



IMPACT OF GAS FLARING ON GLOBAL WARMING & AGRICULTURE

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Summary

Gas flaring generate insidious environmental and energy consequences against efforts toward a sustainable development for the world. Heat-trapping gases, such as CO₂, NO₂ (Nitrogen dioxides) and SO₂ (Sulphur dioxide), increase with gas flaring activities with its attendant effect to raise global warming and harmful potentials. Scientists has informed that if the atmospheric concentrations of carbon dioxide (CO₂) emission and other so-called GHGs continue to rise, the earth's climate will become warmer and results to many types of disasters, such as storms, heat waves, floods, and droughts etc. Gas flaring has adverse effect on the vegetation and water quality as most of the impacts are due to indirect effects resulting from acid rain. These could also affect other biodiversity resources including humans. For instance, acid rain which could result from gas flaring has the tendency to cause lung related diseases, and affect aquatic organisms such as fishes and other wildlife. It affects agricultural affects vegetation leading to decrease in growth and productivity probably due to changes in soil quality parameters and natural forest resources. Therefore, this study reviews the impacts gas flaring on global warming

and agricultural resource's structure and also how to reduce the attendant impacts associated with gas flaring.

1. Introduction

For decades, the burning of crude oil to expel natural gas (both associated and non-associated gas) has been practised in oil-producing countries around the world. The purpose of this is to prevent vessels and pipes from overpressure. Gas flaring became of great concern few decades ago, majorly because of its role in the degradation of the environment.

The emitted gases such as ethylene, propylene, propane, butadiene and butane are expelled as waste gases released into the atmosphere, thereby reacting with the oxygen present in the atmosphere to form carbon dioxide and water. This process contributes significantly to the increase in emission of greenhouse gases such as carbon dioxide, methane, Sulphur dioxide, nitrogen oxide, which have adverse effect on the environment. Carbon monoxide is also released due to the incomplete combustion of carbon compounds, with particulate matter in form of black carbon or soot. The major gas released in high quantity is carbon dioxide. The harmful effect of greenhouse gases emission has negatively contributed to climate change on Earth. This informs the need for the UNFCCC and the Kyoto Protocol, and the Paris Agreement which are all aimed at encouraging countries to limit and reduce their emission of greenhouse gases. To this end, the practice of gas flaring, which is a major concern and contributor to global warming and climate change, needs to be put to proper check.

2. Impacts on Global Warming

Gas flaring is one of the major environmental threats the world is facing, as it plays a crucial role in the increase of heat waves. Excessive carbon dioxide stores heat in the atmosphere. The radiation of heat from the earth surface is normally absorbed by the greenhouse gases in the stratosphere and troposphere causing a rise in temperature, thereby generating heat in the atmosphere. This has contributed tremendously to the global warming of the Earth. Flares generate a large amount of CO₂, which is greatly

abundant in the atmosphere. Carbon dioxide is a normal constituent in air. Other toxic gases like nitrogen oxide and Sulphur oxide combine with water in the atmosphere to form acid rain which is detrimental to the environment. Flared gas causes air pollution, soil/crops destruction, and many health problems.

Increase in combustion of oil will further increase the amount of carbon dioxide in the atmosphere, resulting in a cycle that will make the Earth unbearably hot in years to come. Prolonged hot weather conditions caused by global warming will increase the demand for personal comfort items such as air conditioners and refrigerators. These in turn may cause an increase in the emission of chlorofluorocarbons (CFCs), which absorbs infrared radiation than all other greenhouse gases, and go all the way to the stratosphere to further weaken the protective ozone layer of the Earth

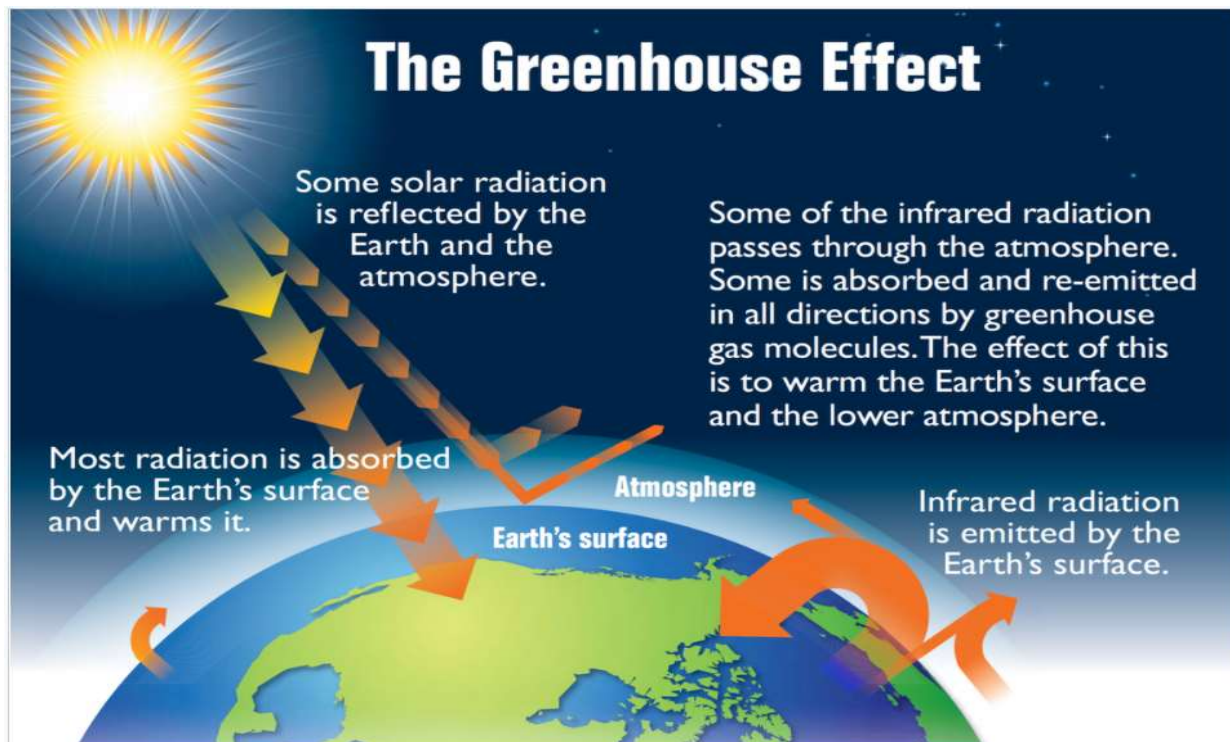


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3. Impacts on Agriculture

Over the years, farmers in regions where gas is being flared have always complained of low crop yield due to soil and air contamination, thereby affecting the vegetation and crop produce. Most farmers have lost their means of livelihood, as it has negatively impacted fertility of lands and the ecosystem.

Acid rain reduces the pH, which make the soil lose nutrients due to increased acidity in the soil. The soil is poisoned by toxic substances like aluminum, and the essential NPK (Nitrogen, Phosphorus and Potassium) and all other minerals are dissolved by the acidic water. Plants become unhealthy, thereby leaving brown spots on their leaves due to its inability to produce enough energy for the completion of photosynthesis.

One of the main constituents of acid rain is Sulphur dioxide. When plants are exposed to a great level of Sulphur dioxide over a long period of time, it causes variation in the appearance of the plant, which is indicative of a deficiency in the metabolism of the plants. Harm caused by Sulphur dioxide is first noticeable on the leaves of the plants. Other pollutants like nitrogen oxides, ozone and other factors influences the impact of Sulphur dioxide.

If care is not taken regions that are self-sufficient in agriculture will later become dependent and importers of agricultural products in future.

4. Conclusion

The excess emission of greenhouse gases by gas flaring have become one of the major contributors to global warming and climate change. This is one of the environment threats that needs immediate attention. Contaminants in polluted air acidify the soil and water, and further leads to consequent damage.

To minimize the effect of gas flaring on climate change, we must think of more ways to further improve the competency of the combustion mechanism. An urgent shift from a fossil fuel driven economy to a green energy driven economy needs to be considered. Energy sources like wind, solar, hydro, biomass should be utilized.

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