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Topic : Global warming : its Causes and consequences

Outline

1) Introduction :

2) Causes of global warming:

i) Green house gases (CO_2 , CH_4 , CFC)

ii) Burning of fossil fuels (coal, oil, and natural gas)

iii) Population explosion

iv) Massive deforestation

v) Weapon of mass destruction

vi) Emission of chlorofluoro carbon

vii) Eruption of wildfires

3) Consequences of Global warming :

i) Melting of polar ice, glaciers and ice-sheets of biodiversity

ii) Loss of biodiversity

iii) Threat to the cattle population

iv) Depletion of ozone layer

v) Decline in agriculture production

vi) Severe flood

vii) Rising of sea level

viii) catastrophic rain

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4) Measurement to counter Global warming:

i) Use of renewable energy

ii) plantation of massive level

iii) Reduction of Green house gases

iv) Implement carbon capture technologies

5) Conclusion.

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According to a recent NASA analysis, the average surface temperature has risen about 1.62 degrees Fahrenheit (0.9 degrees Celsius) since the late 19th century, while the resultant sea level has risen close to 8 inches. Both these trends, with various other such issues, have raised alarm bells in the scientific community, in general, and government circles, in particular. The attention, however, is not more than shrugging of usual shoulders, and then suggestions for solutions. It is another thing that this phenomenon called global warming is feared to create various issues for human beings in the next few years. Resulting from a mega event of big Bang, our beautiful universe and, specially, ~~our~~ our earth seems to have become the victim of our own activities. The earth is the only planet revolving around the

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The sun which supports life because of its favorable temperature and other physical conditions. The industrial revolution from the mid-eighteenth century has been instrumental in some rise in temperature though that has been almost negligible.

On the other hand, this revolution gifted earth dwellers with unimaginable facilities. However, it has also brought global warming or a rise in the temperature of the earth's climate system. When the clouds, atmospheric particles, reflective ground surfaces and surfaces of oceans send back 30% of the sunlight back into space the remaining is absorbed by air, land, and oceans. As the earth heats up it radiates the extra heat back into space. Unfortunately, due to anthropogenic activities such as greenhouse gases, burning of fossil fuel, population explosion, rapid urbanization and massive deforestation ^{whereas,} the consequences

of global warming is melting of polar ice, glaciers and ice-sheet of Greenland, loss of biodiversity, threat to the coastal population, rising of sea level, and depletion of ozone layer. Global warming is primarily a result of anthropogenic factors, and immediate collective action is necessary to mitigate its catastrophic consequences.

One of the major cause of Global warming is Green house gases, particularly carbon dioxide, methane, and nitrous oxide, are key contributors to global warming. These gases trap heat in the Earth's atmosphere, preventing it from escaping into space. Human activities, such as burning fossil fuels, agriculture, and industrial processes, significantly increase the concentration of greenhouse gases. The burning of coal and oil for electricity generation release large amounts of carbon dioxide into the atmosphere. The Environmental

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Protection Agency (EPA) reports that methane from livestock contributes around 16% of global greenhouse gas emissions, with methane being 25 times more potent than CO₂ at trapping heat over a 100-year period. Therefore, the rising concentration of greenhouse gases remains the primary driver of the global warming trend observed today.

Another ^{leading} cause of global warming is the burning of fossil fuels, such as coal, oil and natural gas. When these fuels are burned for energy production, they release large amounts of carbon dioxide (CO₂) into the atmosphere, which traps heat and leads to rise in global temperature. Fossil fuel combustion is responsible for the majority of global carbon dioxide emissions, particularly from power plants, transportation, and industrial activities. These sectors rely heavily on

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coal, oil, and natural gas, significantly contributing to the increase in atmospheric CO₂ levels. According to the panel on climate change (IPCC), fossil fuel combustion accounts for nearly 78% of global CO₂ emissions. As a result, the burning of fossil fuels is a major driver of the ongoing increase in global temperatures and the intensifications of climate change.

Besides burning of fossil fuel, population explosion is also a major cause of global warming. More people lead to higher energy demand and increased fossil fuel consumption. Rising population increases deforestation and energy use. As more people require energy for electricity, transportation and industrial production, the consumption of fossil fuels rises, leading to higher carbon dioxide emissions. According to the United

Nations, the world population is projected to reach 9.7 billion by 2050, which will put immense pressure on natural resources and exacerbate the environmental crisis. The increased need for agriculture to feed this growing population also leads to deforestation, further reducing the planet's ability to absorb CO₂. The population explosion significantly amplifies the effects of global warming.

Furthermore, massive deforestation plays a significant role in global warming by reducing the planet's ability to absorb carbon dioxide (CO₂). Forests act as vital carbon sinks, but large-scale clearing of trees for agriculture, logging, and urban expansion disrupts this balance. The Food and Agriculture Organization (FAO) estimates that around 10 million hectares of forest are lost each year, contributing significantly to climate

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change. In addition, deforestation leads to biodiversity loss and alters rainfall patterns, further worsening environmental instability. Thus, massive deforestation is directly linked to the rising of CO₂ and the intensification of global warming.

In addition, weapons of mass destruction (WMD) pose significant threats to global security. Their destructive capacity can lead to catastrophic consequences for nations and the world. For instance, the use of nuclear weapons during world war II resulted in the deaths of over 200,000 people in Hiroshima and Nagasaki, demonstrating their devastating impact. Additionally, the proliferation of chemical weapons, such as those used in the Syrian Civil War, highlights the ongoing risk they pose to civilian populations and international norms. Moreover

Biological weapons, capable of causing widespread disease and panic, have the potential to disrupt societies and economies on a global scale. The existence and potential use of weapons of mass destruction remain a grave threat to global security and stability.

Along with this all causes the emission of chlorofluorocarbons (CFCs) has had a profound impact on global warming and ozone layer depletion. CFCs trap heat in the atmosphere and break down ozone molecules. CFCs, once widely used in refrigeration, air conditioning, and aerosol sprays, are potent greenhouse gases that not only contribute to the greenhouse effect but also cause the depletion of the ozone layer. When CFCs reach the stratosphere, they break down under UV radiation, releasing chlorine atoms that destroy ozone molecules. According to the UNEP

reports that CFCs can be up to 10,000 times more potent than CO_2 in trapping heat. The emission of CFCs has left a long term impact on both global warming and ozone depletion, with effects that persist even after their phase-out.

One of the most severe consequences of global warming is rapid melting of polar ice, glaciers, and ice sheets. As global temperature rise, the Arctic and Antarctic regions experience significant ice loss, with glaciers retreating and ice sheets thinning at alarming rates. According to NASA, the Arctic sea is declining by 12.6% per decade, which contributes to rising sea levels. The melting of glaciers in places like Greenland and Antarctica adds vast amounts of freshwater to the oceans, threatening coastal cities with flooding. Additionally, the loss of ice disrupts ecosystems, affecting species like polar bears and seals that

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on ice for survival. Hence, the melting of ice due to global warming has far-reaching effects, from rising sea levels to ecosystem disruptions.

Another major consequence of global warming is the loss of biodiversity, as rising temperatures and changing climates put immense pressure on ecosystems. Many species are unable to adapt quickly enough to the new environmental conditions, leading to habitat loss, migration, or extinction. According to the International Union for Conservation of Nature (IUCN) warns that nearly 28% of species are at risk of extinction due to climate change. For example, coral reefs are experiencing widespread bleaching because of warmer ocean temperatures, which threatens the marine life that depends on them. Additionally, species such as polar bears and amphibians are losing their habitats as ice melts and

and wetlands dry up. The loss of biodiversity has severe consequences for ecosystems and human life, making it a major outcome of global warming.

Furthermore, global warming significantly threatens coastal population around the world. Rising sea levels and extreme weather events are increasingly affecting low-lying coastal regions. Melting ice caps and glaciers contribute to rising sea levels, putting coastal areas at risk of flooding and submersion. Global warming intensifies storms and hurricanes, leading to more frequent flooding and destruction of infrastructure. According to the Intergovernmental Panel on Climate Change (IPCC), sea levels have risen by about 20 centimeters since 1900, with projections indicating a further rise of up to 1 meter by 2100. Coastal communities are also facing more frequent and intense storms, hurricanes, and flooding, all exacerbated

by global warming. The increasing threat to coastal populations due to global warming endangers lives, homes, and economies.

In addition, the depletion of the ozone layer is a critical consequence of global warming, as it exposes the earth to harmful ultraviolet (UV) radiation. The ozone layer, which sits in the stratosphere, absorbs the majority of the sun's UV radiation, protecting living organisms from its damaging effects. However, the emission of chlorofluorocarbons (CFCs) and other ozone-depleting substances has led to significant thinning of this protective layer. According to the World Meteorological Organization (WMO), the ozone layer over Antarctica has thinned by nearly 40% since the late 1970s due to human activities. Increased UV radiation ~~can~~ resulting from ozone depletion can

investing in renewable energy creates jobs and stimulates economic growth, particularly in regions transitioning away from fossil fuels. Governments can support this shift by implementing policies that encourage the development and adoption of renewable energy technologies, such as tax incentives, subsidies, and grants. Furthermore, the integration of renewable energy into the grid enhances energy security and reduces dependence on imported fuels. Thus, the increased use of renewable energy is essential for mitigating global warming and fostering a sustainable future.

The plantation of trees on a massive scale is a powerful strategy to combat global warming and mitigate climate change impacts. Reforestation and afforestation efforts help absorb carbon dioxide from the atmosphere, which is one of the primary greenhouse gases

lead to higher rates of skin cancer, cataracts, and harm to marine ecosystems, including phytoplankton, which form the basis of the Oceanic food web.

Hence, the depletion of ozone layer poses serious health risks and threatens global ecosystems.

Moreover, decline in agricultural production is a critical consequence of global warming. Rising temperatures and changing weather patterns affect crop growth and harvests. Heat waves, droughts, and floods damage crops, reducing yields. Water shortages and unpredictable rain make farming more challenging. For instance, studies show that a 1°C increase in global temperature can result in a 6% drop in rice production. Additionally, shifting rainfall patterns lead to water shortages in key agricultural regions, making it harder to irrigate crops. According

to the Food and agriculture organization (FAO), this decline could cause up to a 30% reduction in global food production by 2050, worsening hunger and malnutrition in many parts of the world.

lastly, the alarming consequences of global warming is the increase in the frequency and intensity of severe floods. As global temperature rise, the atmosphere holds more moisture, leading to heavier rainfall and more intense storms. This, combined with melting glaciers and rising sea levels, increases the risk of flooding in both coastal and island areas. The intergovernmental panel on climate change (IPCC) has reported that climate change is already causing more extreme rainfall events, leading to frequent floods. Additionally, deforestation and urbanization reduce the land's natural ability to absorb water, further increasing flood risk. Hence,

it is prone that severe floods not only result in loss of lives and homes but also cause widespread damage to infrastructure, agriculture, and economies, leaving long-term impact on communities.

The use of renewable energy is a crucial measure in the fight against global warming, as it significantly reduces greenhouse gas emissions that contribute to climate change.

Renewable energy sources, such as solar, wind, hydroelectric, and geothermal power, produce little to no carbon emissions during operation, making them much cleaner alternatives to fossil fuels.

For instance, according to the International Renewable Energy Agency (IRENA), doubling the share of renewable energy in the global energy mix could help reduce carbon dioxide emissions by 70% by 2050. Additionally

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driving global warming. According to the Food and Agriculture Organization (FAO), a well planned reforestation initiative can sequester up to 101 billion tons of carbon dioxide per year, significantly contributing to emission reduction goals.

Additionally, forests play a critical role in maintaining biodiversity, protecting watersheds, and providing habitats for countless species. By ~~reforest~~ restoring degraded lands and planting trees in urban and rural areas, we can also enhance soil quality, prevent erosion, and improve water retention in the ecosystem. Furthermore, community involvement in reforestation projects can promote environmental awareness and foster a sense of stewardship for natural resources.

Thus, large-scale tree planting initiatives are essential for reducing carbon levels in the atmosphere and promoting a healthier planet.

Reducing greenhouse gas emission is also one of the most critical actions needed to combat global warming. Greenhouse gases, such as carbon dioxide, methane, and nitrous oxide, trap heat in the earth's atmosphere, leading to a rise in global temperatures. Cutting emissions from fossil fuel consumption, industrial activities, and agriculture is essential to slowing this warming. For instance, switching to cleaner energy sources, such as solar and wind, can dramatically reduce carbon dioxide emissions. According to the United Nations Environment Programme (UNEP), if global emissions are reduced by 7.6% annually, the world can meet the target of limiting global temperature rise to 1.5°C. Additionally, improving energy efficiency in industries and promoting electric vehicles can help reduce greenhouse gas output. Furthermore, reducing methane

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emissions from agriculture by adopting sustainable farming practices also contributes to lowering global warming impacts.

Reducing these gases is key to stabilizing the climate and protecting ecosystems.

Global warming is mainly driven by human activities, and urgent, collective efforts are essential to prevent its devastating effects. The increasing concentration of greenhouse gases in the atmosphere, primarily from human activities, has accelerated the pace of climate change, leading to alarming environmental consequences. Massive deforestation, Emission of chlorofluoro carbon, Eruption of wildfires and ~~weapons~~ weapons of mass deforestation is the major causes of global warming. ~~and~~ on the other hand severe flood, catastrophic rains, Decline in agriculture production, depletion of ozone layer and rising of sea level are the consequences of

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global warming. while the challenges posed by global warming are significant, there is hope that with collective action, innovative solutions, and a commitment to sustainability, we can slow its progress and protect our planet for future generations.
