Unearthing the Environmental Impact of Human Activity: A Global CO2 Emission Analysis

INTRODUCTION

1.1 Overview:

Carbon dioxide (CO_2) is released into Earth's atmosphere mostly by the burning of carbon-containing fuels and the decay of wood and other plant matter. Under all conditions found naturally on Earth, CO_2 is an invisible, odorless gas. It is removed from the atmosphere mostly by plants, which extract carbon from CO_2 to build their tissues, and by the oceans, in which CO_2 dissolves.

Because CO_2 is opaque to infrared radiation (the electromagnetic waves emitted by warm objects) in the atmosphere, it acts as a blanket to slow the loss of heat from Earth into space. Although other gases are also causing Earth's climate to warm, CO_2 alone is responsible for about three-fourths of global warming.

The amount of CO_2 in the atmosphere has increased greatly since human beings began burning large amounts of coal and petroleum in the nineteenth century. In more recent times, this source of CO_2 emissions has increased rapidly, while

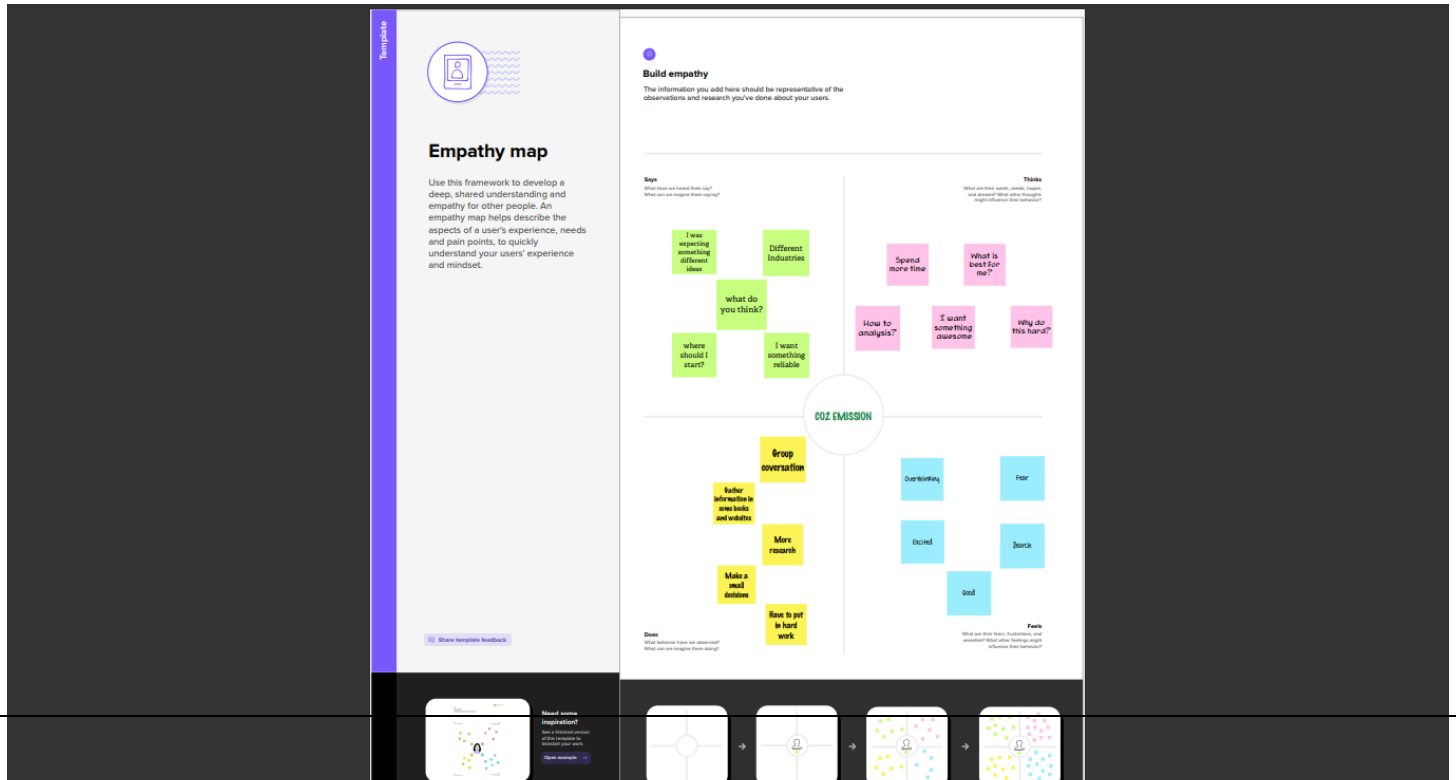
destruction of forests has also become a major source of CO_2. Atmospheric concentrations of several other gases, including methane (CH_4) and nitrous oxide (N_2O), have also been increased recently by human activities and are contributing to greenhouse warming of the planet.

1.2 Purpose:

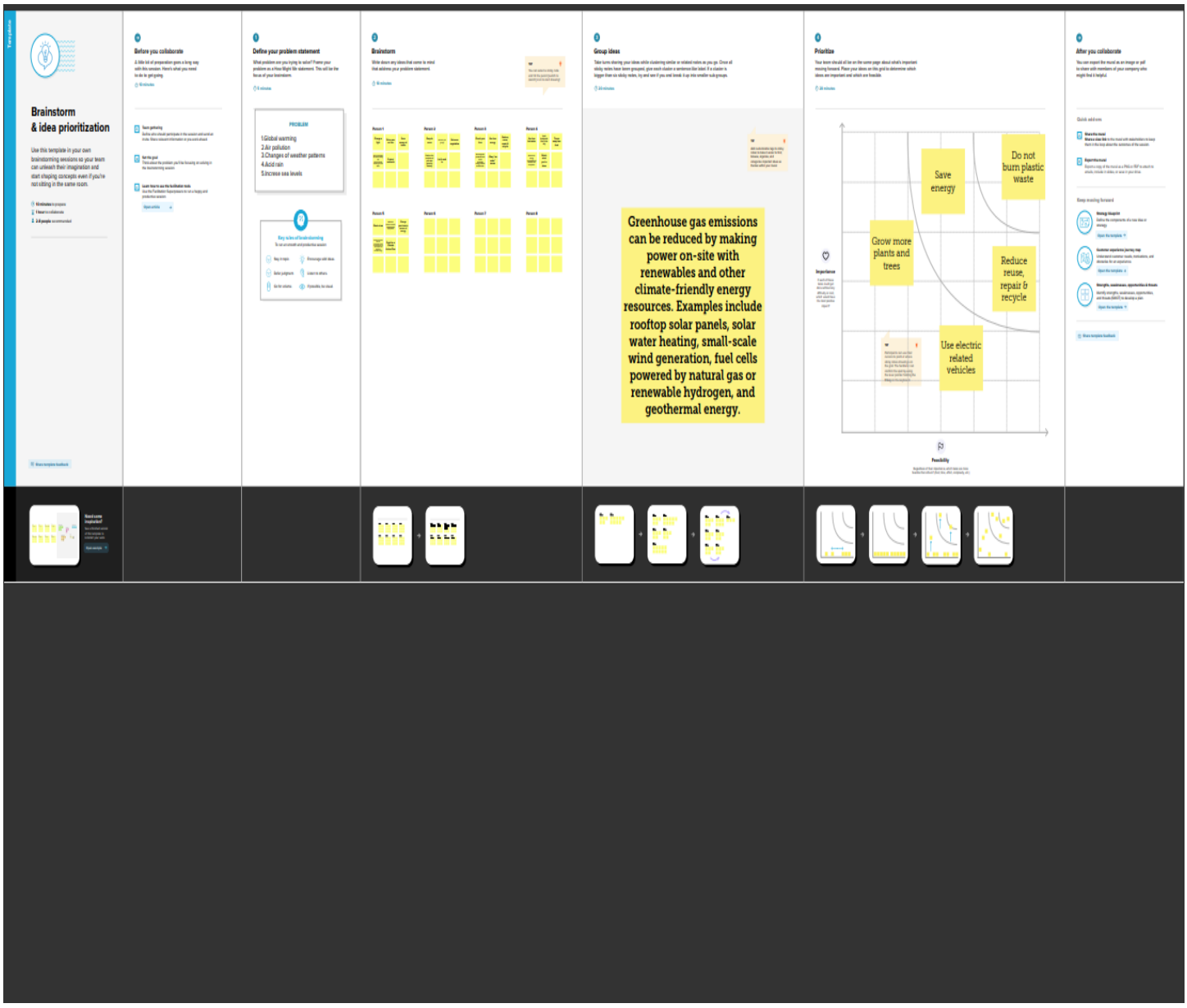
As climate change affects our planet's health and ecosystems, it's important to do our part to stave off or offset its negative impacts. One way to help lessen the effect of climate change is to reduce our carbon emissions.

Problem Definition & Design Thinking :

2.1 Emapathy Map:



2.2 Ideation & Brainstorming Map



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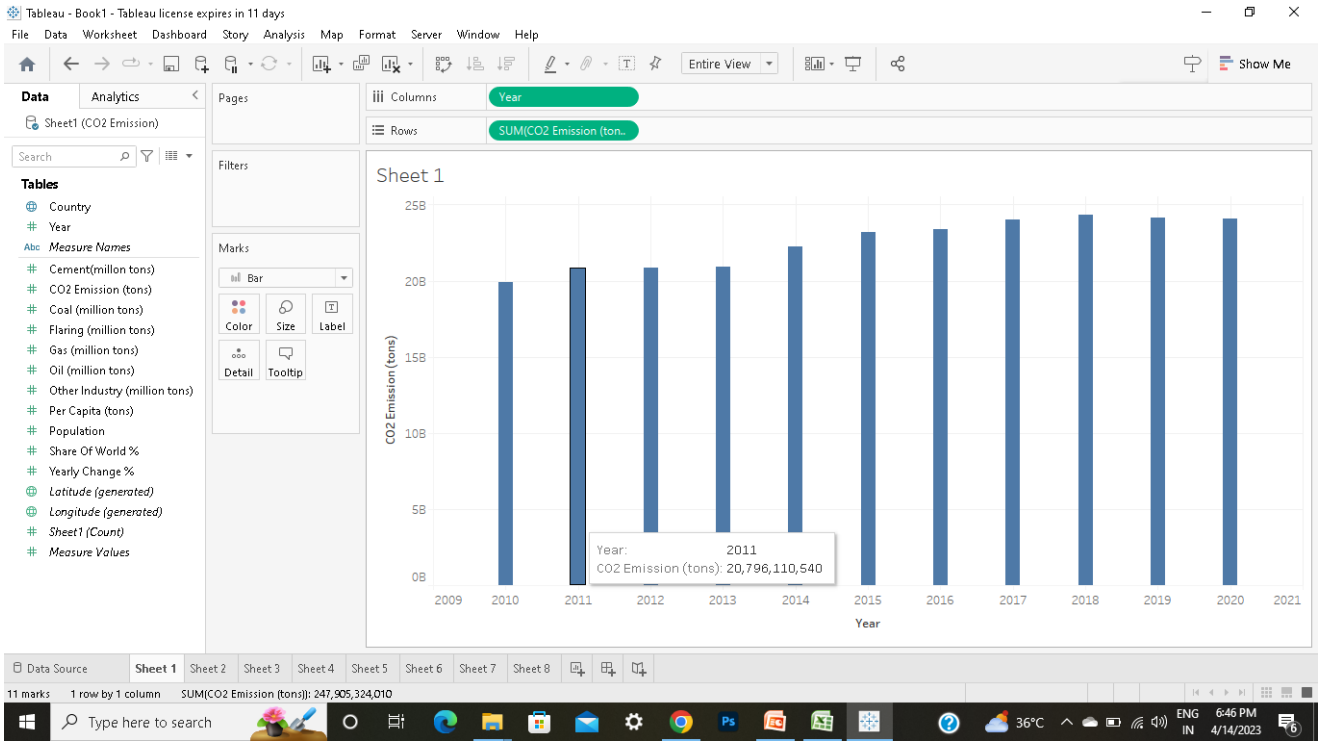
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Sheet1 (CO2 Emission)
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Tables
Country
Year
Measure Names
Cement(million tons)
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Coal (million tons)
Flaring (million tons)
Gas (million tons)
Oil (million tons)
Other Industry (million tons)
Per Capita (tons)
Population
Share Of World %
Yearly Change %
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Longitude (generated)
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SUM(CO2 Emission (ton..
Sheet 1
25B
20B
15B
10B
5B
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CO2 Emission (tons)
Year: 2011
CO2 Emission (tons): 20,796,110,540
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Year
Data Source
Sheet 1
Sheet 2
Sheet 3
Sheet 4
Sheet 5
Sheet 6
Sheet 7
Sheet 8
11 marks
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36°C
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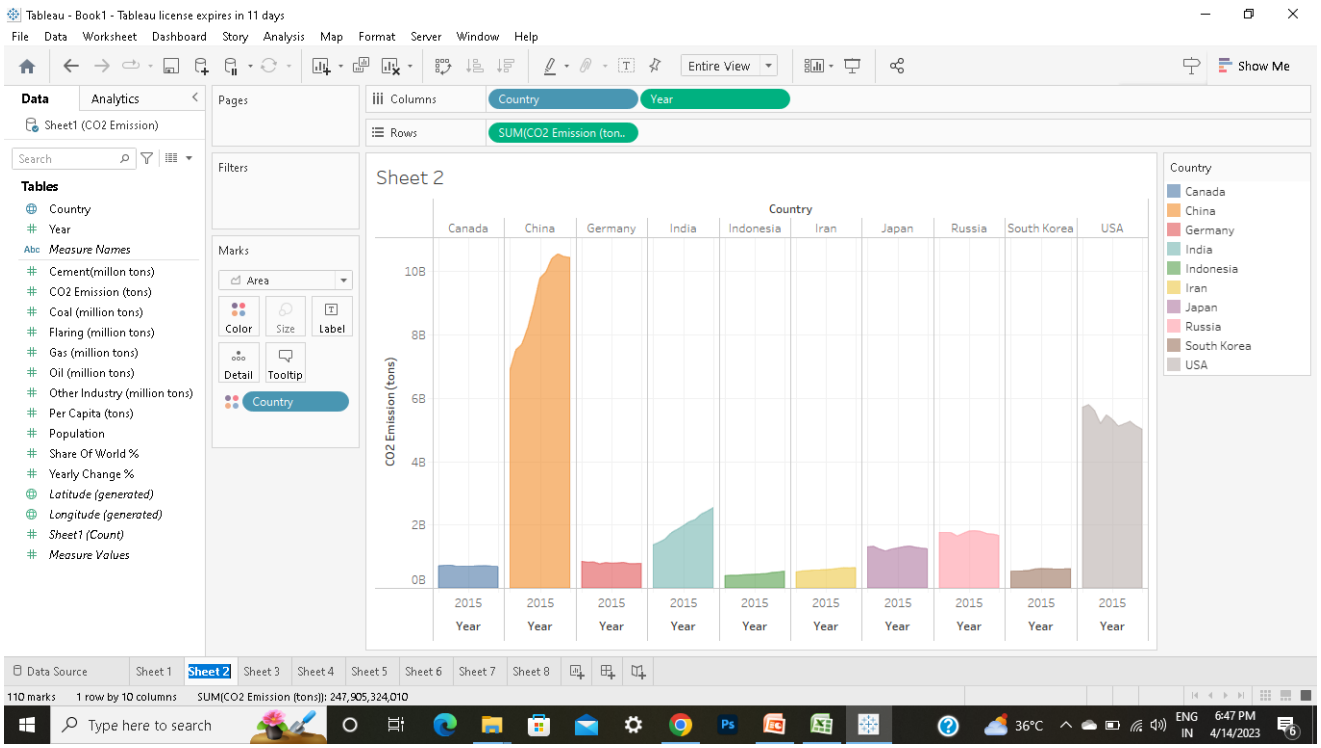
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Country
Canada
China
Germany
India
Indonesia
Iran
Japan
Russia
South Korea
USA
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8B
6B
4B
2B
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CO2 Emission (tons)
2015
Year
Data Source
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Sheet 2
Sheet 3
Sheet 4
Sheet 5
Sheet 6
Sheet 7
Sheet 8
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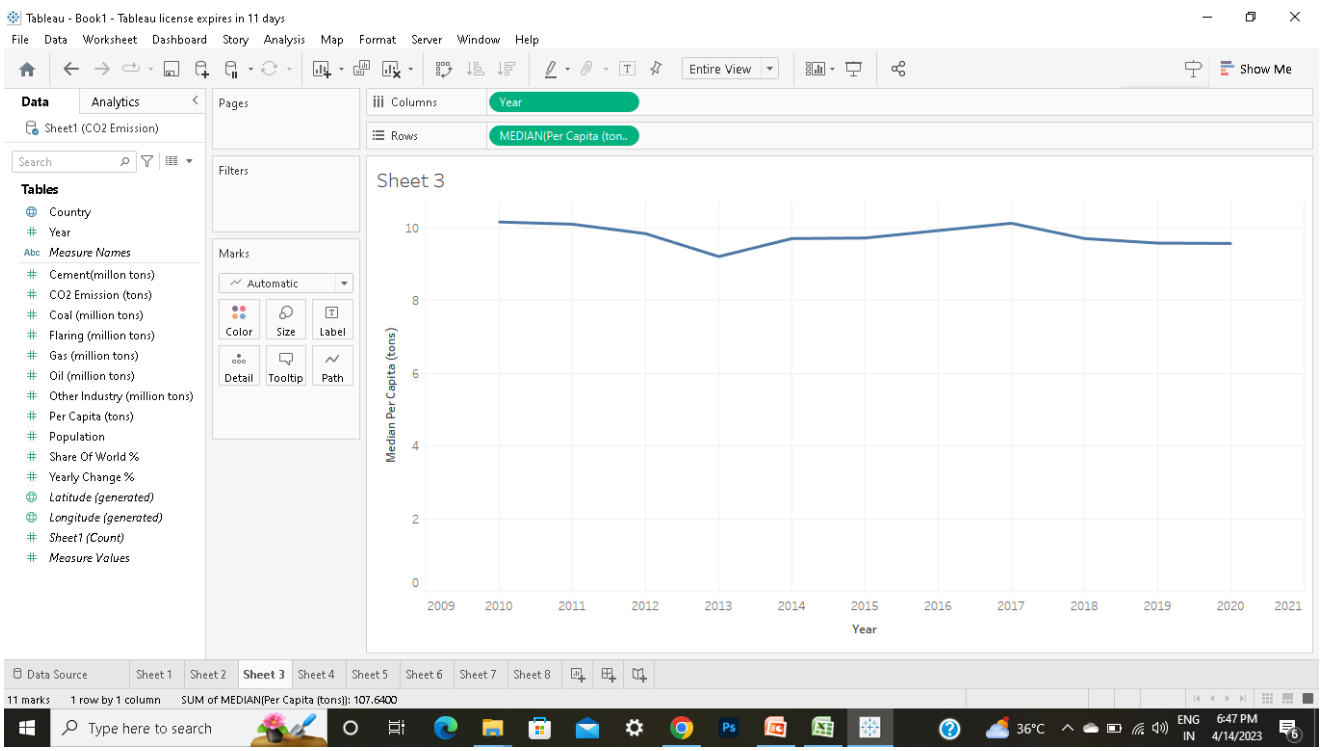
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Measure Names
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CO2 Emission (tons)
Coal (million tons)
Flaring (million tons)
Gas (million tons)
Oil (million tons)
Other Industry (million tons)
Per Capita (tons)
Population
Share Of World %
Yearly Change %
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Sheet 3
Median Per Capita (tons)
Year
Data Source
Sheet 1
Sheet 2
Sheet 3
Sheet 4
Sheet 5
Sheet 6
Sheet 7
Sheet 8
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SUM of MEDIAN(Per Capita (tons)): 107.6400
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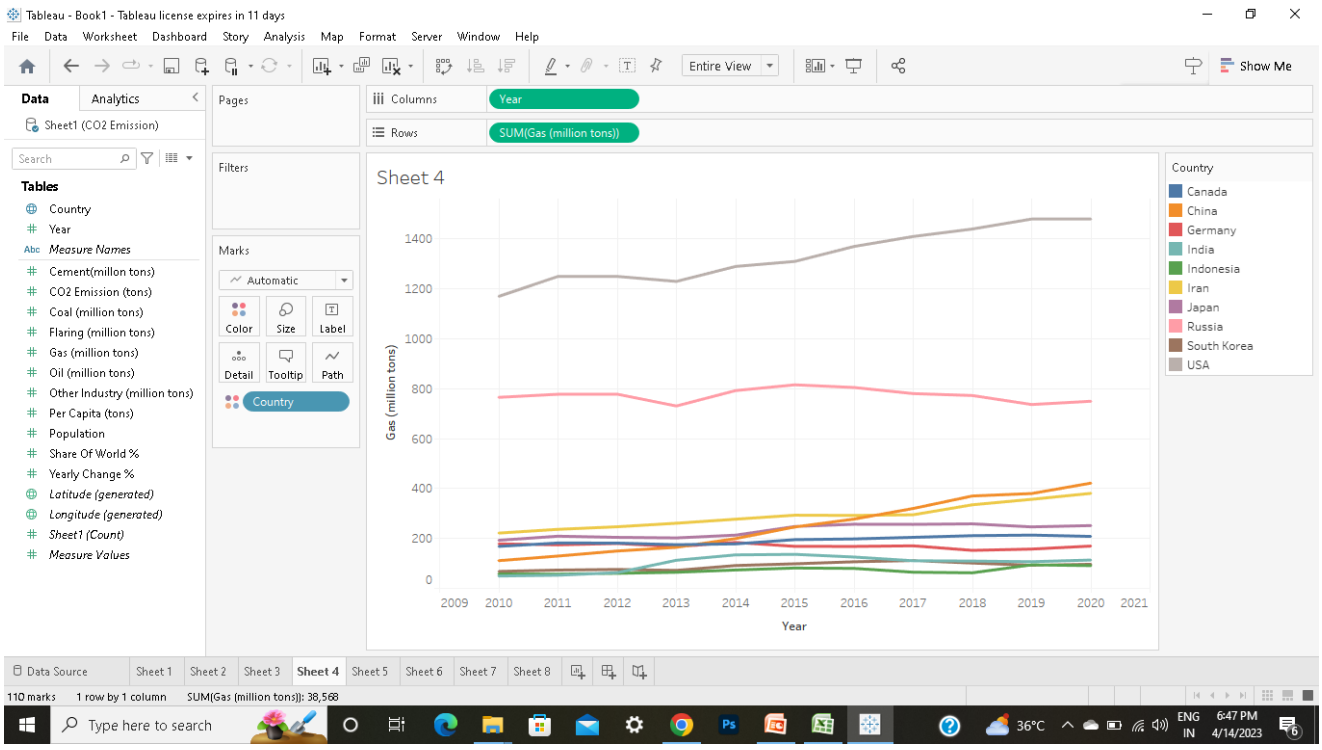
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Flaring (million tons)
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Oil (million tons)
Other Industry (million tons)
Per Capita (tons)
Population
Share Of World %
Yearly Change %
Latitude (generated)
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Sheet1 (Count)
Measure Values
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Filters
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Country
Columns
Year
Rows
SUM(Gas (million tons))
Sheet 4
Gas (million tons)
Year
Country
Canada
China
Germany
India
Indonesia
Iran
Japan
Russia
South Korea
USA
Data Source
Sheet 1
Sheet 2
Sheet 3
Sheet 4
Sheet 5
Sheet 6
Sheet 7
Sheet 8
110 marks
1 row by 1 column
SUM(Gas (million tons)): 38,568
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36°C
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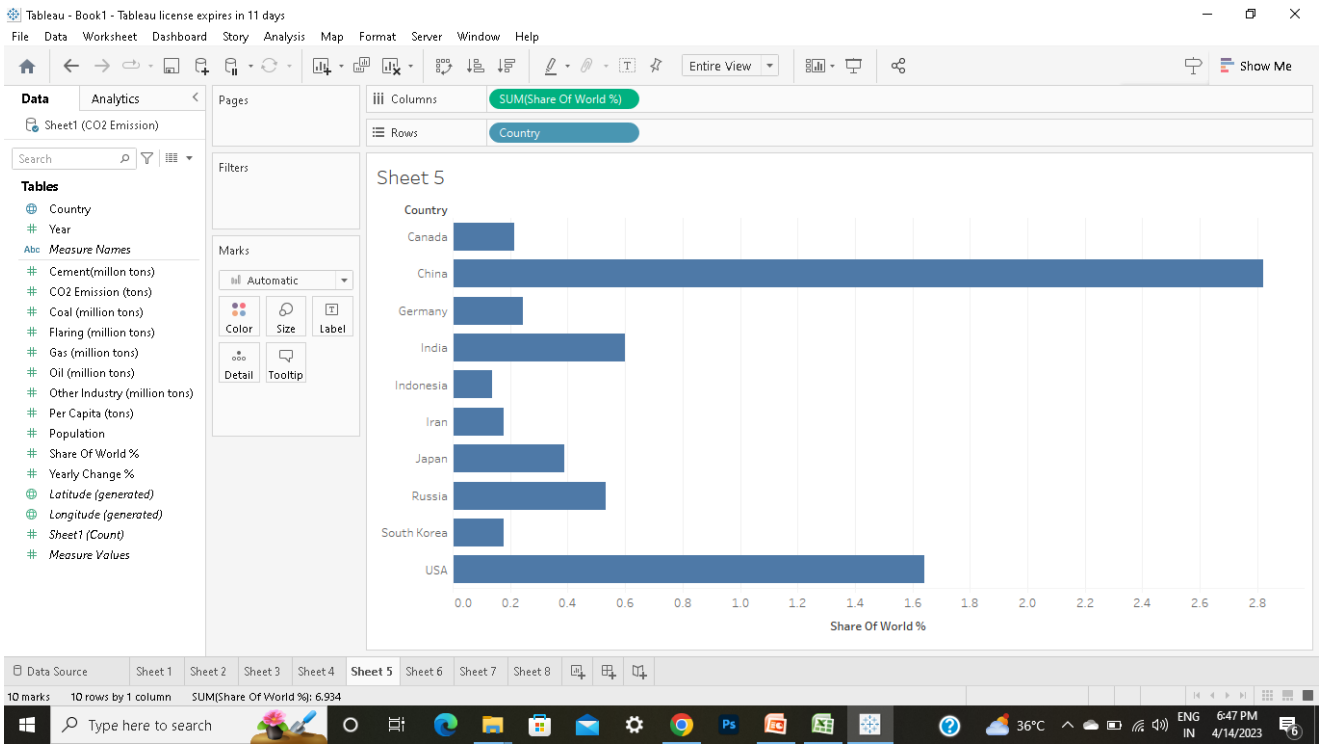
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Gas (million tons)
Oil (million tons)
Other Industry (million tons)
Per Capita (tons)
Population
Share Of World %
Yearly Change %
Latitude (generated)
Longitude (generated)
Sheet1 (Count)
Measure Values
Pages
Filters
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Columns
SUM(Share Of World %)
Rows
Country
Sheet 5
Country
Canada
China
Germany
India
Indonesia
Iran
Japan
Russia
South Korea
USA
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8
Share Of World %
Data Source
Sheet 1
Sheet 2
Sheet 3
Sheet 4
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10 marks
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SUM(Share Of World %): 6.934
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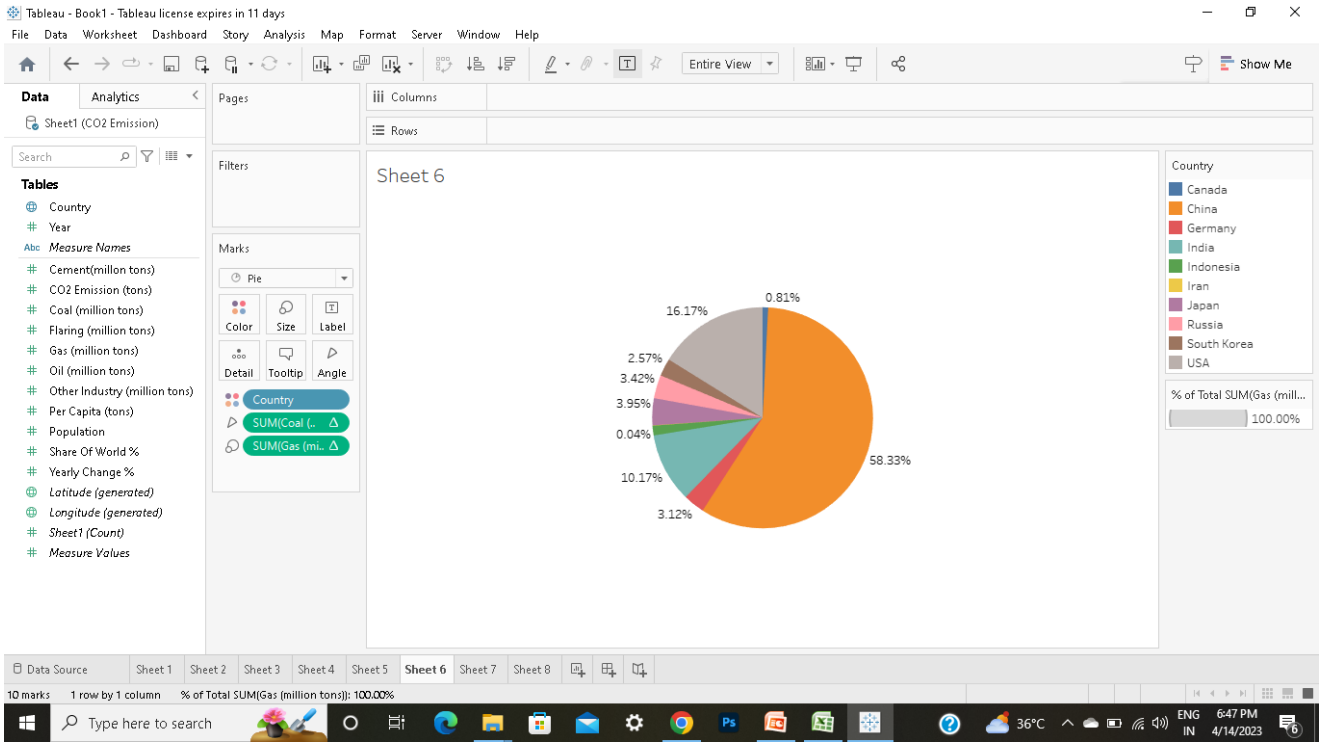
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Oil (million tons)
Other Industry (million tons)
Per Capita (tons)
Population
Share Of World %
Yearly Change %
Latitude (generated)
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Color
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Detail
Tooltip
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Country
SUM(Coal (..
SUM(Gas (mi..
Columns
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Sheet 6
0.81%
16.17%
2.57%
3.42%
3.95%
0.04%
10.17%
3.12%
58.33%
Country
Canada
China
Germany
India
Indonesia
Iran
Japan
Russia
South Korea
USA
% of Total SUM(Gas (mill...
100.00%
Data Source
Sheet 1
Sheet 2
Sheet 3
Sheet 4
Sheet 5
Sheet 6
Sheet 7
Sheet 8
10 marks
1 row by 1 column
% of Total SUM(Gas (million tons)): 100.00%
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36°C
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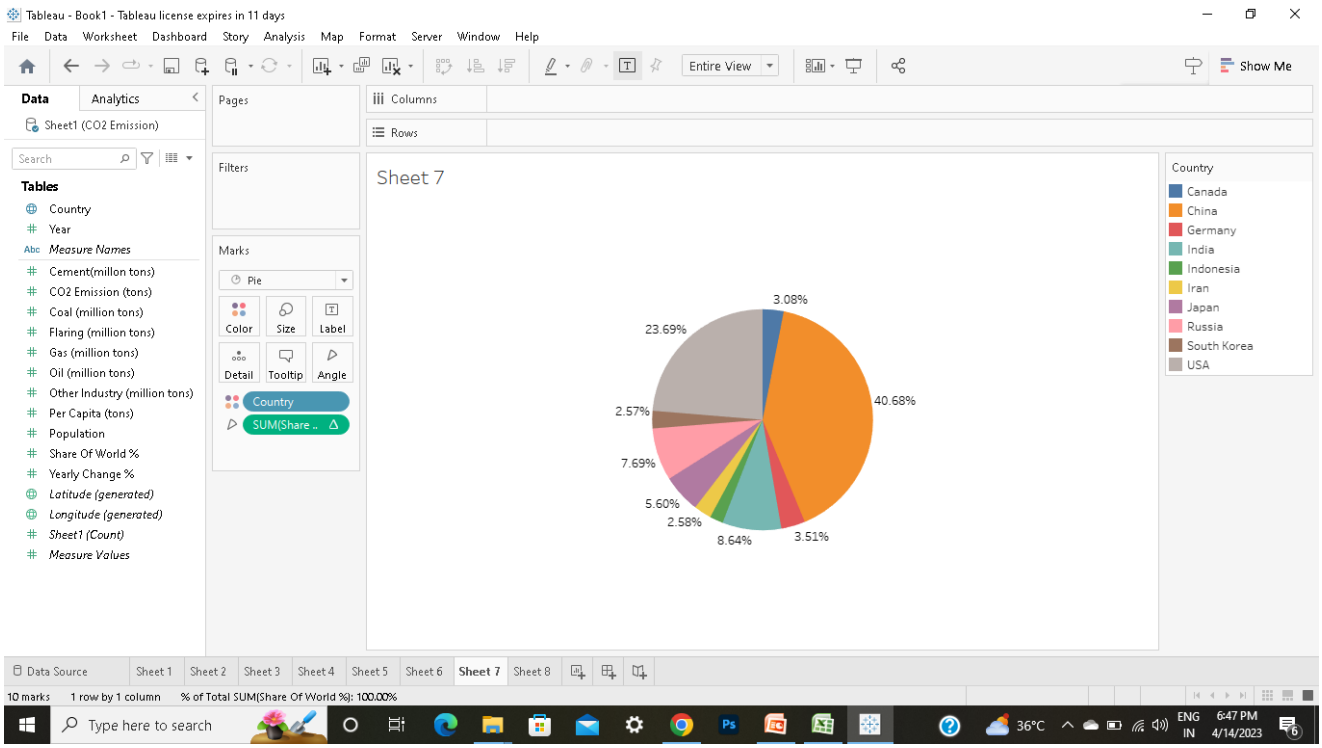

Advantages:

- When we fix the climate and runaway global heating using principles of climate justice for all, we also help significantly improve or fix many of the world's other most threatening global challenges.
- we create hundreds of millions of new, well-paid green energy generation and transition jobs.
- We are intelligent and adaptive beings, and we can resolve or adapt to almost anything.
- We still have time to prepare, adapt

- There will be positive climate wildcards

Disadvantages:

- Carbon dioxide gas can be toxic and very harmful to humans, It increases the temperature of the Earth's atmosphere, It causes the global warming effect that has bad effects on the Earth.
- Increasing the percentage of carbon dioxide gas in the air causes suffocation of living organisms as well as global warming that threatens the existence of life on this planet, a high concentration of carbon dioxide gas causes narcosis.
- Carbon dioxide gas level increases to higher than 5 % in the room, this ratio is enough to kill the human being, carbon dioxide gas increases the cerebral blood flow and intracranial pressure.

Applications:

- New pathways to use CO2 in the production of fuels, chemicals and building materials are generating global interest.
- The market for CO2 use will likely remain relatively small in the short term, but early opportunities can be cultivated.
- CO2 use has potential to support climate goals, but robust life-cycle assessment is essential.
- CO2 could be an important raw material for products that require carbon.
- Globally, some 230 million tonnes (Mt) of carbon dioxide (CO2) are used every year.
- New pathways involve transforming CO2 into fuels, chemicals and building materials.
- The production of CO2-based fuels and chemicals is energy-intensive and requires large amounts of hydrogen.

Conclusion:

The rising level of atmospheric CO_2 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.

Future Scope:

CO_2 can also replace fossil fuels as a raw material in chemicals and polymers. Less energy-intensive pathways include reacting CO_2 with minerals or waste streams, such as iron slag, to form carbonates for building materials. The future market potential for CO_2-derived products and services is difficult to assess.

Appendix:

Introduction

https://www.encyclopedia.com/environment/energy-government-and-defense-magazines/carbon-dioxide-co2-emissions

Advantages

https://www.joboneforhumanity.org/surprise_benefits_of_global_warming?gclid=CjwKCAjwue6hBhBVEiwA9YTx8Cl6_9M9atiYCpdMa-mSgr60fxSyWcuN3RSAx8cu1MqqBr1FDcajfBoCMBYQAvD_BwE

disadvantage

https://www.online-sciences.com/earth-and-motion/what-are-the-disadvantages-of-carbon-dioxide/

Applications

https://www.iea.org/reports/putting-co2-to-use

Conclusion

http://www.co2science.org/education/reports/co2benefits/conclusion.php#:~:text=%22The%20rising%20level%20of%20atmospheric,energy%2C%20minerals%2C%20and%20fertilizer.

Future Scope

https://iea.blob.core.windows.net/assets/50652405-26db-4c41-82dc-c23657893059/Putting_CO2_to_Use.pdf