

Global Warming (Sea level rise)

Introduction:

Global warming is the permanent rise in the average temperature of earth due to extensive deposition of carbon dioxide in the atmosphere, which eventually forms a layer that entraps heat and warms the planet. Excessive combustion of fossil fuels including natural gases, coals, and petroleum oils causes emission of carbon dioxide and other greenhouse gases, which accumulate in the environment and create a layer surrounding the atmosphere (Mathez and Smerdon, 2009). Example of a greenhouse gas include methane and nitrous oxide.

The process of modernization has introduced myriads of carbon and greenhouse gas emitting sources, which prohibits heat escape from earth surface to space. This entrapped heat gradually causes increase in the average temperature of the earth, which in turn causes the melting of glacier and ice cap, especially in arctic region. This molten ice transforms into water causing a rise in sea level. In order to address the problem, the first line of defense should be the reduction of carbon emission by reducing dependencies on fossil fuels or increasing tree plantation as tree can absorb large amount of toxic carbon dioxide.

The rise in Sea Level:

Several studies have confirmed that the rate of change in global temperature is 0.13°C per decade, which is nearly two times of the rate of increase in temperature of last 100 years. On the other hand, the rise in the ocean level is recorded 60 cm over the last 50 years as an effect of globalization. The rise in ocean water due to heating of earth has an additional bad effect on the global warming. Seawater is the big absorber of the heat from sun as it absorbs nearly 80% of the heat in environment, which was otherwise, leave the earth and escape to the space. This large amount of heat absorbed by ocean water is later released into the environment, which causes global warming and contribute to the greenhouse effect. An average increase in the sea level was recorded as 0.07 inches per year from 1961 to 2003 (NASA, 2009).

Effects of Global climate change on the Sea Level

The increase in the sea levels occurs as a result of two major factors all accelerated by the current global climate change-thermal expansion of water and ice cap melting. Increased temperature is one of the major causes of high sea levels. In this case, when water heats up, it expands and this has contributed to warmer oceans occupying more space in earth today. Melting of glaciers and polar ice caps occurs due to average rise in temperature. However, in winter, snow occurring from the evaporated seawater tends to balance out the melting, which is not a sufficient for compensating the mass loss.

Because of global warming, springs are short and summers are prolonged with an effect of increased ice melting and low snowfall. The rise in water level due to ice melting cannot be efficiently compensated by sea water evaporation because of fast ice melting. As a result, there is a net increase in sea level is taking place (Barth and Titus, 2004). The volume of ice is declining from the Greenland and West Antarctica. High temperatures have caused the melting of ice sheets that occupy the regions. According to scientists, the melt water from above and the seawater from below,

causes sliding effect on ice streams, making them to move steadily into the sea. This makes the massive ice shelves to melt from underneath, weaken and eventually break off.

Global climate change has an effect on people and the environment in different ways. Some of these effects can be described as life threatening, but some have positive effects such as development in crop growing seasons (Edgerton, 2001). However, the negative effects of global climate changes are predicted to prevail over the positives. The effects of global climate changes have many observable effects on the environment. In cases reported, there have been sinking glaciers, and presence of ice on rivers and lakes. The effects that scientists had predicted to happen because of global climate change are perceptible in the current world. It is evident that global temperatures will continue to increase in future due to greenhouse gas produced through human activities.

Human being is solely liable for the increase in carbon dioxide concentration in the atmosphere. Statistics found a 30% rise in carbon dioxide concentration in the atmosphere due to increased industrialization and globalization. Increased rate of fossil fuel consumption for power generation, heating vehicle and other industrial operation are causing the rise in carbon deposit into the atmosphere constantly. The higher trace of anthropogenic carbon isotope in the ratio of carbon isotopes in atmosphere, which is caused by human affected emissions, reveals the truth. Reports show that the total worldwide emission of carbon dioxide is about 23 billion tons per year. Electricity generation plants, 33% by means of transportation and the rest by other sources cause 33% percent of this emission. One of the most alarming effect of carbon dioxide is the increase in the acidity level of seawater. More than 30% increase in the seawater acidity has been reported since industrial revolution has taken place. This acidity is caused by the absorption of carbon dioxide (Allison, 2009, p.35).

Solutions to Sea Level Rise

It is notable that the global warming of the planet is due to continue and will accelerate in the future. Oceans are likely to rise also, although the level of water cannot be predicted (Edgerton, 2001). Millions of individuals, living near the shores, risk being displaced due to flooding.

In order to check the rise in sea level, the temperature of the earth should be kept constant or reduce to some extent. Reduction in carbon emission is the main solution to the global warming. Increased use of clean energies like nuclear energy, wind energy and solar energy can reduce the dependencies on fossil fuel, which would reduce carbon emission consequently. Again, increased tree plantation and preservation of ecosystem balance by creating forest can mitigate excess carbon dioxide from the environment. Massive awareness program to make people aware of the adverse effect of deforestation and carbon emission can help greatly to solve the problem together.

References

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