

Essay: Global Warming: Causes and Impacts

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Outline

1. Introduction

- Attention Grabber
- General Statement

• **Thesis Statement:** The global warming is happening at rapid pace due to anthropogenic activities such as deforestation, uncontrolled industrialization, and unchecked usage of nitrogen fertilizers resulting in rising sea level and increasing the temperature of the planet earth; Therefore, global community must take stringent measures to curb the menace of global warming.

2. Causes of Global Warming

- 2.1. Inordinate Deforestation
- 2.2. Uncontrolled Industrialization
- 2.3. Unchecked Usage of Nitrogen Fertilizers
- 2.4. Excessive Emission of Hydrofluoro Carbons
- 2.5. Unrestrained Manipulation of Aerosols
- 2.6. Immoderate Cement Production

3. Impacts of Global Warming

- 3.1. Rising Sea Level
- 3.2. Dying of Marine Life
- 3.3. Deteriorating Human Health
- 3.4. Arising Natural Disaster

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3.5 Emerging Climate Crisis

3.6 Hindering the Economic Growth

4. Pakistan's Efforts to Counter Global Warming

4.1 Participated Paris Agreement

4.2 Devised Green Pakistan Programme

4.3 Introduced National Air Policy

5. Global Initiatives to Counter it

5.1 Introducing Genetically Engineering Methods

5.2 Shifting from non-Renewable Energy to Renewable energy

5.3 Adopting zero-Emission Fuel

Give practical measures

6. Conclusion

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Its better to start with strong hook

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The life on earth is possible due to its temperature and favourable physical conditions. Owing to the barbaric human activities, the average temperature of the earth has increased which endangers the life of inhabitants on this planet. The global warming is happening at rapid pace due to anthropogenic activities such as deforestation, uncontrolled industrialization, and unchecked usage of nitrogen fertilizer resulting in rising sea level and increasing the temperature of the earth. Global warming is affecting the all parts of globe. In fact, the dwellers of the planet earth are responsible for the warming of the globe. The human-caused activities have devastated natural composition of this planet. Firstly, inordinate deforestation, an act devastating the lungs of earth, is responsible for global warming. Secondly, uncontrolled industrialization has producing large amount of fluorinated gases in the atmosphere which in turns have raised alarm bells in the scientific community to happen the menace of global warming. Thirdly, the unchecked usage of nitrogen fertilizers have also invited the plethora of the problems for the settlers of the earth and put fuel to the fire the cause of global warming. Fourthly, the expelling of hydrofluorocarbons HFCs, refrigerants, from refrigerators

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and air conditioners is another factor intensifying the phenomenon of global warming. Fifthly, aerosols usage is also a striking factor responsible for global warming. Lastly, the immoderate cement production is another factor releasing eight percent of carbon dioxide which is intensifying the rate of global warming.

Firstly, deforestation, a barbaric act damaging the lungs of earth, on a massive scale has triggered the horrifying phenomenon of global warming at an alarming rate in the world.

In fact, humans have acted in an uncivilized manner by sweeping away the natural forest cover of this planet. The forest cover down from the pre-industrial area of 5.9 billion hectares to 4 billion hectares indicating a spike in the rate of deforestation. Ironically, the forest cover in Pakistan covers only 20.5% of total land area which signals toward the approaching the catastrophic storm of global warming. Therefore, it is dire need to take prudent steps to curb this rise threat in order to increase forest covers which is necessary to diminish the harmful impacts of global warming.

Secondly, uncontrolled industrialization has producing large amount of fluorinated gases in

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the atmosphere which in turns have raised alarm bells in the scientific community to happen the menace of global warming. Indeed, the development of industries on a wide scale gifted the inhabitants of earth with unimaginable facilities but left a negative impacts on the natural composition of the earth's atmosphere. Though, all countries are emitting greenhouse gases which threaten the human's life on this planet. According to Intergovernmental panel on Climate Change (IPCC), China, the first largest emitter of GHGs, is contributing about 35% of global greenhouse gases in the atmosphere. Hence, it is not difficult to curtail the menace of global warming shifting the source of industries from non-renewable to renewable energy.

Thirdly, the unchecked usage of nitrogen fertilizer have invited the plethora of the problems for the settlers of the earth and also put fuel to the fire. The cause of global warming. Obviously, the agricultural sector has utilized the inorganic chemicals in a large to enhance the production but resulting in augmentation of greenhouse gases. In general, the Food and Agriculture Organization (FAO), of United Nations reported that the global agri-food systems emitted 16.2 billion tonnes of CO_2 in 2023 representing an increase of 10% since 2000. Thus,

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The world should take positive initiatives by shifting from inorganic to organic agricultural system to decelerate the rate of global warming. Fourthly, the expelling of hydrofluorocarbons (HFCs), refrigerants, from refrigerators and air conditioners is another factor intensifying the phenomenon of global warming. The refrigerants are insulating fluids that carry heat from cold environment. In 2023, HFCs contributed 1.3% to the total warming influence of greenhouse gases. Though efforts are underway to transition to natural refrigerants and more energy-efficient models to mitigate the process of global warming.

Fifthly, Aerosols usage, another human activity, is a striking factor responsible for global warming. Aerosols, solid particles or liquid droplets in a gas, present in the atmosphere by changing climate into two different ways. They absorb the solar radiations as well as microphysical and chemical properties of clouds, impacting their lifetime. According to a recent study, the usage of aerosols has increased twiced in the beginning of this century which is increasing the temperature. Currently, China is the largest aerosol emitter in the globe. However, China has also took positive steps by "Clean Air Action" policy launched in 2013.

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and reduction in aerosols 75%. Therefore, keeping in the mind the current scenario of aerosols in the atmosphere. It is not possible to curb them if a strategic ~~measures~~ measures will be taken.

Lastly, the immoderate cement production is another factor releasing 8 percent of global CO_2 which is intensifying the rate of global warming. This process involves heating limestone to produce clinker that release a large amount of CO_2 both from fuel combustion and chemical breakdown of calcium carbonate. According to a recent report, China, a country leading in cement production, is sharing about 12 percent of its total greenhouse gases emissions which bringing up the global warming at an alarm situation. Therefore, reducing these emissions from the cement production through green technologies, carbon capture technologies, is crucial to counter the phenomenon of global warming.

Briefly, most of the human activities done consciously or unconsciously are increasing the rate of greenhouse emissions, rising raising the temperature level of earth's atmosphere. However, the inhabitants of globe are unaware from the effects of anthropogenic activities leading to the consequences of global warming which are mentioned below.

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Firstly, the rising sea level is the consequence of global warming phenomenon. Sea level rises due to thermal expansion and melting of glaciers, leading to temperature stratification. According to Intergovernmental Climate Panel on Climate Change (IPCC) report, if greenhouse gas emissions remain unchecked global sea level could rise as much as 3 feet by 2100. This is an alarming situation for mankind, for it has already risen 6 inches in the previous two centuries, inundating a vast agricultural area near seashore.

The second consequence of catastrophic increasing in global warming is the death of marine life. The oceans serve as a sink for carbon dioxide which absorbs approximately 30% of all carbon dioxide emission. If the level of ocean acidification due to carbon dioxide is increases, it decreases the pH level of water. This causes difficulty to the marine creatures in breathing, ultimately leading to their death. Although not a direct cause of whale death, ocean acidification, caused by increased atmosphere CO_2 , can harm the plankton and shellfish that form the base of whale's food chain, indirectly impacting whale population.

Thirdly, global warming poses a serious

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threat to human health by spreading vector-borne diseases and deteriorating air quality. Warmer climate expand the habitat range of mosquitoes, disease-carrying vectors, supporting the spread of malaria, and dengue into previously unaffected regions. WHO also reported that without preventive measures, deaths from disease like could be rise by 250,000 per year by the 2030. Additionally, higher temperatures worsen the air quality results into increasing asthma, respiratory infections and cardiovascular diseases. The 2024 State of Global Air Report stated that air pollution caused 8.1 million global deaths in 2021. Therefore, the emerging infectious diseases and air polluted air places a huge pressure on health care systems, leading to higher mortality rates, reduced workforce productivity, and rising medical costs. To mitigate these health issues world could take measures to curb these greenhouse gases emission in order to save from this ominous consequence of global warming.

Fourthly, tropical cyclones, hurricanes and typhoons, are among the major consequences of global warming. This is because warmer oceans evaporate more moisture, which serves as the primary driver of these storms. As a result, hurricanes and typhoons are becoming more frequent due to the increasing temperature difference between warm tropical oceans.

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and the cooler upper atmosphere. Historically, some of the costliest natural disasters have been hurricanes, particularly those affecting the United States. For example, Hurricane Ian struck the US in 2022, causing damages worth \$100 billion, making it the costliest expensive disaster globally that year. Therefore, the intensification of such catastrophic storms can be directly linked to the global warming of the planet.

Fifthly, the climate crisis is another outcome of global warming. It is driven by human-induced alterations that result in intense flooding and prolonged droughts. According to World Weather Attribution (WWA) reports, global warming in Pakistan has significantly increased the intensity of heavy rainfall, which has in turn led to severe floods. Moreover, the Intergovernmental Panel on Climate Change (IPCC) 2021 report estimated that due to warming scenarios, the frequency and intensity of drought could increase significantly in many regions. Thus, it is approximated that ecological catastrophes are output of a global rise in temperature.

Finally, the economic losses is a terrifying repercussion of the phenomenon of global warming. Economy is the backbone of a country which relies on agriculture sector and infrastructure.

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development. owing to the Climate Change patterns, the world faces a significant and mounting economic losses. The floods and storms have inundated the agriculture lands and overwhelmed the infrastructure. According to Sustainable Development Policy Institute (SDPI) report estimated a staggering \$100 billions (two decades) due to environmental degradation. Therefore, it is concluded that economic losses is another result of global warming.

These expected consequences of global warming show that this phenomenon has seriously embroiled our planet earth. Green and blue complexion of the earth seems to be veiled in black and grey color when seen from the space. Hence, there is dire need to bring earth back to its original form to save future generation from impending catastrophic events. The former US President Barack Obama highlighted this issue saying, "No challenge poses a greater threat to the future generations than Climate Change".

Pakistan is among the countries vulnerable to the risks of Climate Change, it produces only 0.34% of global greenhouse gases, yet it suffers quite disproportionately and more than its share on account of its geographical location. Due to this high vulnerability to

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Climate Change. Pakistan is pursuing climate action under the Paris Agreement through its nationally determined contribution (NDC) which targets a 50% reduction in projected emissions by 2030.

Moreover, Pakistan has also initiated a successful Green Pakistan Programme aiming to combat climate change and protect communities from the environmental disaster like floods and soil erosion. The aims of Green Pakistan Programme are to plant Ten Billion Tree Tsunami across the country for the revival of afforestation which could enhance biodiversity and safeguard numerous endangered species. In addition to, the Green Pakistan Programme also revive wild and forest resources and to employ thousands of people in rural areas.

Pakistan has also introduced a non-binding roadmap among the federal and provincial governments in order to decrease emission of greenhouse gases and improve the air quality. In March 2023, Pakistan made National Clean Air Policy which aims to promote the Euro 5 and Euro 6 that improves the performance of engines and reduces the soot particles or greenhouse gas emissions. Additionally, it prevents the open burning of agricultural residue and also promote the use of low-emission cooling

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technology to improve indoor air quality. Furthermore, the nations must adopt the climate resilient methods and crops to cope climate change. Climate resilient crops are and drought resistant crops are genetically engineered. Drought-resistant crops can thrive and survive in dry conditions and limited water regions. These crops are naturally occurred while some are made in genetically engineered ways. One of these methods is deep root system. This system enables the drought resistant crops to access moisture deep in the soil. For instance, Sorghum is widely used in drought resistant crop, particularly in arid regions in Africa and Asia. Sorghum is a deep root system and it uses water efficiently. Researchers are also working on its drought tolerance through modern genetic engineering.

Additionally, the global community take proactive steps to control the emission of greenhouse gases by transitioning from non-renewable energy to renewable energy. Renewable energy is environmentally friendly and it can be obtained from natural resources, such as wind, hydro, and solar. Many of the countries have achieved this milestone by shifting from fossil fuels to green energy.

For instance, Iceland has transitioned to generating approximately 100 percent of its electricity from renewable energy.

Furthermore, the world community can also devise a method to use the hydrogen to feed zero-emission fuel cells. The globe should introduce advanced technology for generating electricity without the emission of greenhouse gases by the process of "zero-emission" fuel cells. For example, Japan launched the world's first commercially hydrogen fuel cell vehicle, the Toyota Mirai in 2014 and also positions hydrogen as a ~~step~~ top priority for decarbonization by 2050.

To conclude, it is fair to state that mankind must take urgent steps to stop the curse of global warming to save the planet for himself and for the future generations. The human being is chiefly responsible for the rise in temperature of earth due to human-caused activities as deforestation depleting the natural carbon sinks, industrialization releases the greenhouse gases resulting in depleting the ozone layer. Therefore, the world community must adopt the strategies introducing technologies to minimize the greenhouse gas emissions and shifting from non-renewable energy

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into renewable energy in order to spared the habitants of the planet earth from this catastrophe.

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To conclude, it is fair to say that the dwellers of the planet earth must realize the negative impacts of rise in temperature and take a prudent step to curb the menace of global warming. The temperature of the earth has risen not only due to the relentless cutting of trees but also due to the advance technologies of industries. Moreover, the extent usage of fertilizers has also deteriorating the phenomenon of global warming. Nonetheless, the condition of global warming is on a reversible stage if collective consensus has been taken to bring it into sustainable condition for our new generation.