# UNEARTHING THE ENVIRONMENTAL IMPACT OF HUMAN ACTIVITY : A GLOBAL CO2 EMISSION

PROJECT BASED EXPERIMENTAL LEARNING PROGRAM

SUBRAMANIYAM ARTS AND SCIENCE COLLEGE

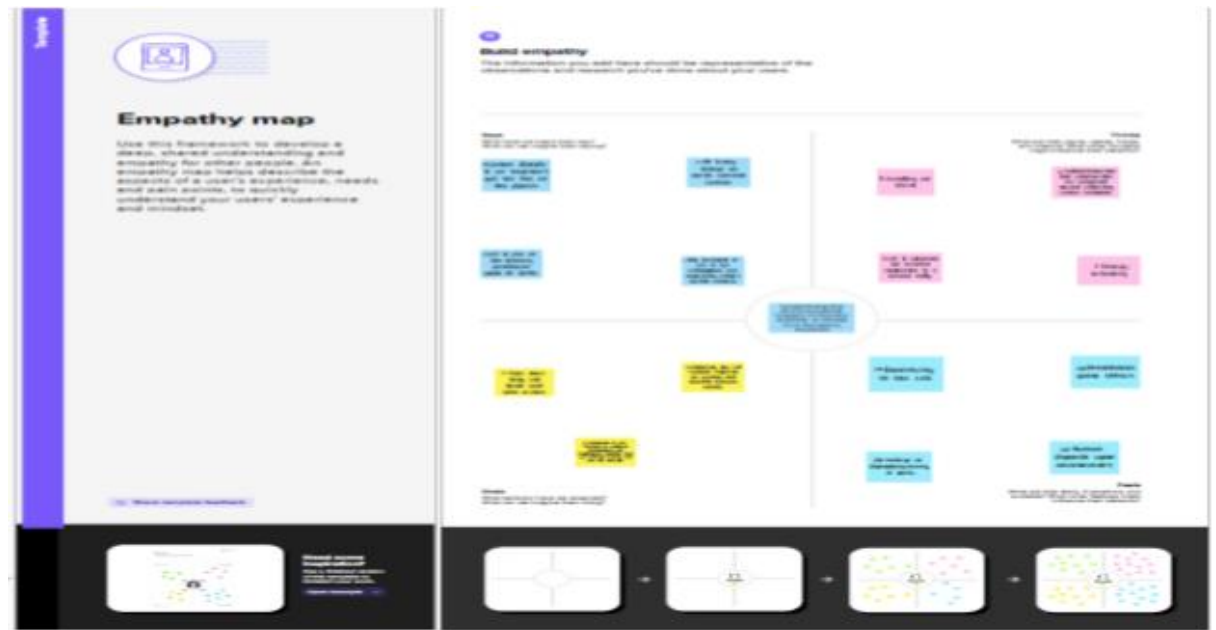## PROJECT REPORT BY: N.SELVI

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 are 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.
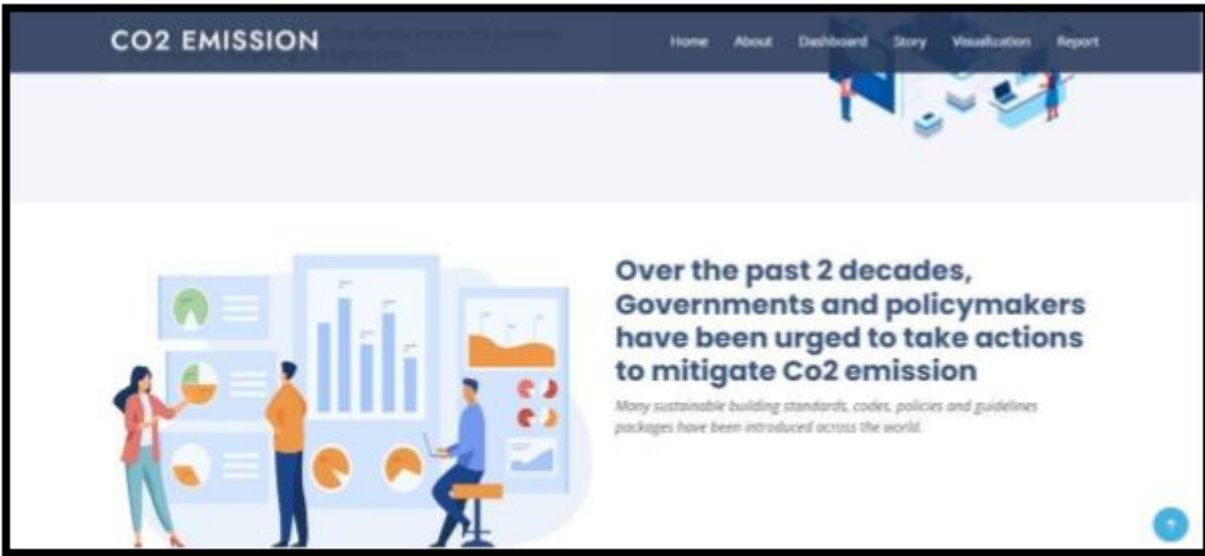
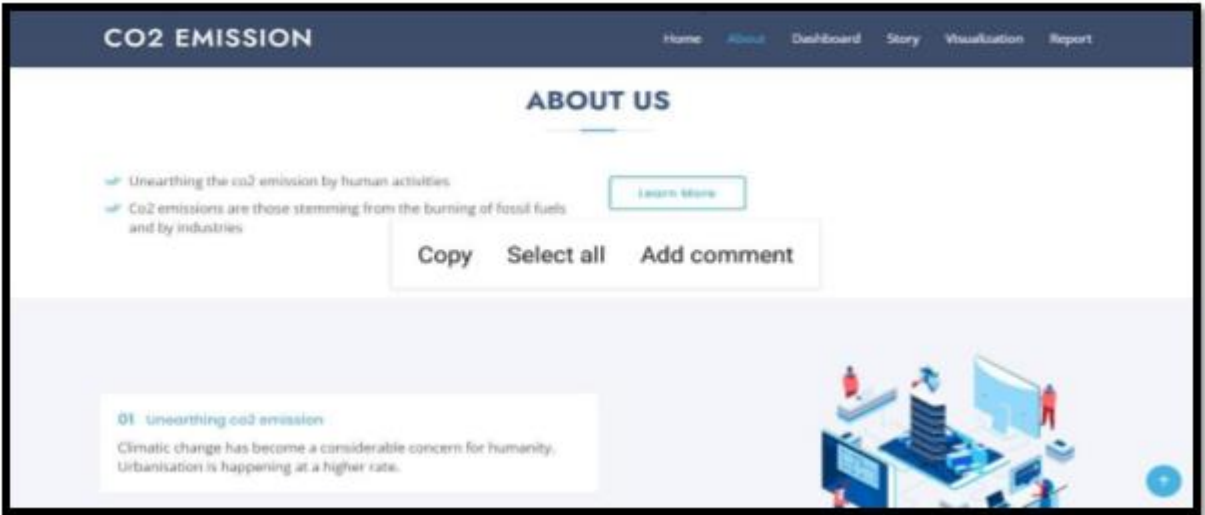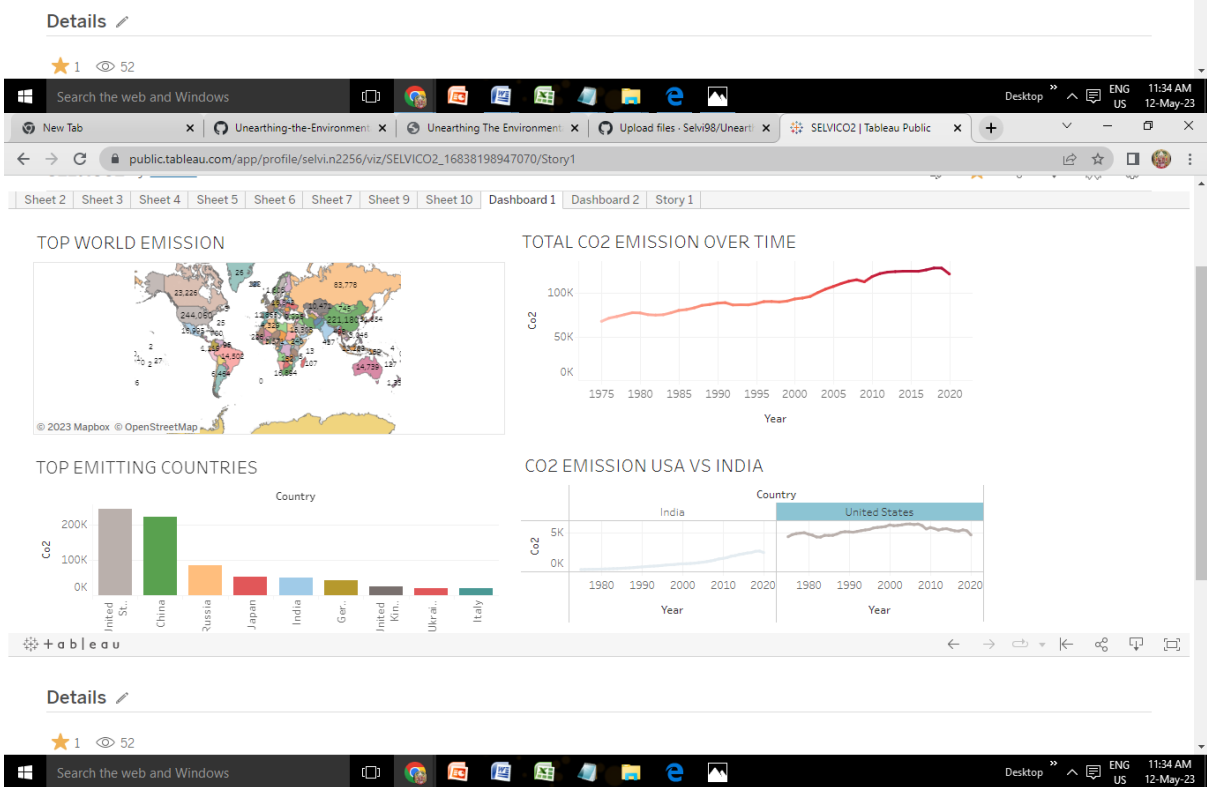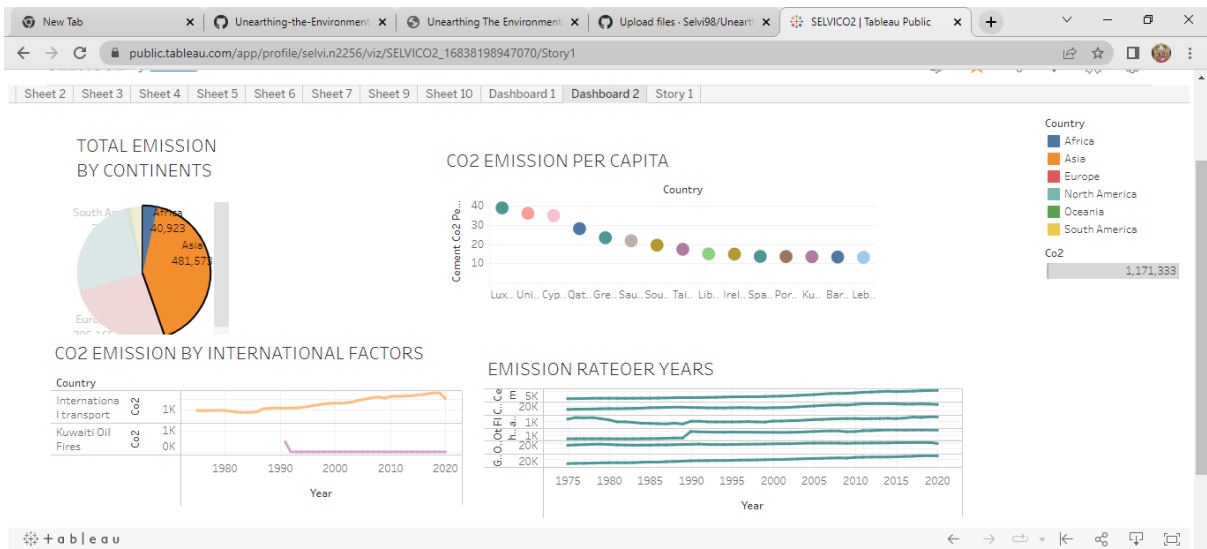## PROBLEM DEFINITION & DESIGN THINKING:

EmpathyMap:

IDEATIONANDBRAINSTORMINGMAP:

RESULT   :
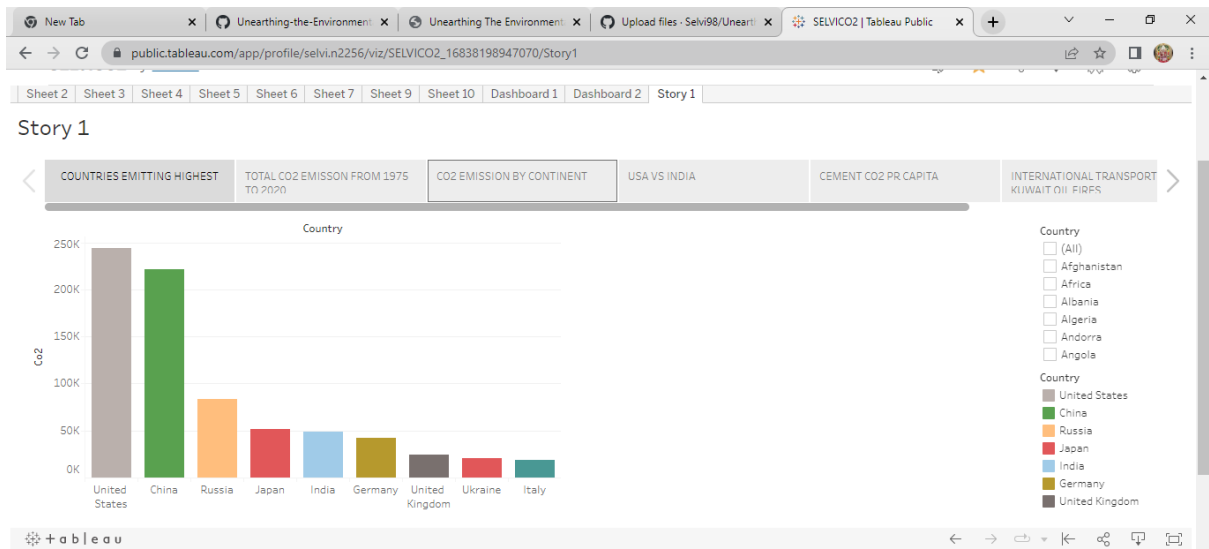
Sheet 2 | Sheet 3 | Sheet 4 | Sheet 5 | Sheet 6 | Sheet 7 | Sheet 9 | Sheet 10 | Dashboard 1 | **Dashboard 2** | Story 1

TOTAL EMISSION BY CONTINENTS

South A.. 47,..
40,923
Asia 481,57..
Euro..

CO_2 EMISSION PER CAPITA

Country

Cement CO_2 Pe..

40
30
20
10

Lux.. Uni.. Cyp.. Qat.. Gre.. Sau.. Sou.. Tai.. Lib.. Irel.. Spa.. Por.. Ku.. Bar.. Leb..

Country
- Africa
- Asia
- Europe
- North America
- Oceania
- South America

Co2
1,171,333

CO_2 EMISSION BY INTERNATIONAL FACTORS

Country

International transport — Co2 1K

Kuwaiti Oil Fires — Co2 1K, 0K

1980   1990   2000   2010   2020

Year

EMISSION RATEOER YEARS

E 5K
20K
h.. a.. 1K
1K
G.. O.. Ot Fl C.. Ce 20K
20K

1975 1980 1985 1990 1995 2000 2005 2010 2015 2020

Year

+ a b l e a u

Details ✎

⭐ 1   👁 52

Sheet 2 | Sheet 3 | Sheet 4 | Sheet 5 | Sheet 6 | Sheet 7 | Sheet 9 | Sheet 10 | **Dashboard 1** | Dashboard 2 | Story 1

TOP WORLD EMISSION

28
23,226
63,778
244,08..
15,963
221,18..
2
14,502
1,..
0 27
15,8..
14,7..
6

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TOTAL CO_2 EMISSION OVER TIME

Co2

100K

50K

0K

1975 1980 1985 1990 1995 2000 2005 2010 2015 2020

Year

TOP EMITTING COUNTRIES

Country

Co2

200K

100K

0K

United St.. China Russia Japan India Ger.. United Kin.. Ukrai.. Italy

CO_2 EMISSION USA VS INDIA

Country

| India | United States |

Co2

5K

0K

1980 1990 2000 2010 2020   1980 1990 2000 2010 2020

Year   Year

+ a b l e a u

Details ✎

⭐ 1   👁 52

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 CO_2 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:

CO_2 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:

CO_2 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:

CO_2 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:

CO_2 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:

CO_2 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:

CO_2 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, CO_2 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 CO_2 emissions. This can involve developing new data sources, improving data quality, and enhancing analytical techniques to better understand the trends and drivers of CO_2 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