
CO2 Emissions: Concerns and Impact on Global Warming

Global Warming: Dangers of CO2 Emissions

Outline

Global warming is leading to regional climate change which is having a very negative effect on certain regions around the world.

1. The Mediterranean and the Middle Eastern regions are experiencing increased warm seasons and more droughts.
2. The productivity level in the regions that are experiencing global warming are decreasing as the direct result of the increased temperatures.

When examining the bell curve of the effect that global warming is producing, one can see that the temperature of the earth is rising and producing a shift in the bell curve.

1. The shift of the curve in the winter is not substantial.
2. The shift of the bell curve in the summer is substantial and shows that there is an increase in the frequency of warmer temperatures.

The bell curve shift shows that CO2 emissions are producing more notable changes in the atmosphere for the countries with the highest CO2 emissions.

1. China and India have a more noticeable shift in the bell curve denoting the effects of global warming.
2. The United States, however, does not show as substantial a shift.

Human beings are being affected by global warming in a number of ways.

1. There are negative health consequences that are being experienced in regions with greater temperature shifts.
2. More extreme weather conditions are also being experienced in regions more affected by global warming including: droughts, fires, floods, and more.

Introduction

Global warming is the warming of the earth's atmosphere as the result of gases being released into the air and present in the atmosphere which have the ability to trap heat and hold it in the atmosphere resulting in a warming effect. Carbon dioxide or CO2 is the primary gas that is causing a greenhouse warming effect to occur in the earth's atmosphere. In fact, according to the EPA, "Carbon dioxide (CO2) is the primary greenhouse gas pollutant, accounting for nearly

three-quarters of global greenhouse gas emissions and 84% of U.S. greenhouse gas emissions” (Environmental Protection Agency, 2016). The rate of CO₂ emissions is having a significant negative effect in the climate of the earth and these emissions need to be reduced in order to stave off the negative effects that are occurring as a result of climate change.

Background

What Are CO₂ Emissions and How Do They Contribute to Global Warming

CO₂ or carbon dioxide emissions enter the earth’s atmosphere when fossil fuels such as coal, oil and natural gas are burned and consumed. In addition, the burning of some types of solid waste as well as certain chemicals can cause CO₂ emissions (Environmental Protection Agency “Overview”, 2016). Trees and wood products, when burned, results in CO₂ emissions as well. The carbon dioxide that is released into the earth’s atmosphere during these aforementioned processes is absorbed by plants and removed from the atmosphere. However, when the amount of carbon dioxide that is released into the atmosphere is greater than the amount that can be absorbed, this poses a problem for the atmosphere that can result in changes occurring to the atmosphere. The affect that CO₂ emissions have on the atmosphere are dependent on the amount of gas that is released into the atmosphere, the amount of time that the gas stays in the atmosphere, and the amount of energy that the gas can absorb.

How CO₂ Emissions Contribute to Global Warming

CO₂ emissions contribute to global warming by forming a blanket around the earth’s atmosphere which traps the heat and results in the warming of the atmosphere. Heat, that would normally escape earth and not result in the warming of the earth’s atmosphere are trapped by the gases that are present in the atmosphere. According to NASA, “certain gases in the atmosphere block heat from escaping. Long-lived gases that remain semi-permanently in the atmosphere and do not respond physically or chemically to changes in temperature are described as ‘forcing’ climate change” (Shaftel, 2016). Although other gases contribute to global warming, CO₂ is the primary gas that is leading to the forced warming effect according to NASA. “A minor but very important component of the earth’s atmosphere, CO₂ is released through natural processes such as respiration and volcano eruptions and through human activities such as deforestation, land use changes, and burning fossil fuels. Humans have increased atmospheric CO₂ concentration by more than a third since the Industrial Revolution began. This is the most important long-lived ‘forcing’ of climate change” (Shaftel, 2016). CO₂ comprises an entire one-fourth of the greenhouse gas emissions that contribute to the warming of the earth’s atmosphere. Thus, in order to control global warming CO₂ emissions need to be reduced.

What are the Negative Effects of Excess Carbon Pollution?

There are a number of negative consequences that are experienced by the earth and its atmosphere caused by excessive CO₂ emissions that affect all species of life on earth including human beings. The primary effect to the earth’s atmosphere of global warming is the increase in global temperatures. Furthermore, global warming also causes rising sea levels, changes in the weather and patterns of precipitation, and changes in ecosystems, habitats, and the diversity of species that are present on earth (Environmental Protection Agency, 2016). The

effects that can be seen across the globe as a result of the increases in the temperature of the earth include droughts and more severe heat waves, high levels of smog, more extreme weather conditions such as hurricanes and flooding, and increases in water borne bugs and diseases such as Lyme Disease and West Nile Virus (Environmental Protection Agency, 2016). In addition, although the specific health effects of global warming have not been noted, it is anticipated that global warming does and will increasingly contribute to negative health consequences in humans in the coming years.

In addition, to environmental impacts, global warming also has negative social and economic impacts. Certain regions of the earth which are already plagued with warmer temperatures may find it more difficult to constantly produce crops that are necessary for feeding the people of the region. In fact, the Mediterranean and Middle East region is experiencing a climate shift in which the warm seasons in the region are lengthening. "These regional consequences of warming are accompanied by the threat of sea level rise poses to global coastlines, thus, jointly creating a need for prompt strong action to avoid tragic consequences" (Hansen & Sato, 2016). Furthermore, "warming contributes to drought intensification in the subtropics and makes living and working conditions more difficult in low latitudes" (Hansen & Sato, 2016). Thus, the increase in the earth's temperature is having an effect on the productivity of the region. Economic consequences that result from droughts have resulted in the lowering of countries' GDPs and their financial outlooks for several years.

Other Negative Effects of Excess CO2 Emissions

New reports show that breathing in the air which contains increased CO2 emissions can have negative effects on human beings. According to a USNews article entitled "Carbon Dioxide Inside Can Be Harmful Too", people who breathe in carbon dioxide in indoor settings have a more difficult time learning and understanding information as well as performing simple tasks (Nesbit & Cmons, 2015). Therefore, the increasing CO2 emissions is leading to poor air quality that is having an effect on human productivity all around. CO2 has a negative effect on human cognitive functioning. The traditional solution to remedy the problem of poor indoor air quality has always been to increase the level of ventilation so that air can be drawn in from outside; as the quality of air outside, however, becomes more saturated with CO2 from all of the excessive CO2 emissions, this solution is slowly becoming a less viable solution.

Who is Primarily Responsible for the Excessive CO2 Emissions

Different countries released different amounts of CO2 into the earth's atmosphere. According to the Environmental Research Letters Journal, China is the leading contributor to excess CO2 emissions followed closely by the United States and India (Hansen & Sato, 2016). It is important to note that with regard to cumulative emission, the United States and Europe ranks highest, with China and India supplying a much lower percentage (Hansen & Sato, 2016). Power plants, especially those that run on fossil fuels are the largest contributors to CO2 emissions in the United States.

Conclusion

Excessive CO2 emissions are the leading cause of global warming and are having a very negative effect on the earth's atmosphere. CO2 is traditionally absorbed by plants, however,

the current amount of CO₂ emissions are as such that the amount of the gas being released in the air is at a rate above which it can be removed from the air effectively. Thus, the gas is lingering in the air and trapping in heat which is resulting in increased temperatures for the earth. This has an effect on the weather conditions, air quality, and species that are present on earth. In addition is it a negative effect on the cognitive ability of humans; though this was something that was easily dealt with in the past, as CO₂ levels rise in the atmosphere, there are becoming less and less effective solutions to this problem. The United States and China are two of the leading contributors to CO₂ emissions, much of these emissions coming from power plants that are run on fossil fuel. In order to reduce the amount of CO₂ emissions in the air, these countries and others need to take more active steps to reduce the burning of fossil fuels and deforestation.

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