BAT 404 - Analytics Techniques and Tools

Final Project Proposal Topic:   
A Data Exploration of Carbon Emission to Improve the Implementation of NDC in the Philippines

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**Introduction**

The whole world is now standing in a pivotal point where we have just two options left: DO or DIE. Climate change is a critical thing that is happening today, and it is clearly visible to our naked eyes as we could witness how the ice glaciers melted, how frequent hurricanes are occuring and destroy establishments and took several lives, and we can feel how Earth is getting sick.

Recently, the world was shocked when a group of NASA scientist commits civil disobedience, promoting an environmental revolution as they see it is badly needed for the leaders of the world to take an action, and they demand to stop the burning of fossil fuels for the futre of the next generation. The amount of greenhouse gasses is dominating the atmosphere more than what we can imagine, specifically, the carbon dioxide. According to the United States Environmental Protection Agency (2022), human activities contributes to the carbon dioxide to increase in a daily basis, such as burning fossil fuels and other biologicla materials that we could see on Erth. Global warming is occuring due to increase of temperature as the huge amount of heat was trapped in the atmosphere because of high level of concentration of the greenhouse gasses. According to Osmanski (2020), the excessive amount of carbon dioxide threathens the life of all living organisms, even the plants and trees that we know naturally takes carbom dioxide as thei food. Too much heat caused them to withered.

Based on the article published by United Nation Climate Change (2022), the core of the Paris Agreement is the National Determined Contribution (NDC) and is the actual mitigation strategies of each country who joined the agreement with the goal of reducing greenhouse gasses emissions and respond and adopt to the effect of climate change. The administration of President Rodrigo Duterte presented the Philippine MDC, however, the aforementioned NDC lacks clarity in terms of how it would be implemented and attained.

To provide help for the improvement of NDC implementation in the Philippines, researchers assess the carbon emission per capita of each country and the carbon concentration part per million per year and assess their mitigation plan. The gathered data will help the governement and individuals to imolement the NDC more effectively.

**Problem Statement**

Philippine NDC lacks clarity for achieving its objective of r3ducing the emissions by 75% by 230. Accordinf to Greenpeace Philippines (2021), the proposal does not address specific and concrete policies for imolenetation in to different sectors such as transportation, waste, energy, industrial and agricultural sectors. The government is responsible for the imolementation of NDC as part of climatechange adaptation strategy, although NDC requires higher degree of the participation of each citizen, it is not clearly evident. The cooperation of each individual is also necessary, as well as the collaboration and initiatives of relevant agencies from each sectors to support the Philippine government in accomolishing the aim.

**Significance of the proposed project**

The following will benifit from the study:

Government - This research will assist the governmemt in better implementation of climate change mitigation plan to ensure that engagement of local communities to the lrogram to accomolish the objectives.

Citizens - This research informs Filipino citizens in terms of greenhouse gas emissions that cause climate change and inform them on how they may help the government to achive the goal by contributing and cooperating with it.

Future Researchers – The findings of this study may be utilized to help the future researchers in their future studies in relation to climate change and come up with an ideal mitigation plan for climate change that they may propose to their local community.

**Methods**

Cooperation among private or public sectors and local communities is critical to the imolementation of the NDC. The researchers will undertake data exploration in order to display the information and quickly uncover insights regarding other nation's responses to climate change, as well as dive deeper into their mitigation plans to reach carbon neutrality in their country. The reasearchers will also gather articles that give relevant information about country's mitigation measures in order to learn more about how they manage to have a positive response in carbon emission and other greenhouse gasses.

**Expected Output**

According to NOAA scientist, 2020 will be the warmest year on record, matching 2016 for the first place and putting 2019 in third place. The goal of this study is to examine data in depth in order to improve the country's NDC imolementation. Effective collaboration to achieve the identified goals necessitates good and efficient climate change governance.

**Reliability of the Source**

*Our World in Data*

Our Worl in Data is an open-source website that offers several datasets about various issues or topics around the globe. This data portal, created by the University of Oxford's Oxford Martin Programme on Global Development, is made freely available to the public. Health, food and nutrition, wealth growth and distribution, violence, human rights, conflict, education, the environment, and other issues are explored through data analytics and visualization. The site disaggregates data in each of these areas to show trends, gives context, and allows for debate on data and source quality. Max Roser, an economist at the University of Oxford, founded Our World in Data. He offers advice to instructors who want to include data visualization into their lectures.

*NASA Goddard Institute for Space Studies (GISS)*

The Goddard Institute for Space Studies (GISS) of the National Aeronautics and Space Administration's Goddard Space Flight Center is a laboratory of the Earth Sciences Division (ESD) (GSFC). The ESD is housed under the GSFC Sciences and Exploration Directorate. GISS's main objective in the twenty-first century is to forecast atmospheric and climatic changes. The study examines massive global databases and applies global models of atmospheric, land surface, and oceanic events. Climate change on Earth and other planets in the past may be used to evaluate our overall understanding of the atmosphere and its history.

The primary program areas of GISS include climatic forcings, climate model development, Earth observations, atmospheric radiation, atmospheric chemistry, climate effects, planetary atmospheres, exoplanets, and astrobiology; paleoclimate; and other disciplines. The Goddard Space Flight Site is critical to global change study since it is NASA's main Earth observation center. GISS collaborates with the GSFC Earth Sciences Division's other offices and laboratories on global change research.

*United Nation Statistic Division*

The United Nations Statistic Division (UNSD) is part of the United Nations Department of Economic and Social Affairs (DESA), and its major goal is to offer trustworthy static data, standards, and actions to help other countries improve their statistical systems. UNSD is also in charge of coordinating other international statistical efforts and aiding the UN Statistical Commissions in their function as the world's ultimate statistical authority.

**Evaluation of the X variables inside the Data sets:**

*CO2 and Greenhouse Gas Emissions*

|  |  |
| --- | --- |
| **X Variables** | **Description** |
| Entity / Country | This are the countries or regions that contributes CO2 |
| Code | The countries code |
| Year | The year CO2 emitted |
| Annual CO2 Emission | Indicates how much CO2 emission of the country |
| Annual CO2 Consumption | Indicates how much CO2 consumption-based of the country |
| GDP PPP | Shows the Gross Domestic Product Based on Purchasing Power Parity of each country |

*GISS Surface Temperature Analysis (GISTEMP v4)*

|  |  |
| --- | --- |
| **X Variable** | **Description** |
| Year | Indicated the annual global temperature anomalies |
| January | Indicates the monthly temperature anomalies |
| February |
| March |
| April |
| May |
| June |
| July |
| August |
| September |
| October |
| November |
| December |
| July  December | Indicates the seasonal temperature anomalies |
| December - November |
| December, January, February |
| March, April, May |
| June, July,August |
| September, October, November |

*Concentration of Carbon dioxide, 1959-2020 (parts per million)*

|  |  |
| --- | --- |
| **X Variables** | **Description** |
| Year | Indicated years of carbon emission |
| Mean | Emission of Greenhouse Gas |

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