

Which countries are making the biggest strides in decreasing CO2 output?

Introduction

To give an answer to the question, “Which countries are making the biggest strides in decreasing CO2 output?”, research is done to calculate the decrease in co2 output per capita per country. For this research two datasets are used:

- Annual growth of CO2 emissions per country ([link 1](#))
- Annual growth of population per country ([link 2](#))

After filtering on time period, 4 different lists with top-5 countries are formed which can be considered making the biggest strides in decreasing CO2 output.

- Percentual decrease over the last 10 years.
- Absolut decrease over the last 10 years.
- Percentual decrease over the last 20 years.
- Absolut decrease over the last 20 years.

Bases on the above, Curacao is the country making the biggest strides in decreasing its CO2 output, coming on top of every of the 5 lists.

Growth of annual co2 emissions

To be able to compare the population to the growth of the annual co2 emissions, the dataset “Annual CO2 emissions” was used ([link 1](#)). In the next figure the total growth of co2 emissions worldwide is pictured.

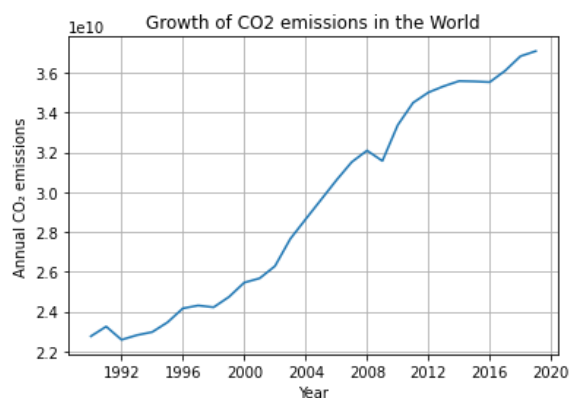


Figure 1: Growth of CO2 emissions in the World

The growth of CO2 dataset is merged with the dataset with the growth of the population per country. After this merge the CO2 per capita for every country for every year was calculated ($CO2\ emission\ of\ the\ year / population\ of\ that\ year$). The focus is on the decrease for the last 10 or 20 years, there for a filter is set on the date column and 2 datasets were created, one for the last 10 and one for the last 20 years.

For both sets 2 calculations were made:

- Percentual Change
- Absolut Change

Percentual Change

To calculate the percentual change in CO2 decrease per capita, the highest value of co2 per capita was measured in the given time period. This value is compared to the last measured value (the year 2021) to calculate the % difference. This gives the next figures:

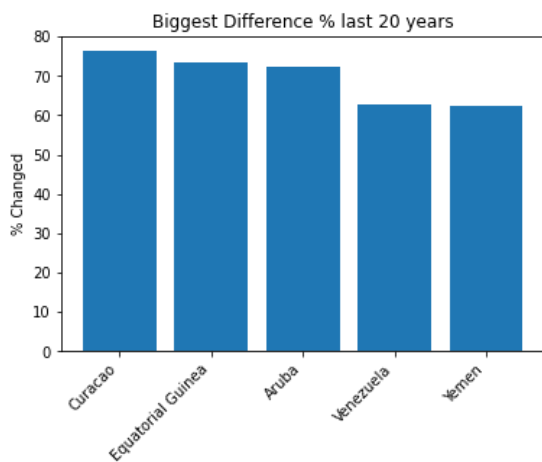


Figure 2: Difference of CO2 emissions per capita 2002 – 2021

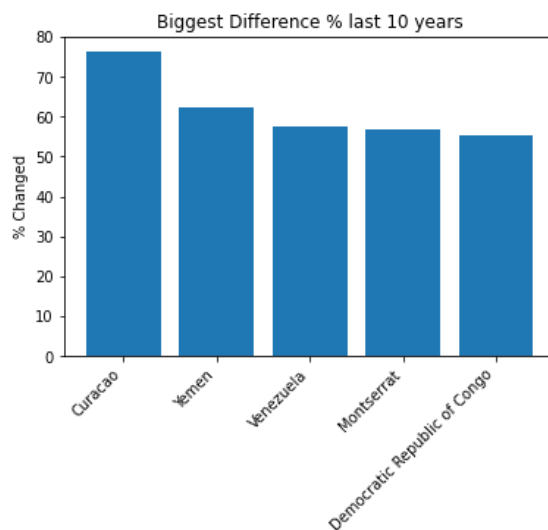


Figure 3: Difference of CO2 emissions per capita 2012 - 2021

Absolut Change

To calculate the absolute change in CO2 decrease per capita, the highest value of co2 per capita was measured in the given time period. From this value the last measured value (the year 2021) is subtracted, giving the absolute decrease over the last 10 and 20 years. This results in the next two figures:

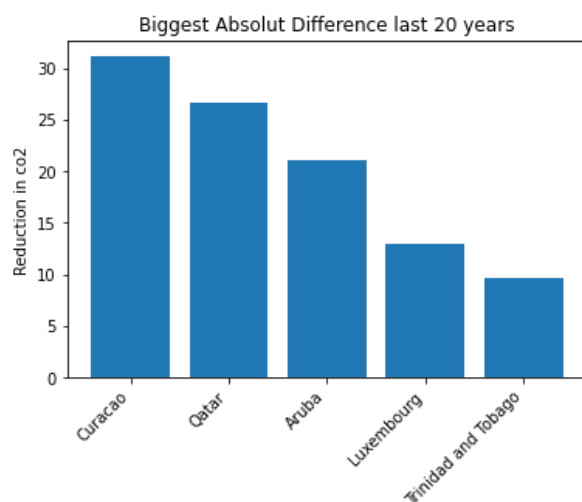


Figure 4: Difference of CO2 emissions per capita 2002 – 2021

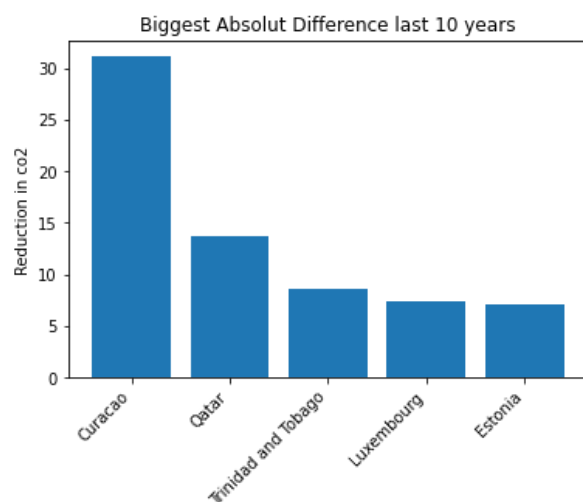


Figure 5: Difference of CO2 emissions per capita 2012 - 2021

Curacao

As seen in the above 4 figures, in all of them Curacao is the leading country in decreasing the CO2 per capitate, both percentual as absolute. In the next figure, the CO2 per capita for each year since 2002 is given for Curacao.

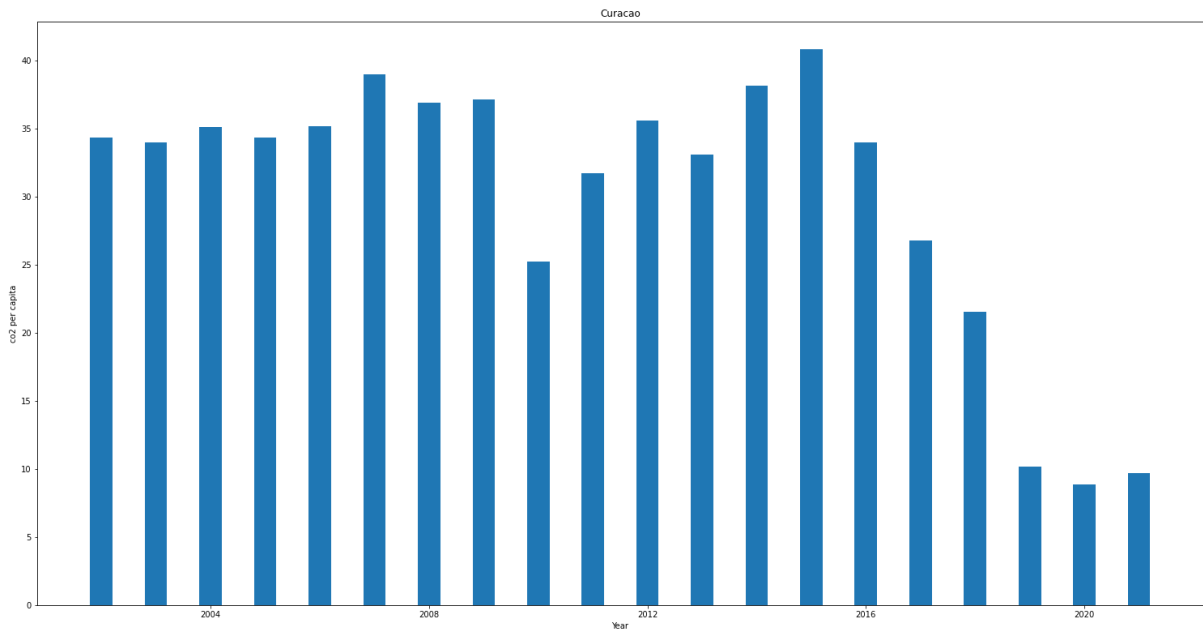


Figure 6: CO2 emission per capita in Curacao 2002 - 2021

Conclusion

Absolute and percentual, Curacao is the country with the biggest stride in decreasing its CO2 output per capita. The follow up depends on the view you take, the last 20 years or the last 10 and if you calculate absolute or percentual change. These are the top 5 for all of these:

Percentual 20 years

1. Curacao
2. Equatorial Guinea
3. Aruba
4. Venezuela
5. Yemen

Percentual 10 years

1. Curacao
2. Yemen
3. Venezuela
4. Montserrat
5. Democratic Republic of Congo

Absolute 20 years

1. Curacao
2. Qatar
3. Aruba
4. Luxembourg
5. Trinidad and Tobago

Absolute 10 years

1. Curacao
2. Qatar
3. Trinidad and Tobago
4. Luxembourg
5. Estonia

Appendix

Links to data sources:

1. <https://ourworldindata.org/grapher/annual-co2-emissions-per-country>
2. <https://ourworldindata.org/grapher/population-by-country>