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Climate Change ; Causes, Effects, Solutions

1. Introduction ✓

2. Climate Change ; an overview ✓

3. Causes

(a) Natural Causes ✓

(i) Volcanic Eruptions ✓

(ii) Ocean Current ✓

(iii) Earth's Orbital Changes ✓

(b) Human Activities ✓

(i) Fossil Fuels ✓

(ii) Agricultural Chemicals ✓

(iii) ~~Forest~~ Deforestation ✓

(iv) Transport ✓

(v) Domestic Activities ✓

4. Effects

(a) Deterioration of human health ✓

(b) Loss of Biodiversity ✓

(c) Global Warming ✓

(d) Increased Natural Disasters ✓

(e) Poverty and Displacement ✓

5. Solutions

(a) Reduction in Fossil Fuels ✓

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- (b) Shift to renewable energy sources ✓
- (c) Trees Plantation (Forestation) ✓
- (d) Improvements in domestic life ?

6 Conclusion

The temperature is increasing day by day, there are irregular precipitations, the seasons are at extreme levels, natural disasters are more frequent, the human health is being deteriorating day by day, smogs are frequent, it seems that the world is gradually going to lose its human and other creature's living environment, all of this is because of climate change. The Climate Change is the long term shift in the climate of world.

This long term shift has some causes including natural causes like ocean drive, orbital change etc along with human activities like

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excessive use of fossil fuels, huge deforestation, transport etc, that have caused effects in the whole world ranging from deteriorating human health to displacements, poverty, global warming and increased number of natural disasters. However these are solution to this which might reduce these effects, these solutions are in the form of reducing reliance on fossil fuels, energy sources shift, deforestation etc.

The climate change is not a result of abrupt change rather it is caused by gradual process. These are some natural causes fueled by other human activities based causes.

Volcanic eruption is a major activity of earth. The eruption of material underneath the earth which cools and solidifies on earth is major source of cooling

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the earth but during this process greenhouse gas Sulphur Dioxide (SO_2) is produced in large scale which then accumulates around the Earth thus causing the earth to retain the heat which is supposed to be reflected by the Earth in the outer space, and ultimately causing the increased temperature of the Earth.

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The Earth contains 71% of water on its surface and mostly the oceanic water and oceans are a big component of the Earth's temperature balancing drive. The ocean drive/current often considered as the horizontal water movements is a continuous, directed movement of water generated by a number of forces. The change in the ocean current is a major natural cause of climate change and effects the accumulation of

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Carbon Dioxide (CO_2) around the Earth's surface thus increasing Earth's temperature.

The Humans see changes in the seasons just because that the Earth's orbit is somehow tilted and not straight. If there would be no tilt in Earth's orbit the seasons on earth could not be enjoyed. Changes in the tilt can effect the severity of the seasons also. If there is more tilt means the summers will be warmer and the winter will be colder and if the tilt is less there will be cooler summers and milder winters.

This natural process also causes the Climate Change of the globe.

The Climate Change is indirectly caused by the abovementioned natural causes but what exacerbates the shift

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are the human activities. The climate change has seen rapid growth mainly by the human activities that advancing at fast pace.

The burning of fossil fuels is a major cause of climate change. Its contribution to the climate change is approximately 15%. Fossil fuels are basically hydrocarbon containing material such as coal, oil and natural gas, formed naturally in the Earth's crust from the remains of dead plants and animals that are usually burnt as a fuel in the power production, Industries, as a fuel in automobile and also in domestic cooking. The major energy in the world is mainly produced by the burning of fossil fuels. When these fuels are burnt they cause the major greenhouse gases like Carbon Dioxide (CO_2)

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Methane (CH_4) which are already present around the Earth and cause the retention of Infrared rays from the reflected rays from the Earth and cause the rise in the Earth's temperature.

The Green House effect is necessary for life on earth but when the level of such gases is increased there is a rise of temperature on the Earth.

Along with the energy production the use of fossil fuels in the automobile including cars, Buses, Airplanes etc also emit a huge quantity of greenhouse gases. Beside this the natural gas used in homes for cooking food etc also has the same effect on the Earth. The Intergovernmental Panel on Climate Change (IPCC) has found that emissions from fossil fuels are the dominant cause of climate change in the last decade and the coal is the

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disturb of all the fossil fuels.

Along with the fossil fuels, the Agricultural Chemicals used in the agriculture for food production of the humans also contributes to the climate change. The chemicals and fertilizers when used in the soil release nitrous oxide (N_2O) which is a greenhouse gas and most important after Carbon Dioxide and Methane gas. This gas along with the other greenhouse gases trap the heat thus increasing the temperature of the Earth and also damages the ozone layer around the Earth's in stratosphere which layer prevents sun's ultraviolet (uv) rays to reach the Earth's surface.

Human activities which have caused the climate change are not limited to the burning of fossil fuels

or fertilizers use but also include the major devastating activity of deforestation. Deforestation is the cutting down of trees and woods for human uses of building houses or for clearing ~~surface~~ area for building factories, industries or other housing societies for human dwelling. The world has seen a major and swift gear in deforestation after the Industrial revolution in 1750's. The trees which are a big absorber of Carbon dioxide (CO_2) and a gas called oxygen (O_2) that is most necessary for human lives, when defaced cause the climate change. They release the stored Carbon dioxide into the atmosphere. Since 2016, an average of 28 million hectares of forest have been cut down every year. That's mean that one football field of forest is lost every second.

The vehicular activities can not be considered as a less contributor to the climate change. The gasoline used in the vehicles; mainly used for transport of passengers and fleet when burnt causes the air pollution. These vehicles emit carbon dioxide (CO_2) and methane (CH_4) gas into the atmosphere, and these two gases are classified as primary green house gases. It is not wrong that green house effect that are necessary for life on earth but excess of these gases trap the outgoing rays of sun and cause extreme temperature on the Earth. Every gallon of gasoline burned creates about 8887 grams of CO_2 . According to the International Energy Agency (IEA) data cars and vans accounted for 48 percent of global transport carbon dioxide emissions in 2022. In the

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present age the numbers of
cases in the whole world are
estimated to be 1.47 billion.

The domestic activities of human
being can be classified as the
largest contributors of climate change.
In day to day activities there
is normal usage of natural gas,
Liquefied Petroleum gas (LPG), to cook
food. Air conditioners (AC) and the
refrigerators are most excessively
used at domestic levels. The natural
gas and LPG both produce CO_2
and CH_4 which are the same
greenhouse gases. AC's and refrigerators
produce chloro fluoro carbons (CFCs); a
chemical containing chlorine atoms and
releases chlorine atom into
atmosphere which ultimately destroy
ozone. A single chlorine atom can
destroy thousands of ozone
molecules. Thus causing the temperature

of the Earth to be increased.

The climate change caused from certain factors has long term and devastating effects.

One of the major effects that the climate change has caused and growing at a faster speed is on human health.

The pollution in the earth, the extreme weather situation on the earth and this overall shift has deeply impacted human health.

The humans are facing many diseases due to climate change mostly respiratory, heart, and allergy diseases. In the major cities of the world it is difficult to breathe.

The recent smogs in the major portions of the world and mostly in the south Asia are gruesome. The other problems of fatigue

muscle disorder and headaches are normal. If the current severity of climate change is not been controlled it can destroy the human health.

Biodiversity is the major area of the earth and out of earth's surface that is necessary for living species on the Earth.

The survival of the living ones is only possible in this circle.

It is only possible if the climate on earth is suitable.

The climate change has altered marine terrestrial and freshwater ecosystem around the world. It has caused the loss of local species, increased diseases and the mortality of living creature. Many mammals have seen the extinction. The coral reefs are going to be increased in number if the temperature is increased at the current.

level. Biodiversity is the beauty of the earth. Half of the world GDP is dependent on nature which would also has grave impact on economy of the world.

Along with the other grave impacts on Earth climate change has also caused the global warming. The temperature of the earth is increasing very fast which is a cause of great concern. The ice on the poles which reflects about 80 percent of the sun's energy is a major contributor in maintaining the Earth's average temperature is now melting, which if not got controlled will result in the increased sea levels and other devastating effects. The human life will nowhere be possible on earth.

The world has seen a large number of natural disasters due to the climate change. These are often news of bushfires, floods, tsunamis, cyclones etc. The sea level are increasing, the ice on the poles is melting at a high speed which ice is considered as the huge source of fresh water. If this snow melting continues there will be an average increase of about 29 cm in sea levels that seems to be destruction of whole ecosystem. The recent bushfires in the Australia caused a huge loss. The earthquakes are normal and often seen in the whole world. The tectonic plates of the earth are moving. The climate change along with the other serious effect has also affected the economy of the world and is still being affected.

There are number of countries in the world that are island countries or are coastal countries. If the sea level got increased on the current pace the most vulnerable such island or coastal countries will sink in the water thus causing a great chaos and destruction with displacements big in numbers. There will be poverty in maximum parts of the world. There will be scarcity of food or other necessary items of living.

The human activities are a great cause of climate change, there are some solutions which can decrease the current threats of climate change.

Fossil fuels as mentioned above are a major contributors of

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Climate change, we should limit the reliance on fossil fuels. We should move to the clean energy production and other alternative sources instead of fossil fuels. There should be some sustainable precautions for use of fossil fuels in the industry and other producing units. The excessive use of fossil fuels should be minimized. There should be clear policies regarding the usage of fossil fuels. The fuels used in Airplanes and Jet planes should be purified through technology before going into the atmosphere of earth.

The renewable sources of Energy like wind Energy, solar energy, Hydroelectric including tidal energy should be adopted which are safe and clean resources.

of energy without any waste.

The solar energy is the energy obtained from the sunlight.

The wind energy is produced from wind blowing in the air.

likewise hydroelectric energy is produced from water and also tidal energy is produced in the same way.

These energy sources are reliable and waste free also comparatively low cost than the energy produced from the burning of fossil

fuels. The vehicles should be shifted to electric systems and other renewable energy systems to control carbon emissions in the air.

Trees being the major absorbers of the CO_2 and largest producer of oxygen should be implanted.

Their deforestation should be avoided.

Trees are also the cause of rainfall and their fruits are economically traded and

are economically traded and

eaten thus improving healths of the individuals and absorbing the CO_2 .

The domestic living ^{structure} of humans are a major factor of the climate change. The excessive use of ACs and refrigerators and also of aerosol sprays should be avoided. If necessary then the ACs and refrigerator's gases should be converted to the ecofriendly gases having no CFCs. The usage of gas for the food cooking should be eliminated and other electric stoves or solar stoves should be preferred. One must avoid eating meat and should move to the vegetables eating. There should be campaigns and walks should be held for the of the climate change. The sustainable development goals

of the 2015 set by the world and ratified by almost all the world countries should be implemented all over the world.

The climate change is a grave concern for the world and all the humans are at its susceptibility, if this challenge is not addressed it can lead the whole world to the point of destruction. The United Nations warns that by continuing along this path, our very survival would be at risk. The IPCC estimates that in the current scenario there will be an average increase of 2.7°C in temperature of the Earth by the end of this century. The world's population must collectively contribute to curb the climate change.