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Global Warming and Climate Change On Earth: Duties and Challenges of Human Beings

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***Abstract*: Average temperature of the earth increases rapidly and climate also change accordingly. Main culprit behind it is the emission of greenhouse gas which is emitted from the burning of fossil fuels and also from other human activities. We can see in our daily lives how nature is changing. At the same time, in some areas are facing droughts and some other area have devastating floods killing many people within the same country. A recent report from NASA shows that a heat wave is blowing over major winter countries. As a result, the glaciers of the two polar provinces have started melting. Due to this climate change many organisms are disappearing from the earth. If it will continue in this way, one day the existence of all the creatures from our beloved earth will be disappeared. We are the only ones who can solve this problem through our behavioural and practical changes. In this study we highlighted the evil effects of global warming and climate change and also how can we human beings protects this process of global warming. From the study it is found that, we have made the earth hell for our own interest and now we have to take responsibility to transform it back to heaven.**

***Keywords*: Climate change, earth, global warming**

1. Introduction

At present global warming is the main issue of discussion worldwide. After the industrial revolution (1750) man habituated with the use of modern technology and industrial goods which has become a very important factor in changing the environmental process. One of the most significant changes brought about by human activities is an increase in the carbon dioxide and other greenhouse gases. These gases are causes damage in the ozone layers. The two lead culprits of global warming and climate change are carbon emission and ozone layers' depletion.

The carbon dioxide, water vapour and methane form a layer of gases that does not allow the solar radiation to flight back into the space. This layer of gases functions like the glass of panels of a greenhouse which allows the sunlight to pass through but prevents the heat to re-radiate completely in the outer space. The result of this causes warming in the earth surface. This is the so called greenhouse effect. Carbon dioxide (CO_2), methane (CH_4), water vapour (H_2O vapour), nitrous oxide (N_2O) and chlorofluorocarbons (CFCs) are the major greenhouse gases because they prevent in the re-radiation of the solar heat and causes earth surface warm.

Carbon dioxide contributes about 60% of total warming, on the other hand methane, CFCs and N_2O are contributed 20%, 14% and 6% respectively. Besides these major greenhouse gases, hydro-chlorofluorocarbons (HCFCs), hydro-fluorocarbons (HFCs), halons, carbon tetrachloride and ozone also cause greenhouse effect. Near about 49% GHGs emitted from the burning from fossil fuels, 13% emitted from agricultural activities, 14% from deforestation and about 24% from industrial process.

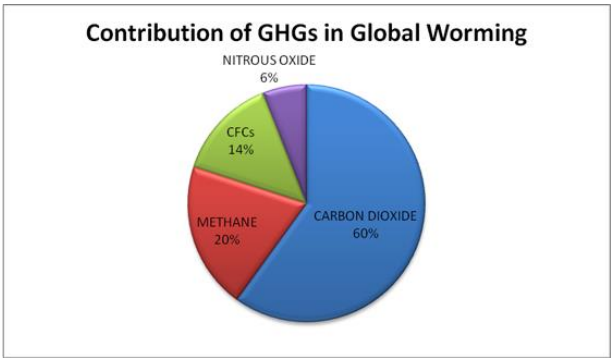

Fig. 1. Contribution of GHGs in global warming

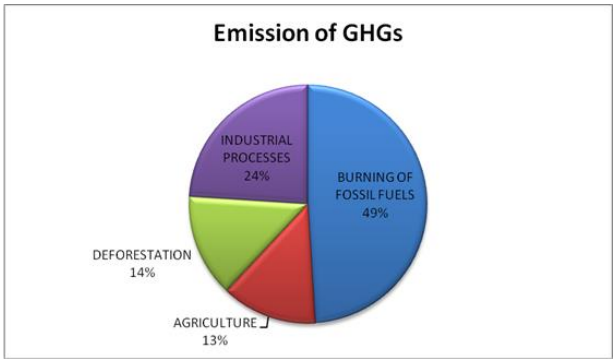

Fig. 2. Emission of GHGs

It is very unfortunate that our daily activities have been making the blanket of greenhouse gases (GHGs) "thicker", resulted enhance greenhouse effect. Burning of fossil fuels has been increasing unusually in the whole world during latter half of the 20th century. Approx. 1600 million tonnes of CO_2 emitted

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in 1950 its level increase to 6000 million tonnes in 2000. If emission continue to grow at current rates then it is certain that the level of carbon dioxide will double from pre-industrial levels during the current century and it will be triple by the year 2100 no doubt. In this study we like to highlight that the main causes of environmental degradation, the evil effect of climate change on the earth and also what will be our duties to protect our beautiful earth.

2. Objective of the Study

1. To know the causes of environmental Degradation
2. To know the evil effect of climate change on earth
3. To know the duties of human beings to protect the earth

3. Methodology

For this study we have used only secondary data published in different government websites, journals, books, articles etc.

A. Causes of environmental degradation

- *Overpopulation and Over-exploitation of resources:* Overpopulation means excessive use of natural resources and we know that most of the natural resources are non-renewable. The over-exploitation of natural resources destroys the environmental balance and contributes to environmental erosion.
- *Harmful agricultural practice:* Intensive agricultural practices have led to the decline in quality of most of our natural environments. Majority of farmers resort to converting forests and grasslands to croplands which reduce the quality of natural forests and vegetation cover. The pressure to convert lands into resource areas for producing priced foods, crops, and livestock rearing has increasingly led to the depreciation of natural environments such as forests, wildlife and fertile lands. Intensive agricultural practices destroy fertile lands and nearby vegetation cover due to the accumulation of toxic substances like bad minerals and heavy metals which destroy the soil's biological and chemical activities.
- *Landfills:* One of the terrible effects of landfills is the destruction of nearby environmental health together with its ecosystems. The landfills discharge various kinds of chemicals on the land adjacent to forest, various natural habitats, and water systems such as underground and surface water which makes the environment unappealing to the survival of trees, vegetations, animal and humans. Besides the foul smell from the landfills and periodic burning of the wastes make living in such environments unbearable.
- *Increase in deforestation:*
  The act of deforestation (cutting down of trees) has impacted on the world in terms of depreciating the natural environment and wildlife. Deforestation causes major environmental problems the most important being the carbon-oxygen balance of the atmosphere. The demand for more space to provide housing accommodation, to build roads and railways, to harness forest resources, to clear land for pasture and mechanized farming, this has resulted in rapid deforestation all over the world. For more than one hundred years, the number of trees on the planet has plummeted, resulting in devastating consequences such as biodiversity loss, soil erosion, species extinction, global warming, and interference with the water cycle.
- *Environmental pollution:* Most of the planet's natural environments have been destroyed and a large portion is under huge threat due to the toxic substances and chemicals emitted from fossil fuel combustions, industrial wastes, and homemade utilities among other industry processed materials such as plastics. Land, air, and water pollution pose long-term cumulative impacts on the quality of the natural environments in which they occur. Seriously polluted environments have become insignificant in value because pollution makes it harsh for the sustainably of biotic and abiotic components. Pollution impacts the chemical compositions of lands, soil, ocean water, underground water and rocks, and other natural processes. Air pollution from automobiles and industries that results in the formation of acid rain which in turn brings about acidic lake is a good example of how the environment is degraded by pollution.
- *Natural Cause:* Despite the fact that environmental degradation is under normal circumstances associated with anthropogenic activities, natural causes are also contributors. Natural events such as wildfires, hurricanes, landslides, tsunamis and earthquakes can totally lower the survival grade of local animal communities and plant life in a region. These disasters can also destroy alter the nature of the landscape rendering it unable to support life forms on it. Besides, occurrences such as hurricanes and flooding can wash or force the migration of invasive species into foreign environments which can lead to its eventual degradation.

B. Effect of Climate change

We can realise the evil effects of climate change in our daily life. Now we can observe only one season which is summer. A heat wave is seen worldwide and melting the glacier of North and South Pole, as a result water level of the sea rises. The warming would cause significant loss of life. A report reveals that in the year 2013 near about 70000 people died in heat stroke in European Countries. On the other hand due to global warming different dieses can be noticed in human body. Apart from that forest may be disappear, fluctuation in crop yield, loss of biodiversity, problems of drinking water and so many which can be discussed in details as follows:

Tsunami and Earthquake: Earthquakes can cause ground, air, and water pollution, depending on where they strike. The 2004 Sumatra earthquake that triggered a massive tsunami in the Indian Ocean caused saltwater contamination of drinking

water supplies and millions of acres of farmland; salt water infiltration sterilizes farmland, and it is difficult and costly to make the land once again suitable for crops, according to an article published on the Environmental XPRT website. Japan's 2011 earthquake and tsunami caused a nuclear power plant to fail, and radiation to leak into the ocean and escape into the atmosphere.

Devastating flood: Generally, flood is a natural phenomenon and is a response to rainfall but it becomes hazard and disaster when it causes colossal loss to human lives and property. At present flood is not only the natural phenomenon but, it is also aggravated by human activities such as large scale deforestation, increased urbanisation, faulty agricultural, blocking of natural flow of water, construction of bridges, embankments and dikes etc.

Drought: Land and water temperatures causes drought. As overall temperatures increases more water evaporates and severe weather conditions increases. Landscape and crops need more water to survive and overall the demand for water increases. When a region is growing rapidly the demand for water can exceed supply. Deforestation is also a major cause of drought; soil moisture levels also contribute to drought.

Increase in Thunderstorms: A recent study in the journal of Geophysical Research letters shows that pollution released by boats as they pass through shipping lanes can and does generate lightning storms. In fact, these areas of oceanic congestion see up to twice as many storms as would otherwise be expected. In another study by Katrina Virts, a research with NASA Marshall Space Flight Center in Huntsville, Alabama, was able to create a sort of map of strikes. They pointed out that there were two strips that looked like shipping lanes and sure about that the strikes were indeed happening more frequently over shipping lanes-right upon the boat traffic.

Shortage of drinking water: Scarcity of drinking water in the whole world is due to both natural and human-made causes. Excessive use of groundwater for cultivation has the major cause of strain in this resource in our country. NITI Ayog, Government of India has released report 'Composite Water Management Index' in June 2018 and listed Delhi and other 21 cities in India which would run out of groundwater by 2020. Very recent Latur (a city of Maharastra) experienced a greater water crisis and the citizens having no option but to take the polluted water.

Rise in sea levels: Main and foremost cause of rise in sea level is the 'Global Warming'. Through the warming, increased melting of land-based ice such as glaciers and ice sheet and also water expands as it warms. About the 90% of the increased atmospheric heat associated with human activities are absorbed by the oceans. In this way sea water level continues to rise at a rate of about one-eighth of an inch per year. No doubt, all the beautiful architectural sculptures of human beings are no more left to go under the water.

Loss of wildlife habitat and species: some studies have indicated that with a mid-range temperature rise of 1.8-2^{o} C, a million species (coral reefs, polar bears, white bears and many more) would be threatened with destruction over the next fifty years. If temperature goes even higher, more species will be lost.

Different dirt diseases: Global warming and climate change directly or indirectly causes different diseases. The effect of climate change disrupted human health, food supply, economic growth, drinking water and public goods. Therefore, global warming, together with resultant changes in food and water supplies, can indirectly cause increases in a range of adverse health outcomes, including malnutrition, diarrhoea, injuries, cardiovascular and respiratory diseases, skin cancer, lungs cancer, migration and so on.

Changes required in human behaviour: We all know the fact that all the major cause of pollution made by us. It is our duty to change our behaviour to protect ourselves and also protect our homeland. Some studies already have proven that it is possible to reduce the per capita carbon footprint of the household through behavioural changes. Very small changes in our behaviour can change the health of our beautiful earth. We can discuss all the required changes in behaviour by classifying as under:

1) *Changes in the use of cooking fuels*
   - First of all, we have to use LPG instead of traditional cooking fuels like woods, cow dung, coal, kerosene etc.
   - If LPG is not available, then we have to try cow ding cake instead of kerosene and fire wood. Because cow dung has low emission intensity than other source of cooking fuels.
   - Try to use bio-gas especially by those who their own sources of cow dung.
2) *Changes in the use pattern of electricity*
   - Try to replace incandescent bulbs and CFLs with LEDs which are consume less electricity.
   - Try to use energy efficient (five star) electric appliances.
   - If possible, install the solar panel for home electrification.
   - Switch off all the lights and fans when it is not in use.
3) *Changes in the consumption of food habits*
   - Try to increase vegetarian meals which consume less energy to cook.
   - In case of non-vegetarian meals try to use fish and egg instead of chicken and mutton, with the same arguments as above.
   - Try to use wheat in place of rice since the processing for latter involves more energy consumption;
   - Try to avoid red meat consumption replace it by chicken.
   - Try to cook the food together among the household members because it will help to reduce energy consumption.
4) *Changes in the travelling mode*
   - Try to use train service instead of bus service.
   - Try to use bicycle in place of motor bike in case of short distance.
   - Try to use more and more public transport in place

of private cars.

- Try to use train service for long distance instead of flight, wherever possible.

C. Others

- Try to avoid industry goods.
- Try to avoid packet or processed food.
- Try to store rain water and use it in the bathroom.
- Try to use the waste water, extraction from RO system water filter.
- Try to use plantation in the roof of the house.
- Use eco-friendly or biodegradable materials instead of plastic.
- Stop smoking or at least follow the "No Smoking" sign.
- Celebrate birthday and rituals by planting tree not lighting the candle.

4. Conclusion

From the above discussion we can easily understand that all the natural hazards directly or indirectly related to wrong human activities. There are so many climate change conference (Kyoto Protocol 1997, Copenhagen conference 2009, Paris Agreement 2015) held in different times and in different countries to reduce the emissions of greenhouse gasses. But, all of these depends upon the countries environmental policies and rules which is a prolonged process. It is the crucial time to change our behaviour, not mere sending few captions to the friends or relatives through the social media. We have to take some immediate action and to do such work in the real field. So, it can be said that the health of the earth is totally in our hand; we can only save it through our own initiatives and make today and every day a good day for everyone.

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