7PAM2000-0105-2022- APPLED DATA SCIENCE

CLIMATE CHANGE ANALYSIS REPORT

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This is a report that analysing the data from world bank data source on country basis and exploring various indicators related to climate change and investigating their impact on economy. The goal of this report is providing insight into the trends and statistics related to climate change that can be observed from this data.

LINKS: GitHub Repo link: Here

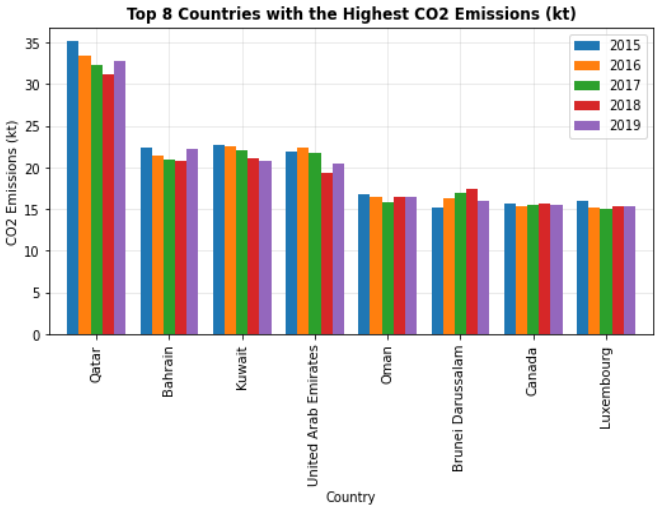
Data: World Bank Data

Sub links of Data:

- CO2 emissions (metric tons per capita)
- Electricity production from oil, gas and coal sources (% of total)
- Total greenhouse gas emissions (kt of CO2 equivalent)
- Population (total)

For this analysis I use top 8 countries with the highest CO2 emissions and based on these countries the further analysis was done. And mainly the interrelations of the following factors of climate change were investigated. The main indicators are, "CO2 emissions (metric tons per capita)", ""Total greenhouse gas emission (kt of CO2 equivalent)","Electricity production from oil, gas and coal sources (% of total)", "Population, total".

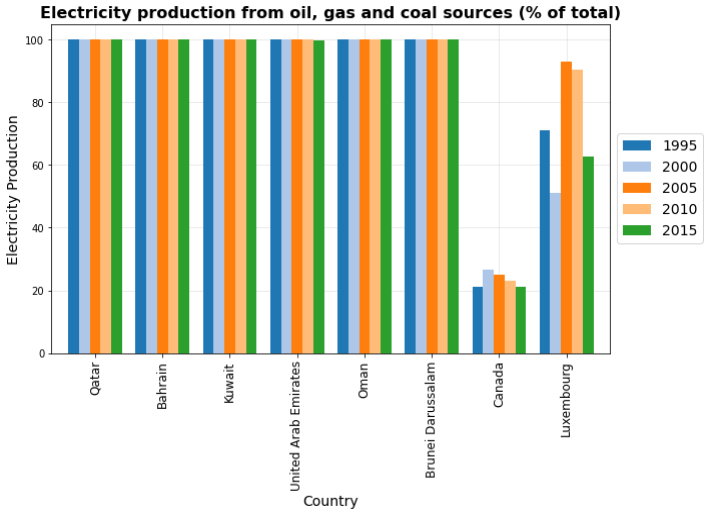
Figure 1: CO2 Emission Countries



This bar chart displays data on the CO2 emission by top 8 countries for which data is available from the years 2015 to 2019. As per the graph, Qatar leads as the largest emitter of CO2 and they have made progress in reducing emission over the years. The remaining countries in the top 8 list include Bahrain, Kuwait, UAE, Oman, Brunei Darussalam, Canada and Luxembourg.

The graph underlines the critical need to tackle climate change resulting from the human activities, especially the burning of fossils. The data reinforces the significance of implementing effective policies to control and reduce the CO2 gas emissions.

Figure 2: Electricity Production

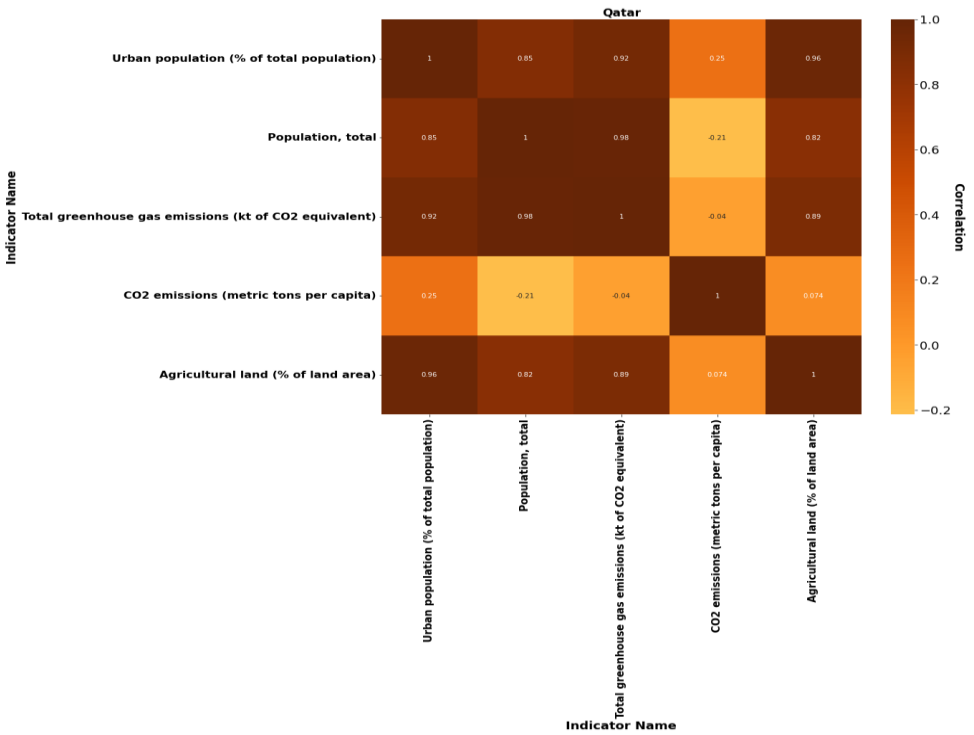


This graph shows the “electricity production from the oil, gas, and coal sources” for a selected group of countries.

Each bar graph represents one country and the height of the bar represents the percentage of electricity production from oil, coal, and other fossil fuels also contributes to climate change through CO2 emissions. Canada and Luxembourg have comparatively less electricity production over years.

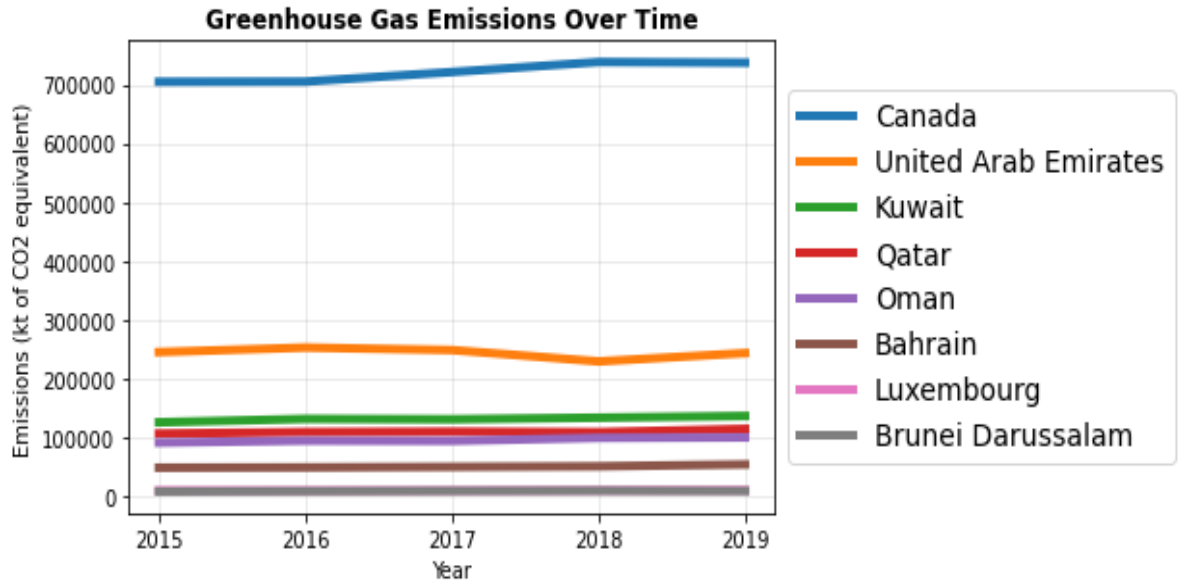
When electricity is generated using these fuels, they release CO2 into the atmosphere, contributing to the overall level of greenhouse gases in the atmosphere.

Figure 3: Heatmap of Indicators; Qatar



The heatmap of Qatar shows the correlation coefficient between each pair of indicators. And it shows that the growth in the urban population has a positive correlation with total greenhouse gas emission and also there is slight relation shown with CO2 emission.

Figure 4: Greenhouse Gas Emission



This line plot illustrates that Canada is the largest emitter of greenhouse gases followed by Bahrain and Kuwait. It also shows UAE have made some progression in reducing their greenhouse gas emission over the years. In the year 2018 there is a slight change in their emission but other countries continue to emit at high levels. Over all this graph is a clear indication that greenhouse gas emission remains a significant global challenge and collective action needed.