# Introduction

- This report analyzes global **CO₂ emissions** and their breakdown by source, region, and country.
- The dataset spans several decades, providing insights into how emissions have evolved over time and highlighting which regions, countries, and industries contribute the most.
- The objective of the analysis is to identify trends in fossil fuel consumption, compare emission levels between countries, and understand which sectors and regions drive the majority of emissions.
- The visualizations have been created in **Power BI**, with interactive dashboards allowing deeper exploration of emissions data.


How have CO₂ emissions developed over time?
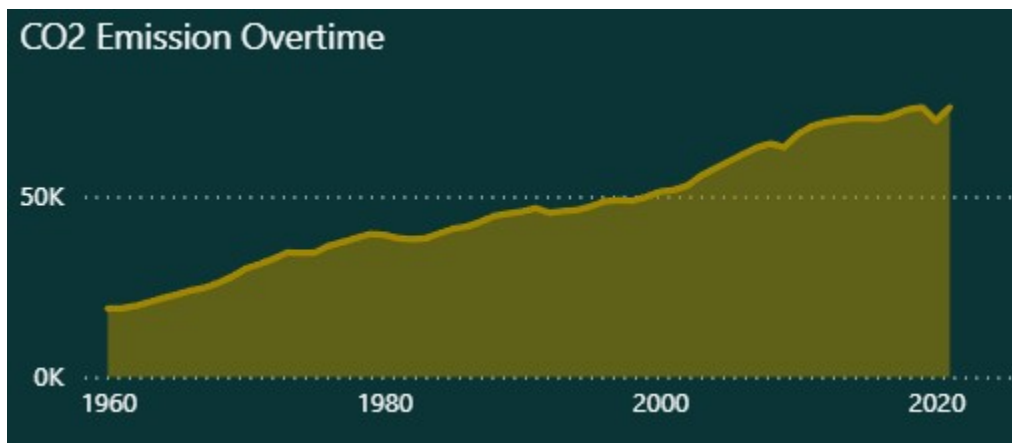
The long-term trend shows a consistent **increase in global CO₂ emissions** from the 1960s until the 2010s, with a peak around the early 2000s followed by slight fluctuations.

This reflects industrial growth, rising energy demand, and dependence on fossil fuels across the world.
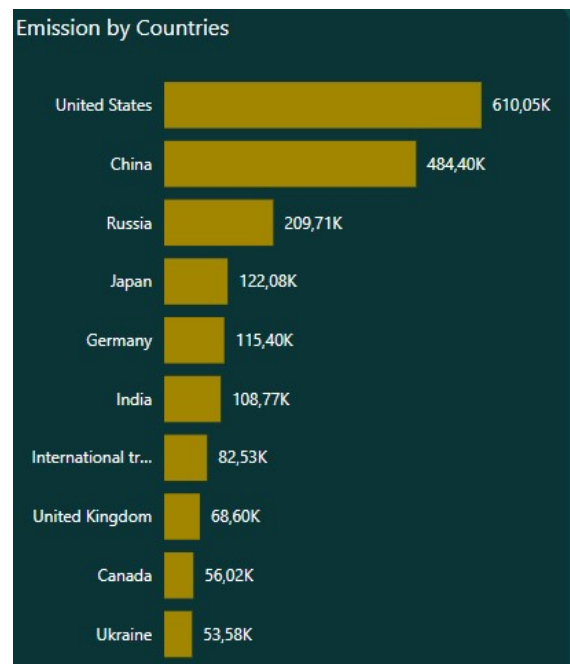
The upward trajectory demonstrates that while some regions have started to stabilize or reduce emissions, global totals are still significantly higher than in the 1960s.

Which regions and countries contribute the most?

Emission by Continents
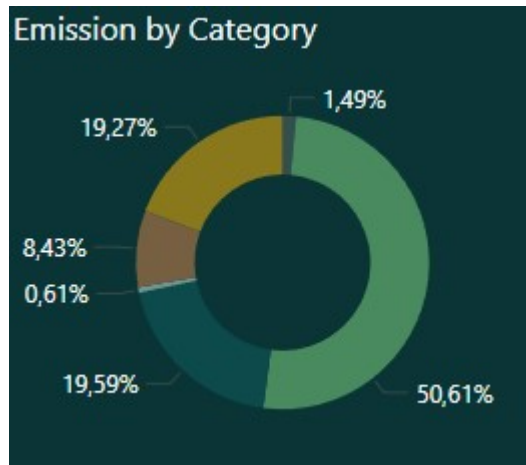
3,33%

25,81%

38,49%

28,2%
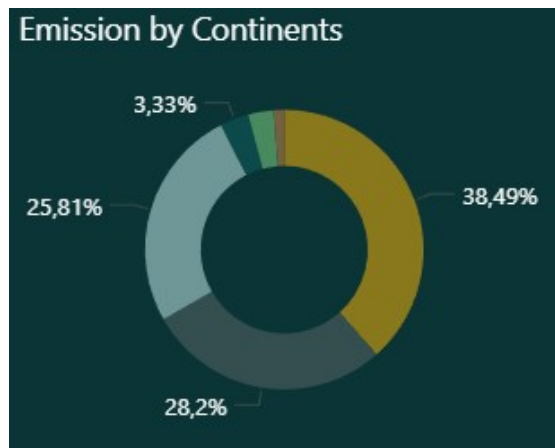
Asia is the **largest emitter**, accounting for nearly 39% of total emissions, followed by Europe (28%) and North America (26%). Africa, South America, and Oceania collectively contribute less than 10%.

- The **United States** leads with over 610K total emissions, followed by **China** (484K) and **Russia** (210K). Other significant contributors include Japan, Germany, and India.
- Together, the top three countries account for the majority of global emissions.

Emission by Countries

| Country	Emission
United States	610,05K
China	484,40K
Russia	209,71K
Japan	122,08K
Germany	115,40K
India	108,77K
International tr...	82,53K
United Kingdom	68,60K
Canada	56,02K
Ukraine	53,58K

What are the main sources of emissions?

- The breakdown shows that **oil** is the dominant source, responsible for over 50% of emissions. Coal (around 20%) and gas (19%) are also major contributors.
- Cement production and flaring contribute relatively little but are still measurable sources.
- This demonstrates that fossil fuel use in energy and transport remains the key driver of global CO_2 emissions.

This comparison highlights how different countries' industrial profiles and energy policies shape their emissions trends.
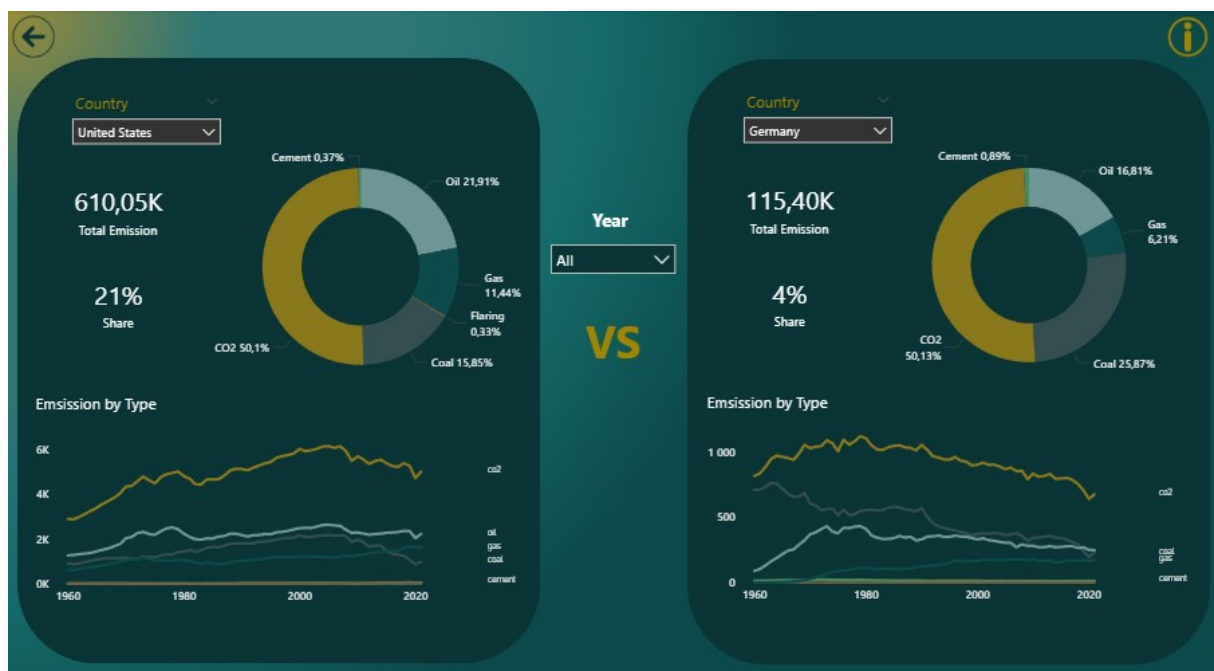
Technical implementations:

In the report, I added an interactive information button that, when activated, dims the background and displays short explanations for the individual buttons and visualizations. This feature helps users interpret the report more easily and enhances the overall user experience.

The report also includes **DAX calculations** that implement more complex logic, for example determining the percentage share of emissions by country.

```
Country Emission Share (%) =
VAR CountryEmission =
    SUM(Country[co2]) +
    SUM(Country[cement]) +
    SUM(Country[coal]) +
    SUM(Country[flaring]) +
    SUM(Country[gas]) +
    SUM(Country[oil])

VAR TotalEmission =
    CALCULATE(
        SUM(Country[co2]) +
        SUM(Country[cement]) +
        SUM(Country[coal]) +
        SUM(Country[flaring]) +
        SUM(Country[gas]) +
        SUM(Country[oil]),
        ALL(Country[Country])
    )

RETURN
DIVIDE(CountryEmission, TotalEmission)
```

Conclusion

Global CO_2 emissions have steadily increased since the 1960s, driven mainly by **oil, coal, and gas consumption**.

Asia and North America are the leading contributors, with the United States and China dominating at the country level.

While some countries, such as Germany, have shown meaningful reductions in recent decades, others like the United States remain high emitters.

The analysis underscores the need for **targeted climate policies**, especially in fossil-fuel-heavy economies, to address emissions effectively.

Future research could incorporate renewable energy adoption rates, GDP growth, and population data to better understand the relationship between economic development and emissions.