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No.48, 6th Main road, AC block, Anna Nagar, Chennai-40.

DEPARTMENT OF MATHEMATICS

PROJECT REPORT

ON

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

DATA ANALYTICS WITH TABLEAU

TAMILNADU SKILL DEVELOPMENT CORPORATION,

GOVERNMENT OF TAMILNADU

NAAN MUDHALVAN PROGRAM

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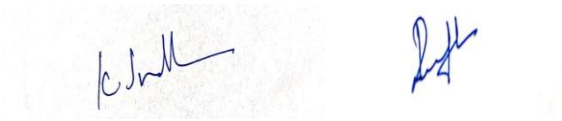
CERTIFICATE

THIS IS TO CERTIFY THAT THE PROJECT IS TITLED **UNEARTHING THE ENVIRONMENTAL IMPACT OF HUMAN ACTIVITY: A GLOBAL CO2 EMISSION ANALYSIS- DATA ANALYTICS WITH TABLEAU.** THIS PROJECT IS SUBMITTED BY1.SUVEDHA.KR(222008665) 2.DHANUPRIYA.G (222008663) 3. YASMIN.S (222008666) 4.BHUVANESHWARI.S (222008662) 5.ANITHA.M (222008661)OF III B.Sc. MATHEMATICS, SHRI KRISHNASWAMY COLLEGE FOR WOMEN, CHENNAI IN FULFILLMENT OF THE REQUIREMENTS FOR**TAMILNADU SKILL DEVELOPMENT CORPORATION, GOVERNMENT OF TAMILNADU,NAAN MUDHALVAN PROGRAM**. THIS PROJECT WAS AN AUTHENTIC WORK DONE UNDER MY SUPERVISIONAND GUIDANCE.



PROJECT GUIDE **HOD**

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1. INTRODUCTION:

1.1 OVERVIEW

About the report:This study aims to examine the Global CO_2 emissions. It is the main topic in different ongoing debates on sustainable development and ecological protection. In more recent times, CO_2 emissions have increased rapidly, while destruction of forests has also become a major source of CO_2. CO_2emission is the major contributors to GHG emission resulting in environmental deterioration so it is necessary to continuously monitor the effect of emissions of carbon on environment.At last CO_2 emission plays a fundamental role in determining reduction responsibility at economic level or emission permits at firm level.

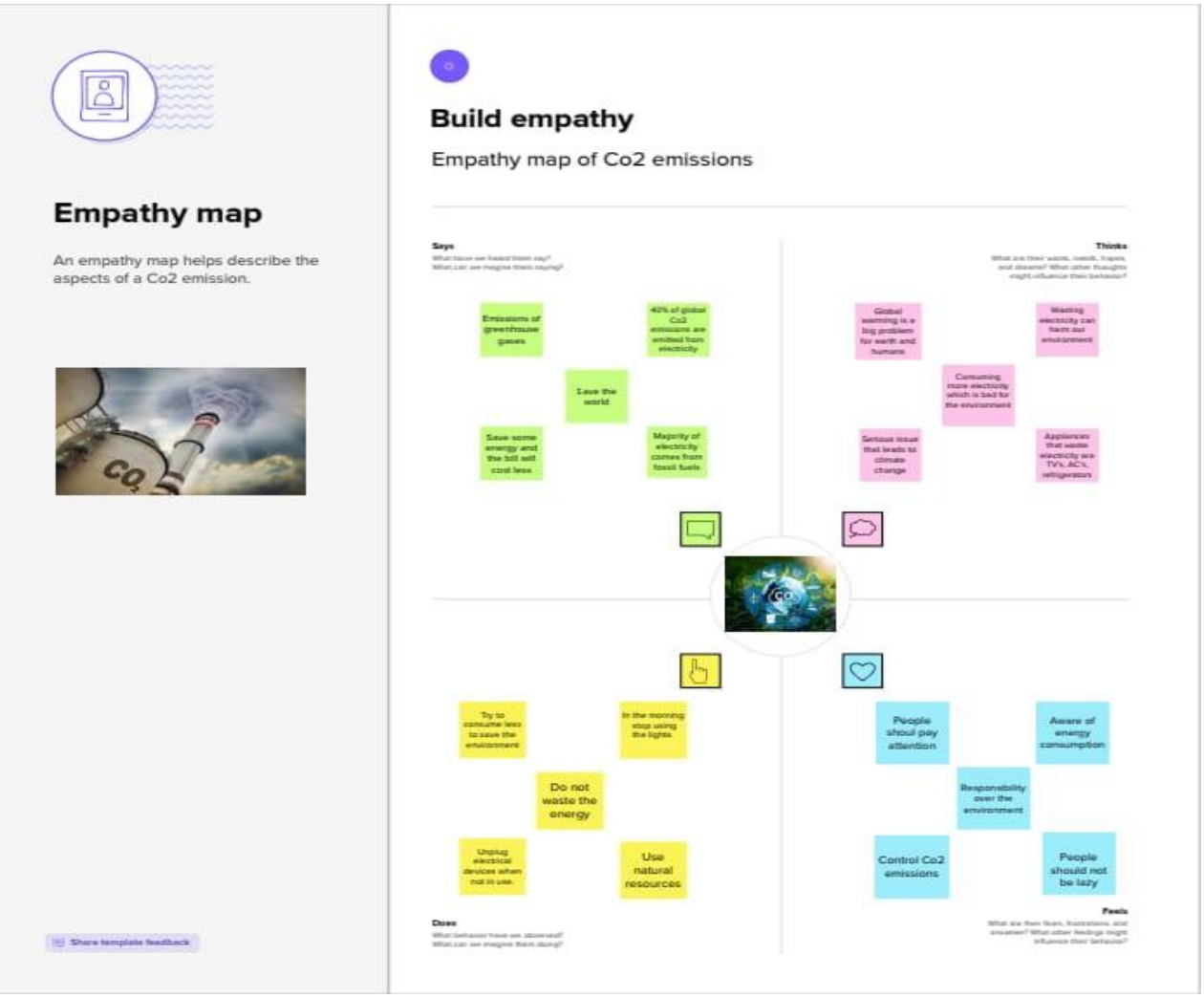
1.2 PURPOSE

The main contribution of this study is to control the consequences of growing economic activity. The carbon in CO_2 can be used to produce fuels that are in use today, including methane, methanol, gasoline and aviation fuels.CO_2derived fuels are particularly interested for applications where the use of other low-carbon energy carriers, such as electricity or hydrogen, is extremely challenging, such as in aviation. Several firms have already built demonstration and pilot plants producing methane and methanol from CO_2 and hydrogen, together using hundreds to thousandstons of CO_2 per year. Other chemical and biological conversion pathways to produce CO_2-derived fuels are in the early research or demonstration stages.

2. PROBLEM DEFINITION & DESIGN THINKING:

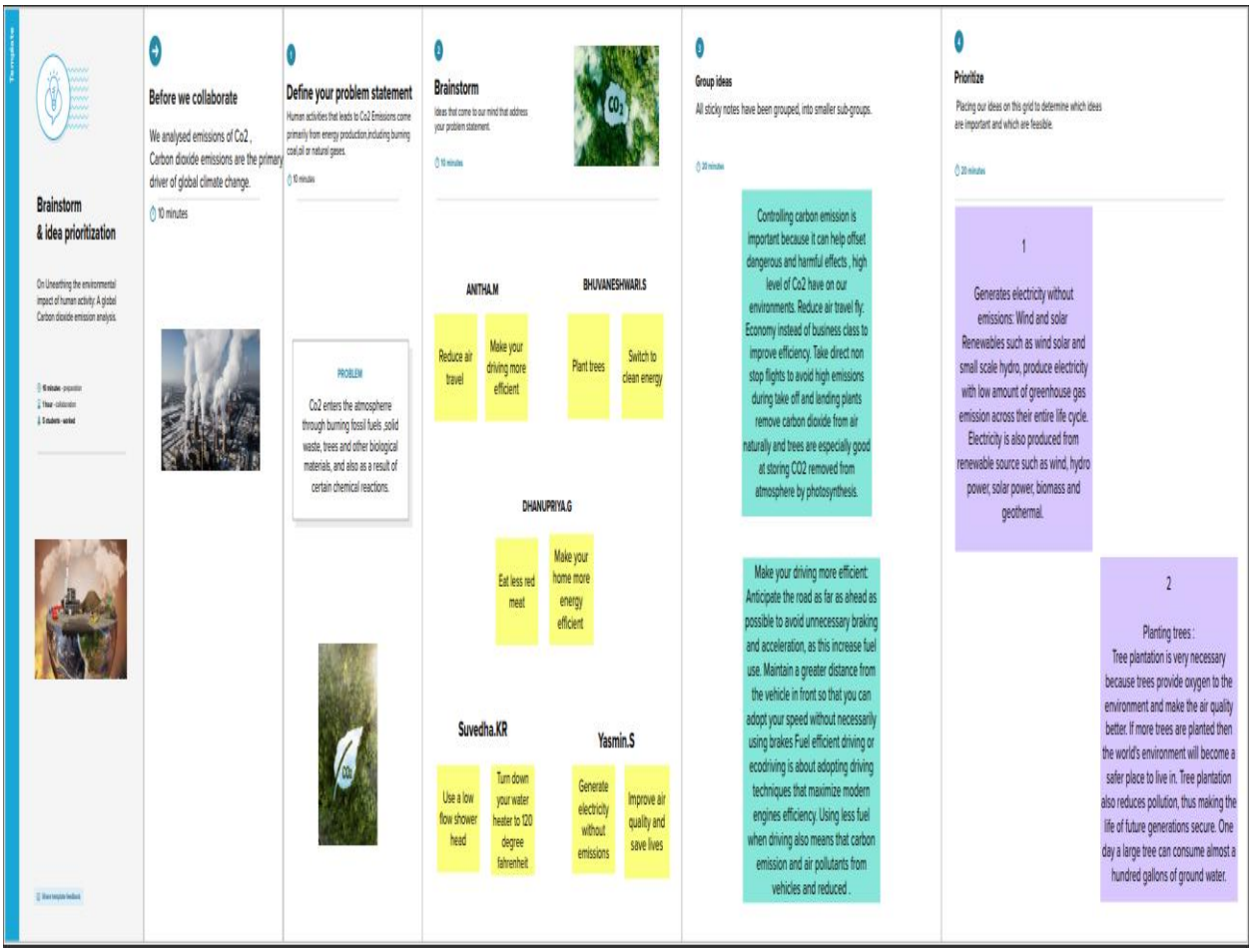
2.1 EMPATHY MAP

Empathy maps on global Co2 emission analysis. In the late 1980s, interest flourished in the issue of global climate change. Many studies focused on the options for limiting anthropogenic emissions of greenhouse-related gases and managing the consequences of global warming and climate change.



2.2IDEATION& BRAINSTORMING MAP

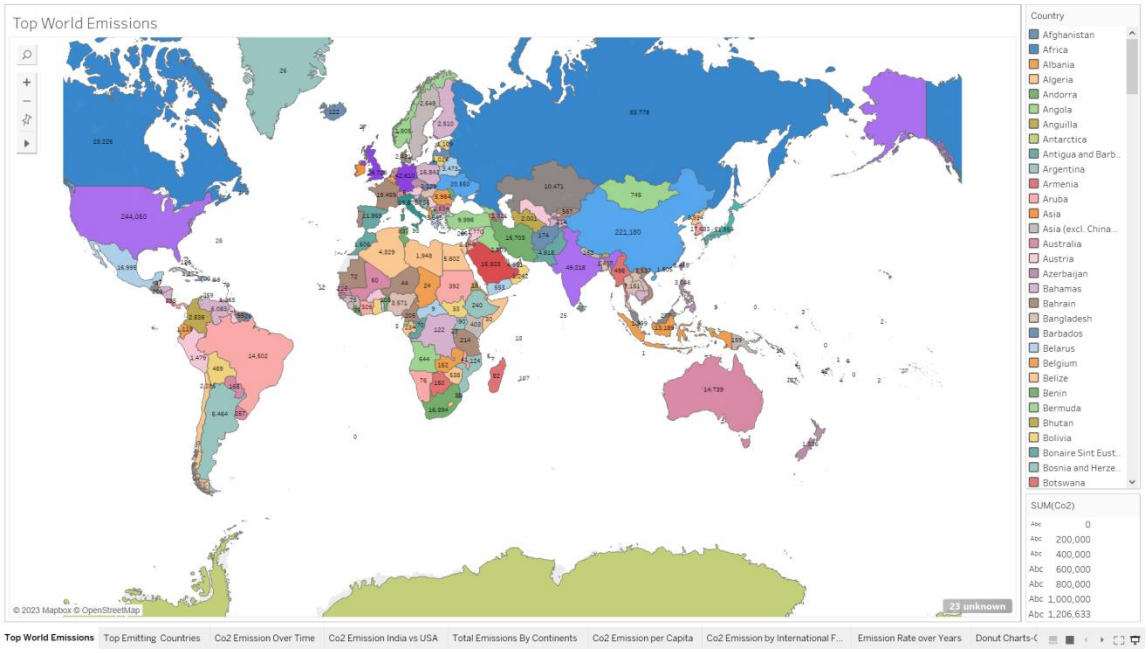
We still haven't solved the climate problems but we are getting closer. We all have a role to play in the abatement of greenhouse emissions by our sustainable actions or inactions as a result of reducing our Carbon Footprints. Taking this step can make the world a better place to live in and serve as a bequest for future generations.



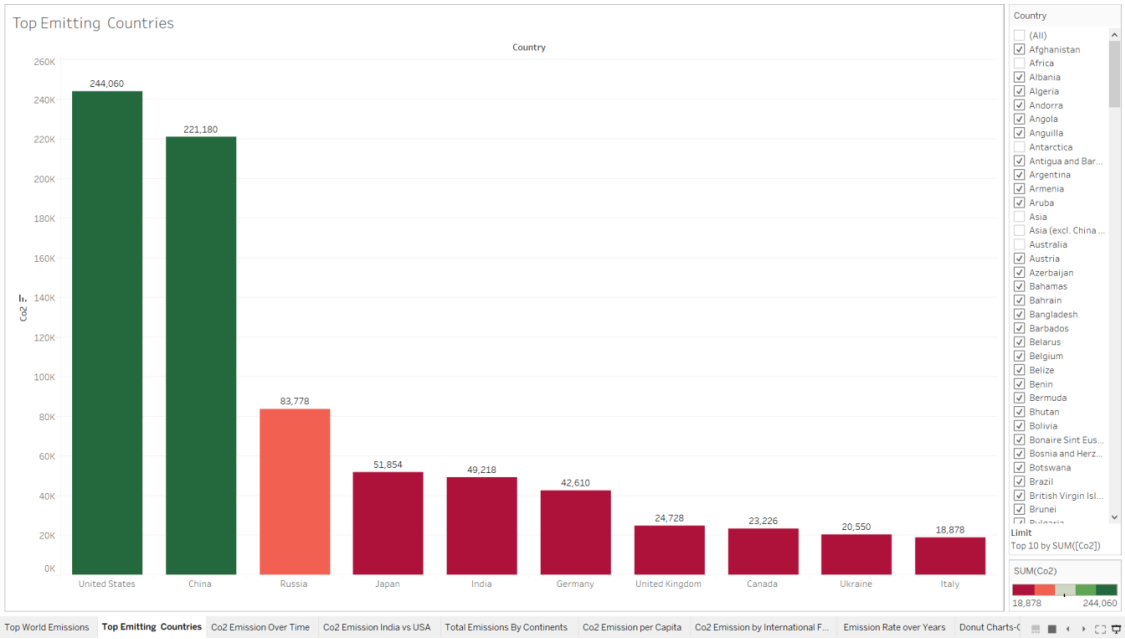
3. RESULT:

3.1**TABLEAU SHEETS**

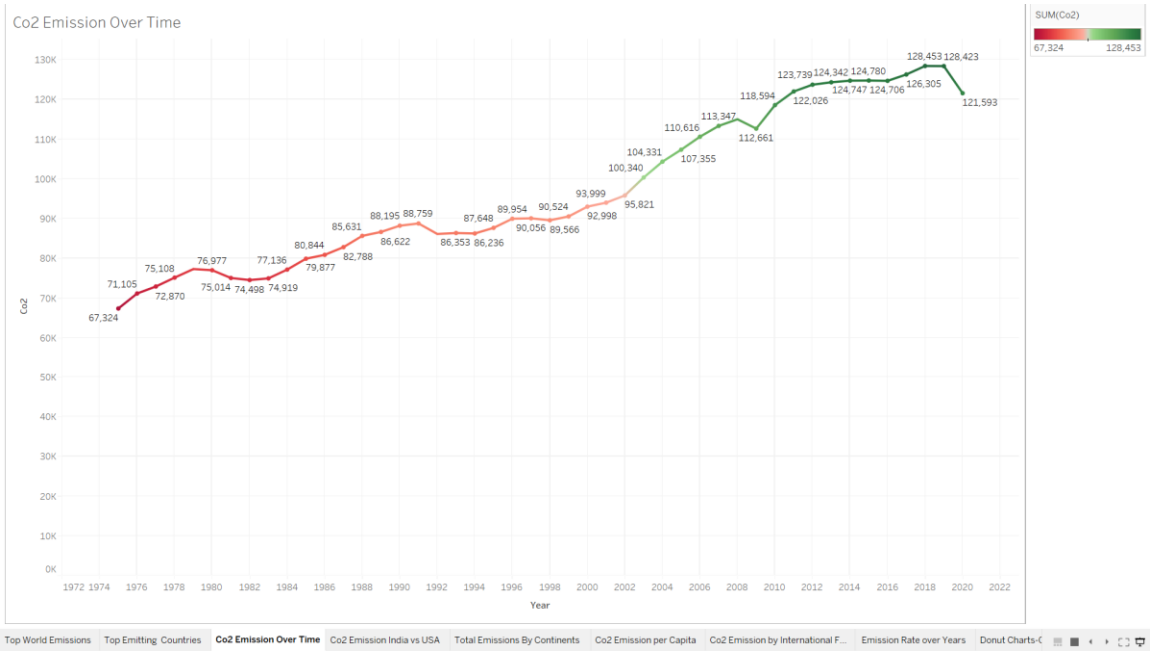
3.1.1Top World Emission



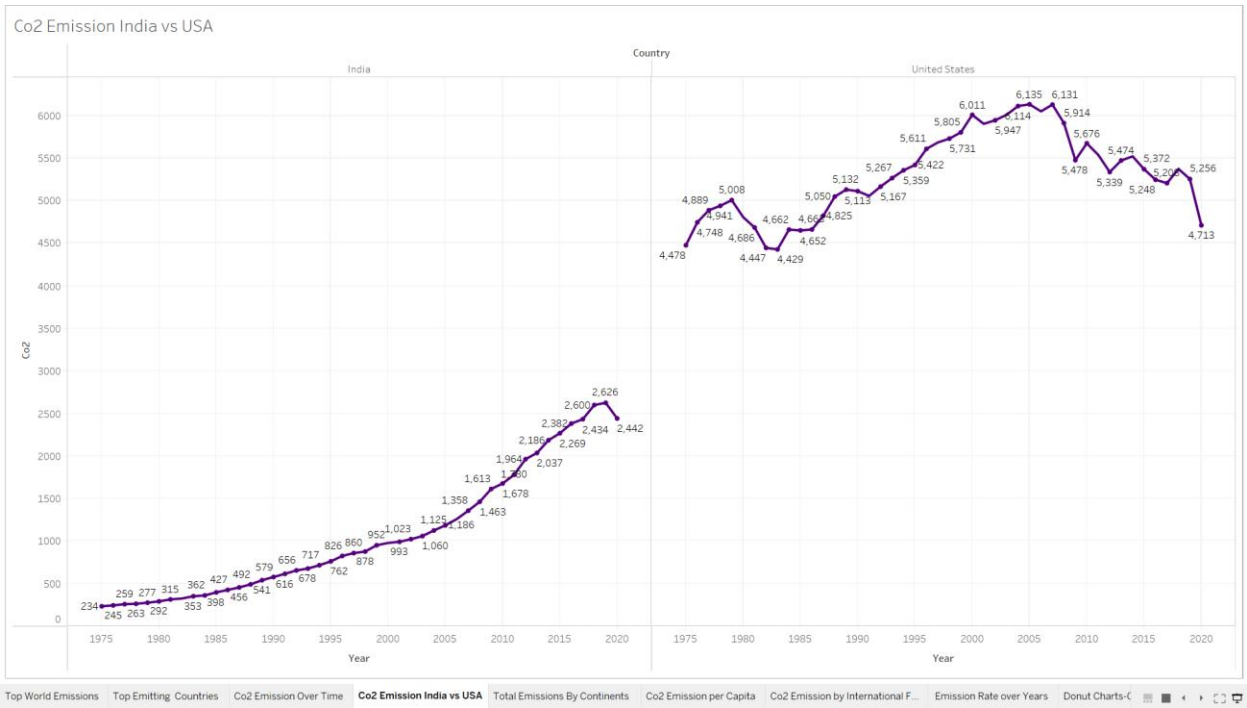
3.1.2 Top EmittingCountries



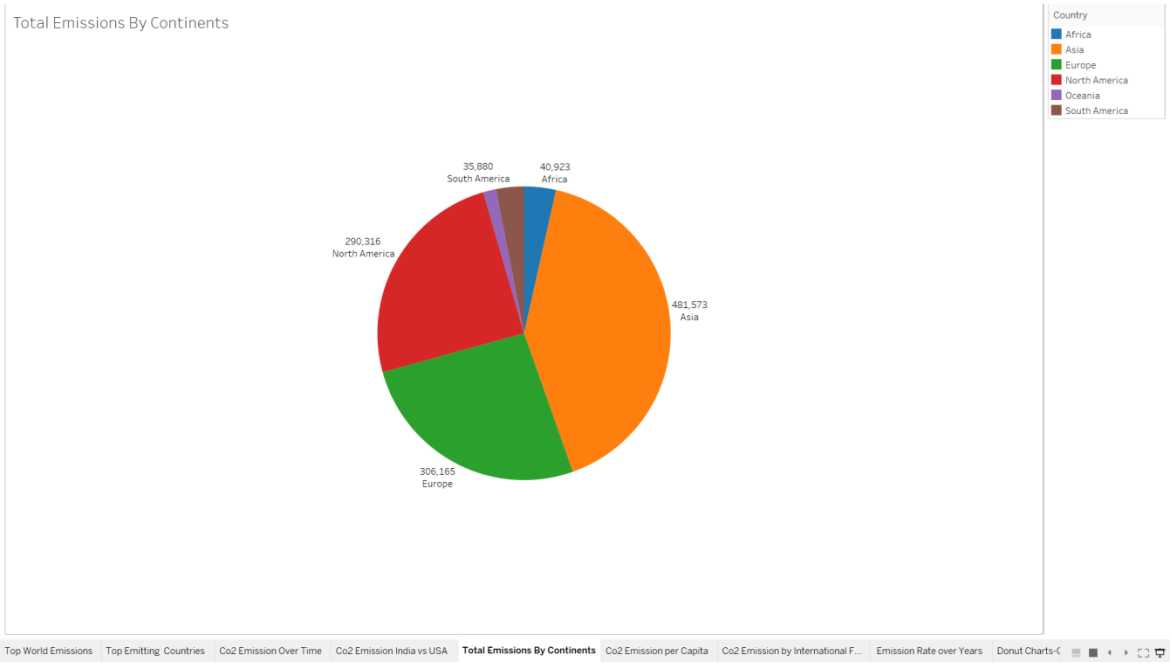
3.1.3 Co2 Emission over Time



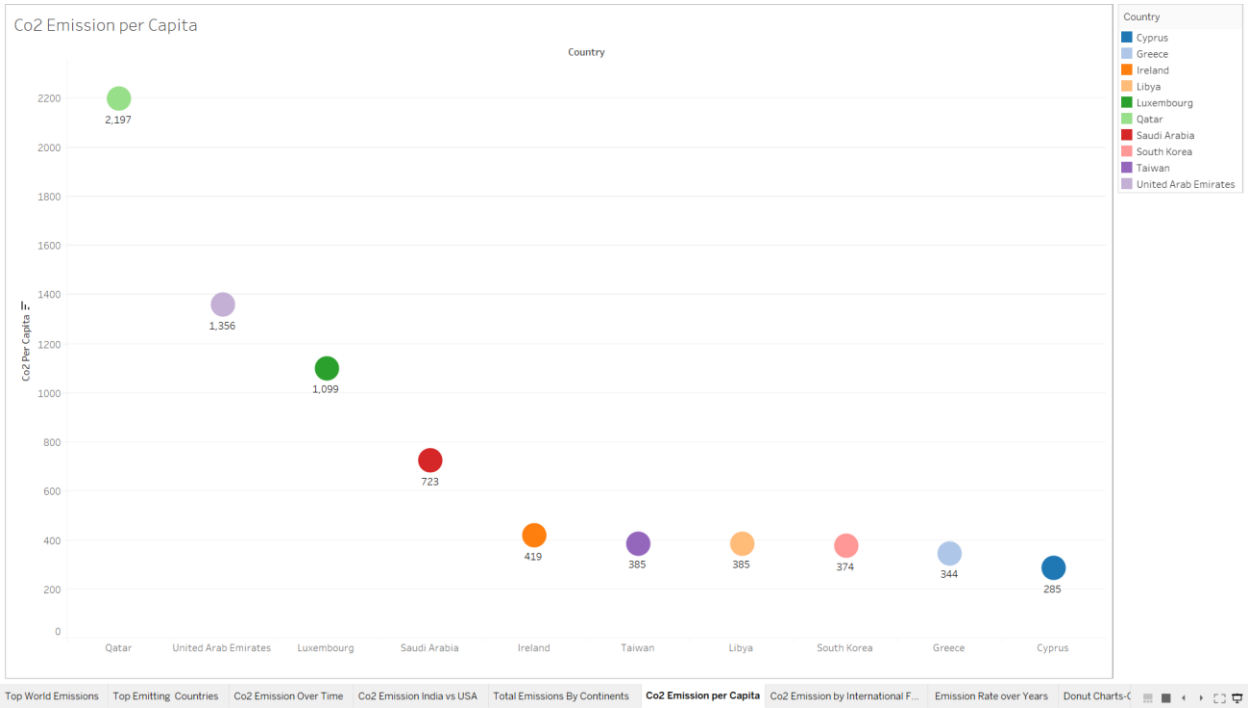
3.1.4 Co2 Emission India vs USA



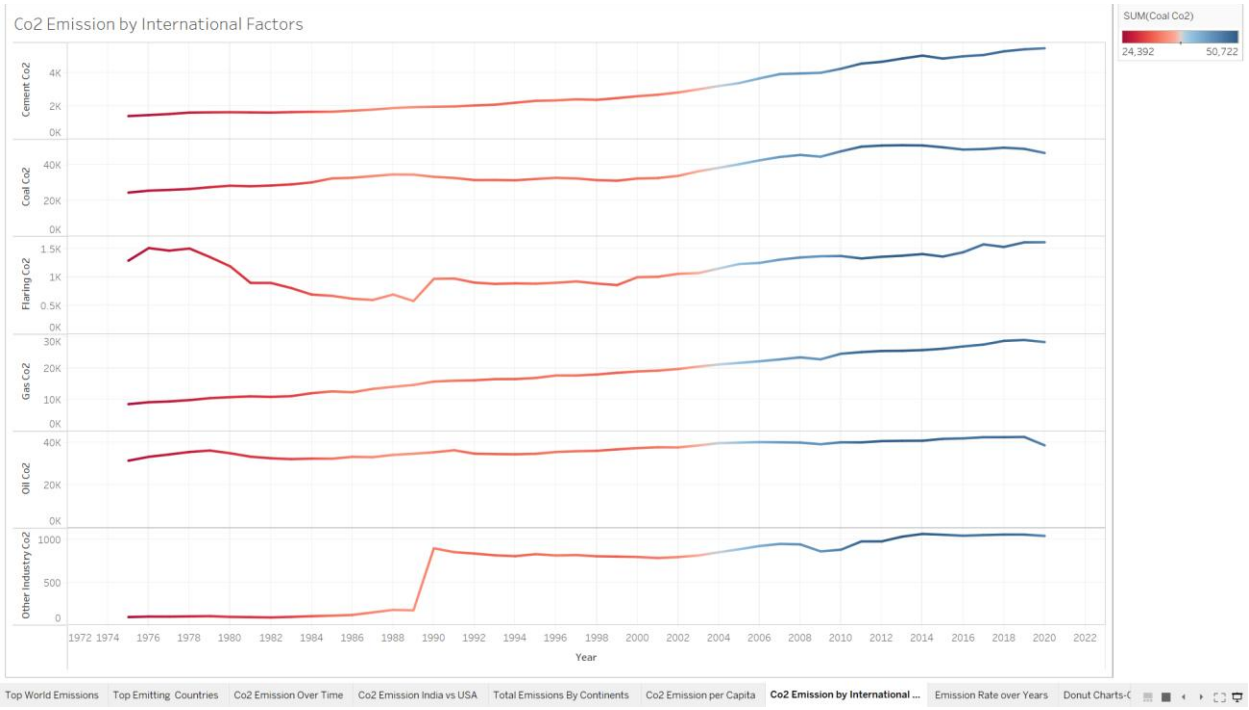
3.1.5 Total Emission by Continents



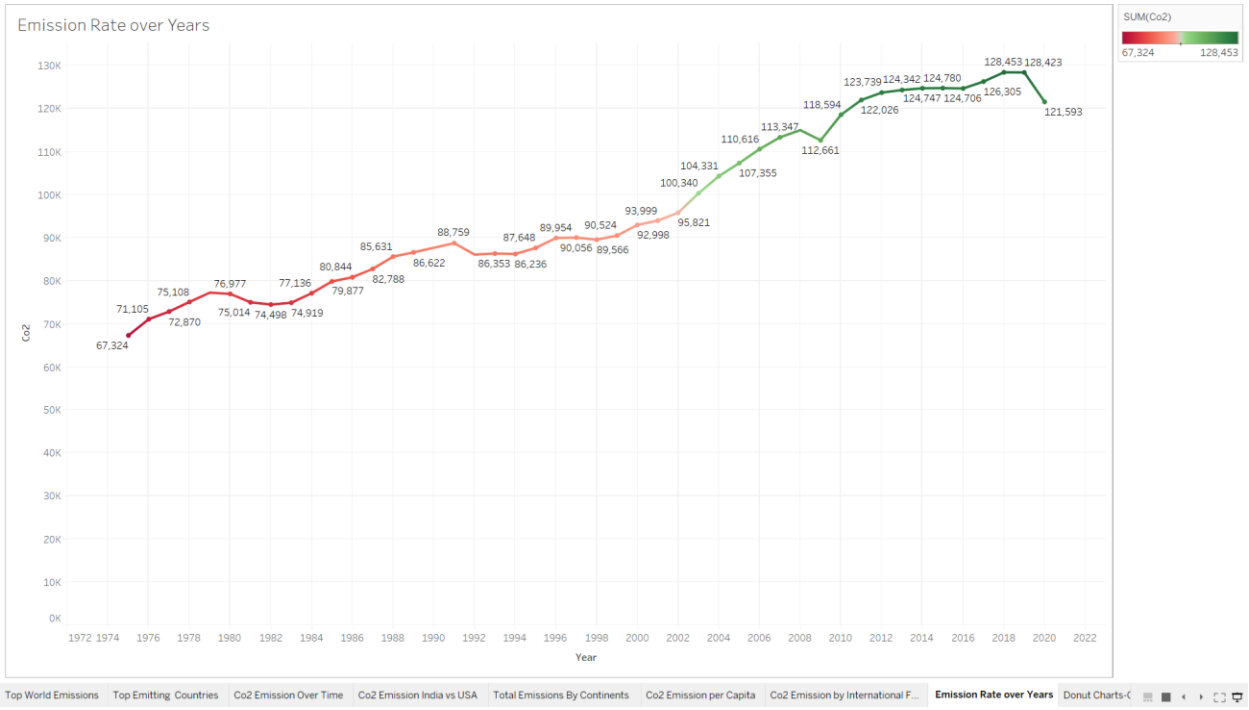
3.1.6 CO2 Emission per Capita



3.1.7 Co2 Emission by International Factors

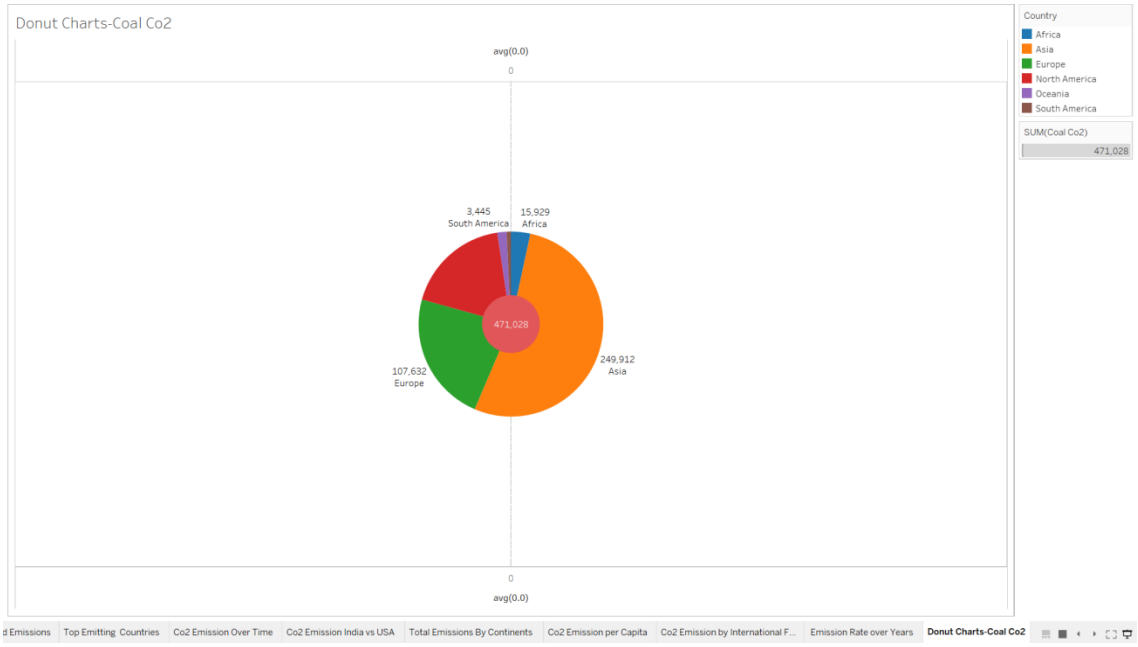


3.1.8 Emission Rate over Years

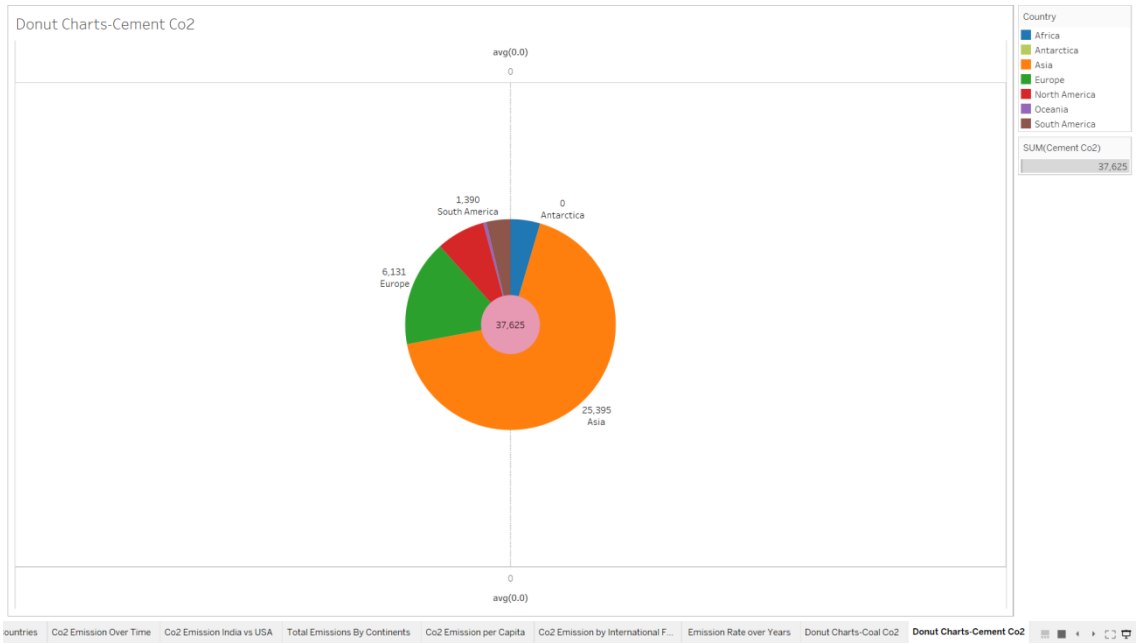


3.1.9 Donut Charts

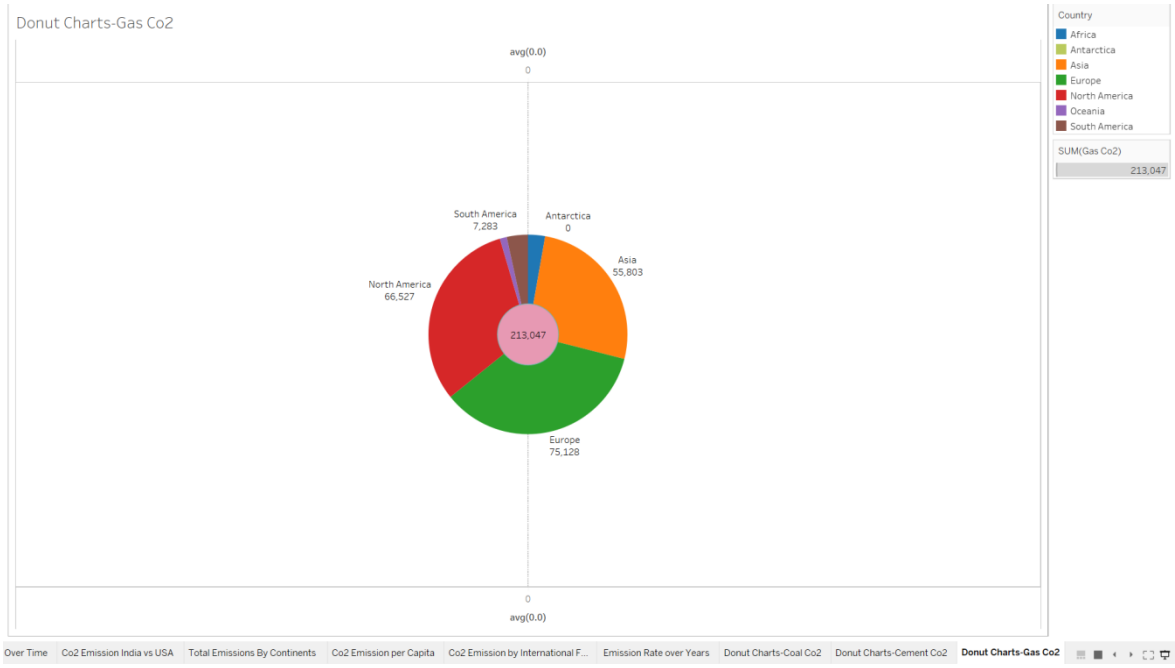
3.1.9.1 Coal Co2



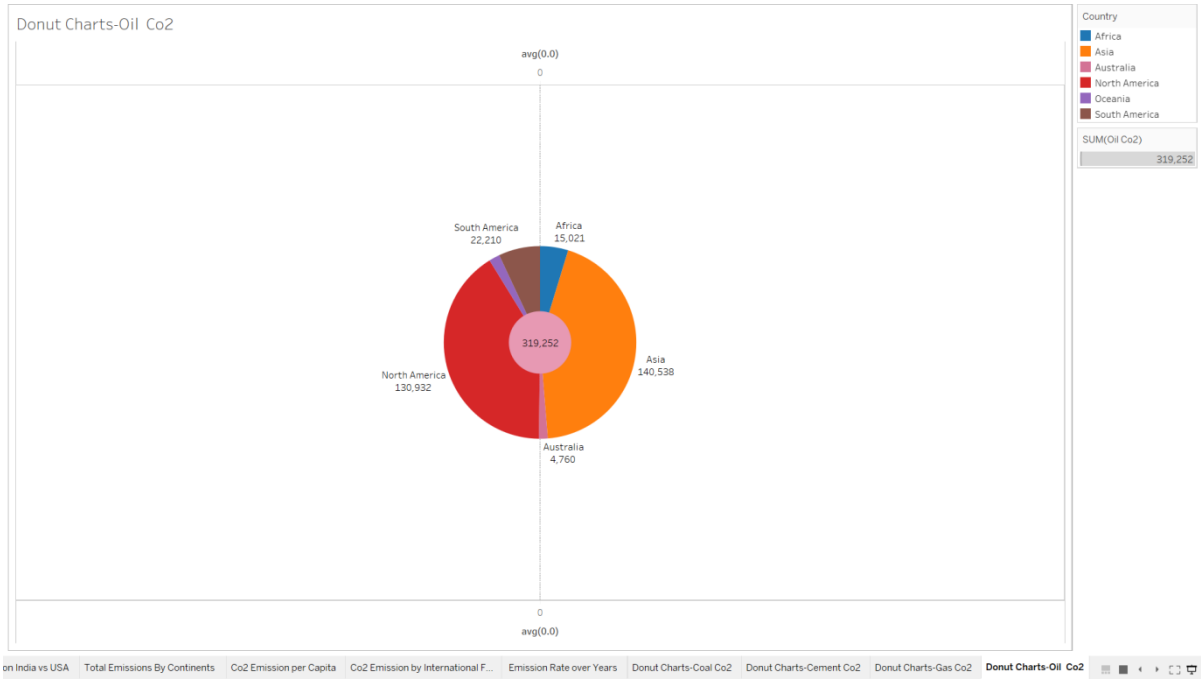
3.1.9.2 Cement Co2



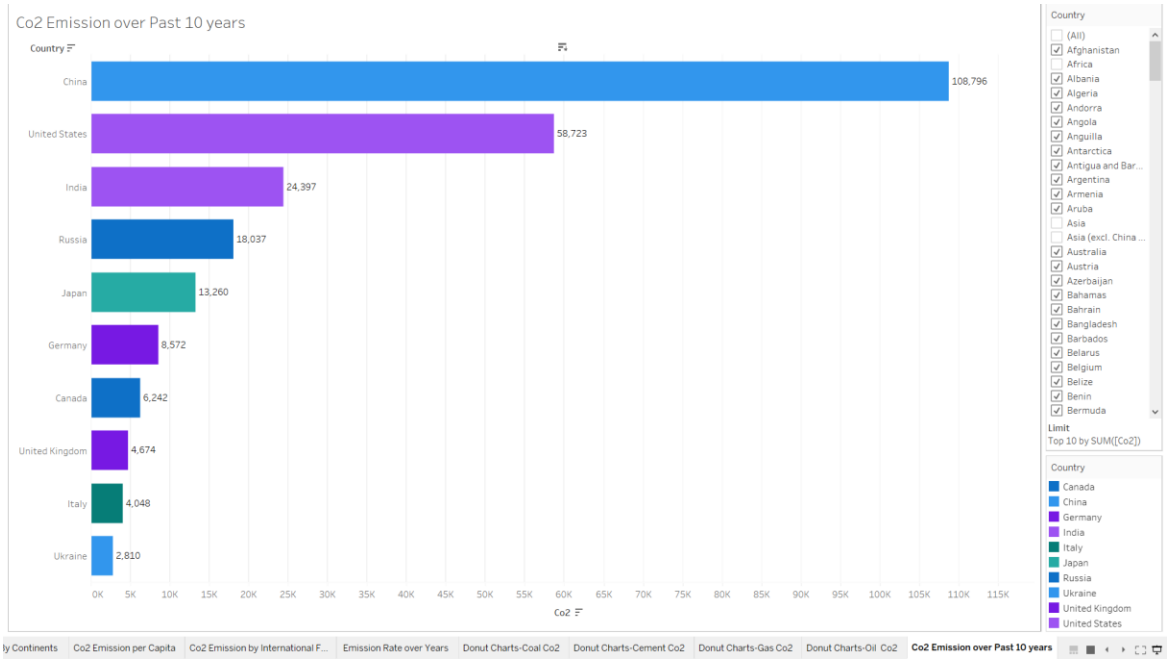
3.1.9.3 Gas Co2



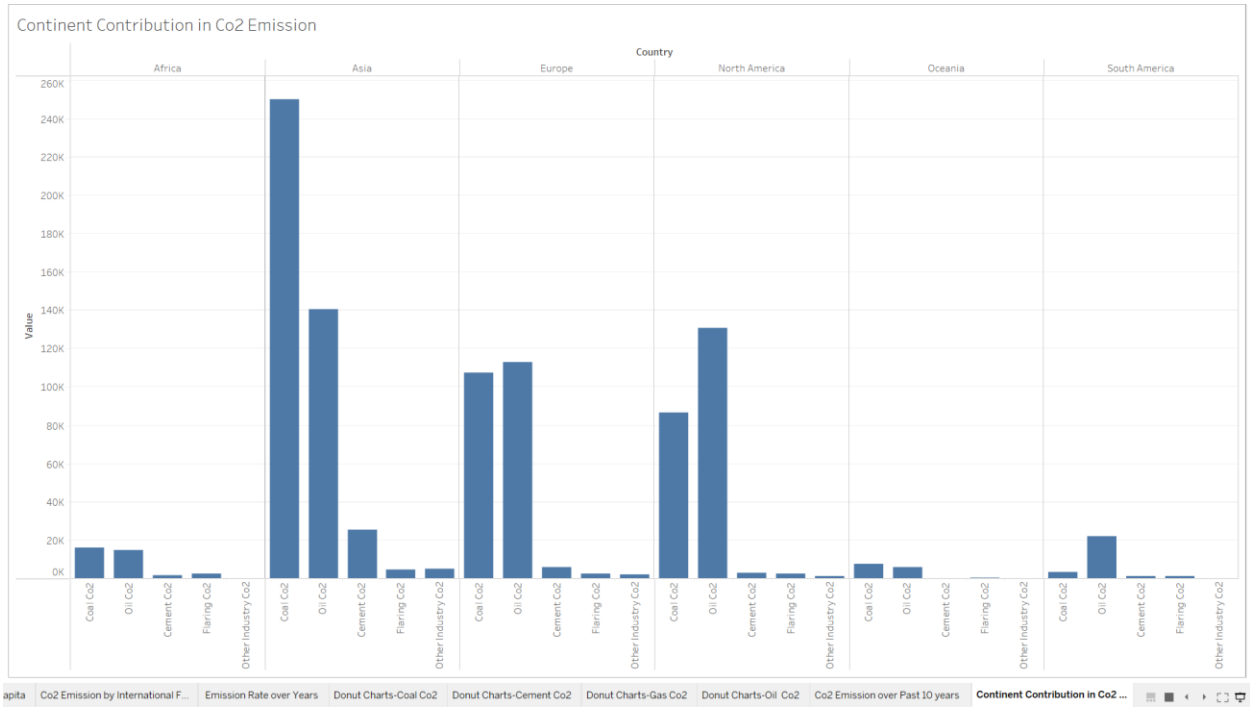
3.1.9.4 Oil Co2



3.1.10 Co2 Emission Over Past 10 years



3.1.11 Continents Contribution in Co2 Emission



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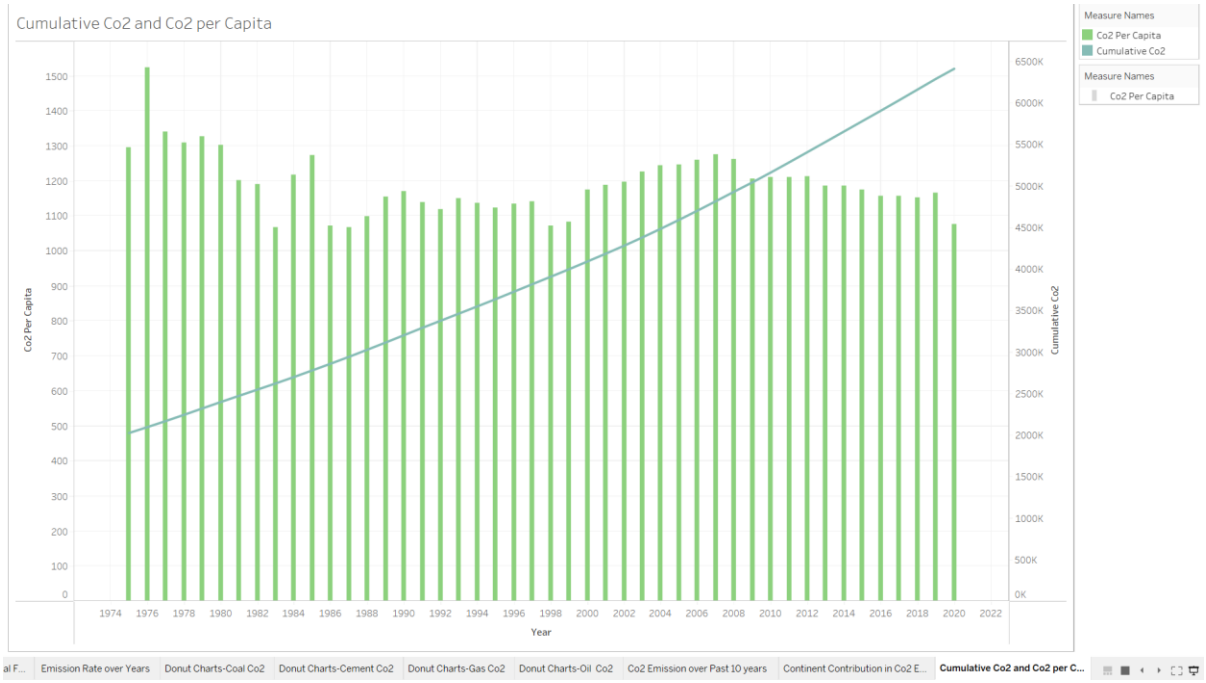
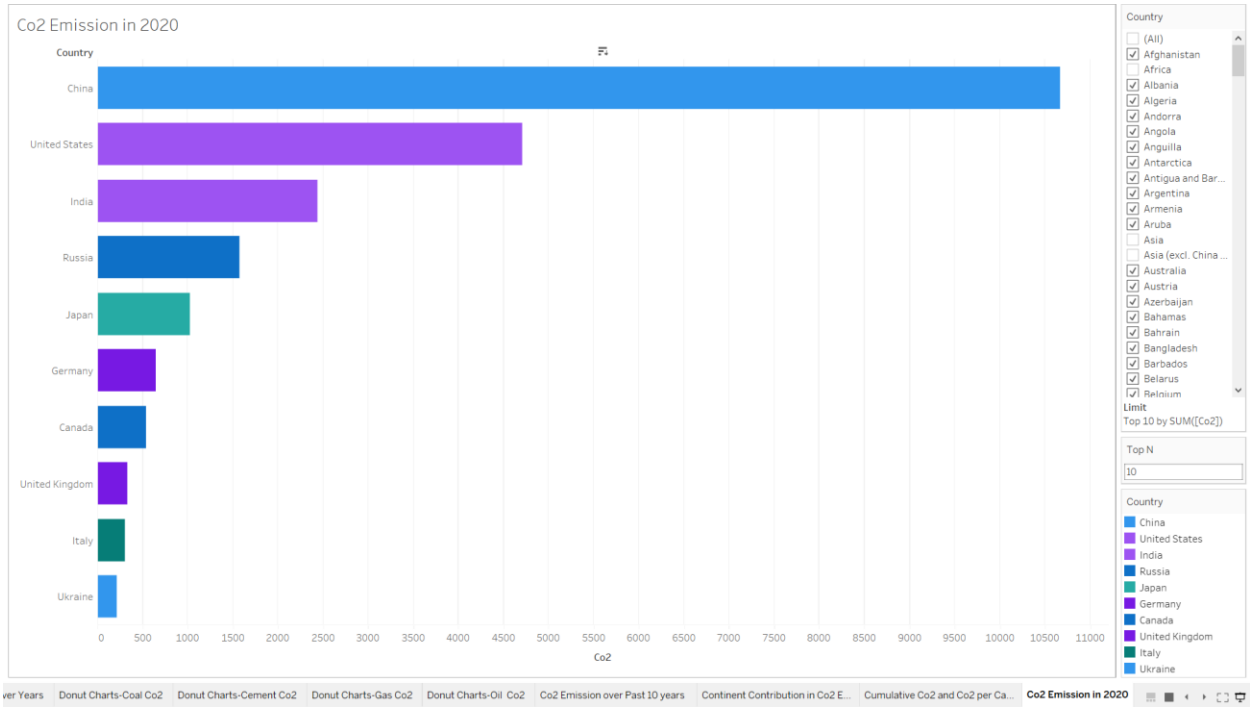
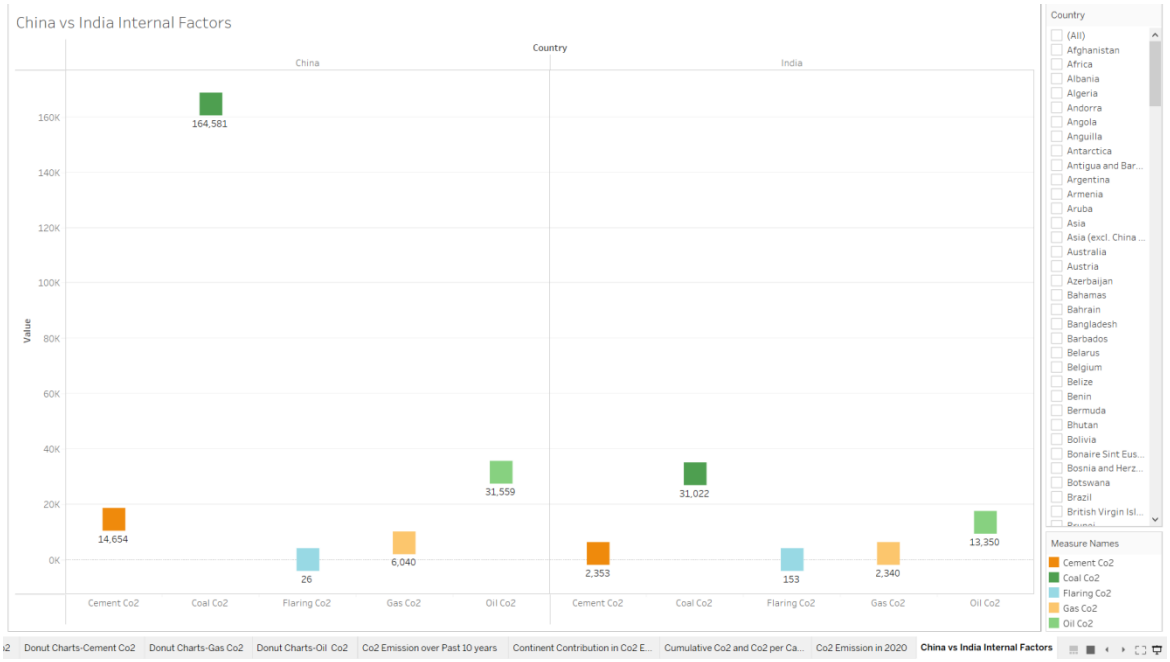


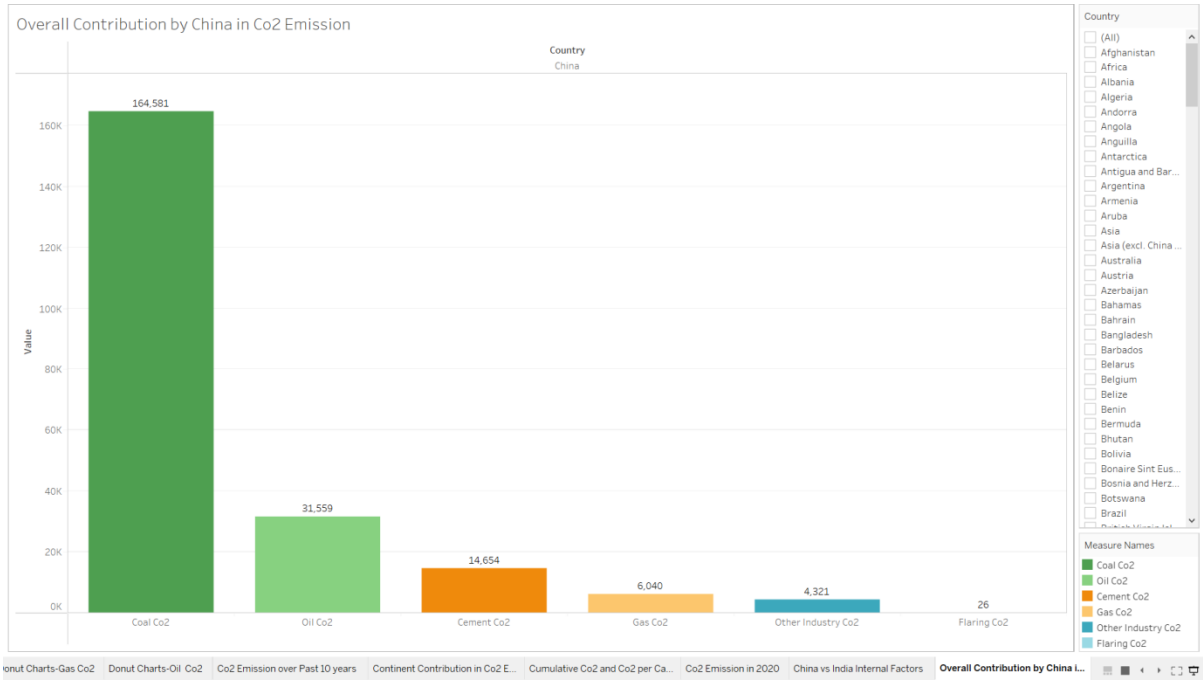
3.1.13 Co2 Emission in 2020



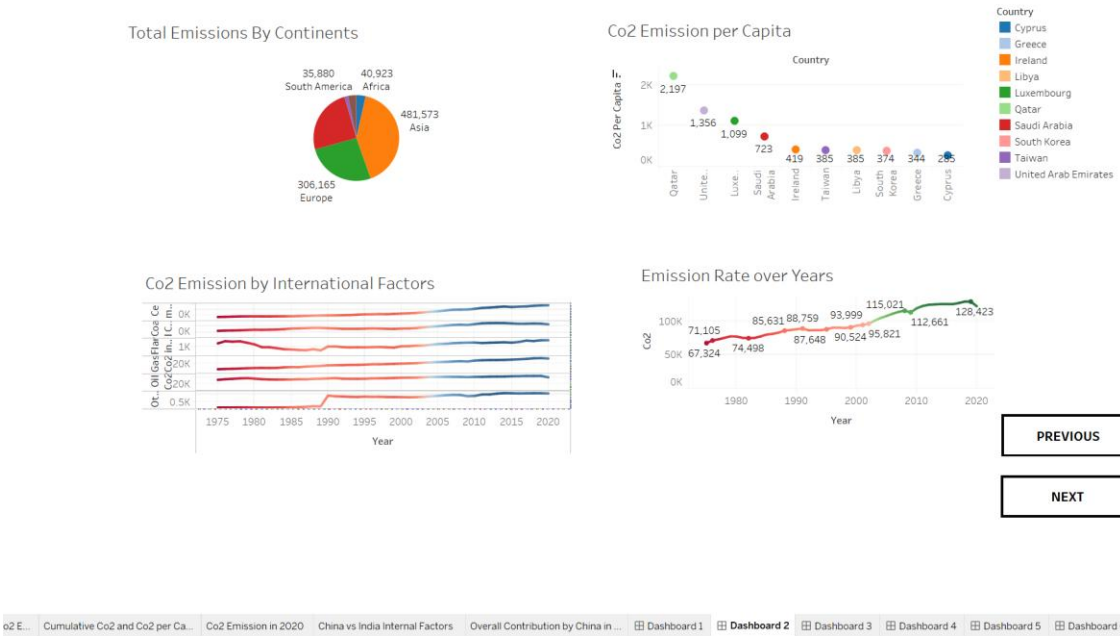
3.1.14 China vs India Co2 Emission due to Internal factors

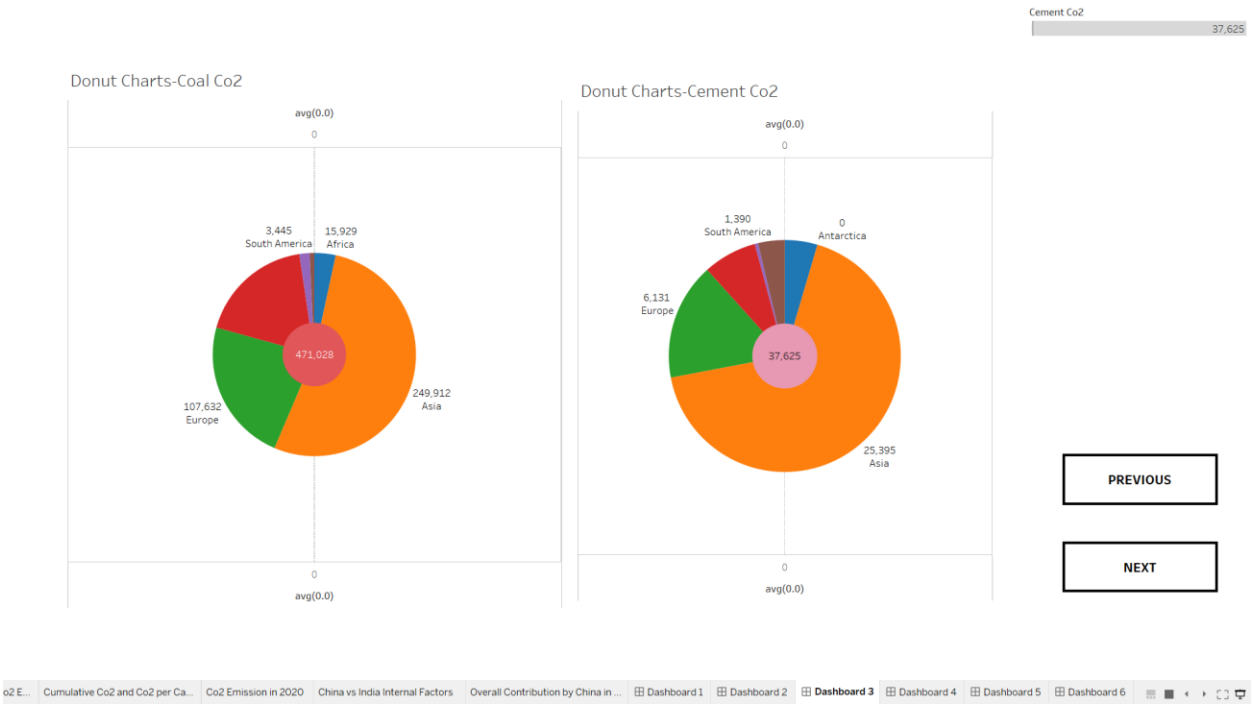


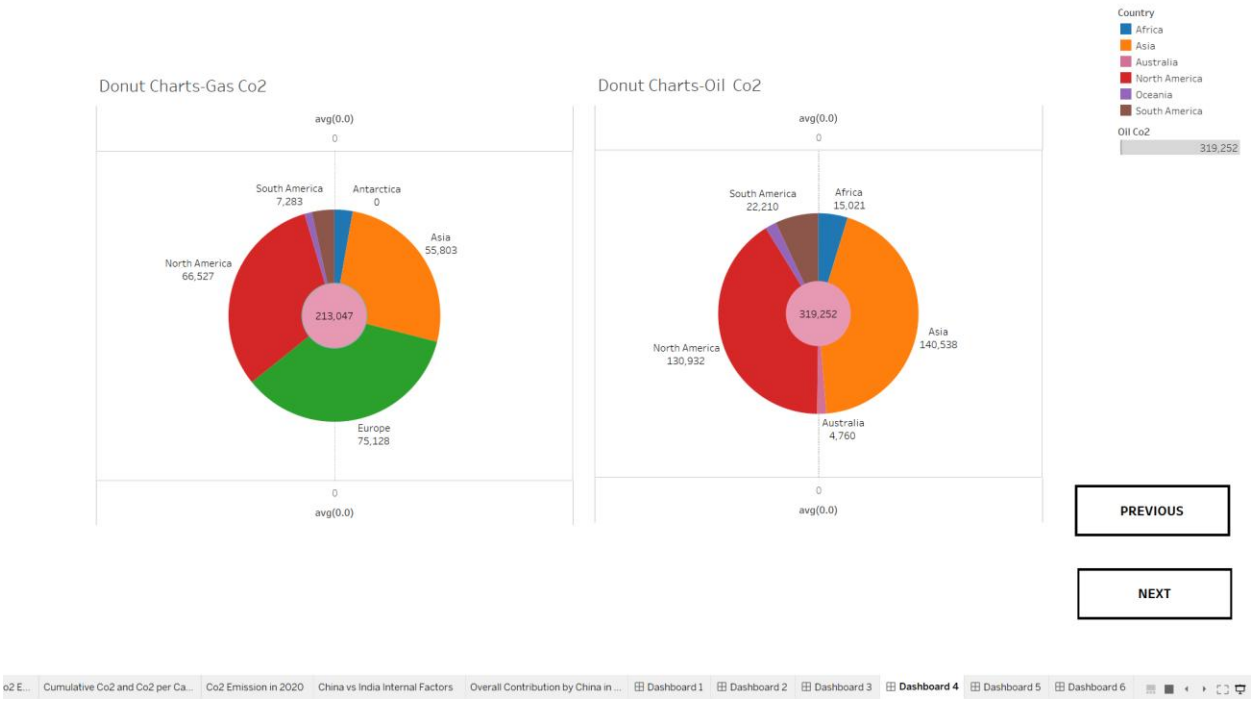
3.1.15 Overall Contributions by China in Co2 Emission



3.2TABLEAU DASHBOARD




Cement Co2
37,625
Donut Charts-Coal Co2
avg(0.0)
0
3,445
South America
15,929
Africa
471,028
249,912
Asia
107,632
Europe
0
avg(0.0)
Donut Charts-Cement Co2
avg(0.0)
0
1,390
South America
0
Antarctica
6,131
Europe
37,625
25,395
Asia
0
avg(0.0)
PREVIOUS
NEXT
o2 E...
Cumulative Co2 and Co2 per Ca...
Co2 Emission in 2020
China vs India Internal Factors
Overall Contribution by China in ...
Dashboard 1
Dashboard 2
Dashboard 3
Dashboard 4
Dashboard 5
Dashboard 6


Country
Africa
Asia
Australia
North America
Oceania
South America
Oil Co2
319,252
Donut Charts-Gas Co2
avg(0.0)
0
South America
7,283
Antarctica
0
Asia
55,803
North America
66,527
213,047
Europe
75,128
0
avg(0.0)
Donut Charts-Oil Co2
avg(0.0)
0
South America
22,210
Africa
15,021
319,252
Asia
140,538
North America
130,932
Australia
4,760
0
avg(0.0)
PREVIOUS
NEXT
o2 E...
Cumulative Co2 and Co2 per Ca...
Co2 Emission in 2020
China vs India Internal Factors
Overall Contribution by China in ...
Dashboard 1
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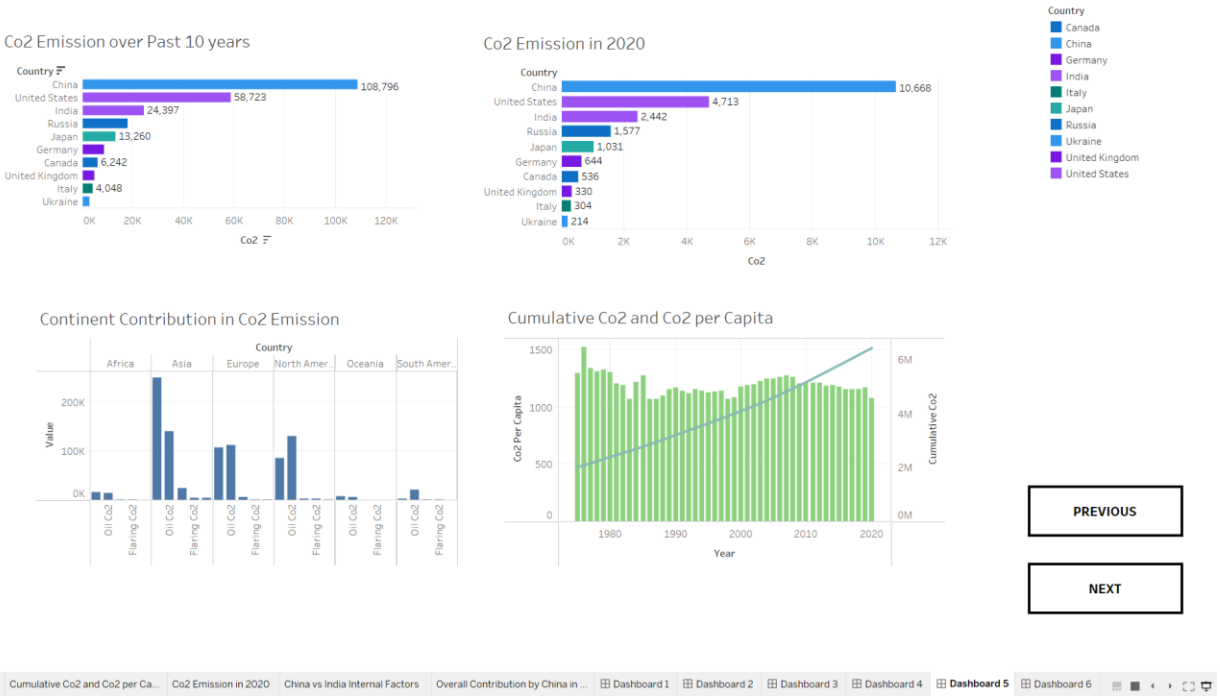
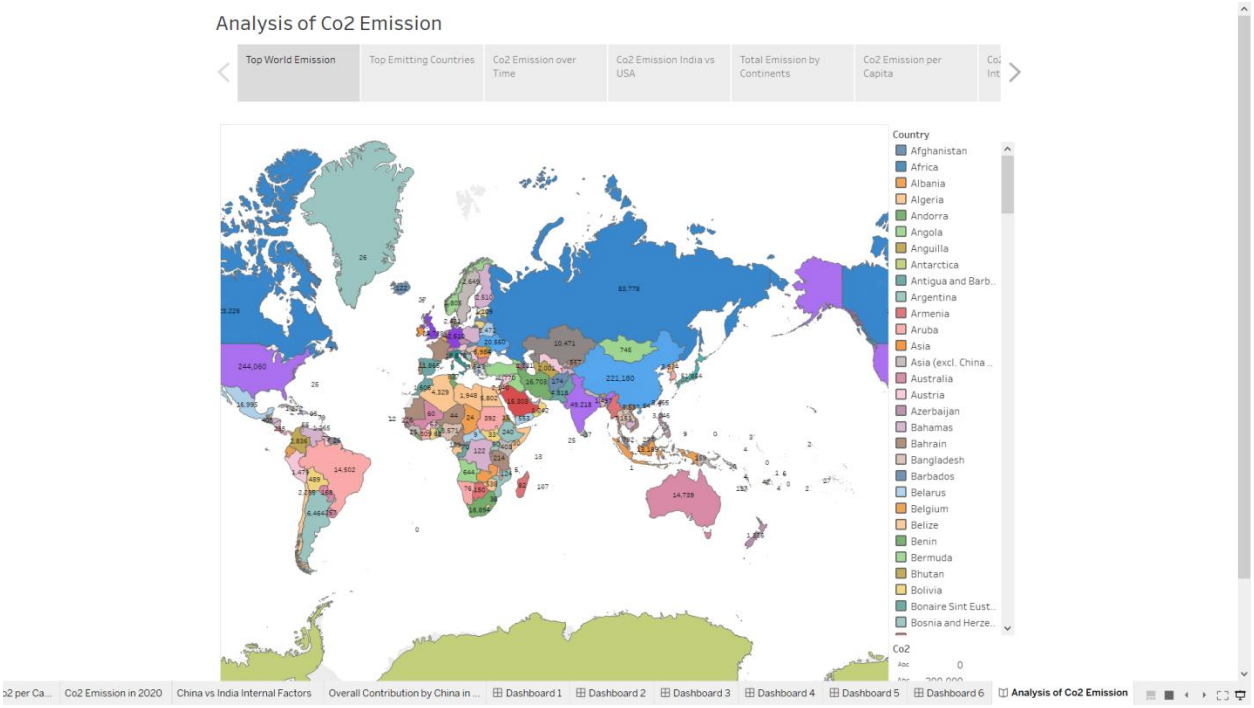
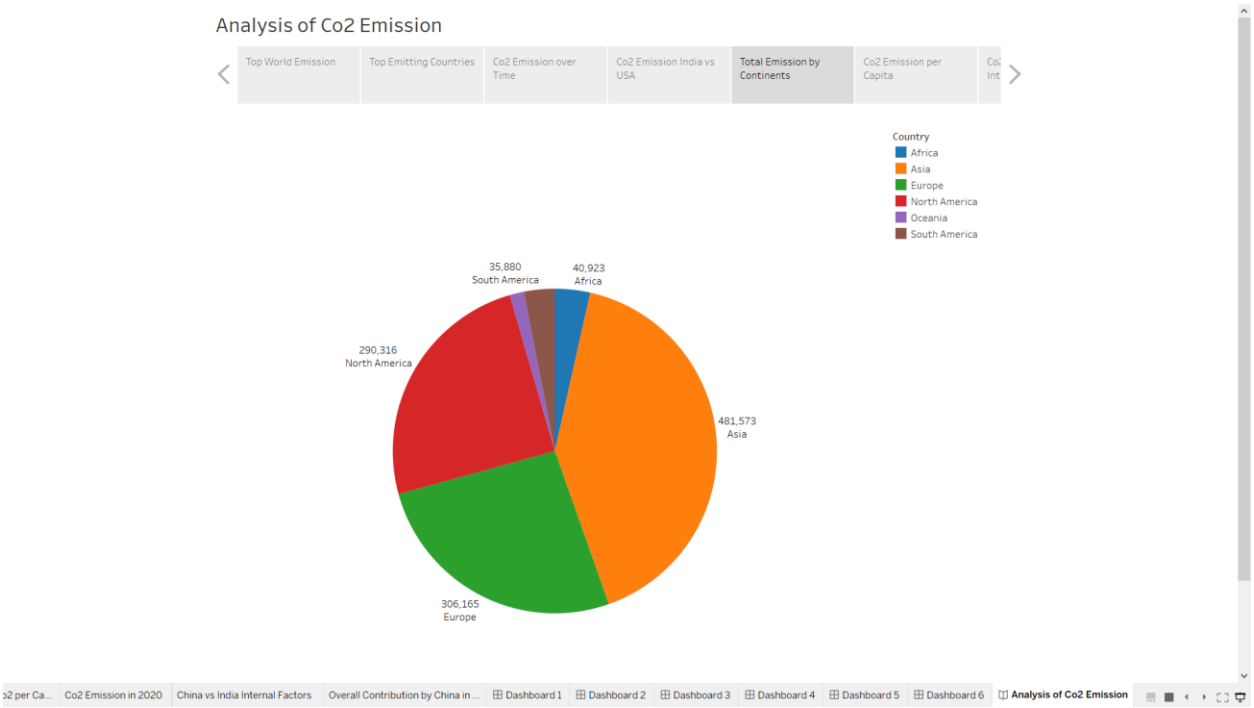

Co2 Emission over Past 10 years
Country
China 108,796
United States 58,723
India 24,397
Russia
Japan 13,260
Germany
Canada 6,242
United Kingdom
Italy 4,048
Ukraine
0K 20K 40K 60K 80K 100K 120K
Co2
Co2 Emission in 2020
Country
China 10,668
United States 4,713
India 2,442
Russia 1,577
Japan 1,031
Germany 644
Canada 536
United Kingdom 330
Italy 304
Ukraine 214
0K 2K 4K 6K 8K 10K 12K
Co2
Country
Canada
China
Germany
India
Italy
Japan
Russia
Ukraine
United Kingdom
United States
Continent Contribution in Co2 Emission
Country
Africa Asia Europe North Amer.. Oceania South Amer..
Value
200K
100K
0K
Oil Co2
Flaring Co2
Cumulative Co2 and Co2 per Capita
Co2 Per Capita
1500
1000
500
0
Cumulative Co2
6M
4M
2M
0M
1980 1990 2000 2010 2020
Year
PREVIOUS
NEXT
o2 E... Cumulative Co2 and Co2 per Ca... Co2 Emission in 2020 China vs India Internal Factors Overall Contribution by China in ... Dashboard 1 Dashboard 2 Dashboard 3 Dashboard 4 Dashboard 5 Dashboard 6


China vs India Internal Factors
Country
China
India
Value
150K
100K
50K
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
150K
100K
50K
0K
164,581
31,559
14,654
6,040
4,321
26
Coal Co2
Oil Co2
Cement Co2
Gas Co2
Other Industry Co2
Flaring Co2
HOME
o2 E... Cumulative Co2 and Co2 per Ca... Co2 Emission in 2020 China vs India Internal Factors Overall Contribution by China in ... Dashboard 1 Dashboard 2 Dashboard 3 Dashboard 4 Dashboard 5 Dashboard 6

3.3 TABLEAU STORY





4. ADVANTAGES &DISADVANTAGES :

ADVANTAGES:

- The earth's atmosphere is approximately 0.039% carbon dioxide. This might not sound like an awful lot, but the finely-tuned balance of gases in our planet's atmosphere is what keeps the earth full of life (unlike all the other planets in our solar system).
- Plants are especially reliant on CO2, as they use it to get energy. Plants perform a chemical reaction known as photosynthesis which requires carbon dioxide - so, without it, we have no plants and thus nothing to eat!
- Green plants grow faster with more CO2. Many also become more drought- resistant because higher CO2 levels allow plants to use water more efficiently. More abundant vegetation from increased CO2 is already apparent.

DISADVANTAGES:

There are several negative aspects of carbon dioxide:

- For instance, did you know that if carbon dioxide levels reach higher than 5% in a room, this is usually enough to kill a human being?
- Another threat that CO2 poses comes in the form of global warming. Carbon emissions (partly due to the burning of fossil fuels) are causing a gap in our ozone layer.
- These may include headaches, dizziness, restlessness, a tingling or pins or needles feeling, difficulty breathing, sweating, tiredness, increased heart rate, elevated blood pressure, coma, asphyxia, and convulsions.

5.APPLICATIONS:

1. **CO2-derived chemicals**

The carbon (and oxygen) in CO2 can be used as an alternative to fossil fuels in the production of chemicals, including plastics, fibres and synthetic rubber. As with CO2-derived fuels, converting CO2 to methanol and methane is the most technologically mature pathway.

2**. Building materials from minerals and CO2**

CO2 can be used in the production of building materials to replace water in concrete, called CO2 curing, or as a raw material in its constituents.

3. **Building materials from waste and CO2**

Construction aggregates (small particulates used in building materials) can be produced by reacting CO2 with waste materials from power plants or industrial processes.

4.**Crop yield boosting with CO2**

CO2 can be used to enhance yields of biological processes, such as algae production and crop cultivation in greenhouses. The application of CO2 with low-temperature heat in industrial greenhouses is the most mature yield-boosting application today, and can increase yields by 25% to 30%

5.IEA scenario analysis highlights that CO2 use could become a more attractive mitigation option where availability of CO2 storage is limited, but it would not scale to similar levels of deployment. In the Clean Technology Scenario (CTS), which sets out a pathway consistent with the Paris Agreement climate goals, CO2 use in fuel transformation and industry would reach around 250 MtCO2 annually by 2060.

6.Carbon dioxide in solid and in liquid form is used for refrigeration and cooling. It is used as an inert gas in chemical processes, in the storage of carbon powder and in fire extinguishers. Metals Industry: Carbon dioxide is used in the manufacture of casting molds to enhance their hardness.

7.Carbon dioxide in solid and in liquid form is used for refrigeration and cooling. It is used as an inert gas in chemical processes, in the storage of carbon powder and in fire extinguishers. Metals Industry: Carbon dioxide is used in the manufacture of casting molds to enhance their hardness.

6. CONCLUSION:

The consequence of the greenhouse effect is thatthere will a rise in the sea levels around the world, there will be dramatic climate changes and agriculture will suffer from the fluxes of the weather.The rising level of atmospheric CO2 could be the one global natural resource that is progressively increasing food production and total biological output, in a world of otherwise diminishing natural resources of land, water, energy, minerals, and fertilizer.

7. FUTURE SCOPE:

- Nearly 240 companies have signed up to the Science Based Targets initiative – an independent organization promoting climate action in the private sector. And 94% of these firms say they will reduce emissions linked to their customers and suppliers, according to McKinsey.
- One company with ambitious plans to decarbonize its value chain is French multinational Schneider Electric.
- The firm's Zero Carbon Project aims to achieve a 50% cut in emissions from its suppliers' operations by 2025. It has even provided decarbonization training to 1,000 companies in its value chain to help them make the emissions cuts.
- "Our big focus right now is on our suppliers because it represents an opportunity to cut 6 million tonnes of CO2 emissions – 20 times more than we can cut alone," says Schneider's Chief Strategy and Sustainability Officer, Olivier Blum.
- Greenhouse gas emissions are the emissions released to the atmosphere as a direct result of an activity, or series of activities at a facility level. Emissions are sometimes referred to as direct emissions.