

Unearthing The Environmental Impact Of Human Activity: A Global CO2 Emissions Analysis

INTRODUCTION:

Overview:

- Analysing Global Co2 Emission across countries from 1975 to 2020. This dataset contains a record of Co2 Emission by each Country and Region of Earth, here we are going to analyse and visualise Country wise, Region wise and Overall Co2 Emission on Earth.
- CO2 emissions are emissions stemming from the burning of fossil fuels and the manufacture of cement; they include carbon dioxide produced during consumption of solid, liquid, and gas fuels as well as gas flaring.
- CO2 analysis is important for understanding and mitigating the impacts of climate change, as CO2 is a greenhouse gas that contributes to global

warming. It is also used in industries such as food and beverage production, where monitoring CO₂ levels is critical for quality control and safety.

Purpose:

- Climate change research: CO₂ analysis is essential for measuring atmospheric CO₂ concentrations and monitoring changes over time. This data is critical for climate change research and for understanding the impact of human activities on the environment.
- Usually the CO₂ is captured from large point sources
Such as a chemical plant or biomass plant, and then stored in an underground geological formation. The aim is to reduce greenhouse gas emission.
- CO₂ is an important gas that helps to trap heat in our atmosphere.
- Food and beverage production: CO₂ analysis is critical for the production of

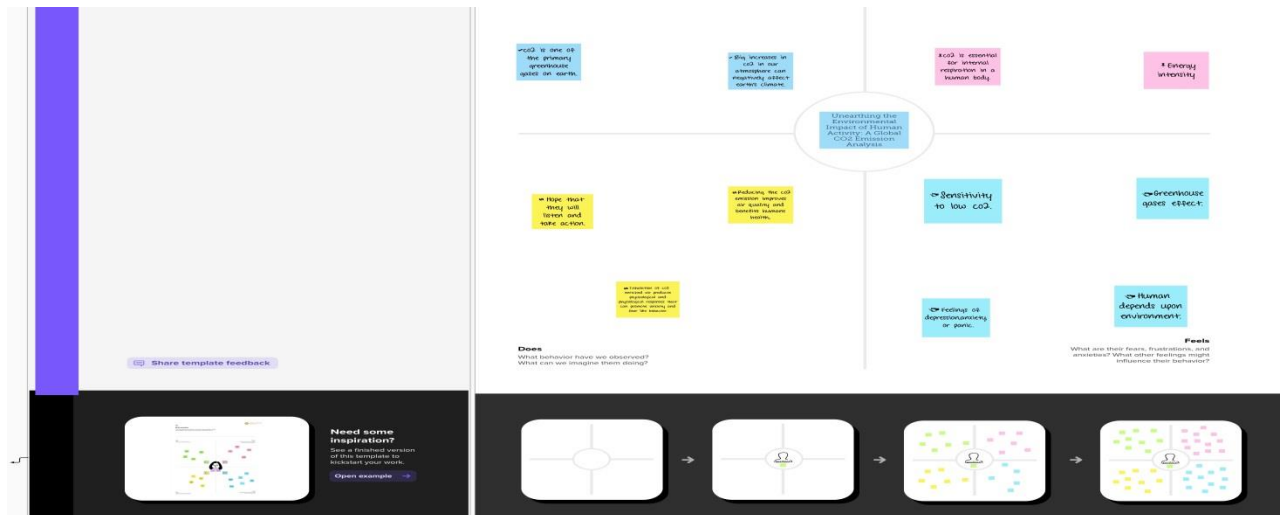
carbonated beverages, where the correct amount of CO₂ is needed to ensure product quality and safety.

- Environmental monitoring: CO₂ analysis can be used to monitor CO₂ levels in soil, water, and other environments. This data can provide valuable insights into ecosystem health and can help identify areas where CO₂ emissions need to be reduced.

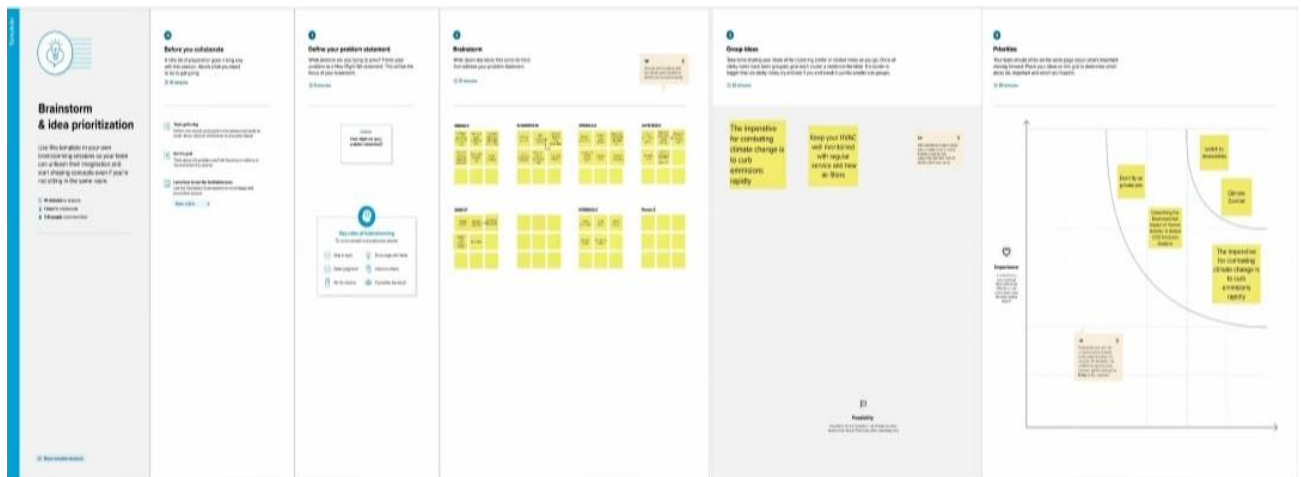
PROBLEM DEFINITION & DESIGN THINKING:

Empathy Map:





IDEATION AND BRAINSTORMING MAP:



RESULT :

CO2 EMISSION

Global Co2 Emission Analysis

Carbon dioxide emissions are the primary driver of global climate change. It's widely recognised that to avoid the worst impacts of climate change, the world needs to urgently reduce emissions.

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myob

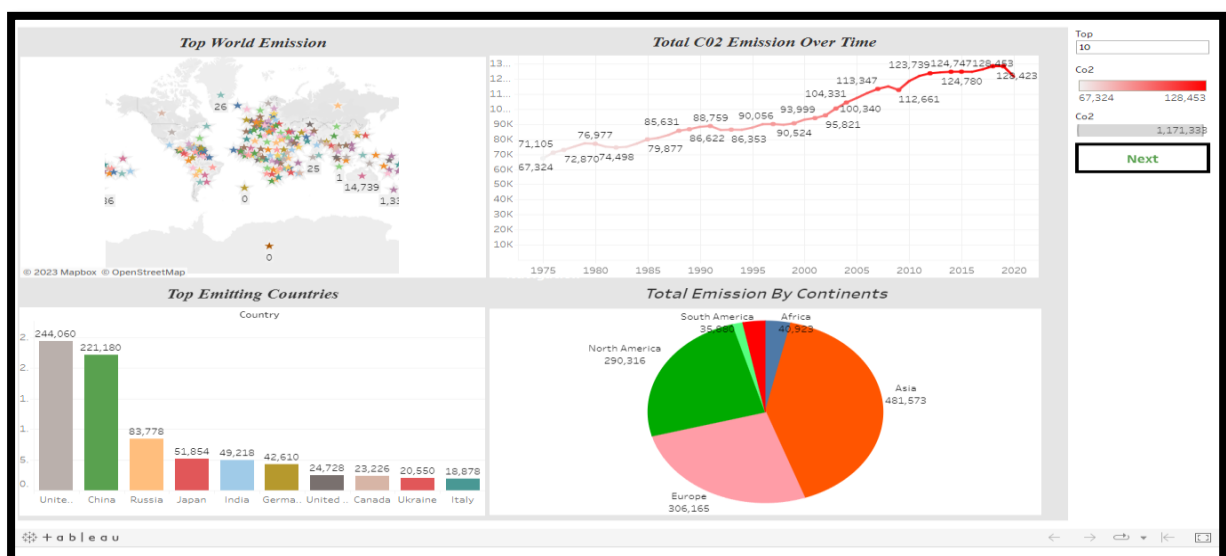
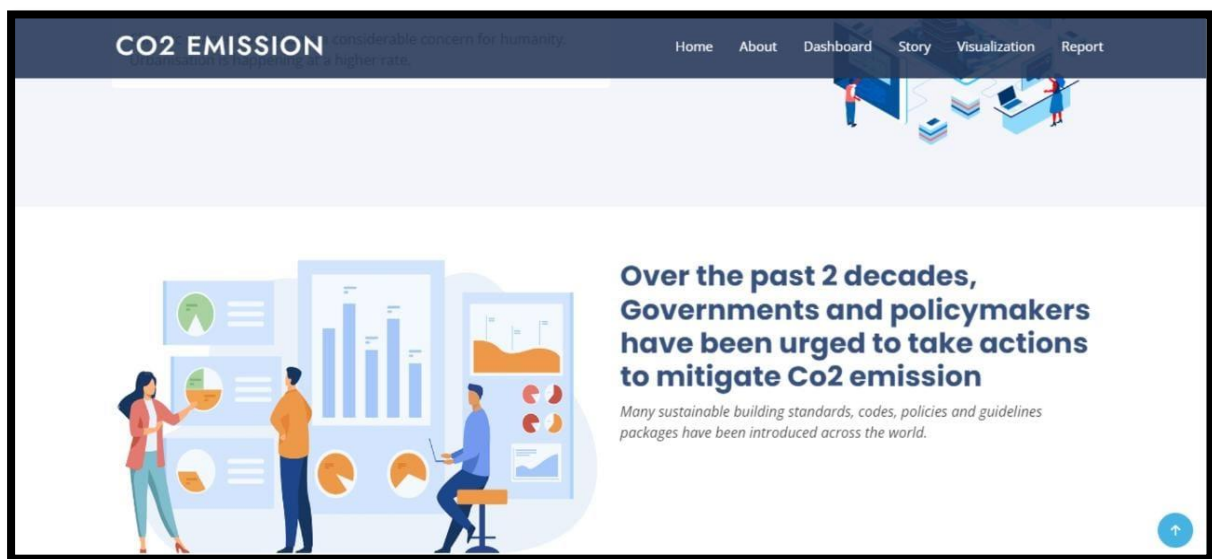
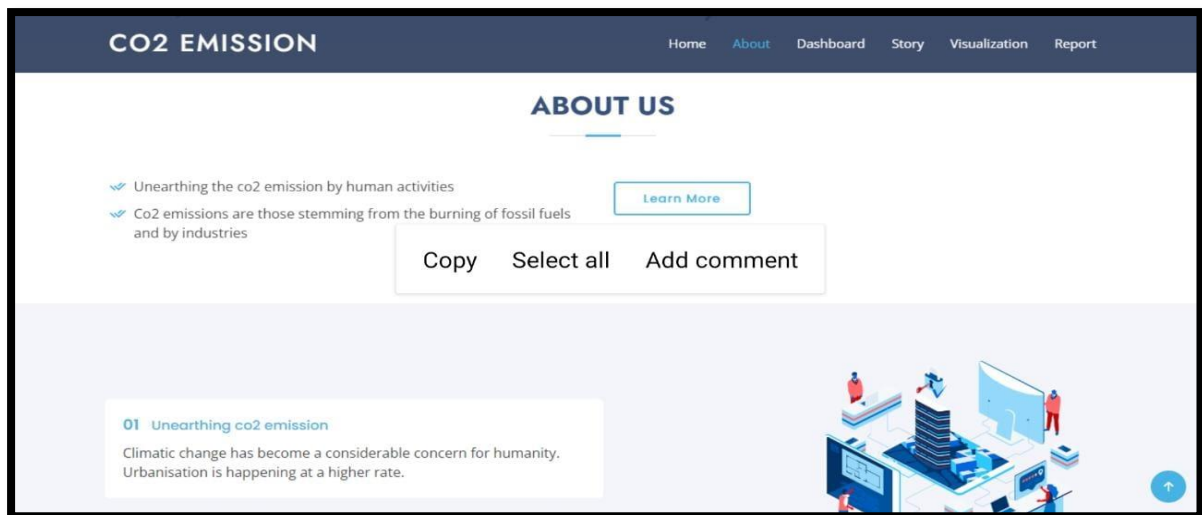
BELIMO

LifeGroups

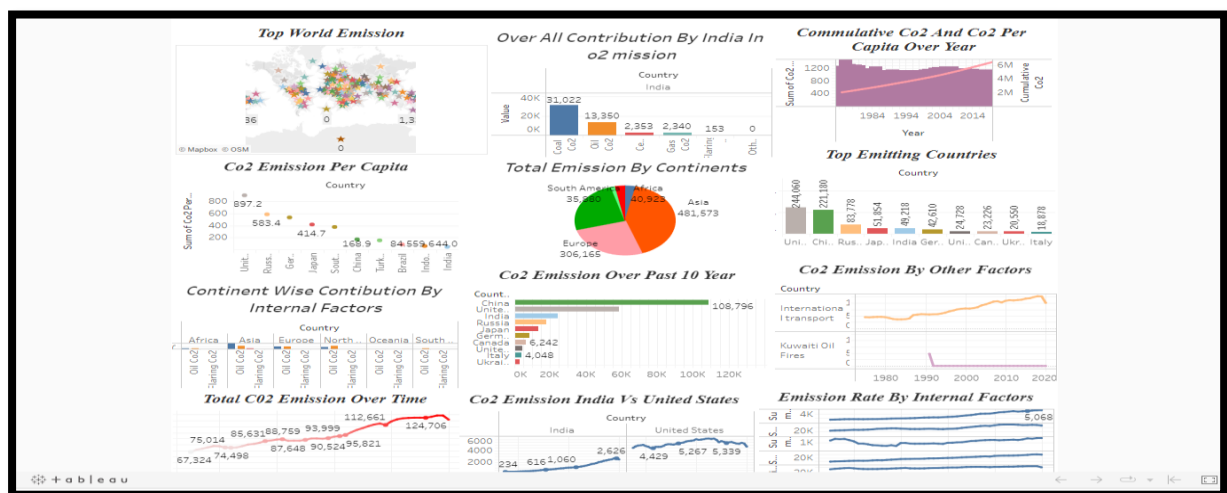
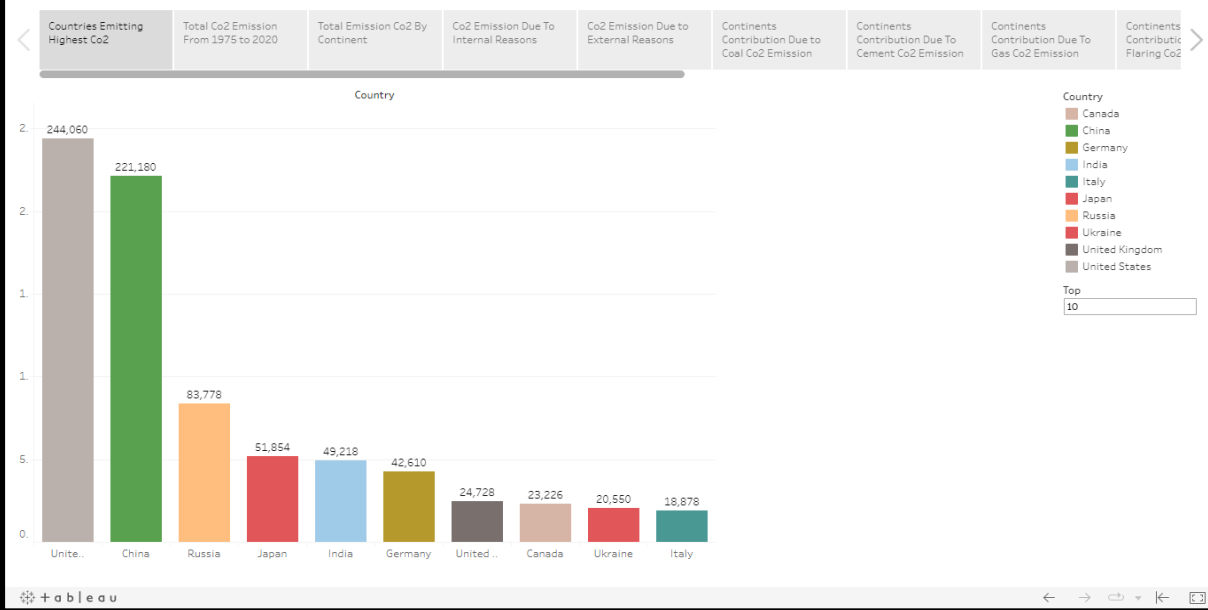
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Co2 Emission Story

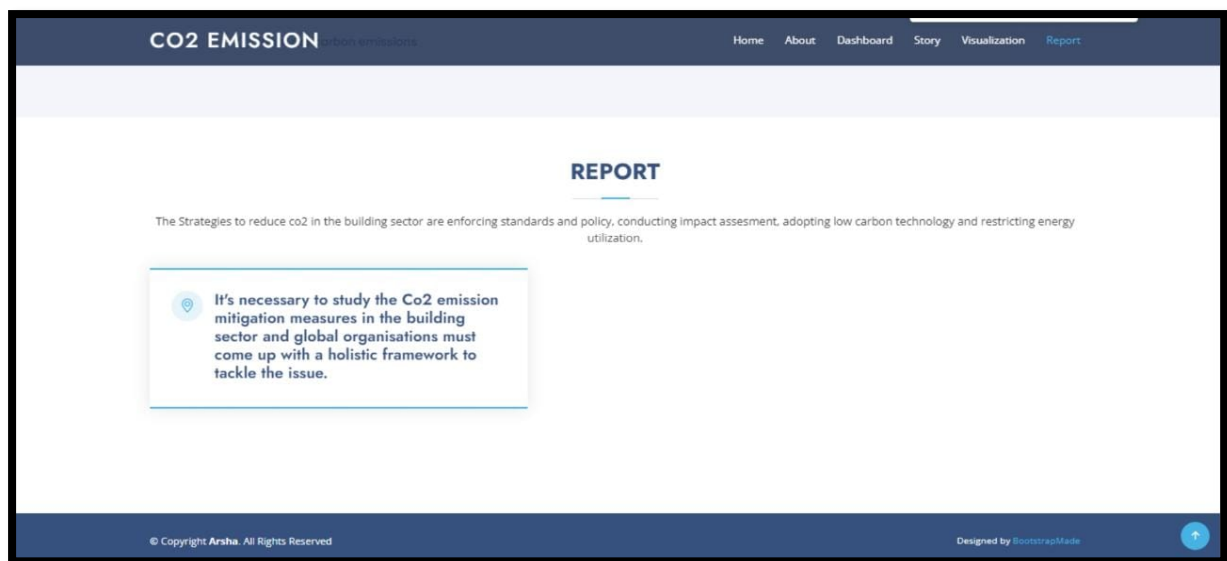


CO2 EMISSION

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FREQUENTLY ASKED QUESTIONS

- What causes the most carbon emission?
From the use of fossil fuels
- Why are carbon emissions a problem?
- What are the 4 main green house gases?
- What are carbon emissions?



ADVANTAGES & DISADVANTAGES :

- **Cost:** CO2 emission analysis can be expensive, especially for smaller businesses and organizations with limited resources. The cost of data collection, analysis, and reporting can be significant and may not be feasible for some companies.
- **Complexity:** Analyzing CO2 emissions can be complex and requires expertise in areas such as data analysis, energy efficiency, and environmental regulations. Small businesses or organizations may not

have the expertise or resources to conduct a thorough analysis.

- **Limited Scope:** CO₂ emission analysis typically focuses on direct emissions from a company's operations, such as from energy use and transportation. It may not capture indirect emissions from the supply chain, which can be significant in some industries.
- **Uncertainty:** There is often uncertainty in the data used for CO₂ emission analysis. For example, it may be difficult to accurately measure emissions from certain sources or to predict how changes in operations will impact emissions.
- **Limited Impact:** Even if CO₂ emission analysis leads to reductions in emissions, the impact may be limited in the context of global climate change. This can be discouraging for some companies, especially if they are taking steps to

reduce emissions but feel like their efforts are not making a meaningful difference.

APPLICATIONS:

- Climate change mitigation: CO₂ emission analysis can help identify the sources of greenhouse gas emissions and track progress towards meeting emissions reduction targets. It can also help evaluate the effectiveness of different mitigation strategies and inform policy decisions related to climate change.

- Energy sector: CO₂ emission analysis can be used to evaluate the carbon footprint of different energy sources, such as coal, oil, gas, nuclear, and renewable energy. It can also help identify opportunities to reduce emissions in the energy sector, such as improving energy efficiency, switching to renewable energy sources, and deploying carbon capture and storage technologies.

- Transportation sector: CO₂ emission analysis can help assess the environmental impact of different modes of transportation, such as cars,

trucks, buses, trains, and airplanes. It can also inform policy decisions related to promoting low-carbon transportation options, such as electric and hybrid vehicles, public transportation, and active transportation.

- Industrial sector: CO₂ emission analysis can help identify emissions hotspots in the industrial sector, such as manufacturing plants, refineries, and chemical facilities. It can also help identify opportunities to reduce emissions through energy efficiency, process optimization, and the use of low-carbon technologies.
- Agriculture and forestry: CO₂ emission analysis can help assess the impact of land use changes, such as deforestation and agricultural practices, on greenhouse gas emissions. It can also inform policies related to promoting sustainable land use practices, such as afforestation, reforestation, and sustainable agriculture.

CONCLUSION:

- CO2 emission analysis is a critical tool for assessing the environmental impact of human activities on the climate and informing policy decisions related to climate change mitigation and adaptation. It has various applications in different sectors, including the energy sector, transportation sector, industrial sector, and agriculture and forestry. By identifying emissions hotspots and opportunities to reduce emissions through energy efficiency, renewable energy, low-carbon technologies, and sustainable land use practices, CO2 emission analysis can help us transition to a low-carbon economy and reduce our greenhouse gas emissions. Ultimately, this can help us mitigate the worst impacts of climate change and ensure a sustainable future for generations to come.

FUTURE SCOPE:

- Improved data collection and analysis: One area for future improvement is the collection

and analysis of data related to CO₂ emissions. This can involve developing new data sources, improving data quality, and enhancing analytical techniques to better understand the trends and drivers of CO₂ emissions.

- Integration of machine learning and AI: Machine learning and AI techniques can be used to analyze and model complex systems, such as the global climate system and energy markets, to help understand and predict future CO₂ emissions.
- Scenario analysis: Scenario analysis can be used to explore the potential impacts of different policy and technology choices on CO₂ emissions. This can help policymakers and businesses identify the most effective strategies for reducing emissions.
- Lifecycle analysis: In addition to analyzing CO₂ emissions from individual sources, future analysis can also focus on the lifecycle emissions of products and services, from

production to disposal. This can help identify opportunities to reduce emissions across the entire lifecycle of products and services.

- Carbon pricing and markets: Analysis can also focus on the design and implementation of carbon pricing mechanisms and carbon markets, which can help incentivize the reduction of CO₂ emissions.
- International cooperation and coordination: Future analysis can also focus on the role of international cooperation and coordination in reducing CO₂ emissions. This can involve analyzing the effectiveness of existing international agreements and exploring new models for global cooperation on climate change.

