Air Pollution

What is it?

**Air pollution** refers to the release of pollutants into the air that are detrimental to human health and the planet as a whole. It can be described as one of the most dangerous threats that the humanity ever faced. It causes damage to animals, crops, forests, and wate-bodiesr. It also contributes to the depletion of the ozone layer, which protects the Earth from the sun's UV rays. Some of the other environmental effects of air pollution are haze, eutrophication, and global climate changes.

What causes Air Pollution?

Most air pollution comes from **energy use and production**. **Burning fossil fuels** releases gases and chemicals into the air. And in an especially destructive feedback loop, air pollution not only contributes to climate change but is also exacerbated by it. Air pollution in the form of carbon dioxide and methane raises the earth’s temperature. Another type of air pollution is then worsened by that increased heat: **Smog** forms when the weather is warmer and there’s more **ultraviolet radiation**. **Climate change** also increases the production of allergenic air pollutants including mold (thanks to damp conditions caused by extreme weather and increased flooding) and pollen (due to a longer pollen season and more pollen production).

About the notebook

I am trying to gain expertize in Data Science field and I just completed the **SQL Scavenger Hunt** tutorial where I came to know about BigQuery. I had fun in learning and exploring the tutorial and trying my fingers on the code. So, here I am to explore my first ever kernel on BigQuery.

In this notebook data is extracted from BigQuery Public Data assesible exclusively only in Kaggle. The BigQurey Helper Object will convert data in cloud storage into Pandas DataFrame object. The query syntax is same as SQL. As size of data is very high convert entire data to DataFrame is cumbersome. So query is written such that will be readly available for Visualization.

**BigQuery** is a RESTful web service that enables interactive analysis of massively large datasets working in conjunction with Google Storage. It is an Infrastructure as a Service that may be used complementarily with MapReduce.

Here, I will be analyzing OpenAQ dataset, which has some information about the air pollutants.

**Measurement units** a. ug/m3 : micro gram/cubic meter b. ppm : Parts Per Million

**Pollutants** a. O3 : Ozone gas b. SO2 : Sulphur Dioxed c. NO2 : Nitrogen Dioxed d. PM2.5 : Particles with an aerodynamic diameter less than 2.5μm e. PM10 : Particles with an aerodynamic diameter less than 10μm f. CO : Carbon monoxide

So, let's dive in immediately and find out the results!