

CO₂ EMISSIONS

Project 3 Team I

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Purpose of project

- Analyze the factors that contribute to CO₂ emissions.
- Compare the CO₂ emissions per country.
- Predict the impact of CO₂ emissions.



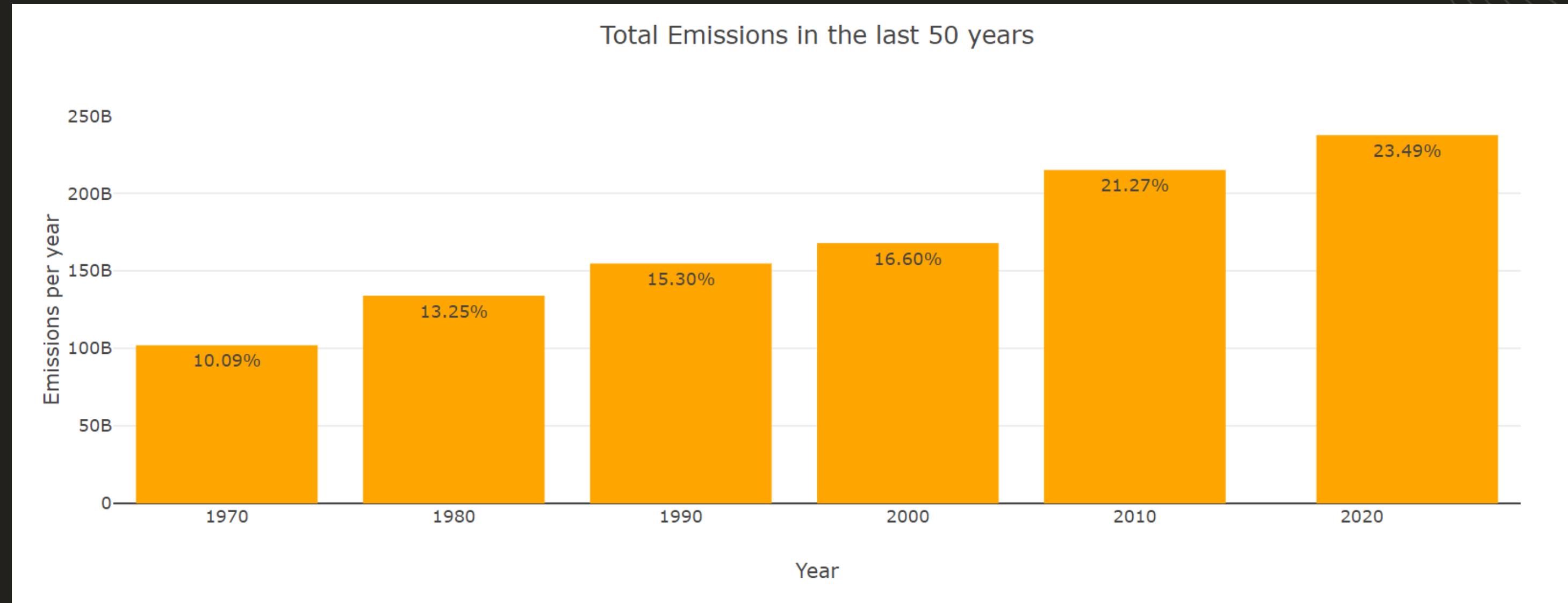
OVERVIEW OF PROJECT

Increase of CO₂ emissions over the past 30 years.

The consequences of CO₂ emissions have become more visible and severe over recent years, such as heat waves and extreme temperature rises, glaciers melting and the lowest amount of ice ever recorded in the North Pole.

Impact on climate change which led to an increase in the number of annual natural disasters

Total CO₂ emissions over past 50 years





CURRENT CO₂ EMISSIONS

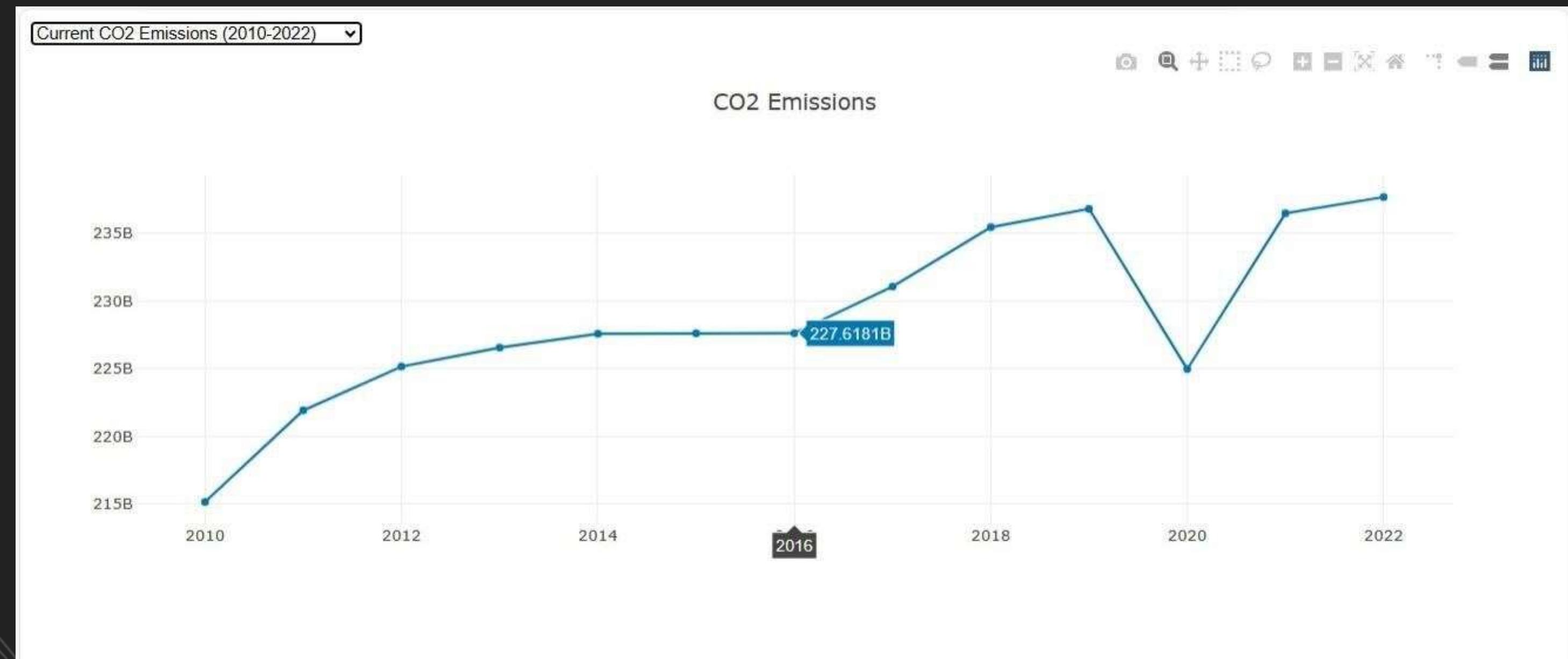
Which countries are responsible for the current CO₂ emissions?

Current CO₂ emissions

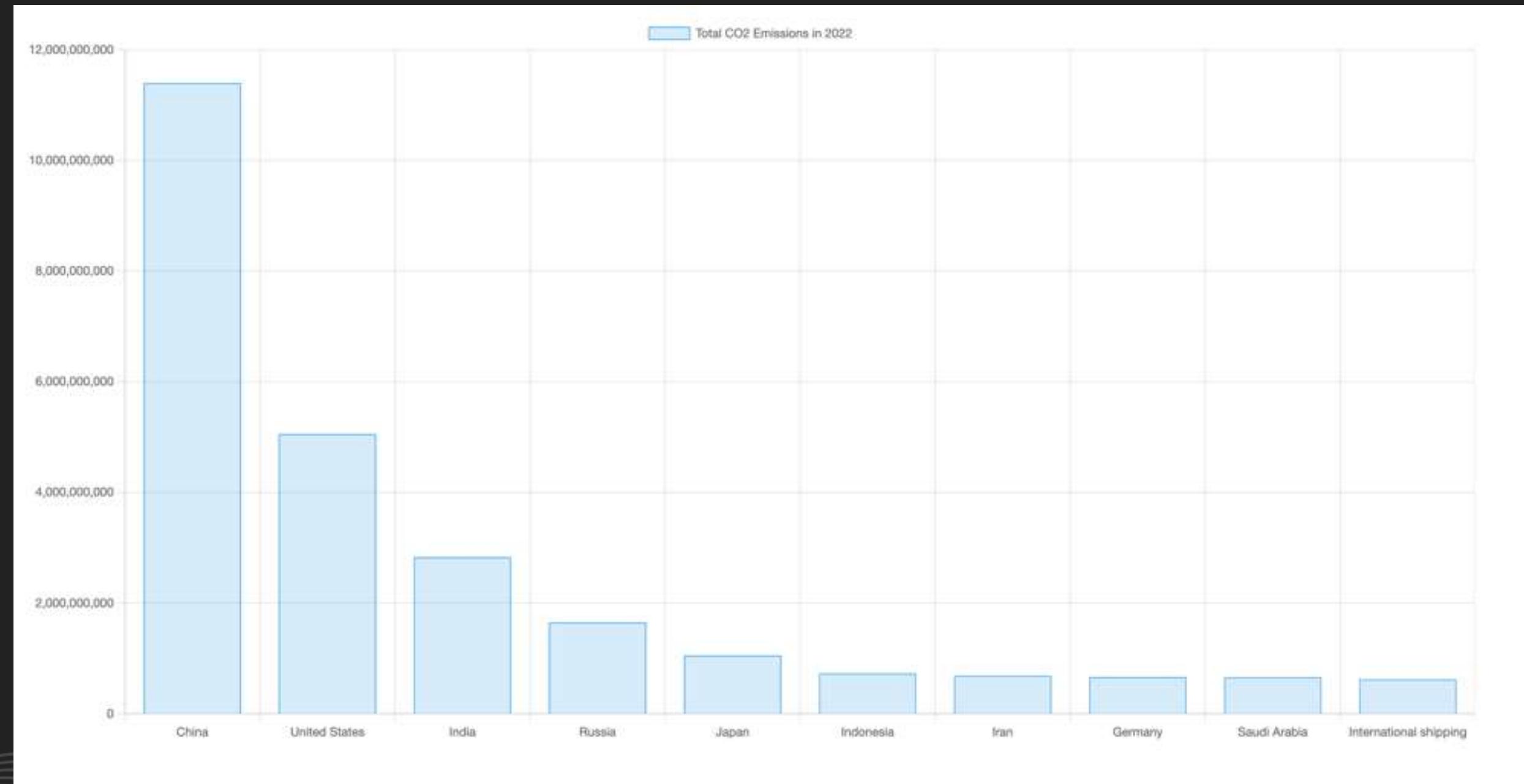
2010-2022

- Although all countries agree on decreasing the CO₂ emissions to reduce the impact on climate change, they do not agree on the countries who are responsible for the CO₂ emissions.
- Developed countries argue that they are making efforts to reduce CO₂ emissions and developing countries state that they are in fact survival emissions.
- On the other hand, developing countries argue that the developed countries have historically already caused pollution.
- Upon analysis, China ranks highest in CO₂ emissions, 11 billion tons. Followed by the United States and India.

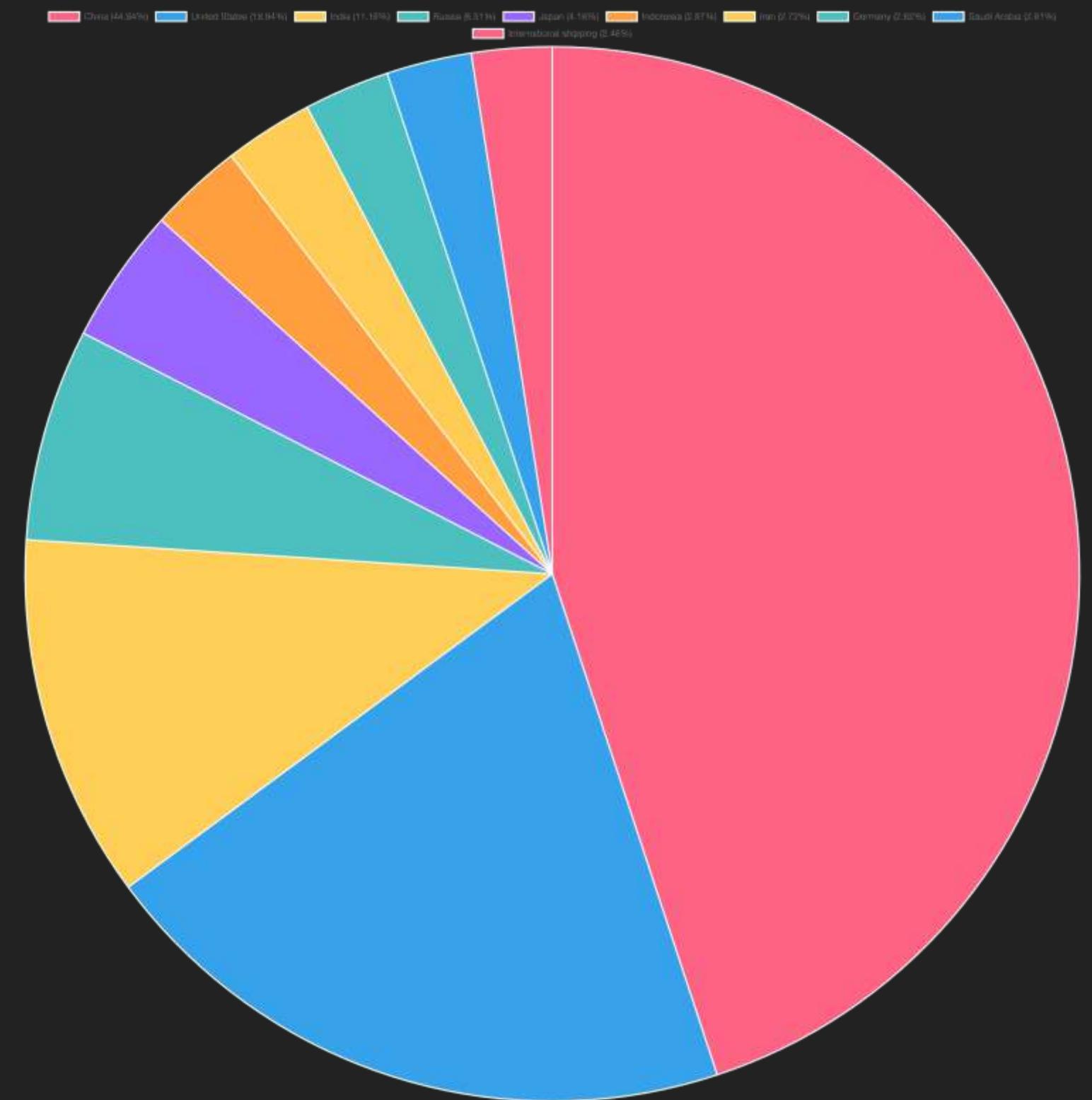
Global CO₂ emissions (2010-2022)

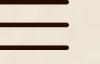


Top 10 countries emitting CO₂ from 2010-2022



CO₂ emissions share in 2022





EMISSIONS

5 October 2021 6:00

Analysis: Which countries are historically responsible for climate change?

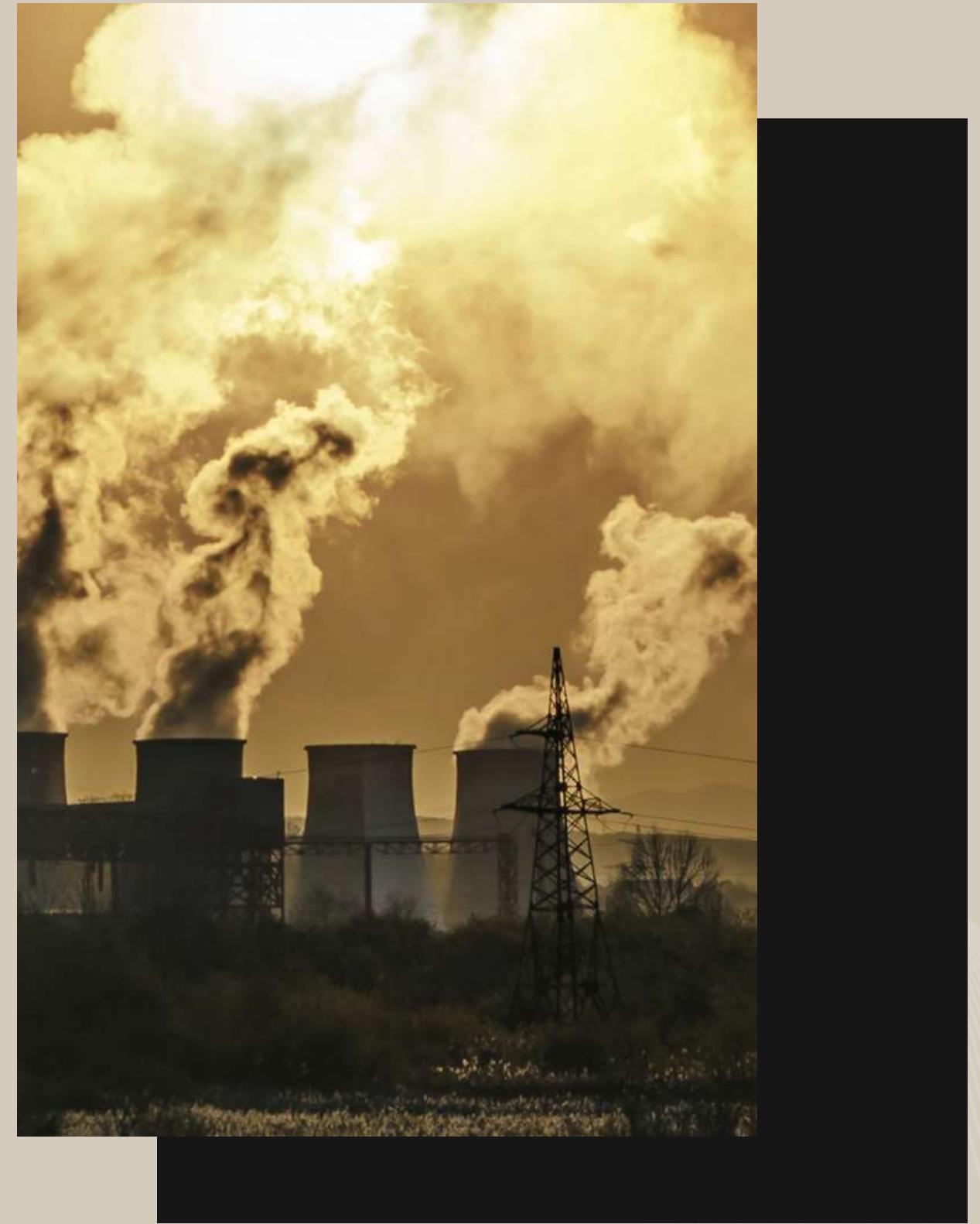


Historic CO₂ emissions

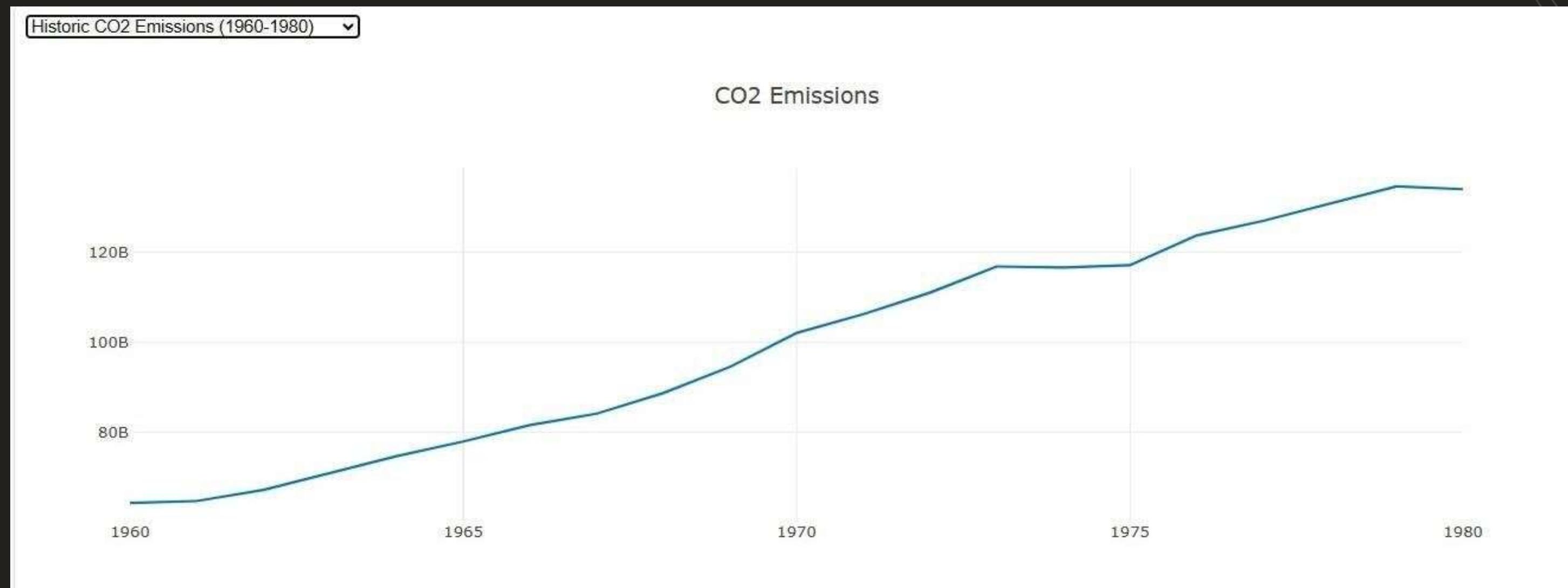
Which countries are historically responsible for the CO₂ emissions?

HISTORIC CO₂ EMISSIONS

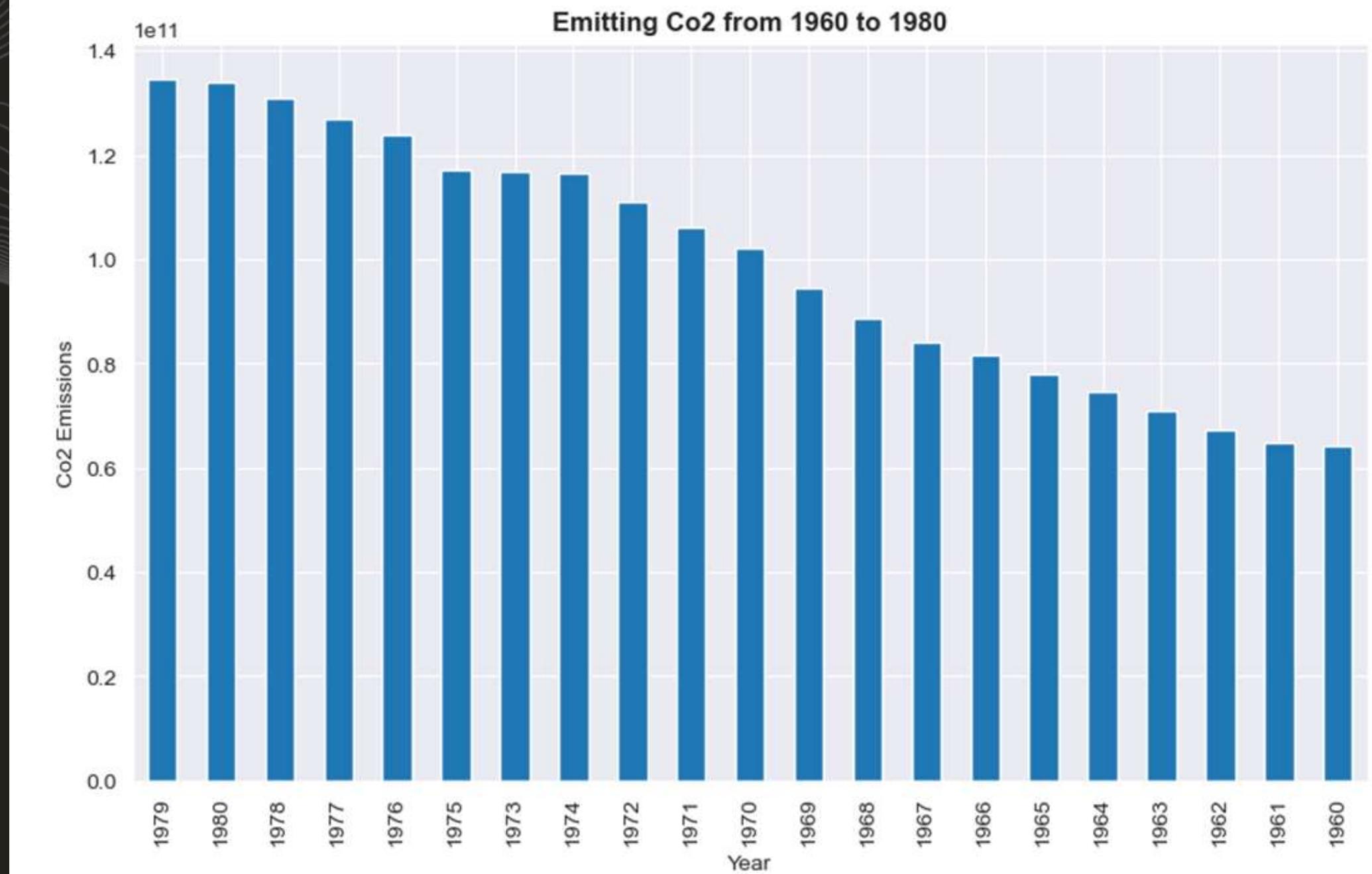
- It is insufficient to only look at the current CO₂ emissions.
- From the chart, we can tell that the USA ranked highest on the CO₂ emitting countries, followed by the European Union.
- From the historic data from 1960-1980, we can see that the United States and the countries in the European Union have historically emitted more CO₂ emissions than China.
- In the 20th Century, the United States has emitted around 20 billion tons of CO₂ emissions.
If we look at emissions throughout history until today, the outlook changes drastically.
- The US and EU both knock China off the top spot.



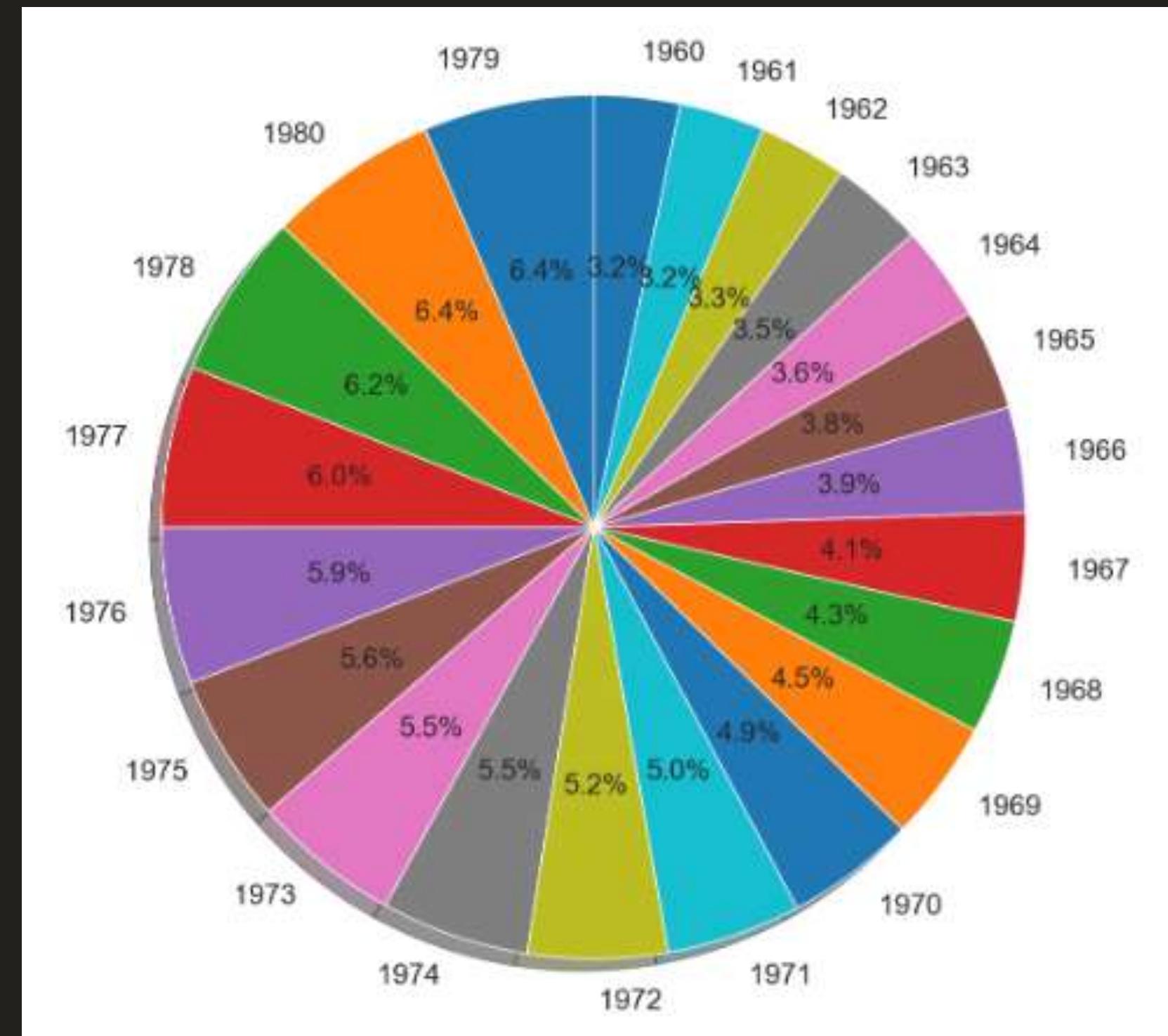
Annual CO₂ emissions worldwide from 1960 to 1980



Cumulative CO₂ emissions from 1960-1980

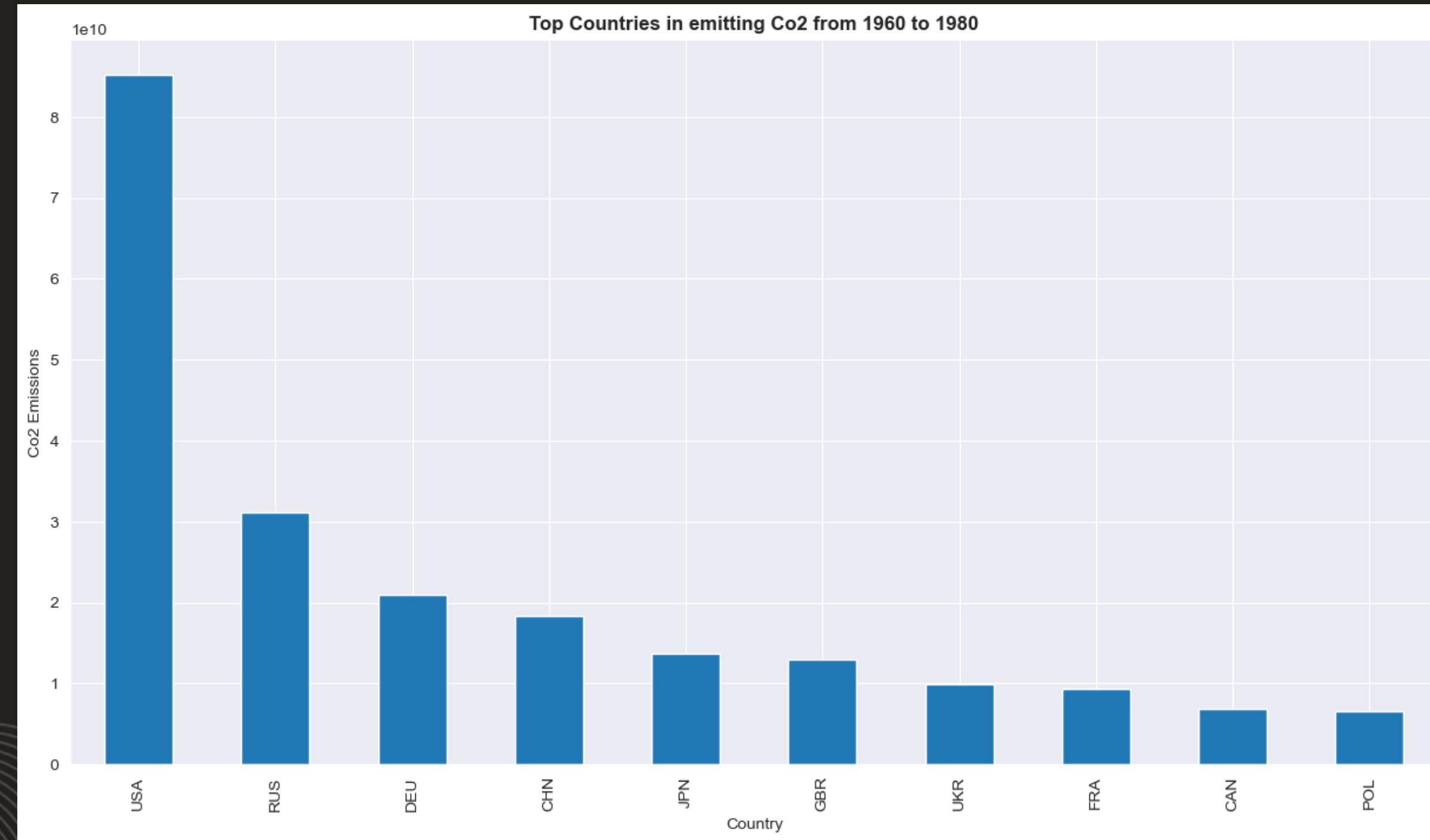


Global annual CO₂ emissions between 1960-1980



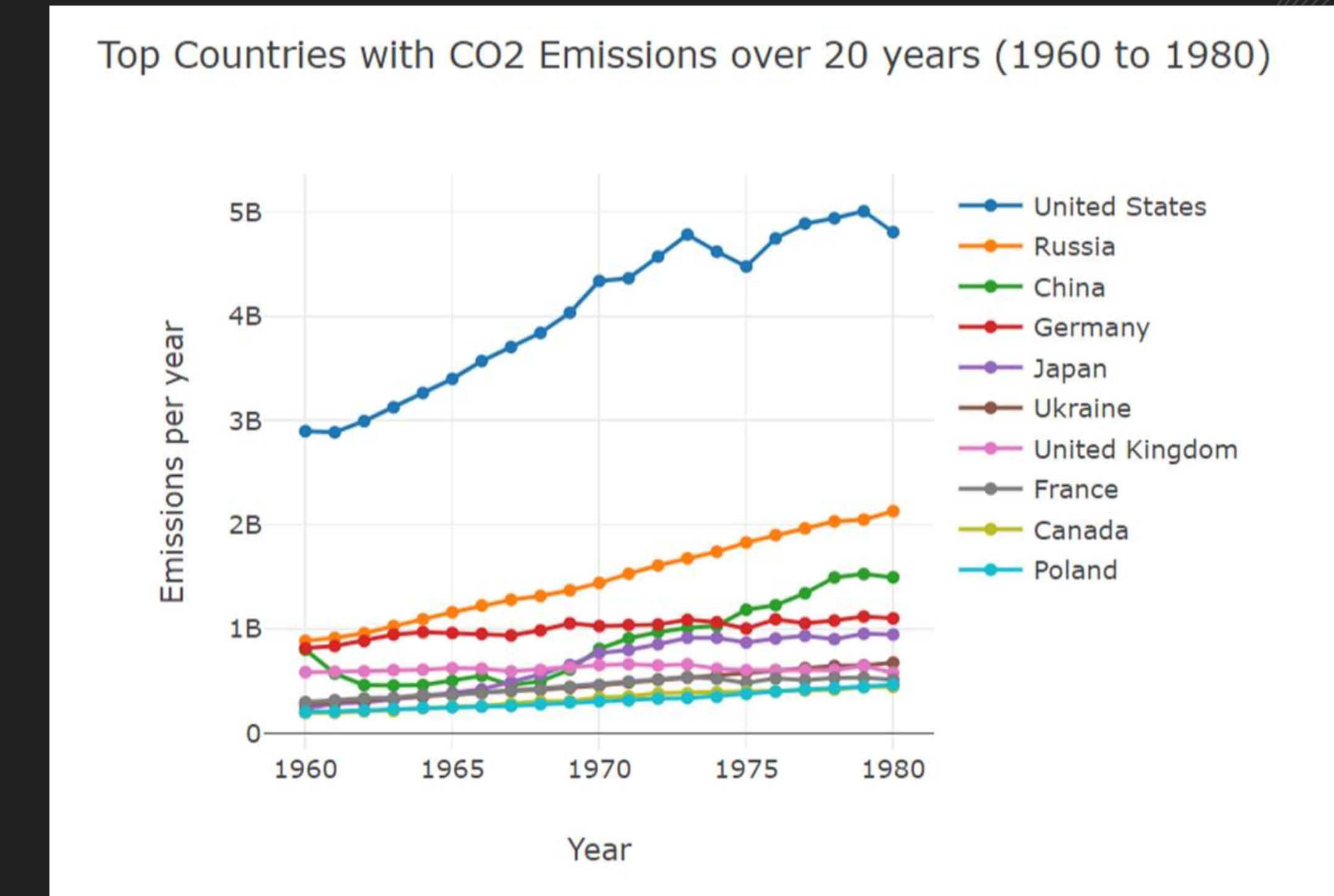
Top 10 countries emitting CO₂

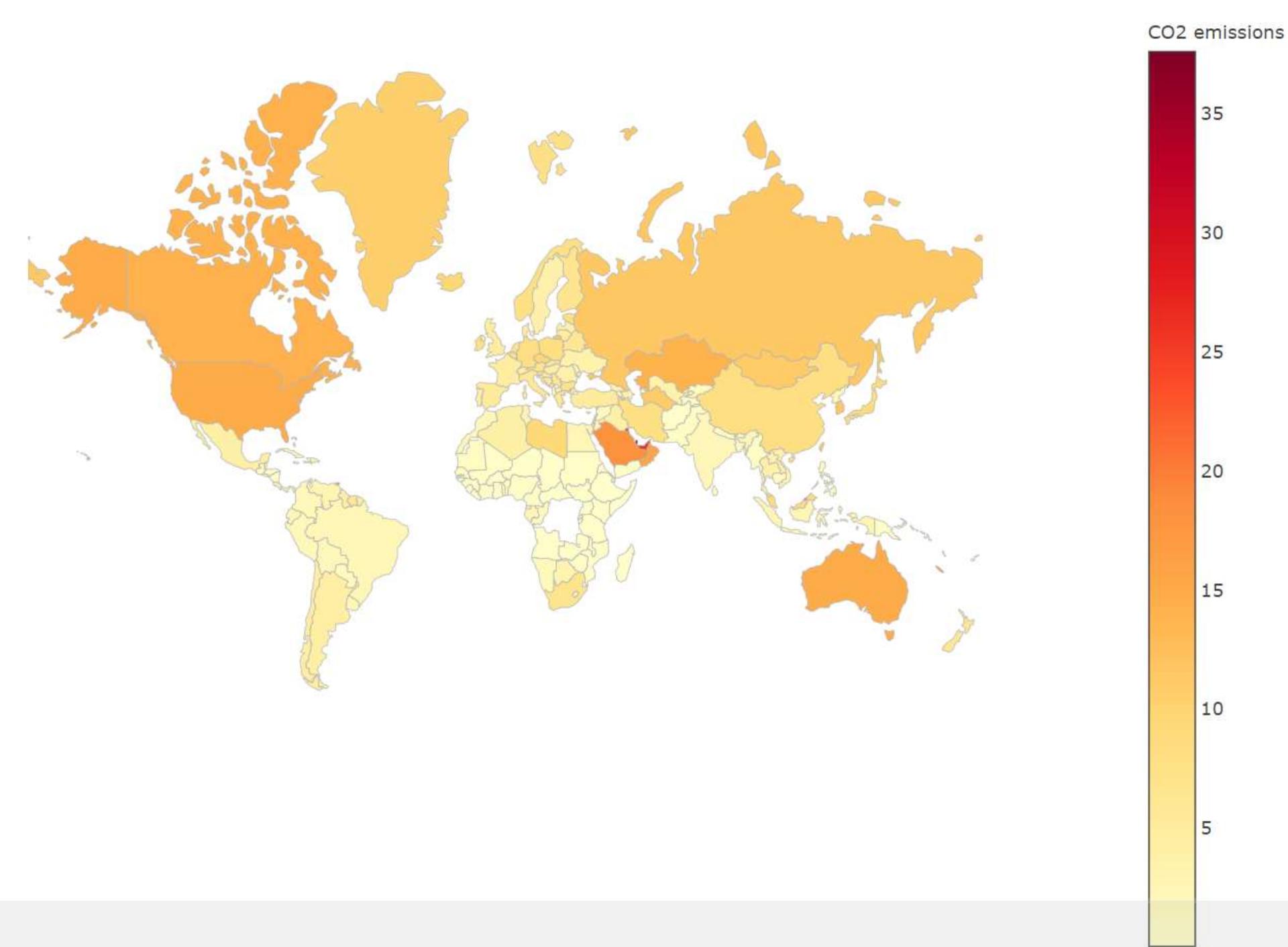
Historic data from 1960-1980



Historical CO₂ emissions worldwide between 1960-1980

- The UK is responsible for 1% of annual global emissions but takes 5% of the historical responsibility.
- Germany produces 2% of emissions per year today, has contributed almost 6% as much as the whole Africa and South America combined.





CO₂ emissions per capita

Which countries have the highest CO₂ emissions/person?

CO₂ emissions per Capita 2010-2022

•The average human is responsible for 5 tons of CO₂ emissions/year.

•The numbers varies based on individuals from different countries. For example, the population in the oil producing countries have higher CO₂ emissions.

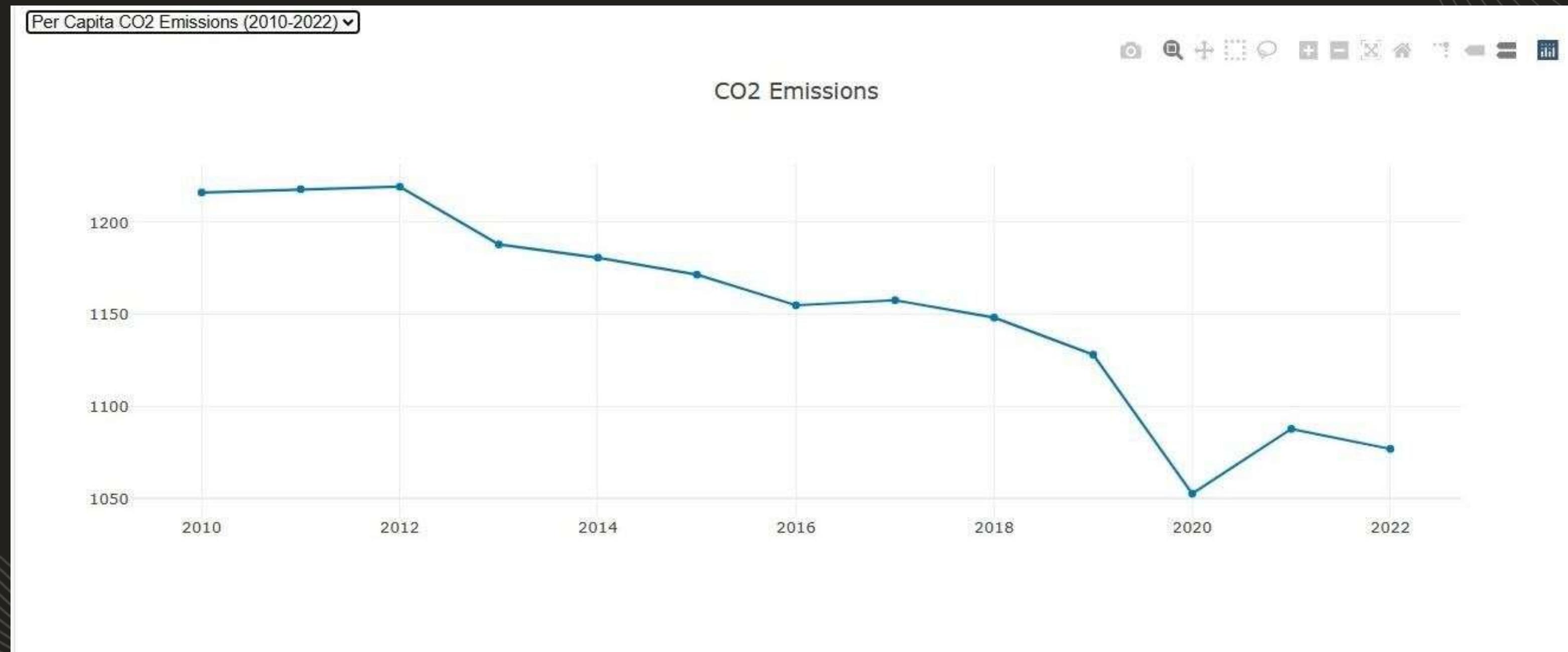
•Qatar is the top country which has the highest CO₂ emissions. They emit around 37 tons/year.

•Wealth is one of the strongest indicators of carbon footprint.

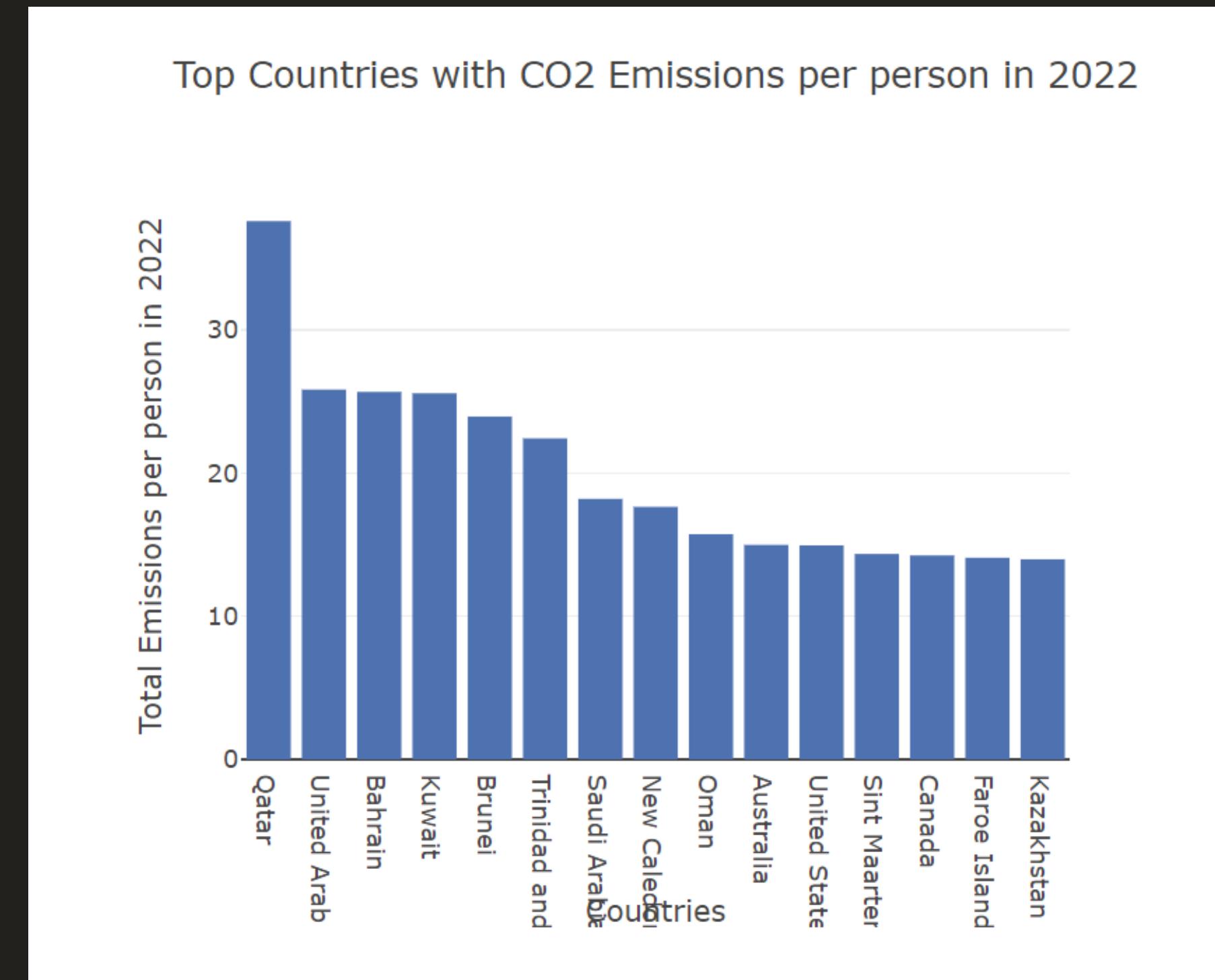
• As individuals accumulate wealth, they also gain access to modern technologies.
• The wealthiest half of the countries are responsible for 86% of global emissions. The bottom half only contribute to 14% of the global emissions.



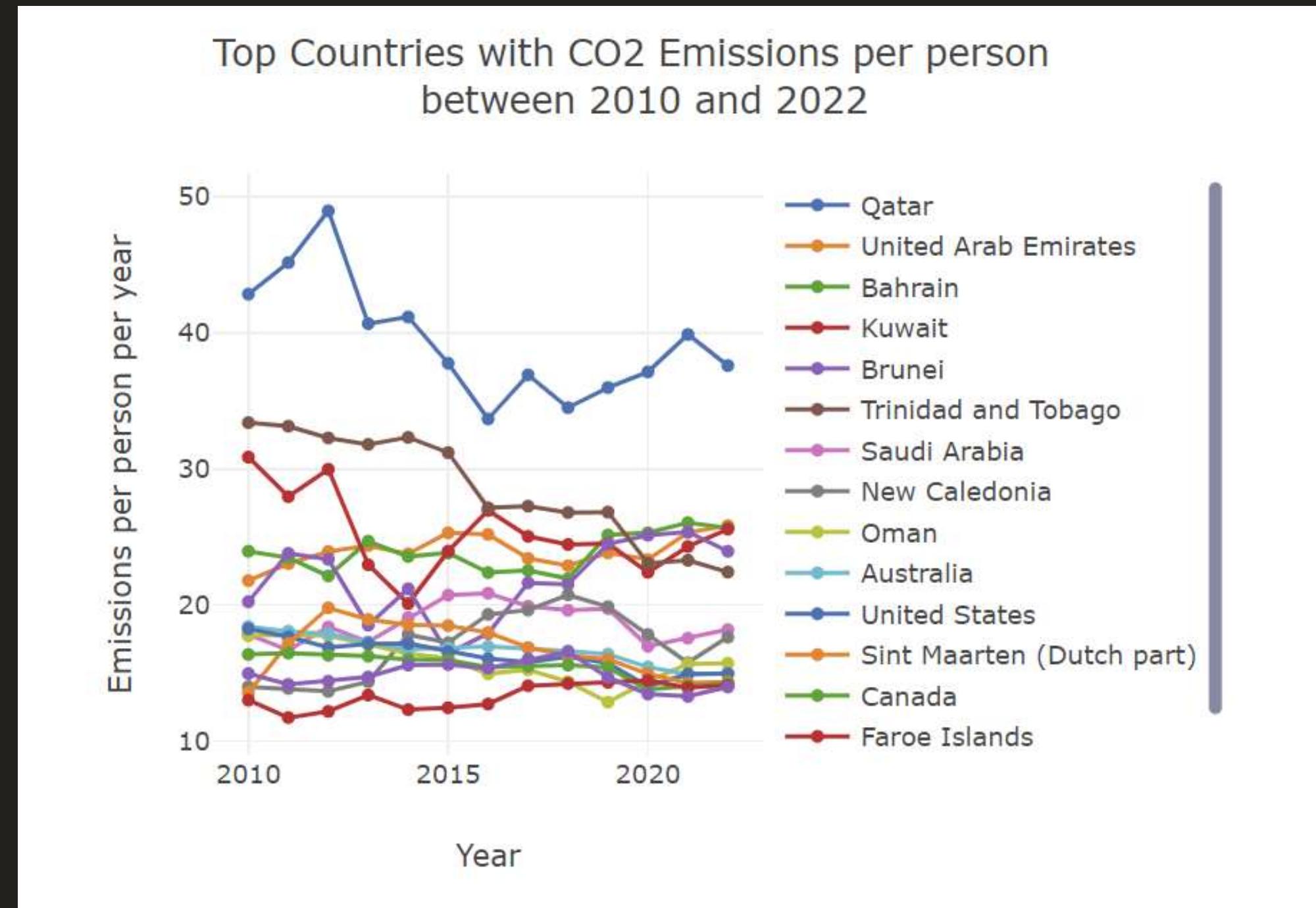
CO₂ emissions per capita between 2010-2022



Top 15 countries with CO₂ emissions/person in 2022



Top 15 countries emitting CO2/person between 2010- 2022



Impact of CO₂ emissions

- Developing countries will be hit the hardest from the consequences of CO₂ emissions leading to conflict over resources, food insecurity, an increase natural disasters and climate refugee movements.



Ocean
Acidification



Extreme
Weather



Sea Level
Rise



Plastic
Pollution



Air
Pollution



Water
Pollution



Oil
Spills



Health
Issues

Proposed solutions

- At the core of transforming our energy systems and industries to reduce carbon emissions, we need to resolve the energy poverty, low standards of living, and poor nutrition in developing countries.
- The richest countries have access to the resources, highly educated workforce and technology to develop low cost, low carbon solutions and spread them around the world.
- If we don't want developing countries to follow the high-carbon pathway of developed countries and become as fossil fuel dependent as the developed countries, then clean energy technologies must be affordable and accessible.





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