COOP DA C470 Group 1

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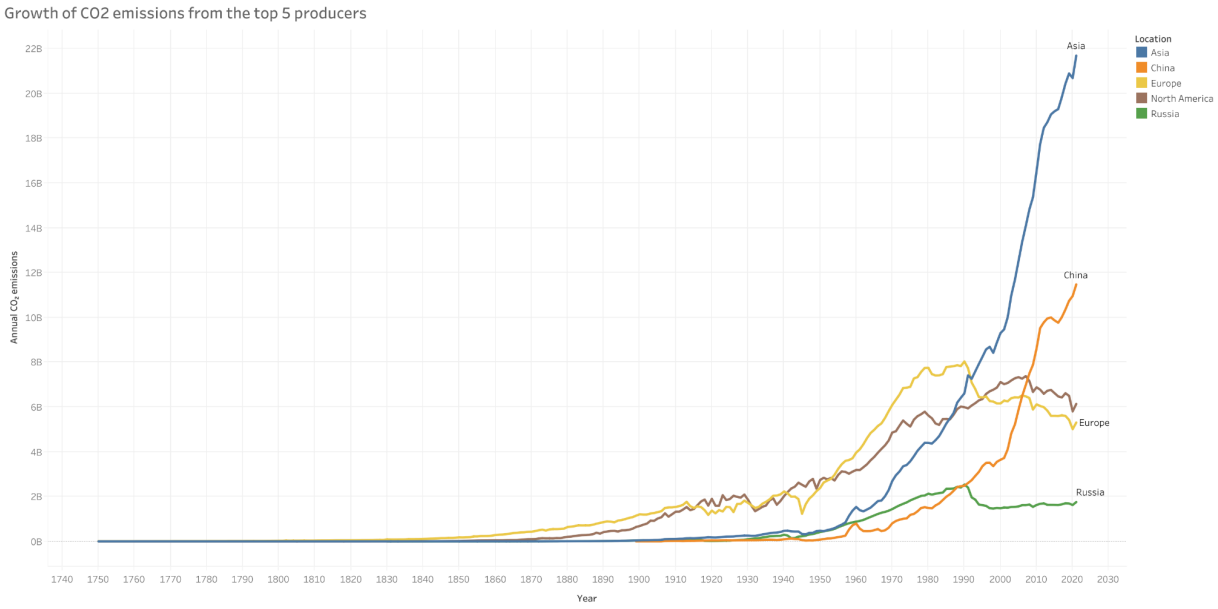
Our group was tasked to analyze the Global Carbon Emissions Dataset for 1750 to 2021, using data visualizations created on Tableau and leveraging external resources based on our insights to provide recommendations. The project's objective was to identify which countries and regions of the world are the highest producers of Carbon Dioxide (CO2) and followed by actions main emitters can take to reduce their output. We imagined our team as a group of data analysts, who used insights from the dataset to deliver findings for our client, the United Nations Environment Programme. By the end of our analysis, we were able to identify Asia as the main contributor, along with China, the United States, and India, driven by industrial and energy demands. In identifying trends within the dataset, we discovered a dip in 2020 due to the COVID-19 pandemic. The CO2 level quickly returned to previous levels post-pandemic. The following visualizations demonstrate the release of CO2 throughout time, along with other key contributors.

This line graph displays the growth of CO2 output in each of these regions over the time period of 1750 to 2021. We see that as of 2021, which is the latest year represented on this graph, Asia is the highest contributor of the top 5, producing around 22 Billion kilotons of emissions while Russia is the lowest at around 2 Billion Kilotons.



The three tree graphs were created to explore the top five countries with the most carbon emissions for each selected continent. Those continents are North America, Europe, and Asia. These charts show that the United States (421 Billion kilotons), Russia (117 Billion Kilotons), and China(249 Billion Kilotons) are the top carbon emitters for their respective continent. Right below, the Asia treemap is shown to illustrate the visual and highlight China as the main carbon emitter in the continent of Asia.

Challenges:

- We didn’t include Group Carbon Project measurements of carbon emission in our analysis

- One challenge we encountered was Russia's unique position as a country spanning both Europe and Asia. Given that Russia is one of the world's largest producers of CO2 emissions, this posed a complication in how we filtered the data and analyzed emissions for Europe and Asia.

Recommendations:

We recommend industrial industries to stop using fossil fuels and switch to solar, wind, hydro, or other renewable energy sources to power their operations. Furthermore, collaborating with suppliers that identify and reduce carbon emissions would help improve their supply chain management. We also recommend that industrial industries use data analysis to monitor their carbon emissions, identify areas for improvement, and showcase progression towards low CO2 levels. Lastly, educating their employees through sustainability practices is a great method to raise awareness and encourage them to identify potential emission reduction opportunities.