CO2 emissions intensity

Industry Innovation and Infrastructure 9.4.1

SUMMARY:

-A view on world's CO2 emission and a comparison between countries and their population.
-The Worldwide carbon emission cost.
-A look at economically strong countries.
-Prediction!
-Solution for the main problem.

RESEARCH QUESTIONS:

-What is the world's quantity of Carbon dioxide?
-How much the CO2 emission worth for the world?
-Where does the CO2 emission leads us to?
-How can the world manage this scourge?

CO2 in the world

DATA

PREDICTION

SOLUTION

REFERENCES:

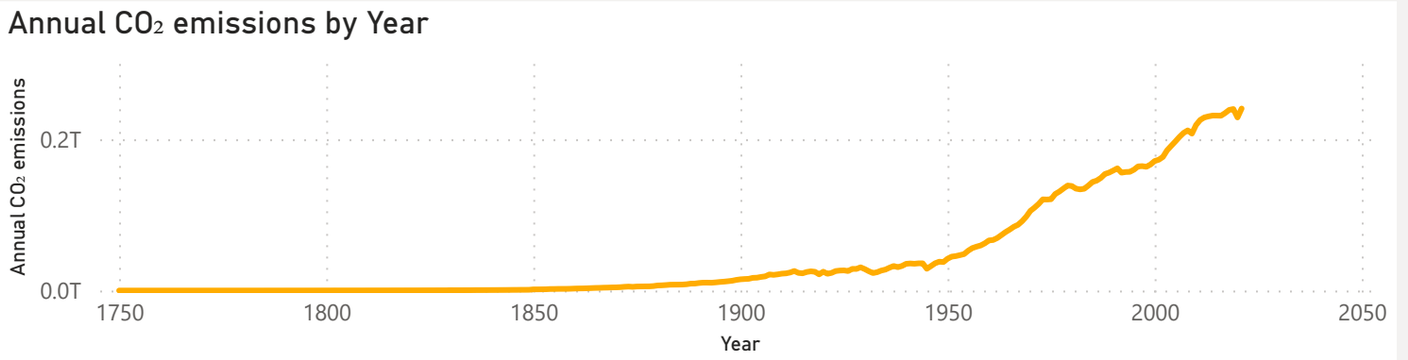
CO2 emissions - Our World in Data
Carbon emission intensity vs. GDP per capita, 2018 (ourworldindata.org)
SDG Tracker: Measuring progress towards the Sustainable Development Goals - Our World in Data
The Future of the Carbon Cycle in a Changing Climate - Eos
Monitoring global carbon emissions in 2021 | Nature Reviews Earth & Environment
CO2 Emissions in 2022 – Analysis - IEA
CO2 emissions to 2100 by scenario – Charts – Data & Statistics - IEA

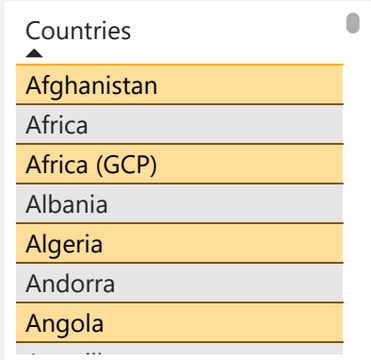
Worldwide CO2 emission

C02 emission per countries/per year:

11.92T

Annual CO_2 emissions



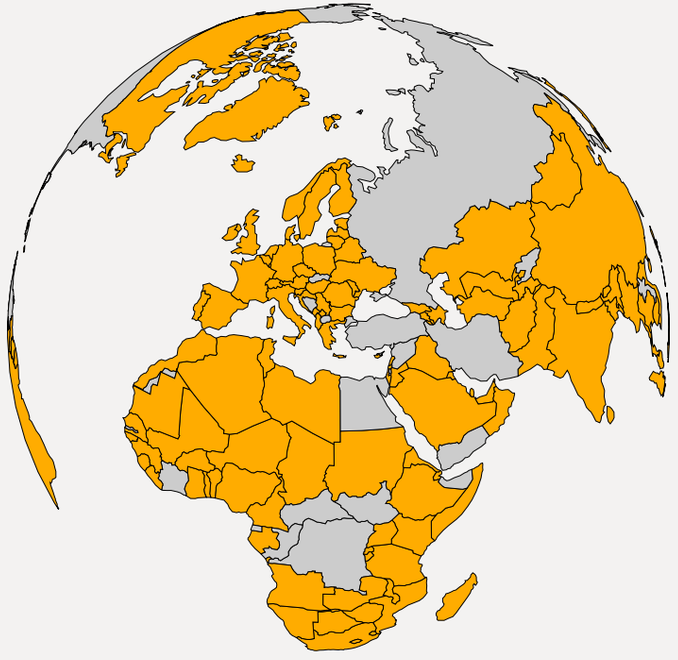


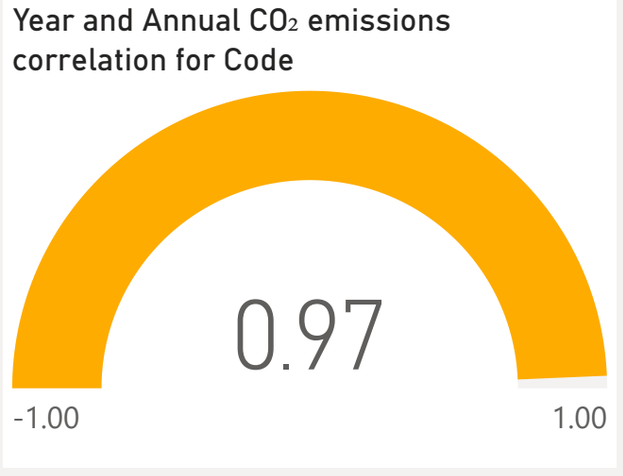
Population:

86bn

The following visuals gives us a clear and wide view on the quantity of emission of carbon dioxide in the world's different countries, as well as the population in each.

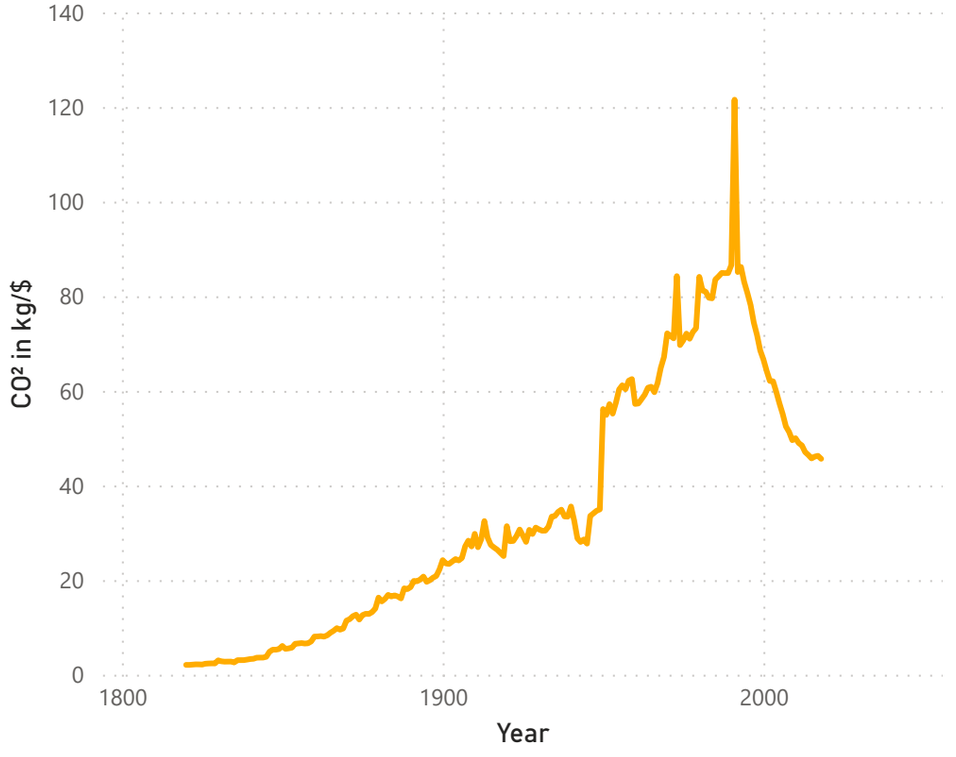
Both the two visuals gives us a good comparison between countries population and its CO2 emission.



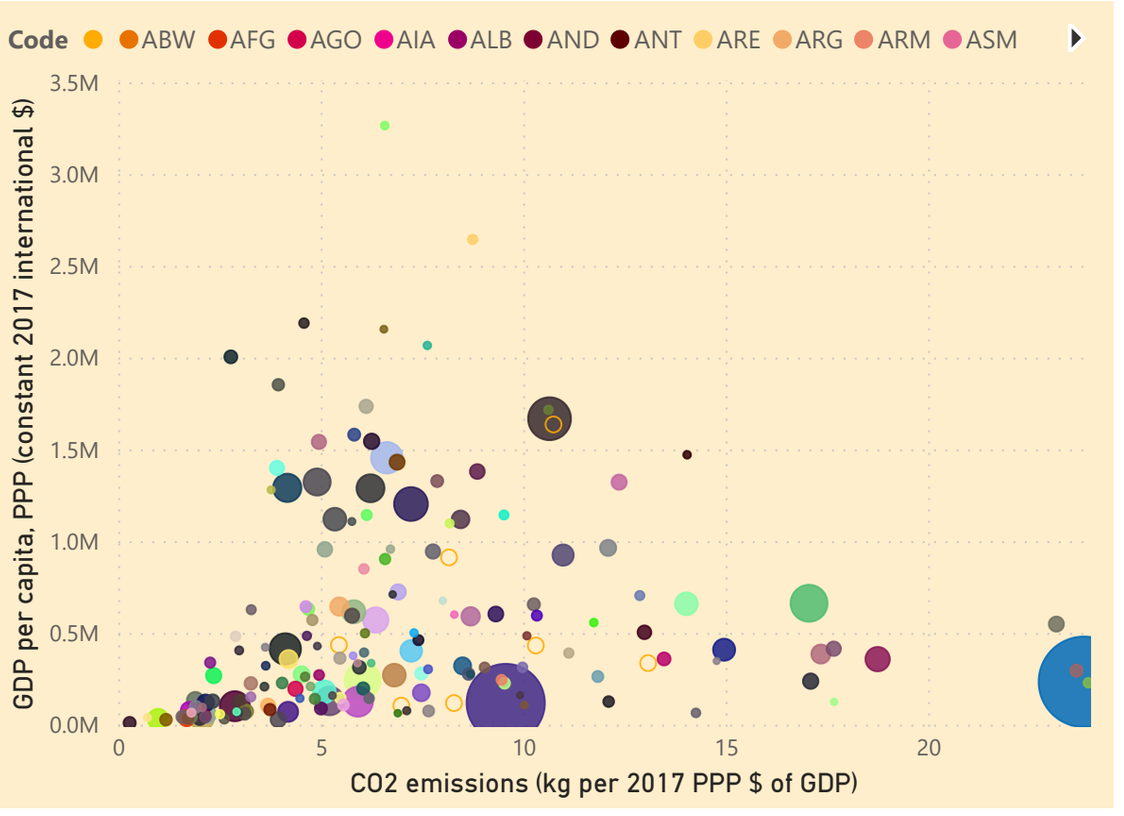


The cost of CO2 emission:

Annual CO2 emission cost per country:



Country
Afghanistan
Africa
Albania
Algeria
Angola
Argentina
Armenia
Asia



Count of Year and Annual CO_2 emissions per GDP (kg per international-$) correlation for Country

-1.00 0.61 1.00

Afghanistan
First Country

Abkhazia
First Country

1.28K
CO2 emissions (kg pe...

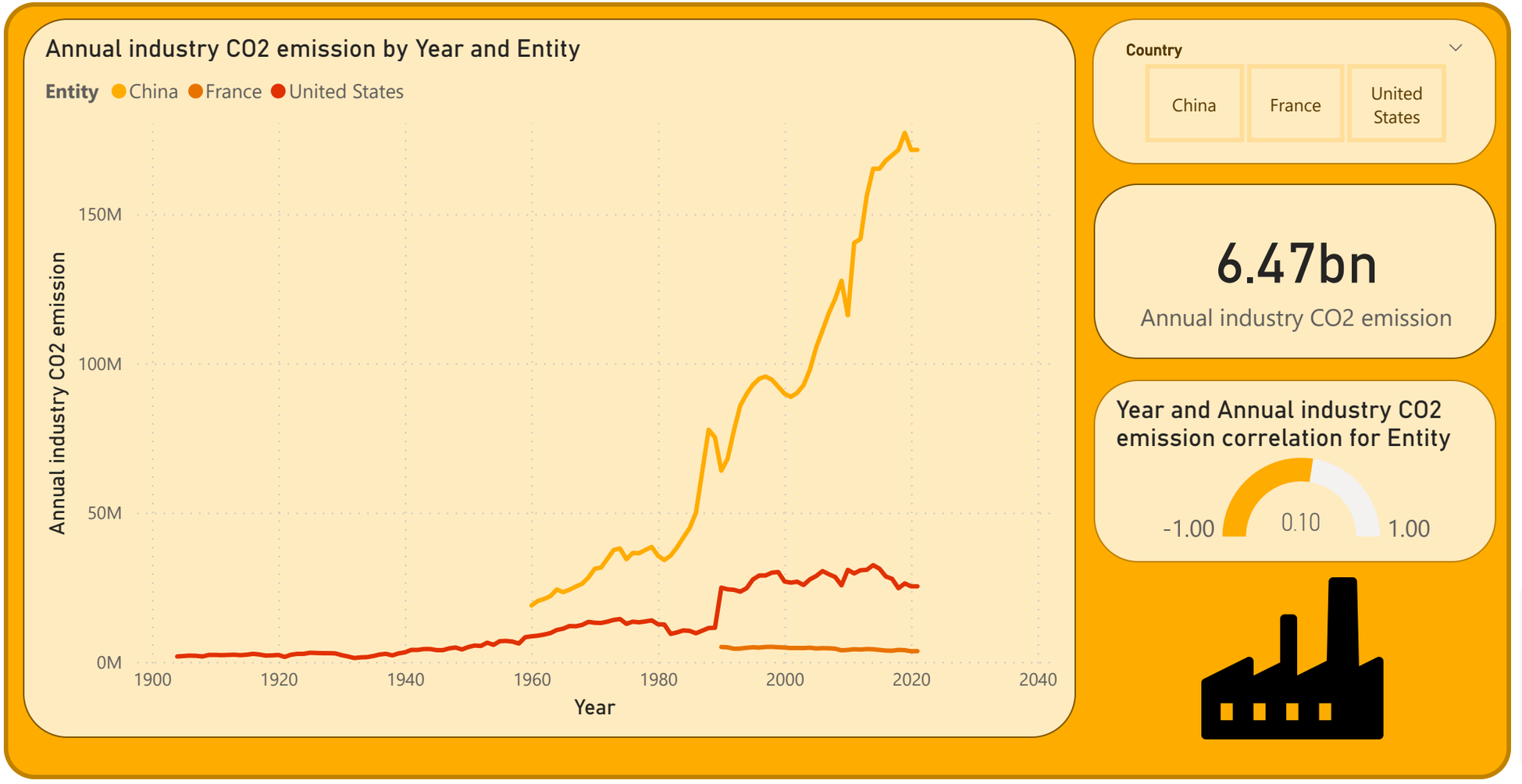
Year
1800 2021

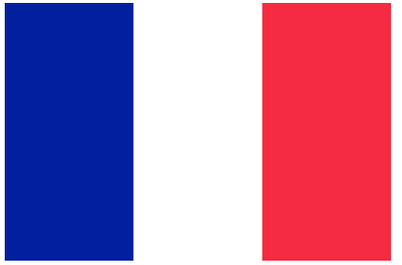
KG / $

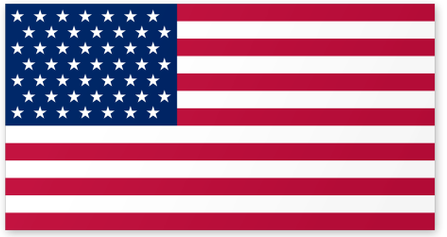
The CO2 emission weight per unit of money (Kg/$)

World wide CO2 emission intensity

Industry have a huge impact on the world's CO2 emission, here is a comparison of it between three economically strong countries:







Prediction:

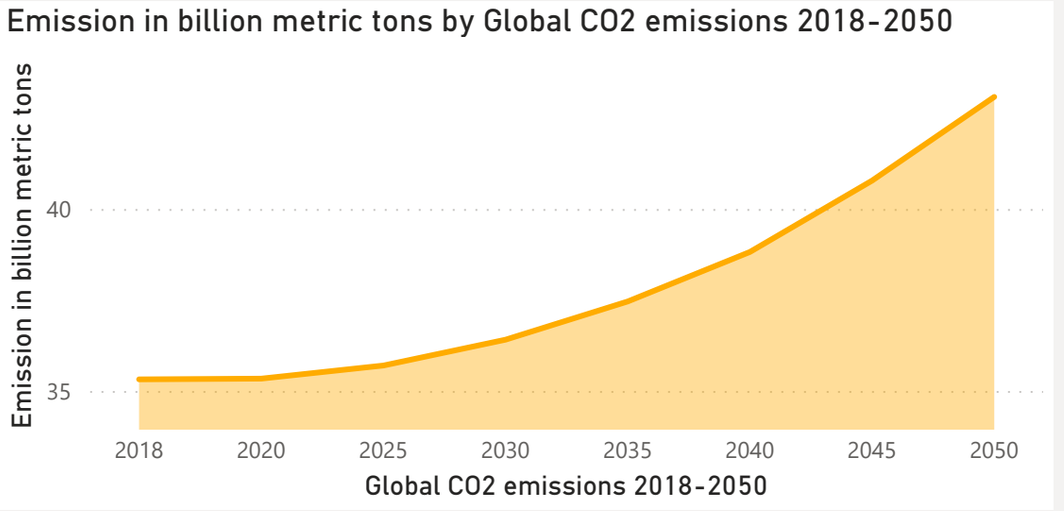
What can we expect from this part of CO2 emission?

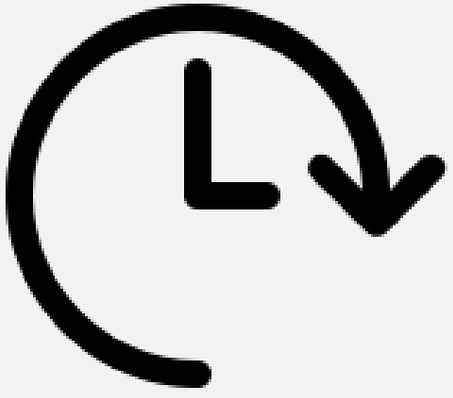
Emissions from these industries are notoriously difficult to abate because, in addition to emissions associated with energy use, a significant portion of industrial emissions come from the process itself.

For example, in the cement industry, about half the emissions come from the decomposition of limestone into lime and CO2. While a shift to zero-carbon energy sources such as solar or wind-powered electricity could lower CO2 emissions in the power sector, there are no easy substitutes for emissions-intensive industrial processes.

Certainly, to reduce emissions from the cement industry and other emissions-intensive industrial processes the factories are following steps:

1. Implement carbon capture and storage (CCS) technologies.
2. Explore the use of alternative raw materials with lower carbon footprints.
3. Optimize existing processes for efficiency and energy consumption.
4. Develop and deploy low-carbon technologies and innovative manufacturing processes.
5. Implement policy interventions and incentives to encourage the adoption of cleaner technologies and practices.





302.91

Emission in billion metric tons

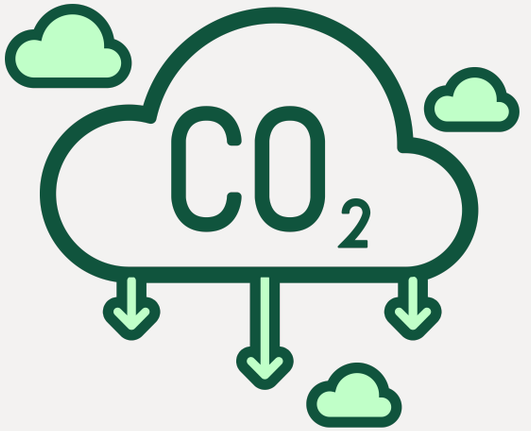
Solution:

-<u>Several strategies can be employed to lower CO2 emissions, some of which include:</u>

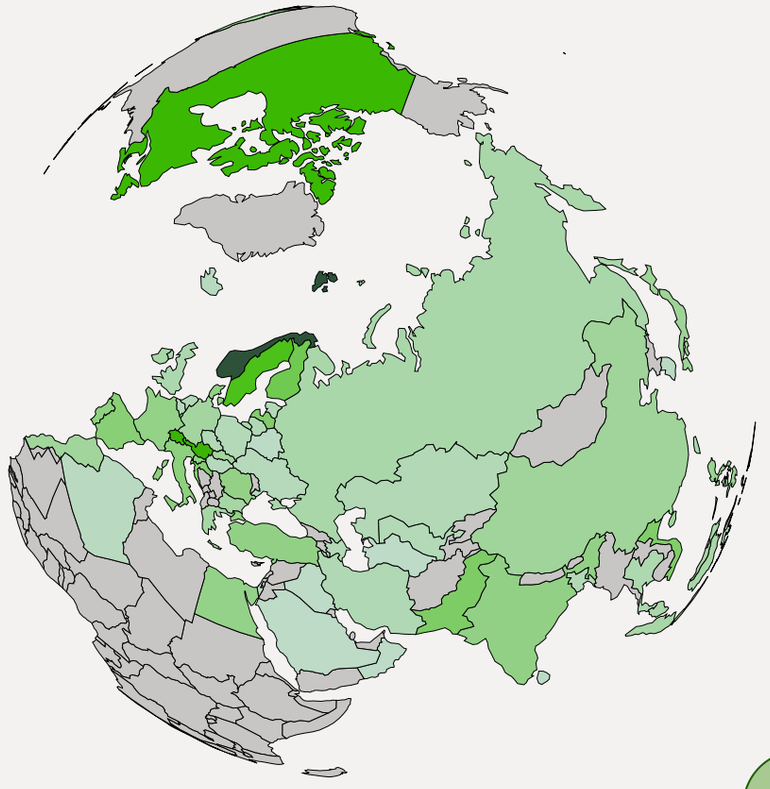
- Transition to renewable energy sources.
- Improve energy efficiency in industries, transportation, and households.
- Develop carbon capture and storage (CCS) technologies.
- Promote afforestation and reforestation.
- Encourage sustainable transportation practices.
- Focus on energy-efficient building design.
- Implement carbon pricing and incentives.
- Adopt sustainable agricultural practices.
- Strengthen international agreements and policies.
- Raise public awareness and education on the importance of reducing CO2 emissions.

Renewable energies

Afforestation and Deforestation



Renewable energies:



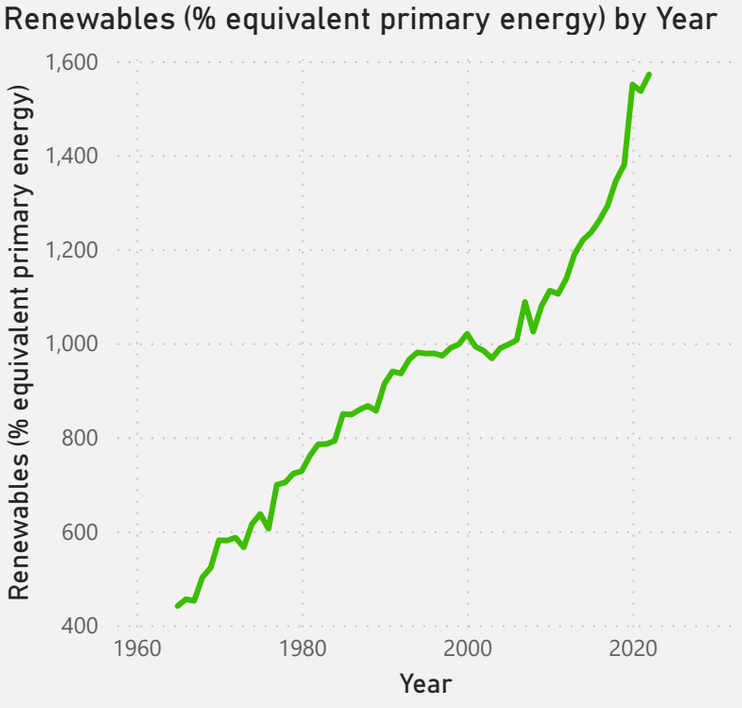
Africa

First Country

53.55K

Renewables (% equiva...

2020 2020



Afforestation and Deforestation:

Afghanistan

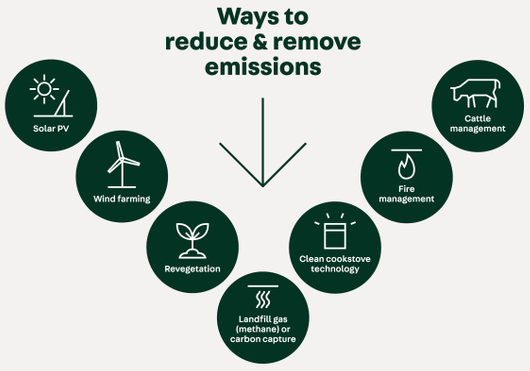
First Entity

18.56bn

Forest area in ha (hectares)

2020 2020

Info:



Reducing CO2 emissions is a crucial step in combating climate change and its adverse effects. Several strategies can be employed to lower CO2 emissions, some of which include:

- **Transitioning to renewable energy sources:** Shifting from fossil fuels to renewable energy sources such as solar, wind, and hydroelectric power can significantly reduce CO2 emissions.
- **Energy efficiency improvements:** Implementing energy-efficient technologies and practices in industries, transportation, and households can decrease overall energy consumption and subsequently reduce CO2 emissions.
- **Carbon capture and storage (CCS):** Developing and implementing technologies that capture CO2 emissions from industrial processes or power plants and storing them underground can prevent the release of CO2 into the atmosphere.
- **Afforestation and reforestation:** Planting trees and restoring forests help absorb CO2 from the atmosphere during photosynthesis, reducing overall CO2 levels.
- **Sustainable transportation:** Encouraging the use of public transportation, electric vehicles, biking, and walking can significantly decrease CO2 emissions from the transportation sector.
- **Energy-efficient building design:** Constructing buildings with energy-efficient materials and design features can reduce the energy required for heating, cooling, and