CO2 Emissions

An Analysis of Global Emission Trends from the 1700s to the 2000s

COOP DA C470

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Agenda

Introduction

Executive Summary

Context

Method

Findings

Introduction

Global Carbon Dioxide (CO2) emissions

Client: United Nations Environment Programme

Central question: Which countries and regions of the world are the highest producers of CO2 emissions and what actions can they take to reduce their output?

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Derived from the The Global Carbon Emissions Dataset for 1750 to 2021 provided by COOP careers

Executive Summary & Key Findings

Sharp Rise in CO2 Emissions (1950s)

Emissions remained **low until the mid-1900s** but increased rapidly, growing from about **20B kilotons to 240B kilotons** due to industrialization & energy consumption

Top Contributors by Region

Asia: China is largest emitter, followed by India and Japan

North America: United States leading emitter throughout 20th century

Europe: Russia & Germany have been key contributors

Temporary Emissions Drop in 2020

Emissions **briefly decreased during pandemic** due to reduced economic activity, decline was **short-lived,** with emissions returning to pre-pandemic levels by 2021

Context

Carbon Dioxide: Clear gas composed of carbon and oxygen that does not burn by itself (CO_2)

Carbon Dioxide Emissions: Release of CO_2 into atmosphere from human activities such as transportation, generation power, and deforestation

Problems:

- **Rapid rates**
- **Issue within Climate Change**
- **Environmental Harm**

Importance:

- **Social awareness**
- **Environment Understanding**
- **Advocacy**
- **Actionable Recommendations**

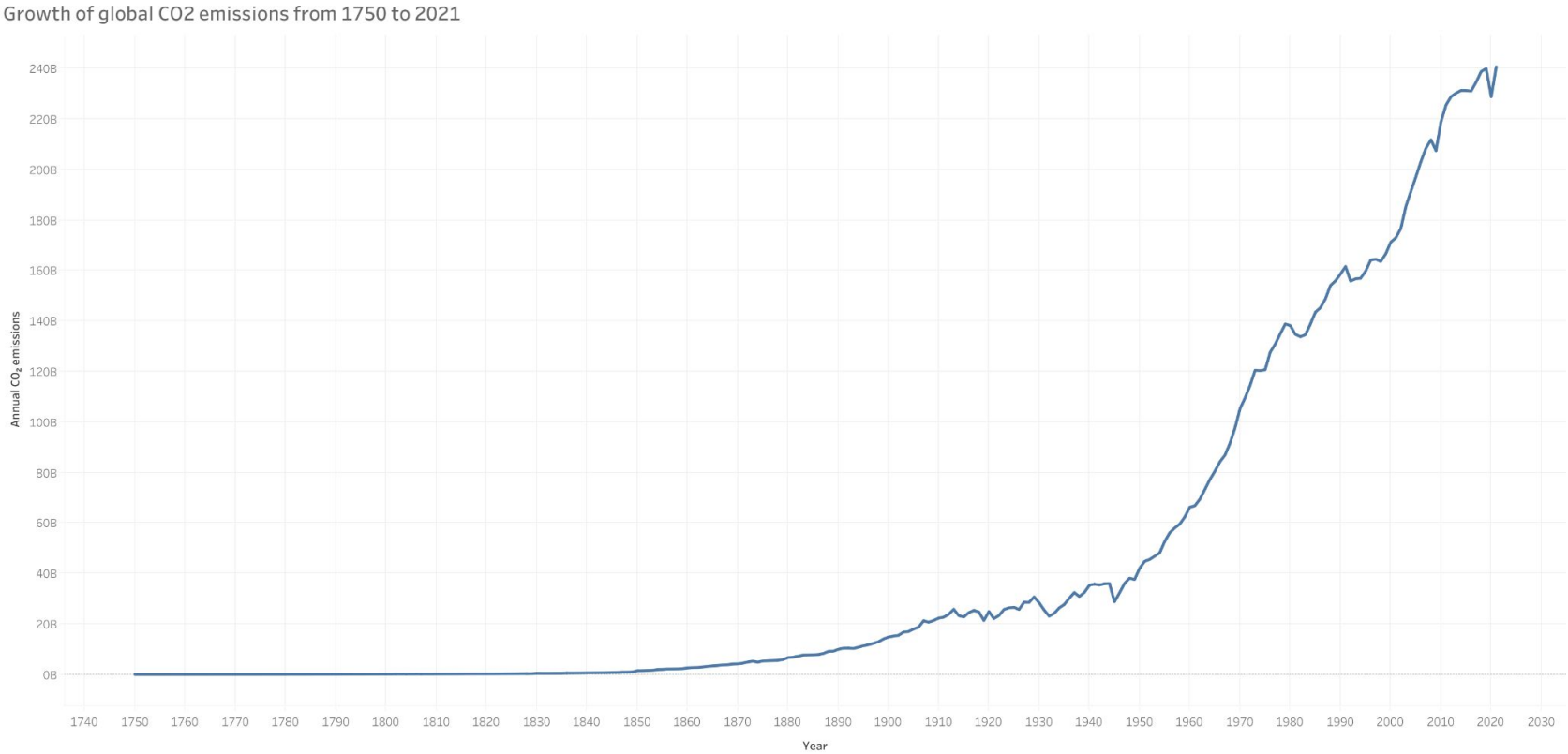
Dataset

- **Continents**
- **Countries**
- **Annual Emissions**
- **Time Periods**

Methods

Organization	Entity Column contained Countries, Regions, Continents and Class of Countries
Cleaning	Data contained duplicate countries and region containing the acronym GCP
Deliverables	Each team member was responsible for certain types of visualizations and categories

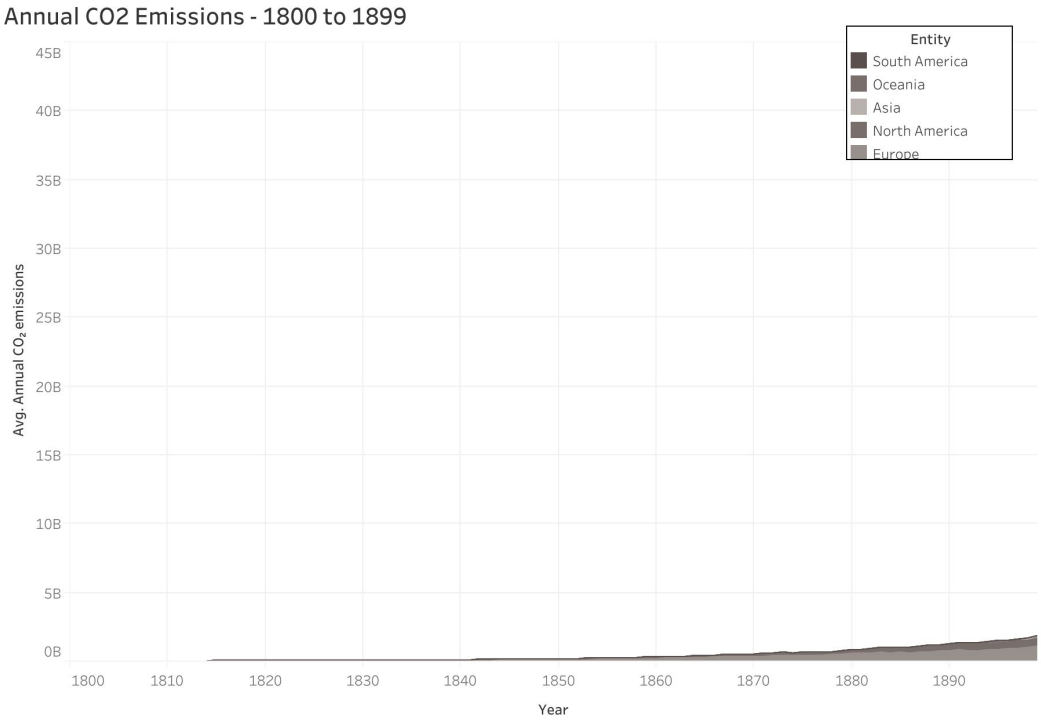
Growth of Global emissions between 1750 and 2021



Map (overall release of emissions)

1. Asia
2. Europe
3. North America
4. China
5. Russia

Area Graphs



1800s - Europe

The Industrial Revolution began, leading to significant **reliance on coal** and the establishment of **heavy industries**.

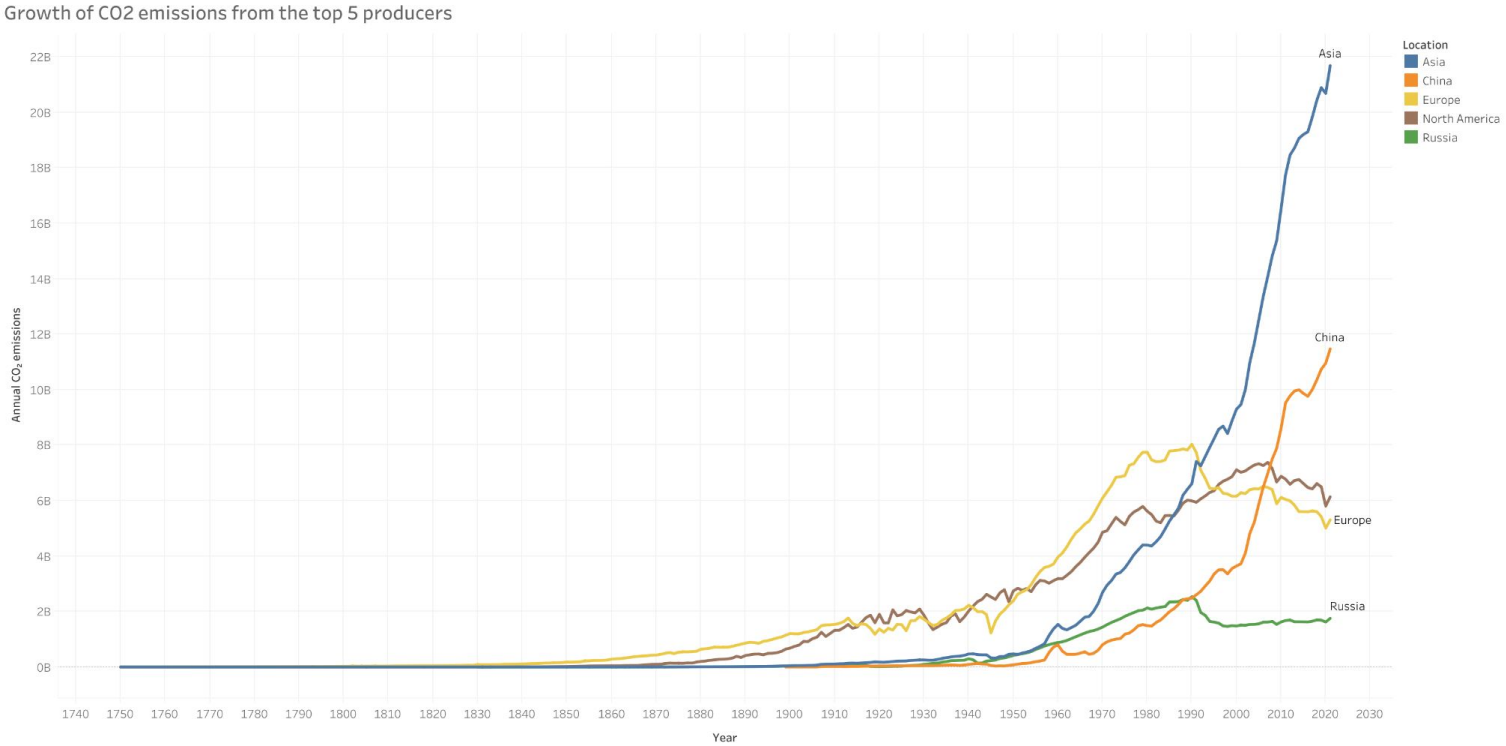
1900s - North America

By the mid-20th century, the United States emerged as the leading emitter because of **industrial expansion**, **automobila**, and reliance on **fossil fuels** for energy.

2000s - Asia

Due to **rapid industrialization** in countries like China and India, Asia became the largest emitter of CO2. As well as its **demand for energy**, primarily from coal.

Growth of CO2 emissions from the top 5 producers (1750-2021)

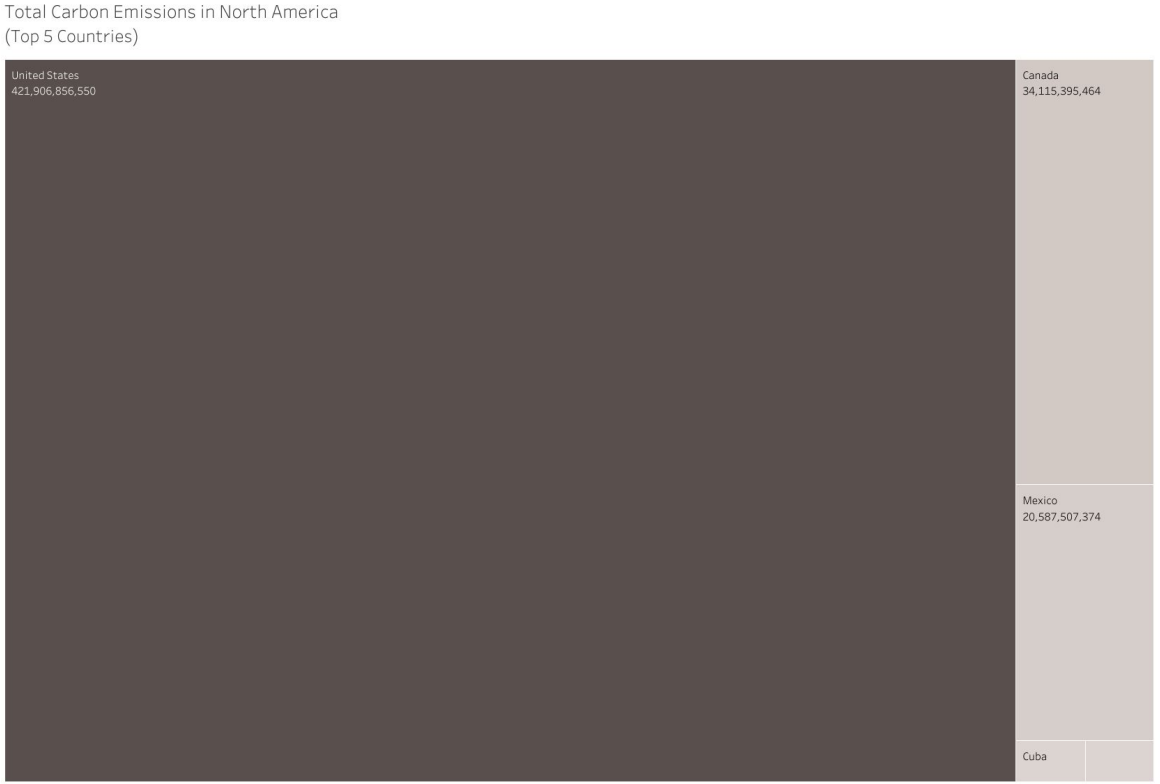


Carbon Emissions

North America

- United States
- Canada
- Mexico
- Cuba
- Trinidad and Tobago

US Contributes **12 times more** kilotons of carbon emissions than Canada



Carbon Emissions

Europe

- Russia
- Germany
- United Kingdom
- France
- Ukraine

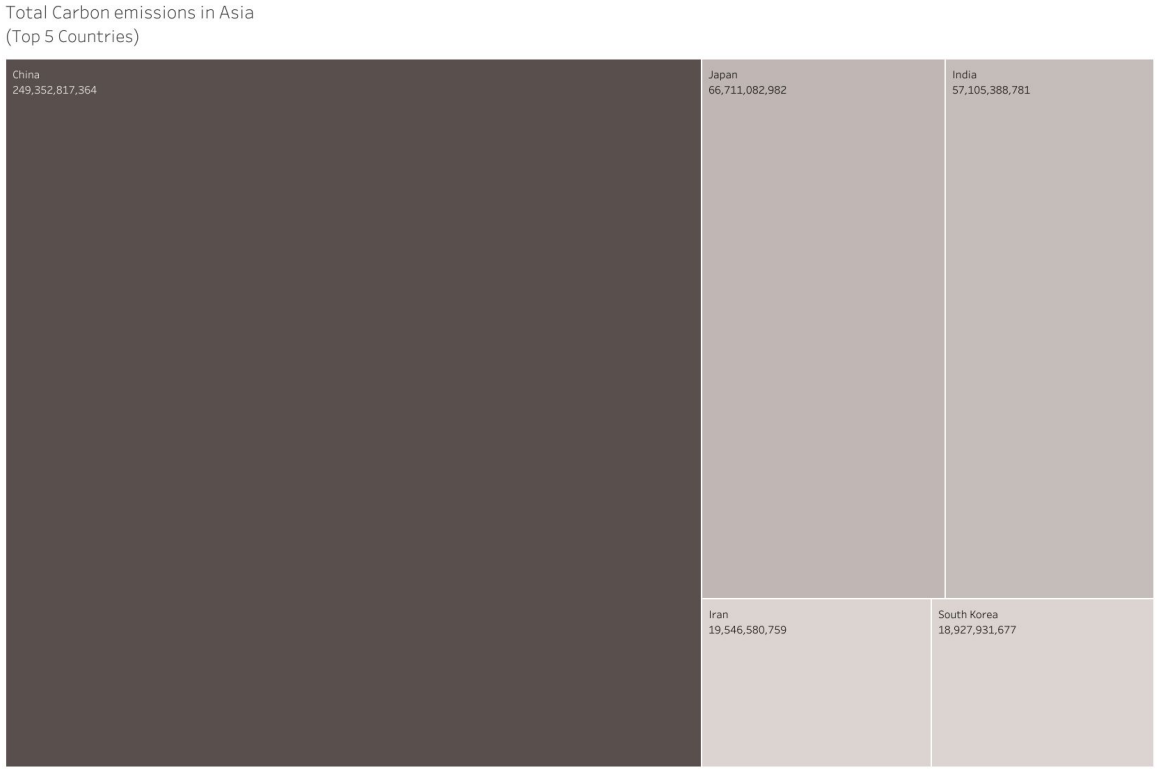
3 Countries have **over 70 Billion** kilotons of carbon emitted in their history

Carbon Emissions

Asia

- China
- Japan
- India
- Iran
- South Korea

China contributes **3.7 times more** kilotons of carbon emissions than Japan



Conclusion

- Around 1700s, coal industries from Europe was heavily used and became the start of CO2 emissions
- Due the high demand of energy in Asia, coal industries within China, India, Japan, Iran, and South Korean generated the largest CO2 emission in 1750s
- By 20th century, North America became the lead CO2 emission with the help of automobila, and industrial expansion

Conclusion Cont.

Recommendations

1. Renewable Energy Adoption (Solar, wind, hydro)
2. Supply Chain Management (Collaborate with suppliers)
3. Data Analysis and Monitoring (Track CO2 emissions)
4. Employee Engagement and Education (Raise awareness & Practices)

Conclusion Conti.

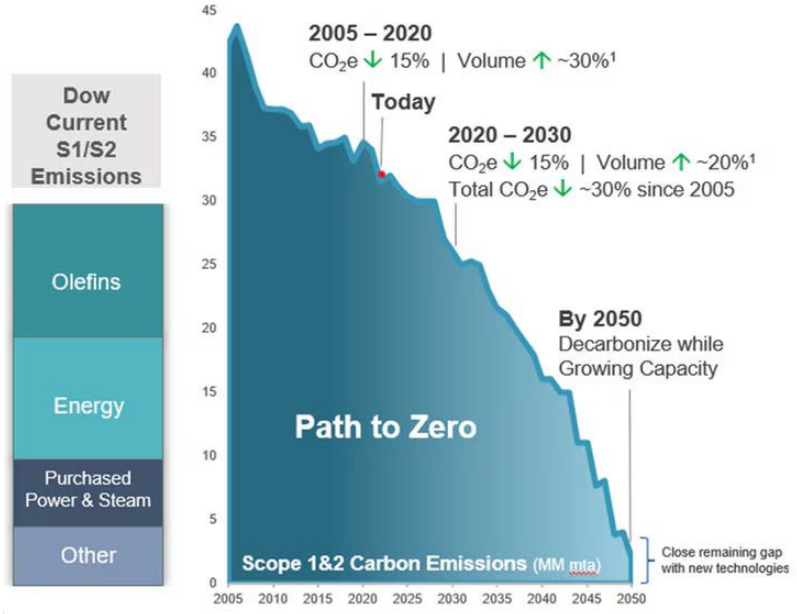
Call to Action!

Dow **-Website-**
https://corporate.dow.com/en-us/purpose-in-action/climate-protection/

- Path2Zero Project - Aim for Net-Zero located in Alberta, Canada
- Video: What is DOW?

@DowNewsroom

Dow



coopcareers.org

Conclusion Conti.

Call to Action!

20 Ways You Can Reduce Your Carbon Footprint
-Article Website-
https://cleanchoiceenergy.com/news/reduce-your-carbon-footprint

- ★ Guide on how you can help reduce your carbon footprint and create a positive impact for the environment!
- ★ Personal Favorite: “Switch to energy-efficient lighting” (LED)

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