

Climate Change : Causes and Consequences

Outline

I. Introduction

- a) Hook
- b) Background
- c) Thesis Statement:

Climate Change is caused by deforestation, green houses gases, industrial activities, transportation emission and agriculture practices which resulted in the consequences of loss of biodiversity, extreme weather events, widespread pollution, health issues and soil degradation.

II. Causes of Climate Change

a) ~~Def~~ Severing Deforestation

- 1) Commercial logging
- 2) Population growth
- 3) weak governance and poor law enforcement

b) Green House Gases Emissions

- 1) Burning of fossil fuels
- 2) Energy inefficiency

c) Increasing Industrial Activities

- 1) Direct process Emission
- 2) Waste and By products

d) Rising Transportation Emissions

- 1) Increase in number of vehicles
- 2) Traffic Congestion
- 3) Lack of alternative fuels

e) Expanding Agricultural Practices

- 1) Concerns of Food security
- 2) Economic dependence on agriculture

III. Consequences of Climate Change

a) Loss of Biodiversity

- 1) Imbalancing Ecosystem
- 2) Soil degradation
- 3) Reduce pollination

b) Extreme Weather Events

- 1) Melting of glaciers and ice caps
- 2) Increase in floods, droughts, hurricanes and heatwaves.

c) Widespread Pollution

- 1) Respiratory diseases
- 2) Waterborne diseases
- 3) Agricultural losses

d) Impacts on Human Health

- 1) Reduced quality of life
- 2) Reduced workforce efficiency
- 3) Spread of diseases

e) Soil Degradation

- 1) Loss of soil fertility
- 2) Soil erosion
- 3) Increased production costs

IV. Conclusion

THE ESSAY

"If you really think that the environment is less important than the economy, try holding your breath while you count your money" (Guy McPherson).

Climate Change refers to a long-term shifts in temperature and weather patterns. Such shifts can be natural, due to changes in the sun's activity or large volcanic eruptions. But since the 1800s, human activities have been the main driver of climate change, primarily due to the burning of fossil fuels like coal, oil and gas. Climate scientists have showed that humans are responsible for virtually all global heating over the last 200 years. The average temperature of the Earth's surface is now about 1.42°C warmer than it was in the late 1800s.

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prior to the industrial revolution and warmer than at any time in the last 100,000 years. Many people think that Climate Change mainly means warmer temperatures. But temperature rise is only the beginning of the story. Because the Earth is a system where everything is connected, changes in one area can influence changes in all others. Climate Change is caused by deforestation, green house gases, industrial activities, transportation emissions and agricultural practices which resulted in the consequences of loss of biodiversity, extreme weather events, widespread pollution, health issues and soil degradation.

To begin with, the foremost cause of Climate Change is severing deforestation. Firstly, the commercial logging is a leading cause of deforestation. In tropical regions, loggers often target high-value hardwoods like Mahogany or teak, using methods that damage surrounding trees and disrupt ecosystems. Secondly, the population growth leads to deforestation. Rapid population growth increasing pressure on forests by raising demand for land, food and resources leading to the clearing of forests to create new agricultural land. Finally, weak governance and poor law enforcement ~~is also the reason~~ create the conditions that make deforestation profitable and unchecked. When it is unclear who owns or manages the land, or when local communities lack legal rights, it becomes

easier for large companies or developers to seize and clear land. So, therefore, severing deforestation contributes to Climate Change.

The Second cause of Climate Change is the emissions of Green house gases. Firstly, the burning of fossil fuels emit green house gases. The combustion of coal, oil and natural gas releases massive amounts of Carbon dioxide (CO_2), the primary driver of Climate Change. This is used extensively for electricity, heat and transport. Industrial process, refrigeration and consumer products releases hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and Sulfur hexafluoride (SF_6).

These factors increase the concentration of green house effect and accelerating global warming. Finally, the Energy inefficiency also cause the emission of green house gases. Manufacturing, particularly in cement, Iron, steel and electronics, often relies on inefficient, high-energy machinery powered by fossil fuels. Inefficient heating, cooling, and lighting systems in buildings require higher energy consumption. Inefficient vehicles, lack of public transit, and heavy reliance on personal cars increase CO_2 emissions. Therefore, Green house gases emissions is one of the cause of Climate Change.

The third cause behind climate change is increasing industrial activities. In this connection, direct process emissions are the real concern.

~~The largest~~ A significant portion of direct emissions results from burning of fossil fuels like coal, oil, and natural gas in industrial boilers, furnaces and generators. The leaks from refrigerator and air conditioning system such as Freon is also direct emission. Lastly, the industrial waste and ~~by~~ byproducts contribute significantly to climate change. Industrial waste includes solid, liquid or gaseous materials produced as byproduct of manufacturing. When improperly managed, waste can release harmful gases such as methane from decomposing organic waste or toxic chemicals that affect atmospheric chemistry. Byproducts like chemical residues can also pollute soil and water, indirectly affecting climate systems. Hence, industrial ~~waste~~ ~~and~~ activities can lead to climate change.

The fourth cause behind climate change is rising transportation emissions. Firstly, the increase in number of vehicles resulted in transportation emissions. As most of the vehicles rely on fossil fuels such as petrol and diesel, when these fuels are burned, they release green house gases, primarily carbon dioxide (CO_2) into the atmosphere. These gases trap heat and cause a rise in global temperature. Secondly, traffic

congestion further exacerbates the transportation emission. Vehicles stuck in traffic consume fuel inefficiently, producing more emissions per kilometer traveled than vehicles moving at a steady speed. This increases local air pollution and many health problems. Finally, the lack of alternative fuels is also the real concern for transportation emission. Without alternative fuels, carbon emissions remain high, since cleaner energy sources are not replacing fossil fuels. The lack of alternative fuels such as electricity, hydrogen, biofuels etc. forces transportation to rely entirely on fossil fuels. Therefore, the rising transportation emission is the real concern of climate change.

The fifth cause of climate change is expanding agriculture practices. In this connection food security is the real concern. To increase yields for food security, the massive application of nitrogen fertilizers releases nitrous oxide (N_2O), a potent greenhouse gas with a global warming potential 283 times greater than CO_2 . Pesticides and chemical runoff degrade ecosystems, impacting air and soil quality. Lastly, the economic dependence on agriculture also expands agriculture practices. A heavy reliance on agriculture often leads to high input costs of fertilizers and seeds, which are sometimes supported by government subsidies to stimulate production.

So the dependency on agriculture makes the economy vulnerable to climate change; with erratic rainfall and higher temperatures causing crop failures and reducing yields. Hence, the increasing agriculture practices can also result in a climate change.

The causes mentioned above are responsible for climate change, which in turn results in a number of significant consequences which will be discussed below:

The first consequence of climate change is loss of biodiversity. Firstly, it resulted in imbalancing ecosystem. Deforestation and destruction of wetlands remove key carbon sinks that absorb CO_2 , while releasing stored carbon through burning or decay. The loss of one species can create a chain reaction, leading to "co-extinction" and ecosystem collapse. Secondly, soil degradation also leads to biodiversity loss.

As degraded soil loses its structure, reducing the ability to support plant life, which destroys habitats for soil organisms and surface species. Finally, pollination is also reduced due to loss of pollinators (bees, butterflies, birds). ~~As these~~ As these pollinators are essential for the reproduction of over 85% of flowering plants and 75% of global food crops. Hence, loss of biodiversity is a serious risk to climate change.

The second consequence of Climate Change is extreme weather events. In this connection melting of glaciers and ice caps are the real concern. Increased atmospheric temperatures are causing glaciers to melt at double the speed of previous decades. Melting land ice particularly from Greenland and Antarctica, is the largest contributor to rising sea level. Lastly, the increase in floods, droughts, hurricanes and heat waves are also the result of extreme weather events. These occurs because of the ~~was~~ normal climate patterns are disrupted by extreme weather events. Floods occur when extreme rainfall, rapid snow melt, or stronger monsoon systems overwhelm rivers and drainage systems, leading to excessive water. Droughts result from prolonged period of unusually low rainfall combined with high temperatures, which increase evaporation. Hurricanes are fueled by abnormally warm ocean temperatures that provide excess energy, causing storms to grow stronger. Heat waves arise when persistent high pressure systems trap hot air over a region, leading to extreme temperature. Hence, the extreme weather events leads to serious threat to Climate Change.

The third consequence of Climate Change is widespread pollution. Firstly, it resulted in respiratory diseases. Climate Change negatively impacts respiratory health through direct exposure

to extreme heat and pollutants, as well as indirect environmental changes. Extreme weather events can cause severe asthma outbreaks, as heavy rain breaks down pollen particles, which are then carried deep into the lungs. Secondly, the water-borne diseases are the result of widespread pollution. As climate change disrupts water safety, creating ideal conditions for waterborne diseases to thrive, causing millions of deaths annually. Finally, Agriculture losses also resulted from climate change. As climate change is undermining global food production by altering growing conditions and increasing the frequency of crop failure. Hence, the widespread pollution ~~leads to climate change~~ are the consequence of climate change.

The fourth consequence of climate change is impact on human health. Firstly it reduced quality of life. Climate change degrades environmental and social determinants of health, leading to lower quality of life, particularly for vulnerable populations. Increased drought and unpredictable rainfall reduce crop yields, causing malnutrition and hunger. Secondly, it resulted in reduced work efficiency. High temperatures reduced global potential labour hours. Outdoor laborers in developing countries are the most affected, with agriculture accounting for a significant portion of lost work hours. Finally, climate change leads

to spread of diseases. As climate changes the ecology of disease vectors, allowing them to expand into new regions and increasing the transmission of infectious diseases. Therefore, these factors are the result of climate change on human health.

The fifth consequence of climate change is soil degradation. Firstly, it causes loss of soil fertility. Rising temperatures accelerate the decomposition of organic matter, ~~reducing~~ resulting in a significant decline in soil organic carbon. This reduction diminishes the soil's capacity to retain nutrients and water. Secondly, climate change causing soil erosion. The unpredictable rainfall, coupled with prolonged droughts accelerates water and wind erosion, destroying soil structure and leading to compaction and surface sealing. Finally, it also causes the increased in production cost. To compensate for reduced fertility and nutrient loss, farmers are often forced to increase the use of chemical fertilizers and pesticides. The degraded soil requires more intensive management, such as remedial, costly, and energy intensive conservation practices. Hence, the soil degradation is the real concern of climate change.

Conclusion

To sum up, the climate change is mainly caused by human activities that damage nature and increase pollution. Cutting down of trees for commercial logging, population growth, and weak governance and poor law enforcement further accelerate deforestation.

At the same time, green house gases are increasing because of burning of fossil fuels, energy waste, growing industries and industrial waste and byproducts. Transport also plays a major role, as the number of vehicles is rising, traffic congestion is increasing, and clean alternative fuels are limited. Expanding agriculture practices driven by food security needs and economic dependence on farming, further add to environmental pressure. These causes have serious consequences. Climate change leads to loss of biodiversity, disturbed ecosystems, soil degradation and reduced pollination. It also causes extreme weather events such as floods, droughts, heat waves, hurricanes and the melting of glaciers and ice caps. Pollution increases respiratory and water-borne diseases, affects human health, lower quality of life and reduces work efficiency. Moreover desertification, soil erosion and higher production costs threaten agriculture and long-term development.

'Climate change is no longer some far-off problem; it is happening here, it is happening now' (Barack Obama).