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Review Article

## A Preliminary Review on Impact of Climate change and our Environment with Reference to Global Warming

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ARTICLE INFORMATION	ABSTRACT
<p><b>Corresponding Author:</b> Jitendra Rajak</p> <p><b>Article history:</b> Received:25-01-2021 Revised:28-01-2021 Accepted:30-01-2021 Published:02-02-2021</p> <p><b>Key words:</b> Climate change, global warming, environment, green-house gas, renewable energy.</p>	<p><i>The most challenging problem facing by the world is the problem due to climate change. It is affecting every living species including humans of the planet. The main causes are unnecessary burning of fossil fuels, deforestation, unplanned extension of civilization etc. As a result, global warming is increasing day by day. Global warming has severe impact in our life. Excessive emission of greenhouse gases, volcano eruption, several human activities are directly accountable for global warming as well as climate change. Thus, rapid changes in overall environment, weather, temperature, ocean nature, soil nature, iceberg, water quality are in front of us. So, different research initiatives and projects should be undertaken to aware people and government about adverse effect of climate change and global warming. This review will help researcher to focus on the issues. Here we have reviewed the reason of the problems and tried to solve them in chronological manner. Those steps will help researcher to understand the basic needs and as a result it will help to make them informed about step that are necessary. Several steps should be taken immediately to prevent the adverse effect of climate change.</i></p>

### Introduction

One of the major global threat of 21st century is the issue of climate change. It is considered as the most imperative challenge due to its complicated and universal nature. It has also long-term impact on total sustainable development. We know from the starting of mankind humans have faced different issues related to climate change. But the adverse effects are affecting in large amount for last few decades. Although mostly caused by humans, it has impact on every living creature of this planet. For example, recently Australia reported the first ever extinction of a mammal due to human-induced climate change. Such instance can be changed to daily news across the globe if this change goes on. So, environmental experts are deeply concerned about the adverse effects of climate change. Rising of excessive fossil fuel burning and unplanned land usage have result in increasing quantities of greenhouse gases into the Earth's atmosphere [1]. These greenhouse gases include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrogen dioxide (N<sub>2</sub>O), and a rise in these gases has caused a rise in heat at the Earth's atmosphere which led to the greenhouse effect [2]. So, greenhouse effect is causing rapid climate change. The main features of global climate change are increases in average global temperature (known as global warming); melting of ice and glaciers and reduced snow cover; and increases in ocean temperatures and ocean acidity [1].

The Fourth Assessment Report of the Intergovernmental Panel on global climate change (IPCC 2007) dispelled many uncertainties about climate change. The global warming is mostly due to man-made emissions of greenhouse gases (mostly CO<sub>2</sub>). Over the last century, atmospheric concentrations of carbon dioxide increased exponentially, and the average global temperature rose by 0.74° C. This might look like nothing great but its effects on our environment have proven otherwise. The impacts of this small change in the temperature causes weather imbalance, uncontrolled flood, drought seasons and heat waves to more aggressive hurricanes. Furthermore, the increase in the earth's average temperature created a variety of problems for endangered species. Even if countries reduce their greenhouse emission emissions, the world will still warm. Worldwide local climate inconsistency can influence peoples' choices with consequences for his or her social, economic, political and private conditions, and strongly effects on their lives and livelihoods. The hostile effects of global climate change suggest that the local climate inconsistency that people have previously experienced and have adapted to is changing behavior and changing at relatively rapid speed. [1]

The major impacts and threats of worldwide warming are widespread. So, time has come to fight with it and stop all the causes of global warming and climate changes. Here in the rest part, we will discuss about causes of climate change and how to reduce them. So, different research initiatives and projects should be undertaken to aware people and government about adverse effect of

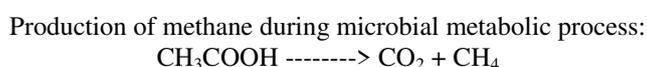
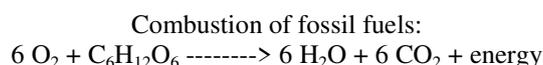
climate change and global warming. This review will help researcher to focus on the issues. Here we have reviewed the reason of the problems and tried to solve them in chronological manner. Those steps will help future researchers to understand the basic needs and as a result it will help to make them informed about step that are necessary. The researcher should achieve those steps.

### Causes of Climate change:

#### a) Greenhouse Gases

Greenhouse gases effects mostly to the factors that creates climate change. They are very efficient in trapping heat into the atmosphere; therefore, it leads to the atmospheric phenomenon known as greenhouse effect. The solar energy is absorbed by the earth's surface and then reflected back to the atmosphere as heat. Then because the heat goes back to space, greenhouse gases absorb a bit of the heat. After that, they radiate the heat back to the earth's surface, to another greenhouse gas molecule, or to space [2-3]. Methane and CO<sub>2</sub> are highly responsible and the present-day warming trend has been attributed to an annual increase in the atmospheric methane concentration and CO<sub>2</sub> [4]. The Berbisi et al. study also investigated the potential of methane contribution to the atmosphere during the evolution of petroleum system in two different geological settings: The western Canada sedimentary basin and therefore the Central Graben area of the North Sea. On the opposite hand, only the sudden release of surface methane accumulations, formed over geologic time scales, petroleum systems can influence climate [3].

The following chemical equations demonstrate the production of each:



#### b) Nature Contributions

The nature also contributes to climate change by emitting carbon dioxide from volcanos. Volcano eruption releases carbon dioxide many million years ago. Back where dinosaurs existed, we had levels of CO<sub>2</sub> that's approximately almost like what we've now due to the carbon dioxide emitted by volcanos. But volcanos release a small amount of CO<sub>2</sub> and they can't explain the increase of CO<sub>2</sub> that we had in the last century. The emission of carbon-di-oxide from volcanos contributes in enhancing the adverse effect of climate change. However, the quantity of CO<sub>2</sub> they emit is comparatively small if we compare it to the quantity of CO<sub>2</sub> that's being released by human activities. According to NASA, on the average, volcanoes emit between 130 and 230 million plenty of carbon dioxide per annum. However, by burning fossil fuels, people release in excess of 100 times more, about 26 billion tons of CO<sub>2</sub>, into the atmosphere every year (as of 2005) [3].

#### c) Human Contributions

Scientists believe humans' activities contribute to climate change because we depend on fossil fuels for our energy needs [5]). A large amount of global climate change happens widely because we are burning fossil fuels which increases gases like carbon dioxide, methane, and a few other gases within the atmosphere. According to the Australian Greenhouse Office, the planet depends on fossil fuels like oil, coal, and gas for 80% of its energy needs. Therefore, that creates it very hard to modify from fossil fuels to the other sorts of energy because we rely on fossil fuels to an outsized degree. The emission of greenhouse gases has increased dramatically from the industrial revolution, mostly from the burning of fossil fuels for energy, agriculture, industrial process, and transportation (Ecological Impacts of Climate Change).

### Effects of Climate Change

#### a. Environmental consequences of climate change

Climate change has affected many aspects of our planet. One aspect that has been greatly suffering from global climate change is that the weather. By increasing the concentration of the greenhouse gases, we are increasing the amount of heat that is in our atmosphere (As per NASA report). The massive emission of greenhouse gases increases the temperature of air and which result in an aggressive hurricane. Warmer temperatures result in warmer water in the oceans. As the results of warmer oceans, hurricanes and tornados become more intense. Also, warmer temperature means the atmosphere holds more water vapor and that makes rainfalls more extreme and intense [5]. Climate change also resulted in playing a major role in shrinking of ice sheets [5]. Also flood due to heavy uncontrolled rainfall, frequent drought, unusual snow melting is result of climate change. Also changes of season as well as reduction of number of seasons is also one aspect of adverse effect of climate change.

#### b. Changes in soil moisture levels

Most habitats and species are adapted to a rather wet environment. Climate change forecasts expect moisture levels to decrease, so habitats that are sensitive to moisture levels will suffer if the climate becomes much drier. Reduction in function of loss of habitats could impact food production, water supply and quality, and use of land for tourism and leisure. Reduced soil moisture is also linked to increased risk of wildfires, and the vulnerability of species to pests and disease.

#### c. Extreme flooding and coastline changes

A coastal environment is always dynamic in nature. It contains high biodiversity and supported by wide range of species. Changes in sea level can change coastal habitats through erosion or sediment deposits, providing both risks and new opportunities to plant and animal species. Some coastal features also play an important role in protecting human settlements from flooding. Climate change is expected to lead to sea level rise and both loss of habitats and creation of new ones around the whole world.

*d. Increase of water temperature and impact on water quality*

Aquatic species are normally very highly sensitive to water temperatures, and the stratification of water bodies can also be obstructed by climate change, affecting largely the supply of oxygen and nutrients which in turn affects fish growth and feasibility. Adaptation possibilities include direct management of the local ecosystem through release of cooler water into stream and rivers, planting tree shade, and modifying stream topography, though there is limited evidence on whether this is likely to be effective. Water pollution is one of the major sources of damage to aquatic habitats. It can transpire through human and agricultural waste purposely or accidentally deposited in water bodies, and can be worsened by low rainfall. Climate change may lead to a change in rainfall patterns, and indirectly impact the use of fertilizers in agriculture. The key challenge is to reduce pollution at its source.

*f. Increased risk of wildfires*

Warmer, drier summers, and abridged soil moisture as described above, increases the risk of fire. This can result in large scale habitat destruction and species extinction, as well as enhanced soil erosion and water pollution. In practice most wildfires are started by people, either deliberately or accidentally, hence active management of access and leisure is critical to adaptation.

While the impact of climate change on some species is already well understood, less is known about the interactions of different species and of habitat change. The inevitable impact of climate change on most ecosystems is exacerbated by human-driven factors such as land use change and pollution

**Social consequences of climate change**

Many of these issues described above are not unique to biodiversity and ecosystems services. Those that are particularly interdependent with other sectors include floods and coastal erosion, water quality and availability, land use change, pollution and invasive species. In addition, the climate change has several social consequences:

*Health:* Many diseases affecting people are also found in animal and plant habitats. A rise in pests and disease may have an impact on human health.

*Economy:* The natural environment and landscape is a great cultural and tourism asset; protecting it will have benefits for cultural wellbeing and the economy. So, climate change can affect our economy very badly.

*Social attitudes:* The ability to adapt will depend on public perception and willingness; including changes in the way we view the value of natural assets and non-market goods in economic assessments.

Human well-being is indistinguishably linked with the environment, in often complex way. Some human populations are particularly vulnerable to the effects of natural hazards, changes to the clean water supply, or disruption to primary industries such as agriculture through climate change. Furthermore, the cultural advantages of the environment, such leisure and well-being, can also be vanished through changes to the environment.[6]

**Procedures to lessen the adverse effect of climate change:**

*1. Reduce carbon emission*

Millions of people drive to work every day. It is simply unavoidable in our modern-day society. However, the downside to the present is that many cars emit greenhouse gases that destroy our atmosphere. Vehicle emissions are an in depth second when it involves the highest causes of global climate change.

There are always other options that you simply can utilize to form your commute to figure eco-friendly. For starters, taking public transportation to figure may be a good way to chop out emissions. [2] Riding your green bike to work is also incredibly helpful to the environment and is a great method to get exercise. Manufacturing plants emit a large number of greenhouse gasses per year. It is unavoidable within the production of products that we use on a daily basis. However, a cleaner alternative would be to take a position in recycling. Recycling may be a cost-effective and eco-friendly process that eliminates waste and doesn't emit greenhouse gasses into the environment. Be sure to gather your discarded paper, glass, plastic, and electronics to your local recycling center. The professionals will take these things to a processing plant where they're going to be remade into other recyclable materials again.

*2. Be More Conservative with Energy Usage*

Becoming more energy efficient may be a good way to stop pollution. It causes the facility plants to expend less energy which will cause the assembly of greenhouse gasses. This means that you simply should do what you'll to chop down on energy usage in your household. Make sure to show off lights and unplug devices that you simply aren't using anymore once you are through with them. Replace your light bulbs with energy-efficient light bulbs to assist you save electricity. Fossil fuels got to be quickly replaced with cleaner, renewable energy like wind and solar energy. Governments and corporations got to further invest in low carbon transport solutions.

*3. Stop destroying forests*

We need to prevent destroying forests for intensive agriculture like cattle farming and vegetable oil plantations, allowing the trees to regrow and planting many millions more. And creating ocean reserves will provide protected areas during which living creatures of the sea can flourish faraway from the threats of commercial fishing, helping to recuperate the oceans' natural balance.

#### 4. Encourage the use of renewable energies

Focusing your efforts to spread awareness about renewable energy is that the best thanks to create a positive impact in your community. By enlightening others about the useful effect of renewable energy and aware them how renewable energy is best than utilizing fossil fuels, you'll influence others into devoting within the idea.

#### 5. Encourage Others to Conserve

Share information about recycling and energy conservation together with your friends, neighbors and associates, and take opportunities to encourage public officials to determine programs and policies that are good for the environment. These steps will take you an extended way toward reducing your energy use and your monthly budget. And less energy use means less dependence on the fossil fuels that make greenhouse gases and contribute to heating.

So many more these types of steps will help us to prevent the adverse effect of climate change. A fresh wave of technological innovation is deepening our understanding of tough environmental challenges — and also giving us new ways to unravel them.

#### Conclusion

The climate change would increase the number of people suffering from death, disease and affected from heat waves, floods, storms and droughts. Floods can overwhelm physical infrastructure and human communities. Major storm and flood disasters have occurred within the last two decades. Vulnerability to weather disasters depends on the attributes of the person in danger, including where they live and their age, also as other social and environmental factors. High-density populations in coastal regions experience a high health burden due to frequent weather disasters. Hot days, hot nights and excessive hot waves became more frequent. Heat waves are related to marked short-term increases in mortality. In some regions, changes in temperature and precipitation are projected to extend the frequency and severity of fireside events. Forest and bush fires cause burns, damage from smoke inhalation and other injuries. The inevitable impact of global climate change on most ecosystems is exacerbated by human-driven factors like land use change and pollution. Some ecosystems may prove resilient to some climate change impacts, but the evidence suggests that most need to be supported by a planned adaptation response if irreversible changes to ecosystems are to be prevented. So, we should aware people about the adverse effect of climate change and help each other to combat it.

#### Recommendations

Further research should be carried out in climate change and global warming with respect to e-waste. Also, it will be very useful if comparison study of different renewable energy source on climate change may studied.

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