Global CO$_2$ Emissions Tracker by Sector

Policy Brief Report

Introduction

Climate change remains a critical global challenge, and carbon dioxide (CO$_2$) emissions are its primary driver. To effectively manage and mitigate climate impact, it's vital to monitor emission patterns across different economic sectors and geographies. This project focuses on developing an interactive Power BI dashboard to track CO$_2$ emissions from energy, transport, and industry sectors globally.

Abstract

The objective of this project is to visualize and analyze global CO$_2$ emissions by sector and country. Using historical data, the dashboard provides insights into emission trends, identifies top polluting nations, and allows per capita and GDP-based comparisons. It aims to support policymakers, researchers, and the public in understanding where emissions are concentrated and how they have evolved.

Tools Used

Power BI – for dashboard development and data visualization

Microsoft Excel – for initial data cleaning and transformation

Python (optional) – for advanced data preprocessing (if necessary)

Steps Involved in Building the Project

1. Data Acquisition

Source multi-year CO_2 emissions datasets (e.g., from the Global Carbon Atlas or Our World in Data).

Data includes CO_2 emissions by sector and country from 1990 onward.

2. Data Preparation

Clean and format data in Excel or Power BI Power Query Editor.

Create calculated fields for CO_2 per capita and CO_2 per GDP.

3. Model Design

Import data into Power BI.

Define relationships between country, year, sector, population, and GDP tables.

4. Visualization Creation

Maps: Global emissions by country (with drill-down to sector-level).

Bar/Column Charts: Emissions by sector over time.

Line Charts: Trends of CO_2 per capita/GDP.

Filters/Slicers: Year, country, sector.

5.Dashboard Deployment

Combine visuals into a clean, interactive layout.

Add KPI cards for top 5 emitters, global totals, and sector contributions.

Publish the dashboard to Power BI Service (optional).

Conclusion

This Power BI dashboard provides a comprehensive and dynamic platform to understand and explore CO_2 emissions globally. It highlights the contribution of different sectors and countries to climate change, offering a data-driven foundation for environmental policy and strategy. Continued updates and integration with live datasets can further enhance its utility for long-term climate monitoring.