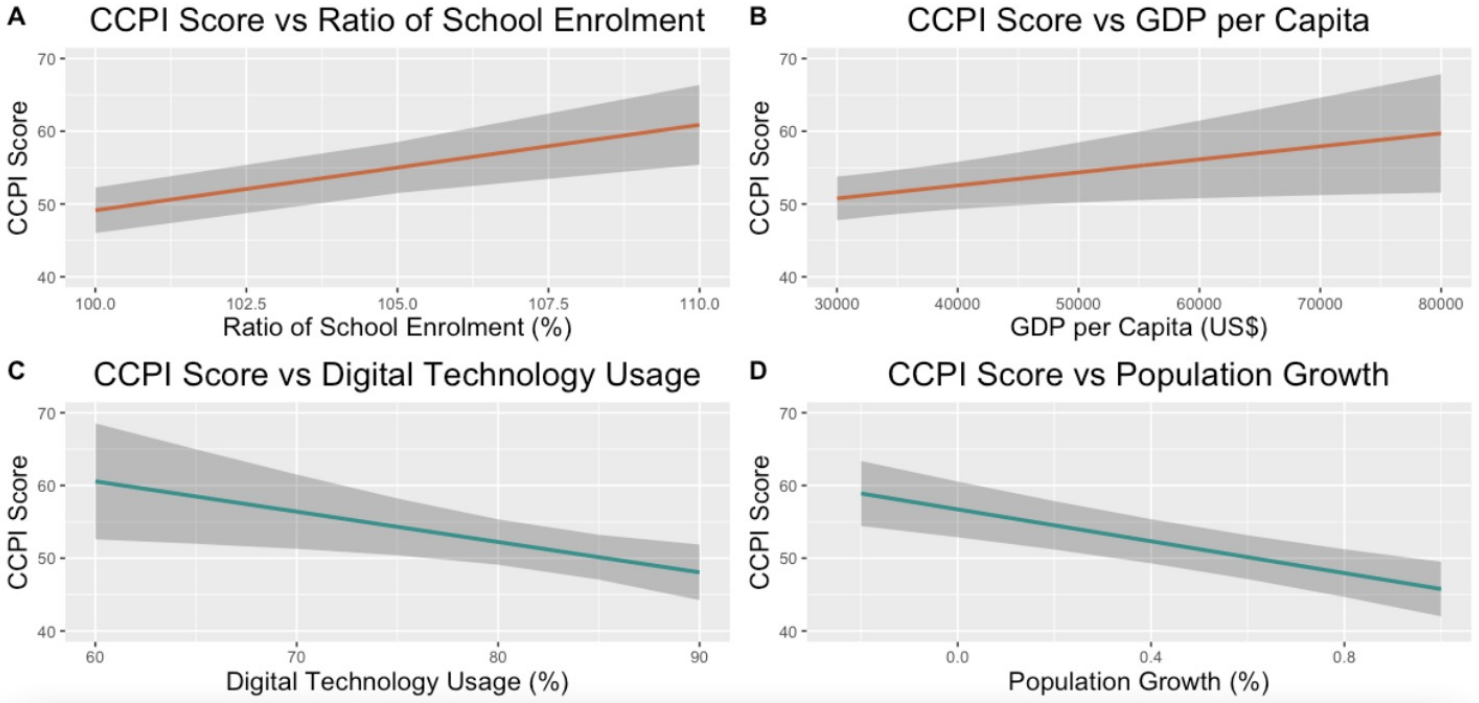
- Life Expectancy
- Sex Ratio
- Population Growth
- Population Density

Results

Countries with **high** CCPI scores have:

- **high** ratio of School Enrolment
- **high** GDP per capita
- **low** digital technology usage
- **low** population growth

Results


A
CCPI Score vs Ratio of School Enrolment
CCPI Score
70
60
50
40
100.0
102.5
105.0
107.5
110.0
Ratio of School Enrolment (%)
B
CCPI Score vs GDP per Capita
CCPI Score
70
60
50
40
30000
40000
50000
60000
70000
80000
GDP per Capita (US$)
C
CCPI Score vs Digital Technology Usage
CCPI Score
70
60
50
40
60
70
80
90
Digital Technology Usage (%)
D
CCPI Score vs Population Growth
CCPI Score
70
60
50
40
0.0
0.4
0.8
Population Growth (%)

Discussion

- High rates of School Enrolment, high GDP per capita and low population growth are **consistent with the patterns of a ‘developed’ country**.

- **Low digital technology usage is contrary** to our hypothesis of ‘developed’ countries
  - Could be due to **usage of sustainable technologies** which doesn’t reflect in emissions or energy usage

Conclusion

- **Increasing School Enrolment and GDP per Capita** should be in focus in climate mitigation plans.

- **Switching towards more sustainable technologies** should be another focus in climate mitigation plans

REFERENCES

- CCPI (2018) *Climate Change Performance Index 2019* https://ccpi.org/download/the-climate-change-performance-index-2019/ [Accessed: 22 February 2023].
- The World Bank (2023) *DataBank* https://databank.worldbank.org/ [Accessed: 22 February 2023a].
- United Nations Development Programme (2015) *The 2010 Human Development Index (HDI)*. https://hdr.undp.org/system/files/documents/hditrainingpdf.pdf.