

PPP - People, Pollution, and Per Capita (GDP)

Region

North America

Year

2022

Greenhouse Gas Emissions Measured in
ktCO₂-eq/yr

GDP Per Capita Measured in U.S. Dollars

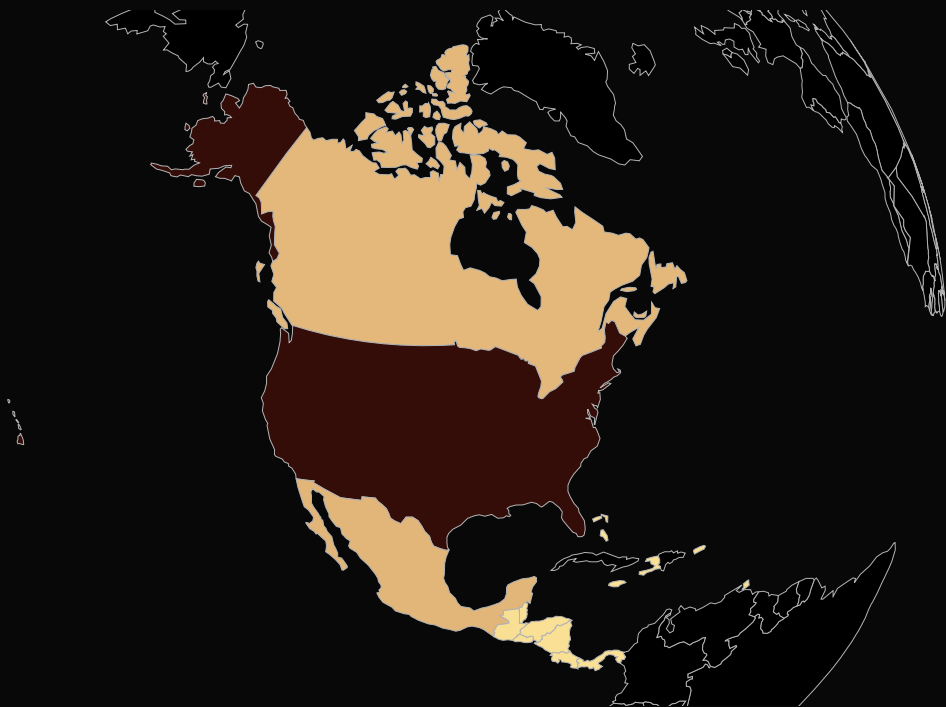
China

Largest Increase in Emissions Since 1990

Qatar

Largest Emissions Per Capita

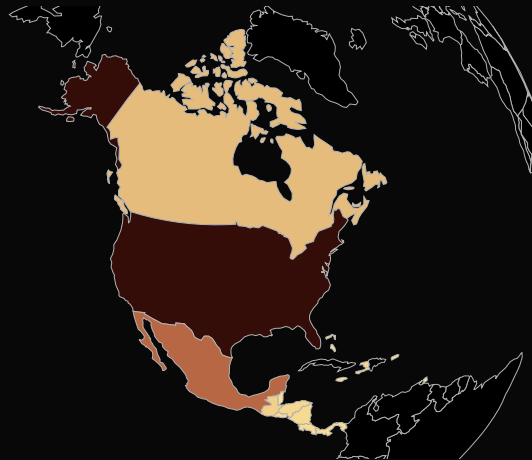
Total Emissions



GDP Per Capita



Total Population



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Continent

☐ Africa

☐ Asia

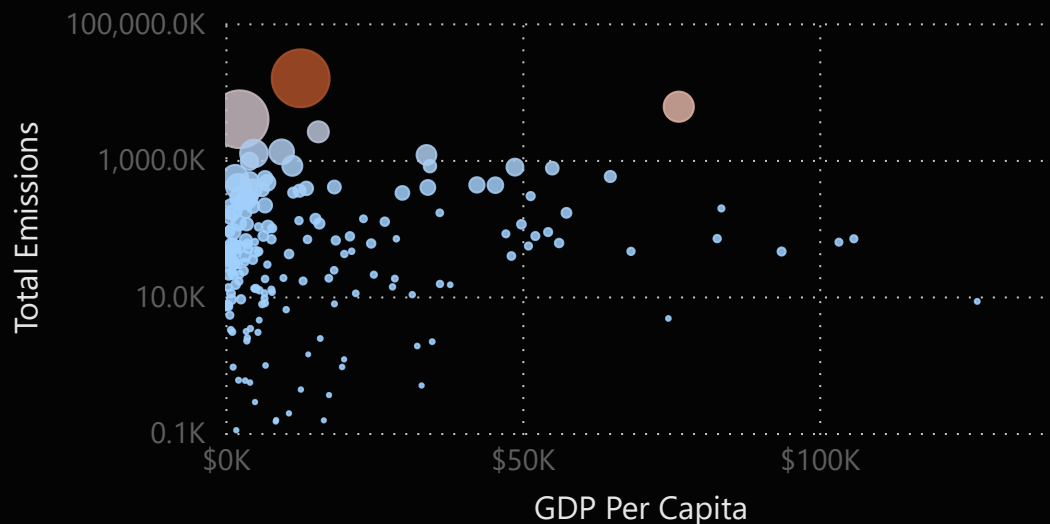
☐ Europe

☐ North America

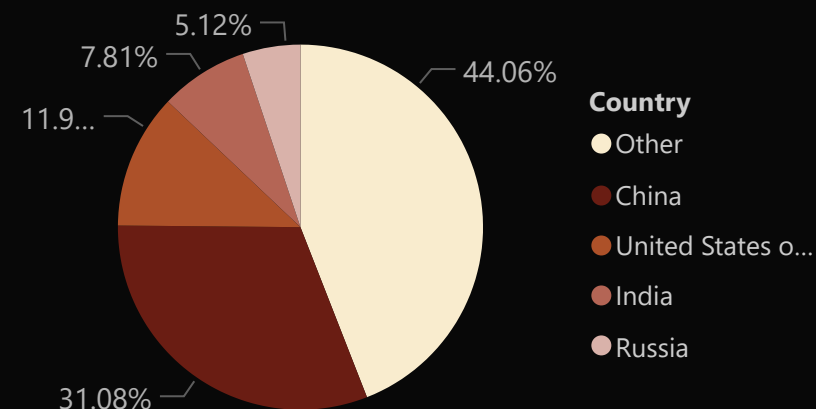
☐ Oceania

☐ South America

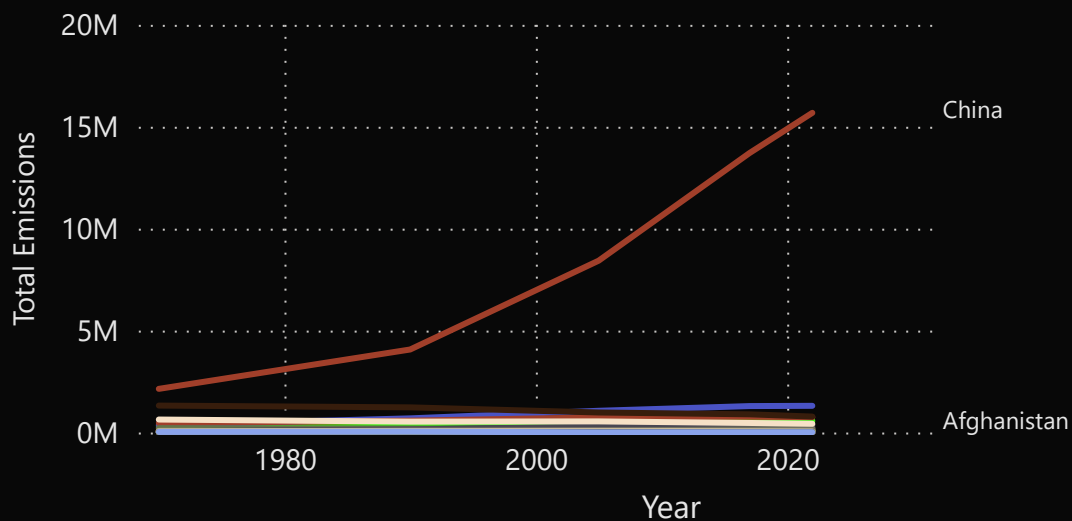
GDP Per Capita vs. Total Emissions: Population-Weighted Analysis



Percent of Total Emissions, 2022



Total Emissions (1980 - 2022)



Top and Bottom 5 Countries by GDP Growth, Emissions (1990-2022)

Country	GDP Growth Rank	GDP Growth (1990-2022)	Emissions Change (1990-2022)
Luxembourg	1	\$93,531.21	-4,194.20
Ireland	2	\$89,666.99	4,827.70
Norway	3	\$77,638.64	7,051.40
Qatar	4	\$70,370.83	165,571.40
Singapore	5	\$70,044.31	36,266.30
Burundi	136	\$103.88	4,420.70
Central Afr...	137	(\$48.72)	5,624.60
Yemen	138	(\$257.09)	19,764.40
Libya	139	(\$1,847.16)	17,881.60
Iran	140	(\$6,618.07)	619,220.70

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Key Findings:

- There appears to be a positive correlation between a country's greenhouse gas emissions and its total population size.
- The top 4 largest emitters contributed over 66% of total greenhouse gas emissions in 2022.
- Countries can maintain a high GDP Per Capita without high pollution, and vice versa. Luxembourg, the country with the largest GDP growth since 1990, had an overall decrease in total emissions by 2022. Conversely, Iran faced a drop in over \$6,600 in GDP Per Capita, with an overall increase of total greenhouse emissions by almost 620,000 ktCO₂-eq/yr.

Recommendations:

- Generate a policy framework for the countries that rank amongst the largest emissions, that considers both environmental sustainability and economic growth. Policy should shift to adopt green technologies, renewable energy, and safeguards that track and maintain total emissions, creating a balance between economic growth and environmental responsibility.
- Establish collaboration between developed and emerging nations to generate best practices, research, and production of clean energy sources to be utilized by new and existing businesses.
- Increase public awareness and participation in sustainable lifestyle practices, and to hold large corporate emitters accountable in the goal of reducing global emissions.

Conclusion:

The relationship between emissions, economic production, and total population only tells a slight portion of the full picture. The climate crisis is one that remains complex and ever changing, yet there must be meaningful policy in place to prevent further damages that can be done. By focusing efforts on research, promoting sustainable practices, and holding each other accountable, nations across the globe can maintain their economic prosperity without sacrificing the environment in the process.

Project Resources:

Greenhouse Dataset:

https://en.wikipedia.org/wiki/List_of_countries_by_greenhouse_gas_emissions

Population Dataset:

<https://www.kaggle.com/datasets/iamsouravbanerjee/world-population-dataset>

GDP Dataset:

<https://www.kaggle.com/datasets/kanchana1990/imfs-gdp-data-1980-2028-global-trends>

Personal Portfolio Website:

www.johnsieve.com