UNEARTHING THE ENVIRONMENTAL IMPACT OF HUMAN ACTIVITY A GLOBAL CO2 EMISSION ANALYSIS

INTRODUCTION

1.1 Overview:

Global warming is one of the biggest challenges currently being faced by the human race, although correlation is not causation, a likely cause of global warming is due to increased atmospheric carbon dioxide from human activities. CO2 Emission refers to the Carbon Dioxide emitted throughout the world. For this analysis we will be focusing on CO2 Emissions and its effect on the world we live in as well as some key factors and stats that may play a role in the emission of CO2 globally. Fossil fuel use is the primary source of CO2. The data throws light onto how much fossil fuels are burnt, per year per nation, which amounts to an increase in CO2 every year. This will help researchers and environment experts to predict global warming. So countries should set a goal to decrease this amount yearly. 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.

1.2 Purpose:

- The purpose of unearthing the environmental impact of human activity and conducting a global CO2 emission analysis is to understand the extent to which human activities are affecting the natural environment, particularly in terms of climate change.

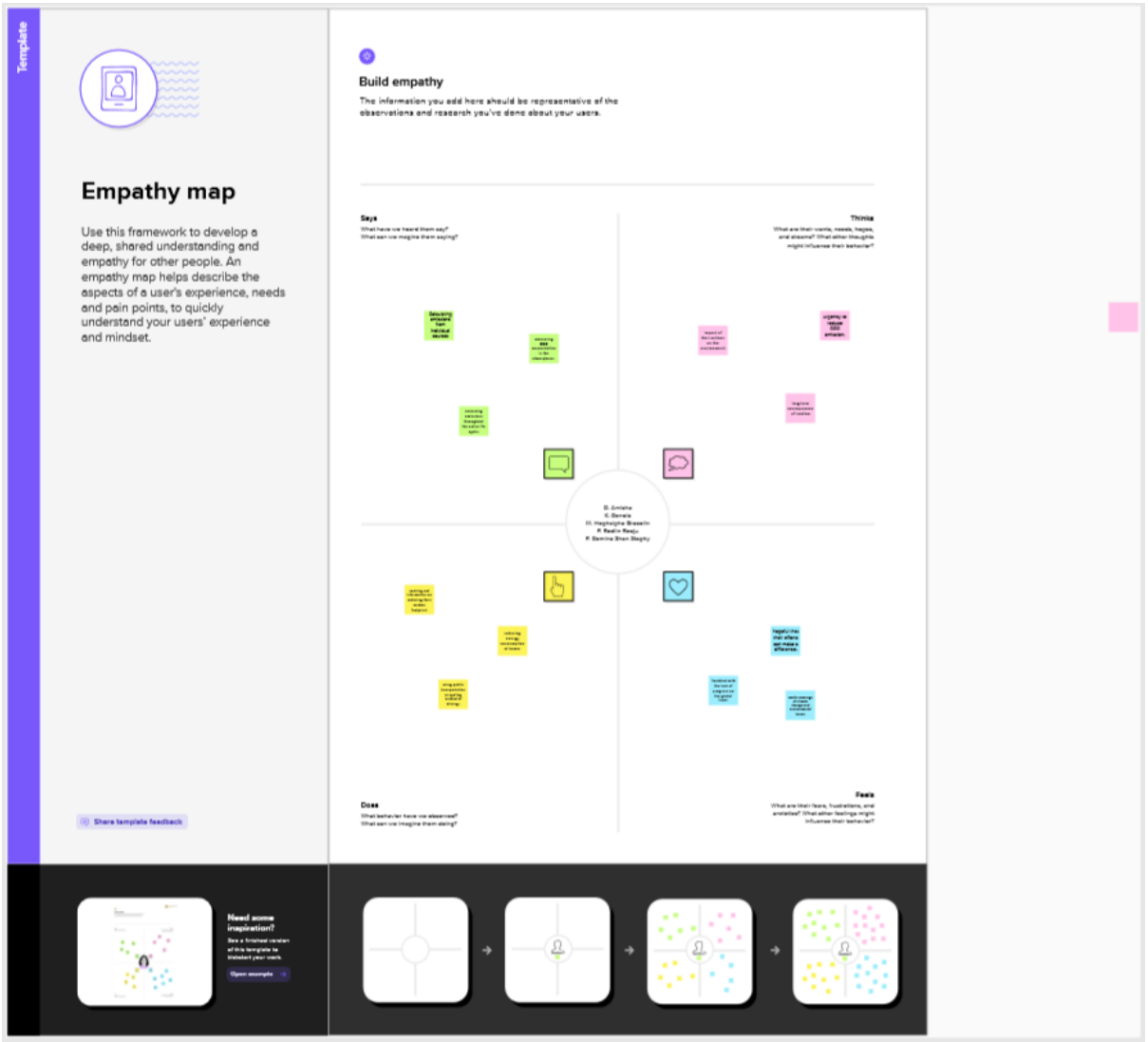
- The burning of fossil fuels for energy production, transportation, and industrial processes has led to the release of large amounts of carbon dioxide (CO2) into the atmosphere, contributing to the greenhouse effect and global warming.

- By analyzing global CO2 emissions and other environmental data, scientists and policymakers can better understand the scale and impact of human activities on the environment, and develop strategies to mitigate and adapt to the effects of climate change.

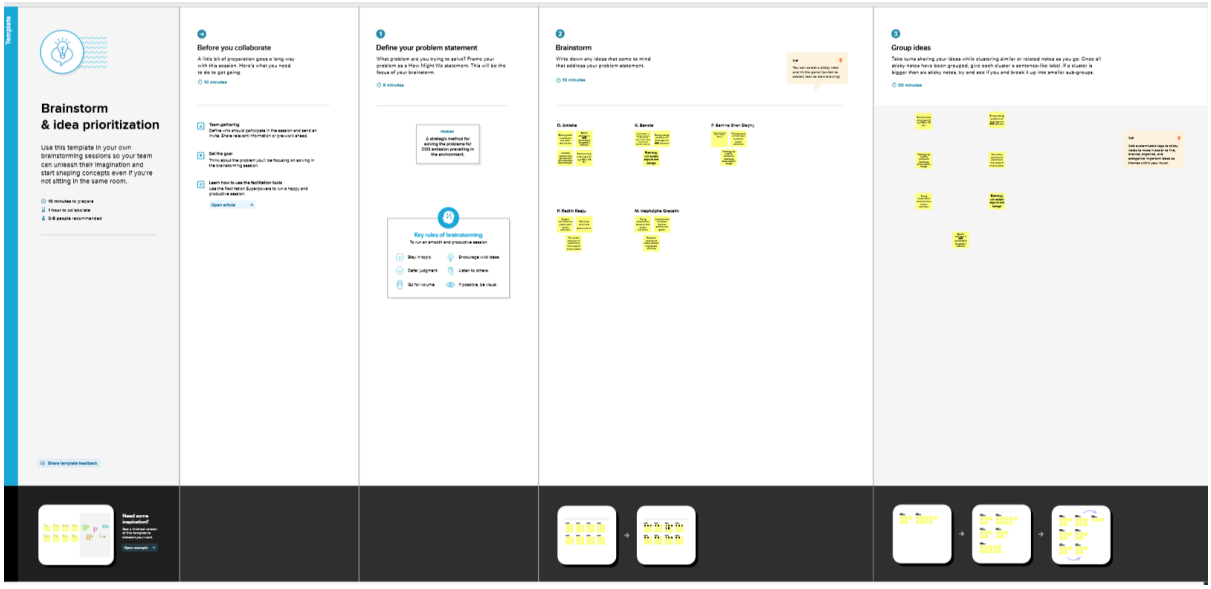
- Understanding the environmental impact of human activity and reducing greenhouse gas emissions is critical to ensuring a sustainable future for the planet and all

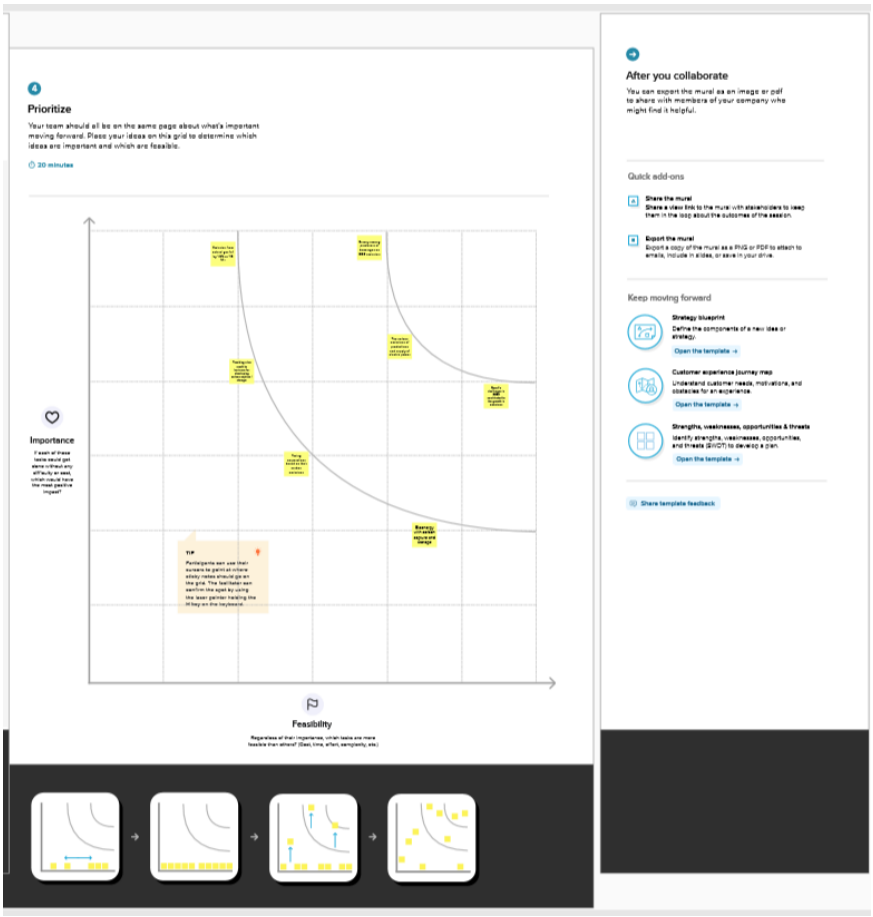
PROBLEM DEFINITION AND DESIGN THINKING

2.1 Empathy Map:

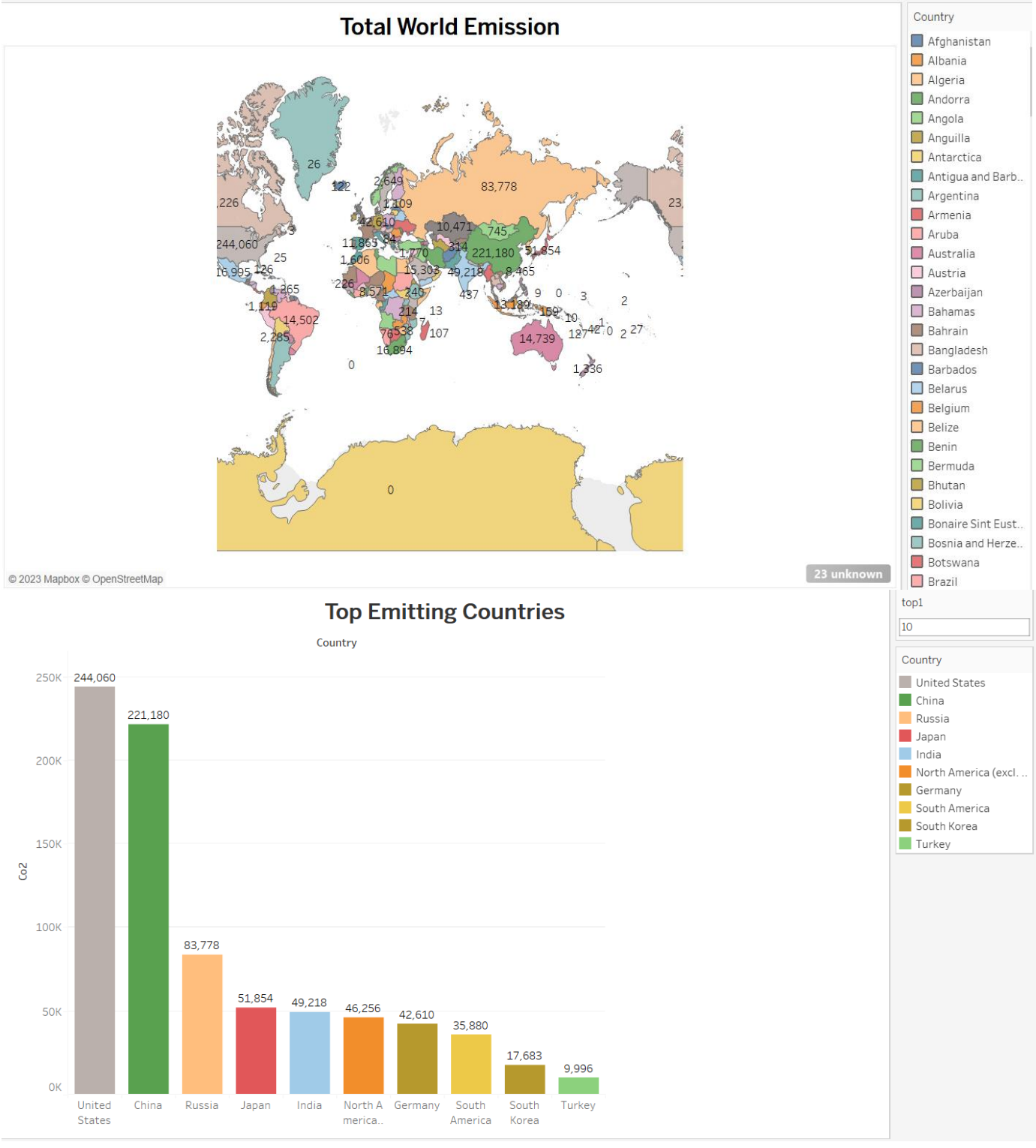


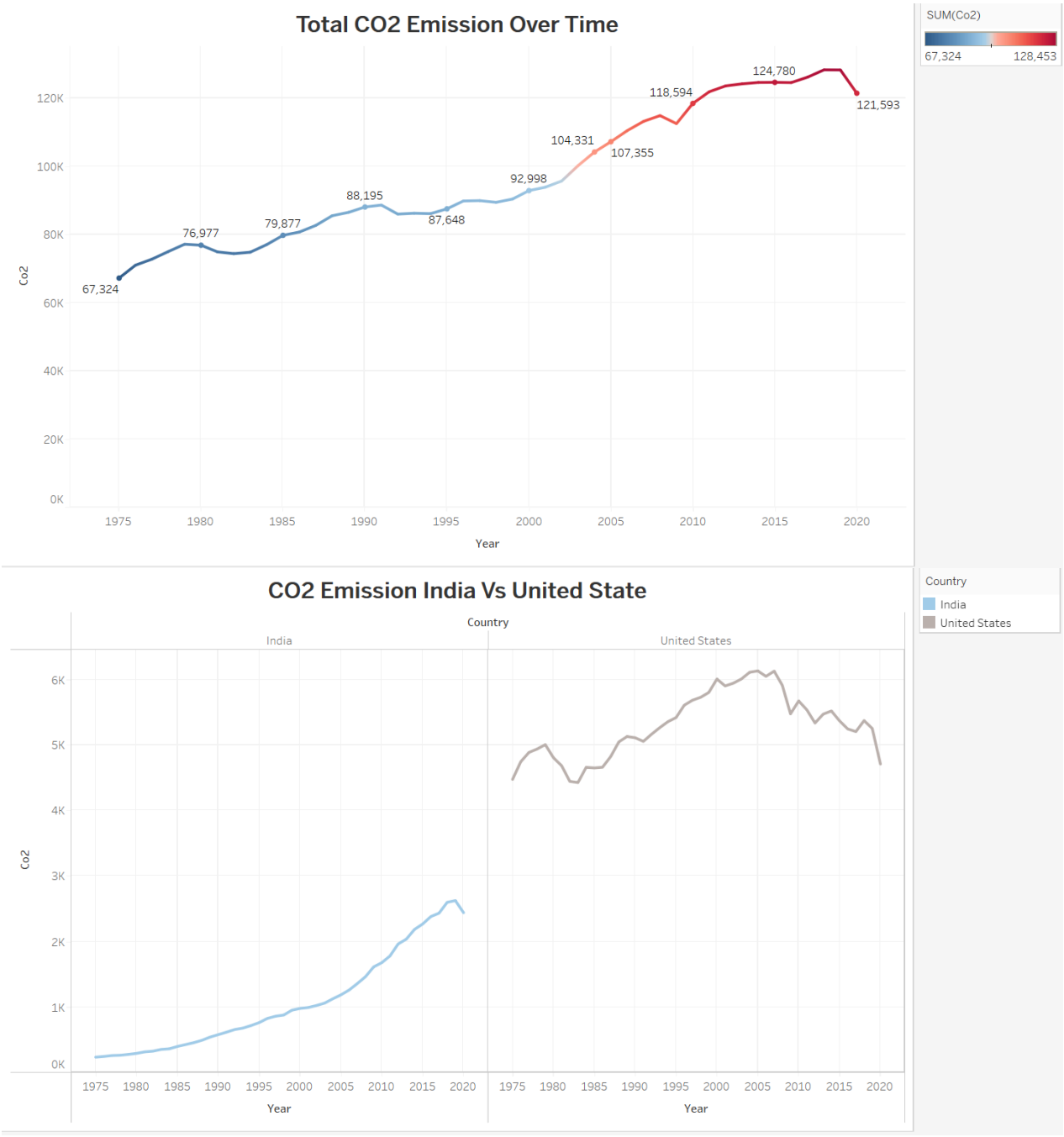
2.2 Ideation and Brainstorming Map:





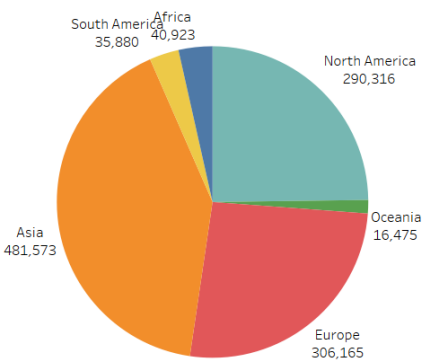
RESULT


Total World Emission
26
122
2,649
83,778
226
1,109
23
42,610
3
10,471
745
244,060
11,865
84
314
221,180
51,854
25
1,606
1,770
16,995
126
15,303
49,218
8,465
226
3,571
240
437
1,265
9
0
3
2
1,119
13,189
150
10
14,502
214
13
1
42
0
2
27
2,285
538
7
107
14,739
127
16,894
0
1,336
0
© 2023 Mapbox © OpenStreetMap
23 unknown
Country
Afghanistan
Albania
Algeria
Andorra
Angola
Anguilla
Antarctica
Antigua and Barb..
Argentina
Armenia
Aruba
Australia
Austria
Azerbaijan
Bahamas
Bahrain
Bangladesh
Barbados
Belarus
Belgium
Belize
Benin
Bermuda
Bhutan
Bolivia
Bonaire Sint Eust..
Bosnia and Herze..
Botswana
Brazil
top1
10
Country
United States
China
Russia
Japan
India
North America (excl...
Germany
South America
South Korea
Turkey
Top Emitting Countries
Country
Co2
250K
200K
150K
100K
50K
0K
244,060
221,180
83,778
51,854
49,218
46,256
42,610
35,880
17,683
9,996
United States
China
Russia
Japan
India
North America..
Germany
South America
South Korea
Turkey


Total CO2 Emission Over Time
SUM(Co2)
67,324
128,453
120K
100K
80K
60K
40K
20K
0K
Co2
67,324
76,977
79,877
88,195
87,648
92,998
104,331
107,355
118,594
124,780
121,593
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year

CO2 Emission India Vs United State
Country
India
United States
6K
5K
4K
3K
2K
1K
0K
Co2
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year

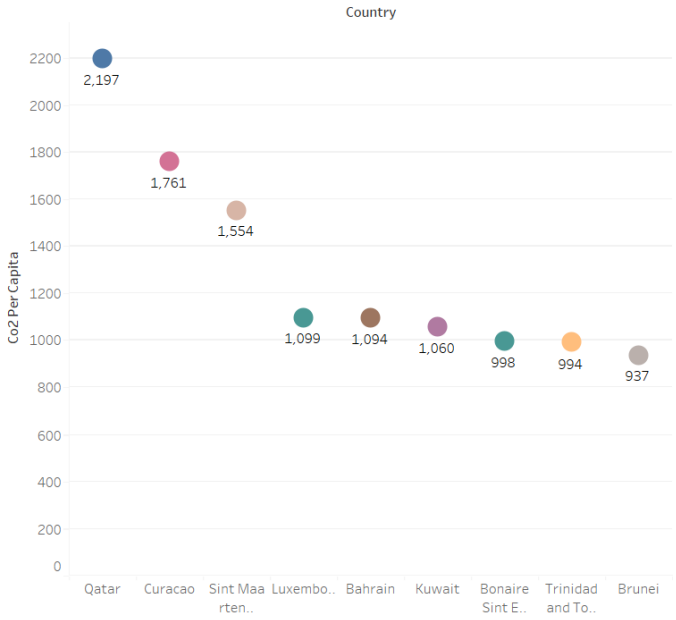
Total Emission By Continents



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

SUM(Co2)
1,171,333

CO2 Emission Per Capita

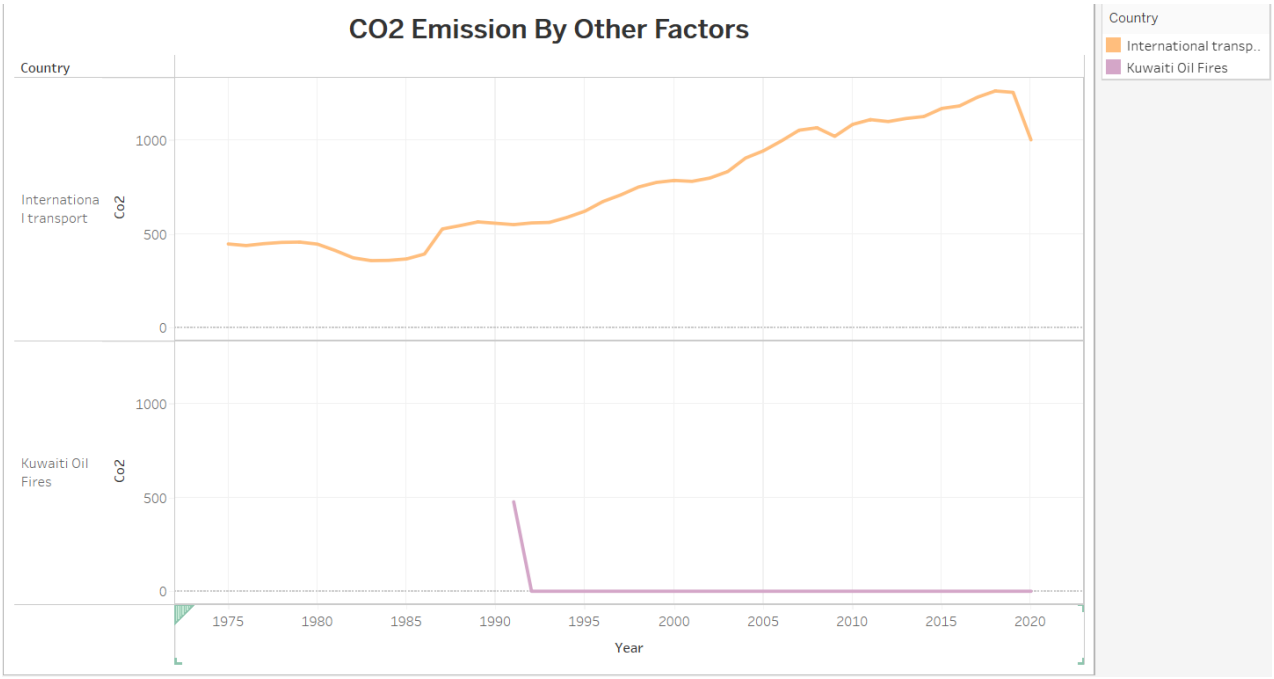


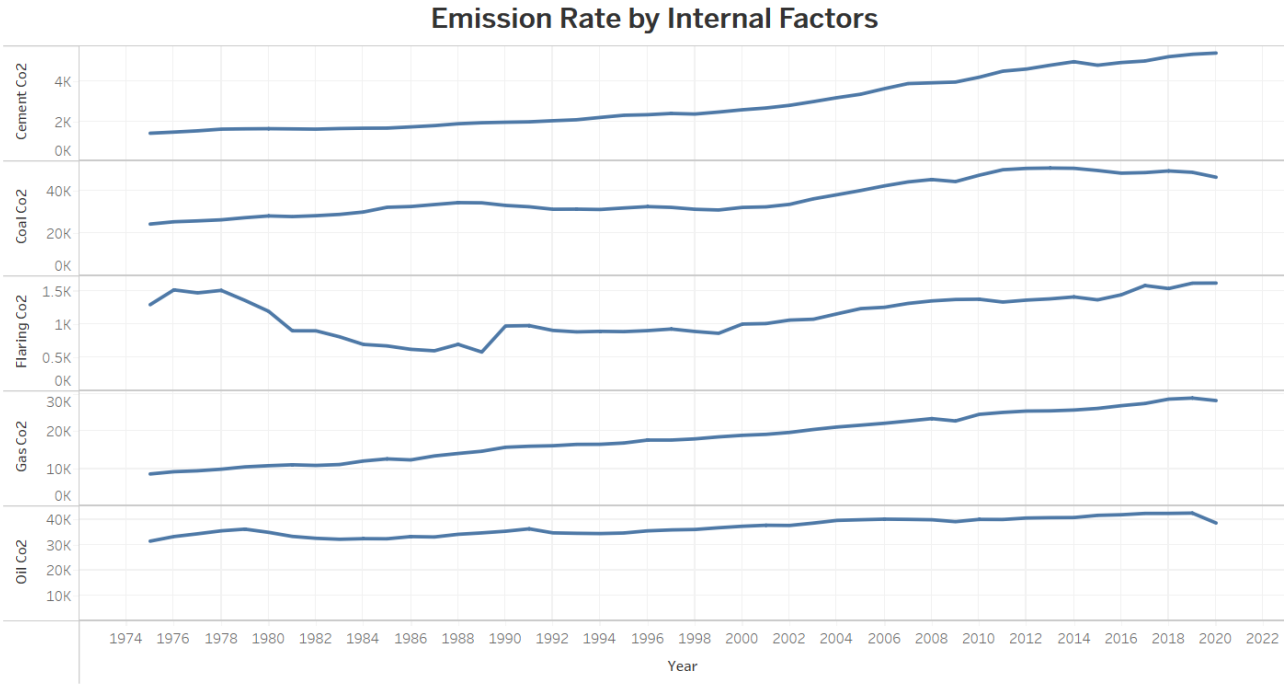
Country
- (All)
- Afghanistan
- Africa
- Albania
- Algeria
- Andorra
- Angola
- Anguilla
- Antarctica
- Antigua and Bar...
- Argentina
- Armenia
- Aruba

Limit
Top 10 by SUM([Cement Co2])

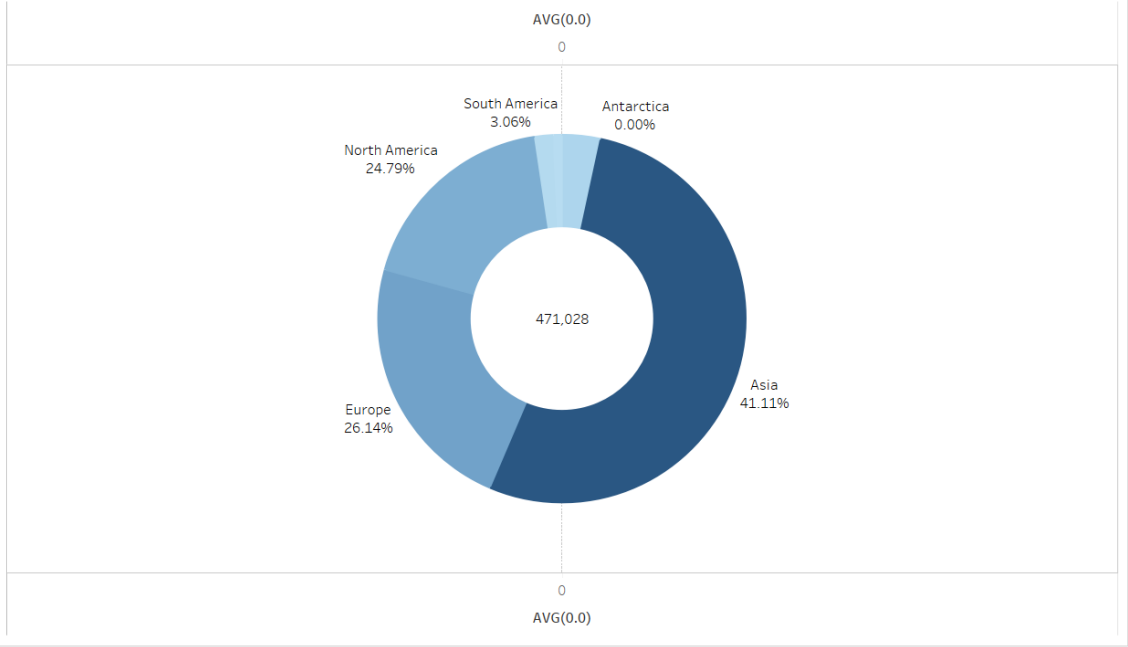
top
10

Country
- Qatar
- Curacao
- Sint Maarten (Dutch ..
- Luxembourg
- Bahrain
- Kuwait
- Bonaire Sint Eustati..
- Trinidad and Tobago
- Brunei

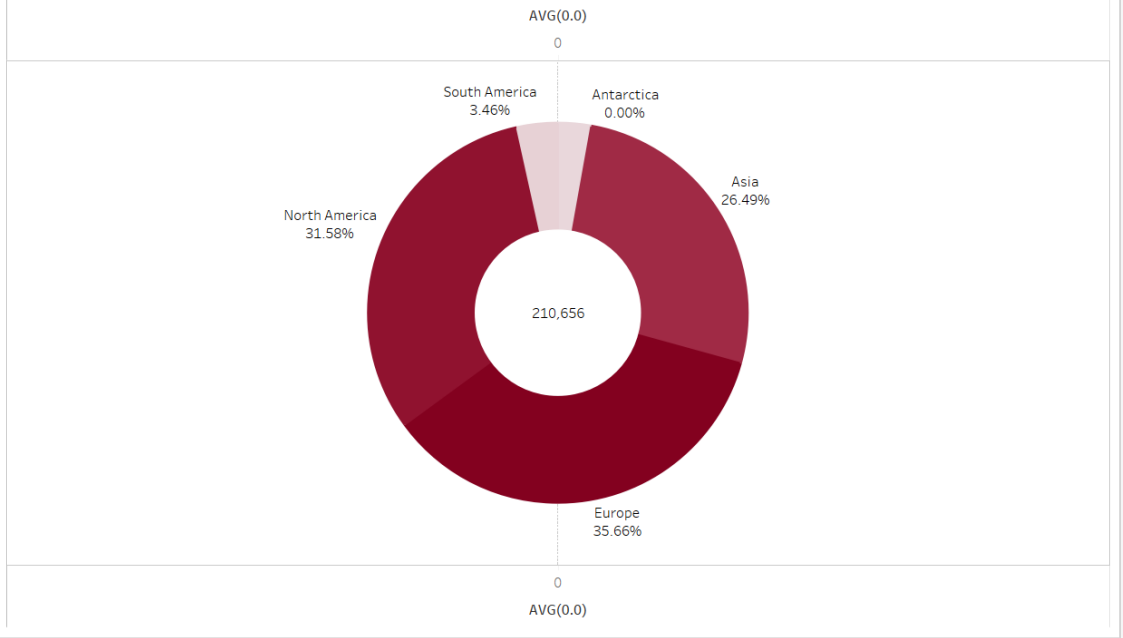

CO2 Emission By Other Factors
Country
International transp..
Kuwaiti Oil Fires
Country
International transport
Co2
1000
500
0
Kuwaiti Oil Fires
Co2
1000
500
0
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year


Emission Rate by Internal Factors
Cement Co2
4K
2K
0K
Coal Co2
40K
20K
0K
Flaring Co2
1.5K
1K
0.5K
0K
Gas Co2
30K
20K
10K
0K
Oil Co2
40K
30K
20K
10K
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
Year

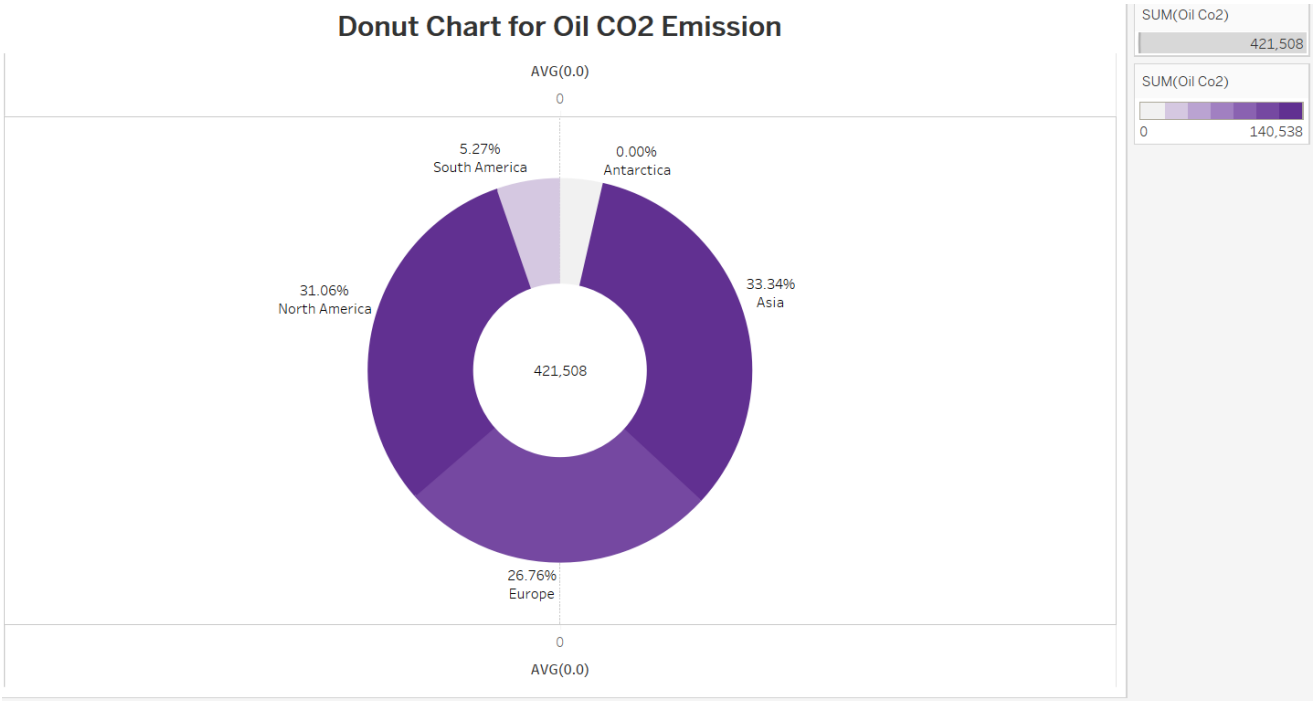
Donut Chart for Coal CO2 Emission



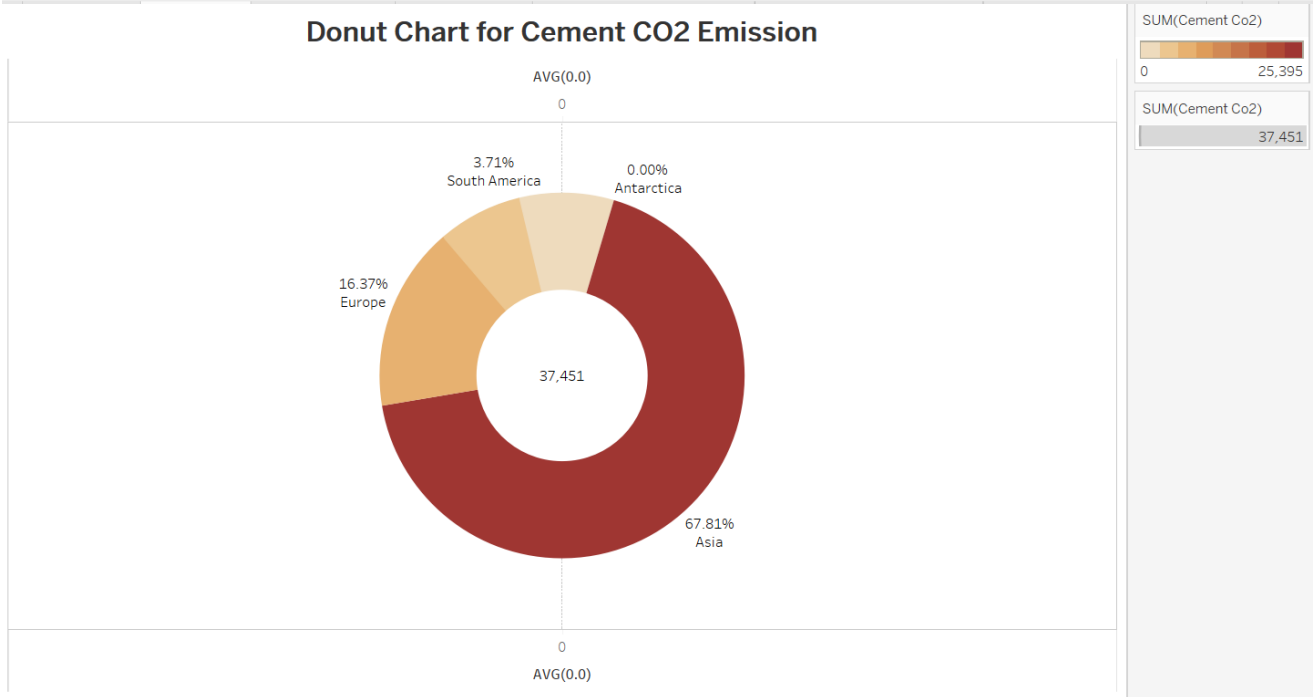
Donut Chart for Gas CO2 Emission



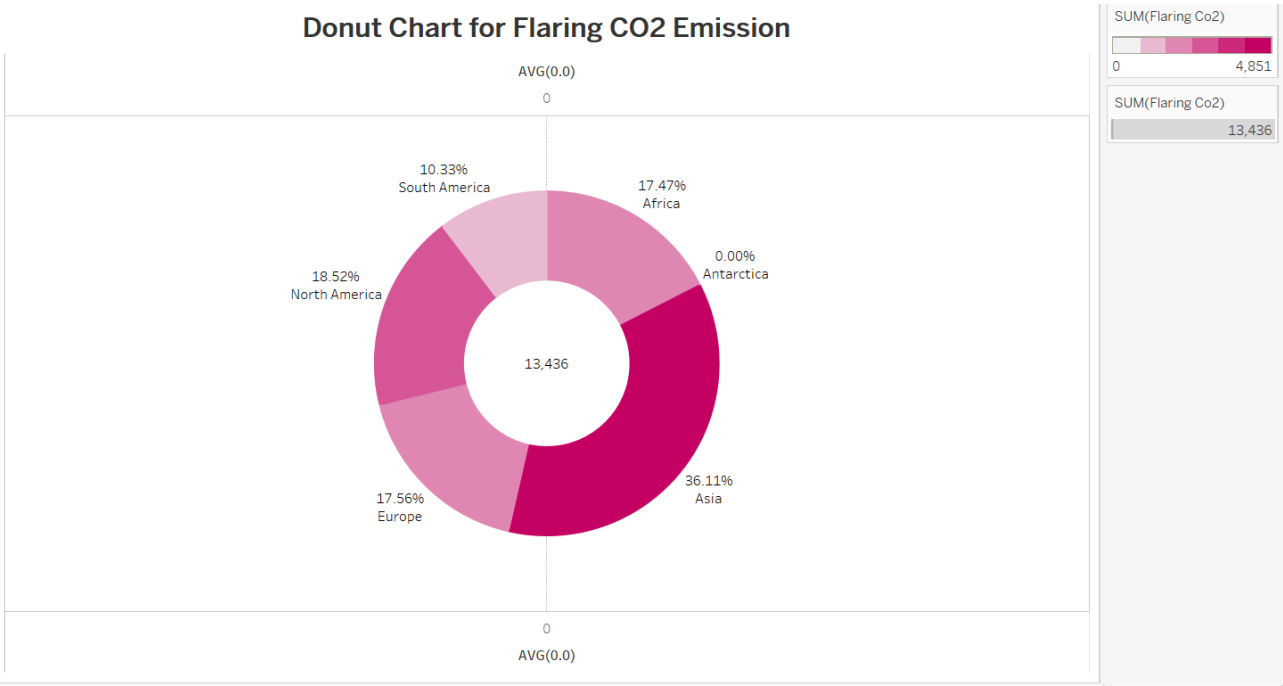
Donut Chart for Oil CO2 Emission



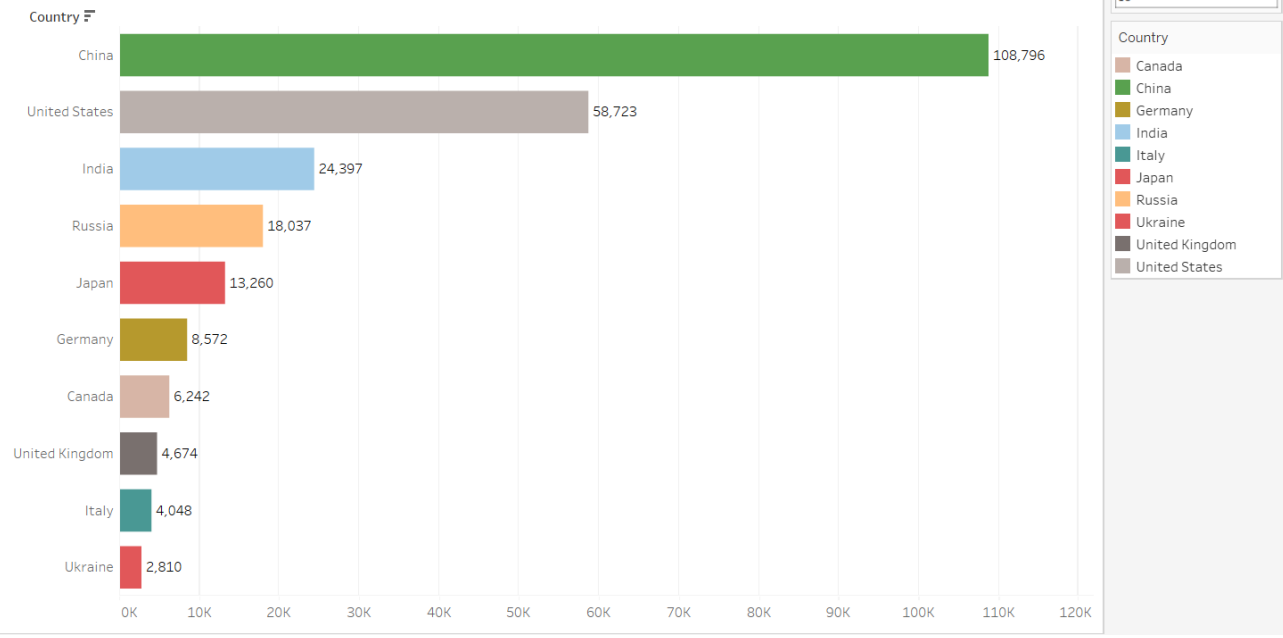
Donut Chart for Cement CO2 Emission



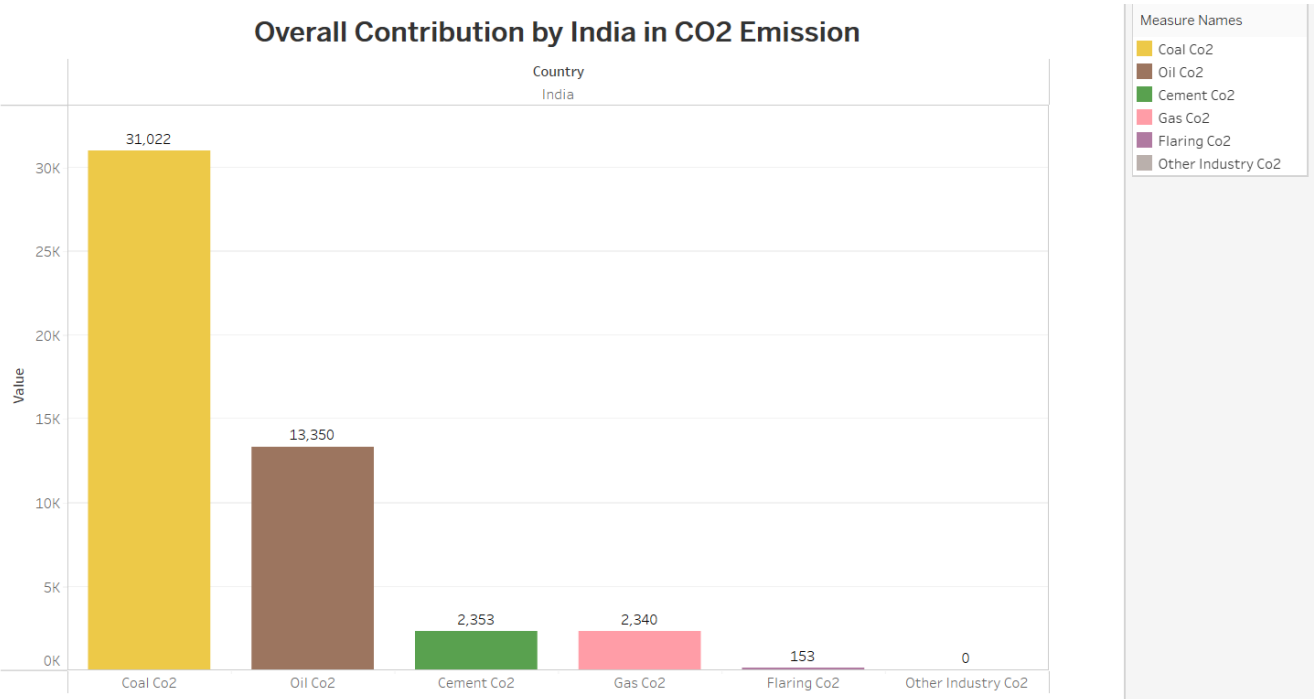
Donut Chart for Flaring CO2 Emission



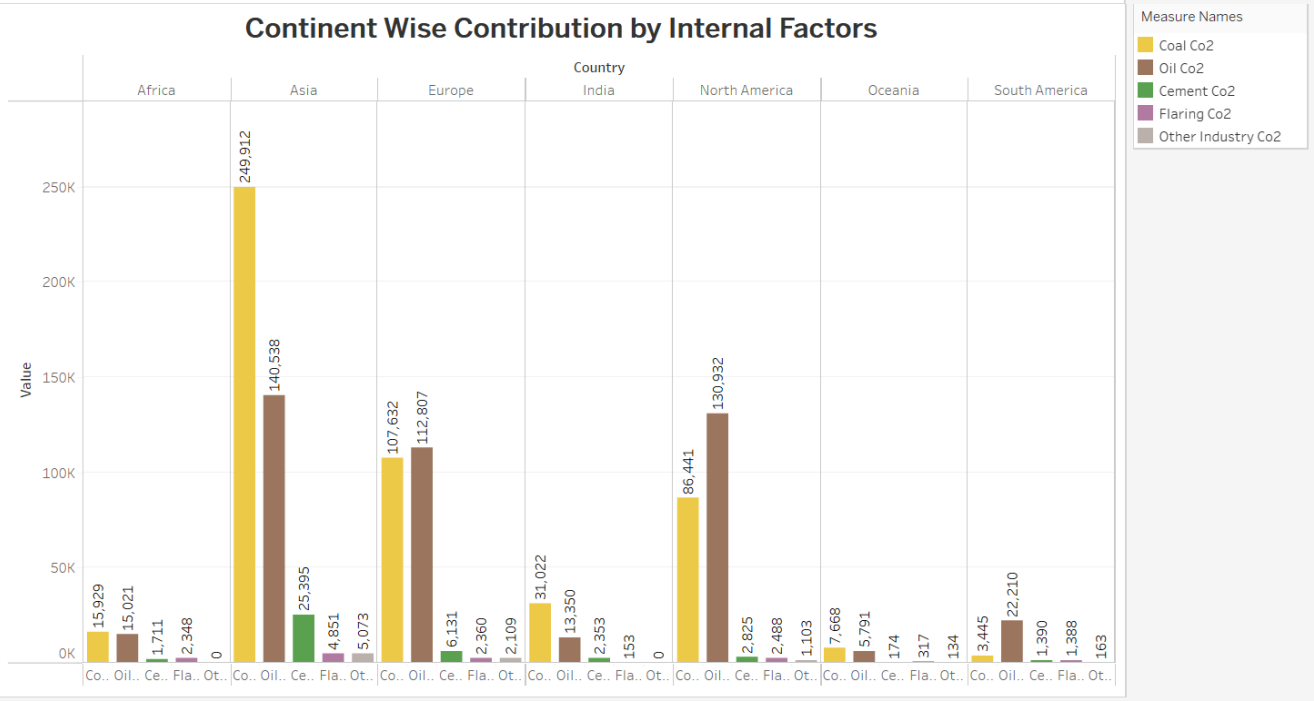
CO2 Emission Over Past 10 Years

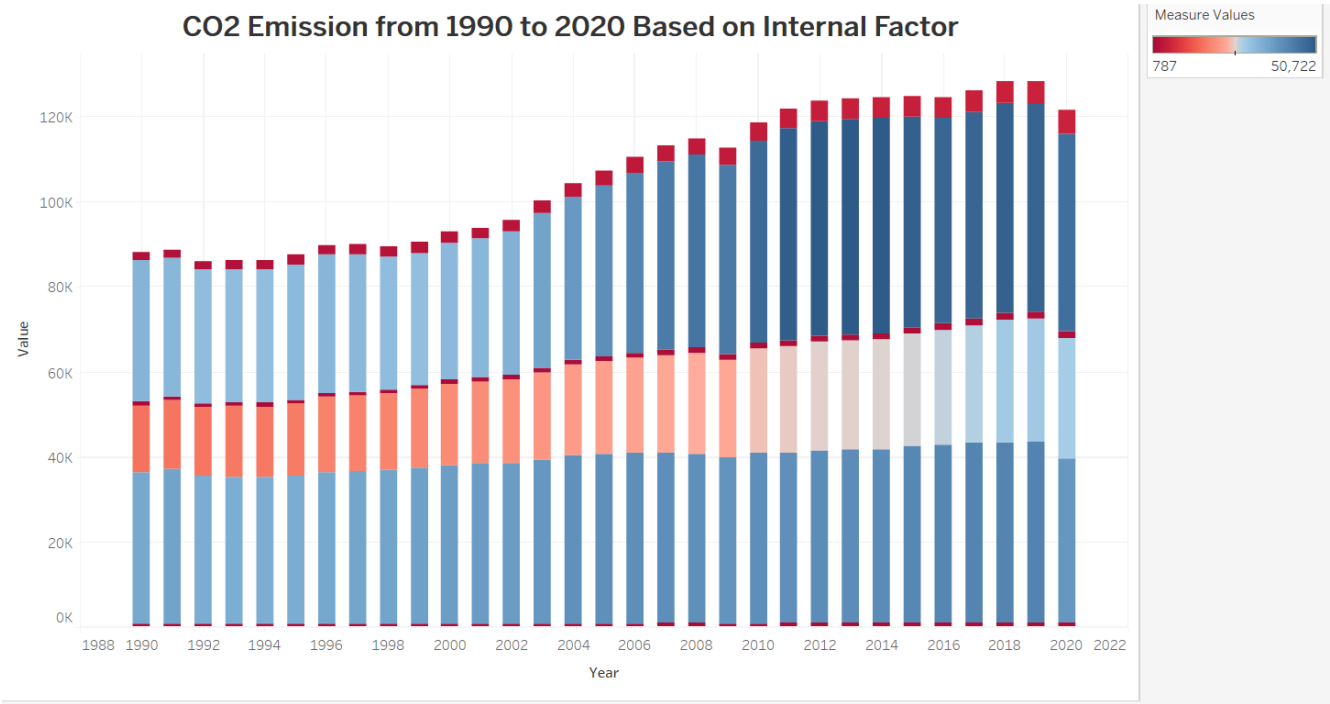


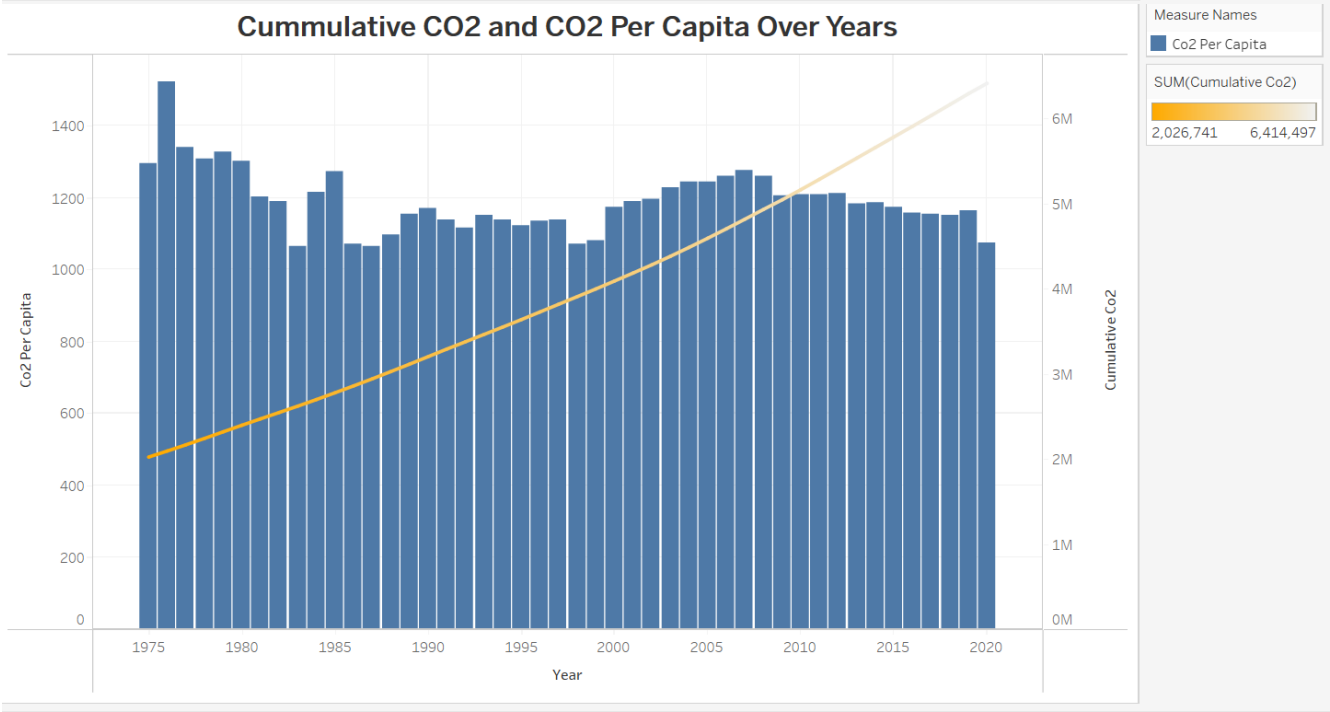
Overall Contribution by India in CO2 Emission

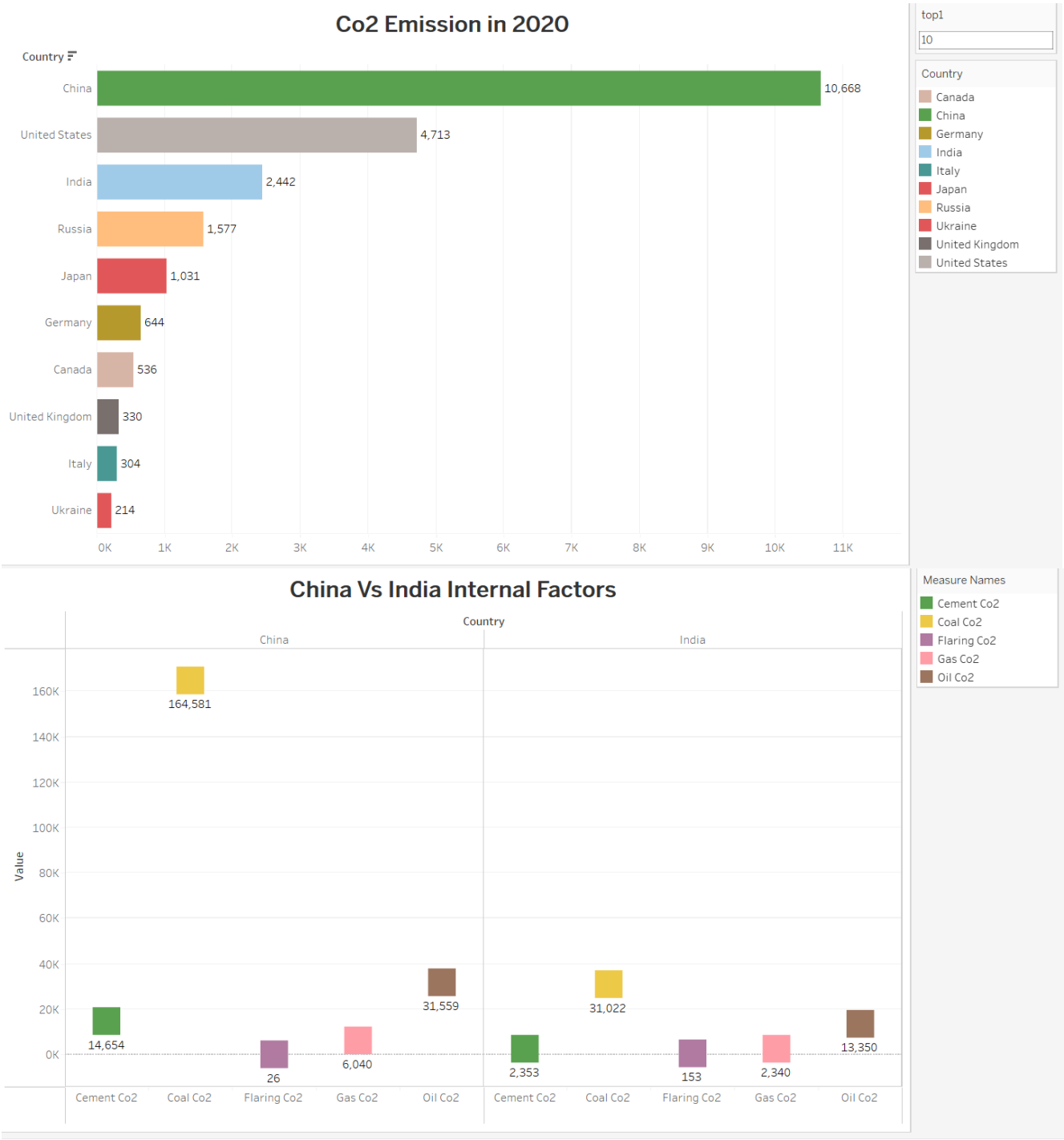


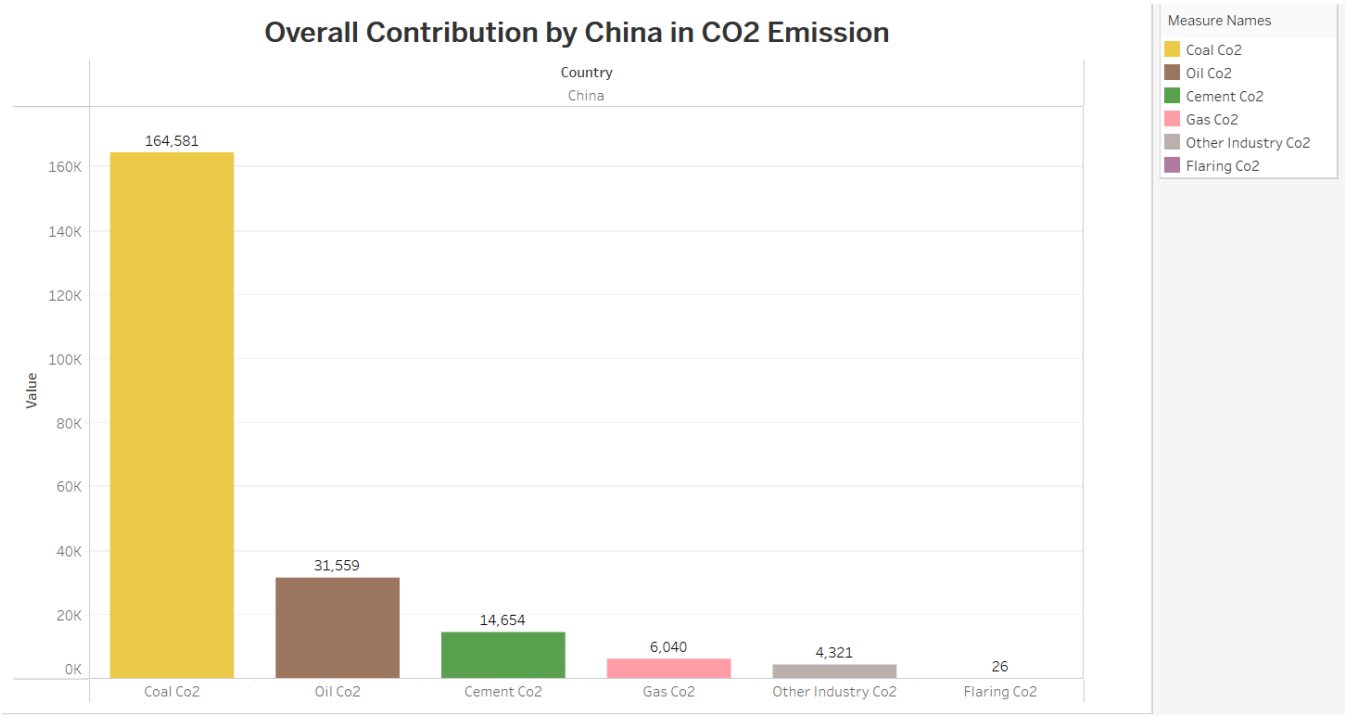
Continent Wise Contribution by Internal Factors




CO2 Emission from 1990 to 2020 Based on Internal Factor
Measure Values
787
50,722
120K
100K
80K
60K
40K
20K
0K
Value
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
Year


Cummulative CO2 and CO2 Per Capita Over Years
Measure Names
Co2 Per Capita
SUM(Cumulative Co2)
2,026,741
6,414,497
1400
1200
1000
800
600
400
200
0
Co2 Per Capita
6M
5M
4M
3M
2M
1M
0M
Cumulative Co2
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year


Co2 Emission in 2020
Country
China
United States
India
Russia
Japan
Germany
Canada
United Kingdom
Italy
Ukraine
10,668
4,713
2,442
1,577
1,031
644
536
330
304
214
0K
1K
2K
3K
4K
5K
6K
7K
8K
9K
10K
11K
top1
10
Country
Canada
China
Germany
India
Italy
Japan
Russia
Ukraine
United Kingdom
United States
China Vs India Internal Factors
Country
China
India
Value
160K
140K
120K
100K
80K
60K
40K
20K
0K
164,581
14,654
26
6,040
31,559
2,353
31,022
153
2,340
13,350
Cement Co2
Coal Co2
Flaring Co2
Gas Co2
Oil Co2
Measure Names
Cement Co2
Coal Co2
Flaring Co2
Gas Co2
Oil Co2


Overall Contribution by China in CO2 Emission
Country
China
Value
164,581
31,559
14,654
6,040
4,321
26
160K
140K
120K
100K
80K
60K
40K
20K
0K
Coal Co2
Oil Co2
Cement Co2
Gas Co2
Other Industry Co2
Flaring Co2
Measure Names
Coal Co2
Oil Co2
Cement Co2
Gas Co2
Other Industry Co2
Flaring Co2

ADVANTAGES AND DISADVANTAGES

ADVANTAGES:

- Awareness: By analyzing global CO2 emissions, we can become more aware of the magnitude of our impact on the environment. This can help us understand the urgency of the situation and motivate us to take action to reduce our carbon footprint.

- Identifying sources of emissions: CO2 emission analysis can help us identify the sources of greenhouse gas emissions, such as transportation, agriculture, and energy production.This information can be used to develop targeted policies and initiatives to reduce emissions from these sectors.

- Developing solutions: By understanding the sources of CO2 emissions, we can develop and implement solutions to reduce them. For example, we can develop cleaner forms of energy, implement more efficient transportation systems, and promote sustainable agriculture practices.

- Mitigating climate change: Reducing global CO2 emissions is crucial to mitigating the impacts of climate change, such as rising sea levels, extreme weather events, and loss of biodiversity

DISADVANTAGES:

- CO2 Emissions : Disadvantages of co2 emission There are several disadvantages of carbon dioxide (CO2) emissions,

- Climate Change: CO2 emissions are the primary contributor to climate change. As the concentration of CO2 in the atmosphere increases, it traps more heat and leads to global warming, causing a range of adverse effects such as sea-level rise, extreme weather events, and loss of biodiversity.

- Health Impacts: CO2 emissions can also have significant negative impacts on human health, particularly for those living in urban areas with high levels of pollution. Exposure to air pollution can cause respiratory problems such as asthma, bronchitis, and lung cancer.

- Ocean Acidification: When CO2 is absorbed by the oceans, it reacts with water to form carbonic acid, leading to a decrease in pH levels. This process is known as ocean acidification, which has a range of impacts on marine ecosystems, such as decreased growth rates of organisms with she.

APPLICATION

- Analyzing global CO2 emissions is an important step in understanding the environmental impact of human activity. Here are some steps you can take to conduct such an analysis

- Collect Data: Begin by collecting data on global CO2 emissions. There are many sources for this data, including the United Nations Framework Convention on Climate Change (UNFCCC) and the Global Carbon Project. You can also look for data from individual countries or regions.

- Analyze Trends: Once you have collected the data, analyze the trends in global CO2 emissions over time. Look for patterns and changes in emissions levels, and try to identify the factors that contribute to these changes.

- Compare Regions: Compare CO2 emissions across different regions and countries to identify the areas with the highest levels of emissions. Look for correlations between emissions and factors such as population density, economic development, and energy consumption.

CONCLUSION

- Based on the scientific consensus, it is clear that human activities such as burning fossil fuels, deforestation, and industrial processes are major contributors to the increase in atmospheric CO2 concentrations, which is causing global warming and climate change.

- To address this issue, reducing greenhouse gas emissions, transitioning to renewable energy sources, and increasing energy efficiency are essential steps to mitigate the impact of climate change. Additionally, efforts to increase public awareness and education on the importance of reducing CO2 emissions and taking action to combat climate change are also necessary.

FUTURE SCOPE

- Future of Climate Research :Future scope of unearthing the environment impact of human activity a global co2 emission.

- The future scope of unearthing the environmental impact of human activity and global CO2 emissions is vast and multifaceted. Here are some potential areas of focus

- Advancements in remote sensing and monitoring technology: As remote sensing and monitoring technology continues to improve, scientists will have an increasingly detailed and accurate understanding of how human activity is affecting the environment.

- For example, satellite data can be used to track changes in land use and deforestation, while sensors can be deployed to measure air and water quality.

- Development of new modeling tools: As climate science becomes more complex, there is a need for new modeling tools to help researchers understand the complex interactions between human activity and the environment.

APPENDIX

- Carbon dioxide (CO_2) is a greenhouse gas that contributes to global warming and climate change.

- It is emitted by a variety of human activities, including burning fossil fuels for energy, transportation, industrial processes, and deforestation.

- The concentration of CO_2 in the atmosphere has increased significantly since the industrial revolution, and is currently at its highest level in at least 800,000 years.

- Global CO_2 emissions have been increasing steadily over the past century, with the largest emitters being China, the United States, and India.