

The threat of Global Warming and ways to counter it.

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Essay

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Threats have always been things of great concern for human beings. Some threats are of great alarm for human beings; some threats do not bother human beings much. Some of such threats later emerged to be very dangerous. Global warming is one such threat which was not taken seriously by majority of the population, but now things have changed as the effects of global warming are becoming more and more perilous with every passing day. In last decade global warming has transitioned from a potential threat to a real threat. If not countered properly one day it may endanger the existence of whole biodiversity. In order to draw a plan, to tackle this issue one must know the contributing factors behind global warming. The major factors include deforestation, use of fossil fuels, etc. which have led to high temperatures, melting of glaciers, loss of biodiversity and human health.

problems. In order to address this issue one requires, ~~the~~ ^{is required.} determination, hard work and planning. Making apt strategies and implementing them efficiently will definitely help in the amelioration of problem.

When ~~we~~ ^{one} looks at the term global warming, it refers to warming of the globe.

It is actually, rise in average temperature of earth, that has mainly resulted as a consequence of human activities. Global warming began to catch the attention of scientists in the end of 19th century, but most of their opinions on global warming were based on mere conjectures and speculations.

It was in 1950s when Gilbert Plass, a scientist made a computerized model of our atmosphere, and predicted that increased levels of carbon dioxide would eventually lead to global warming. Since then this phenomenon has kept growing both in magnitude and intensity. By the latter half of twentieth century global community,

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developed countries, started to take it seriously. Kyoto Protocol and Montreal Protocol are the prime examples of efforts made to address this issue. Despite not being implemented in their complete essence, they have resulted in few positive results. In spite of some positive results, global warming does not seem to be going away. The report by European Commission has suggested that since 1980s the global temperature has been rising every decade with the last decade (2010-2020) being the hottest ever.

An ailment cannot be cured until the factors causing the disease are known. Similarly to treat the scourge of global warming, its causes are needed to be exposed. First of all the factors contributing to the exacerbation of global warming, burning of fossil fuels of prime concern. Fossil fuels include coal, gasoline, diesel and natural gas. These fuels are combusted to get energy

in order to generate electricity, drive vehicles, drive ships and trains etc. Along with energy these fuels produce carbon dioxide in huge volume. This carbon dioxide is released into atmosphere which is accumulating in atmosphere. The reports of United Nations Environment Programme suggest that carbon dioxide is the leading causal agent of global warming. In addition to this both vehicles and power plants both operating on fossil fuels release extra or waste heat into atmosphere, or in water bodies, in some instances which also results in increased temperatures. Hence use of fossil fuels is a major contributor towards global warming.

Similarly clearing forests for different purposes has led to prevailing climatic condition. A term, "deforestation" is commonly used for this practice. Various organizations related to environmental conservation have pointed out towards the haste astounding rates, at which trees

have been cut down. A report issued by European Commission depicts the grim state of affairs; according to that report twelve million hectares of land forests are destroyed every year. Now the thing that may puzzle one's mind, is the interrelation between global warming and deforestation. One can understand this by two things: forests remove extra carbon dioxide from atmosphere, and forests also cause cooling owing to transpiration. So when ^{the} forests are cut-down levels of carbon dioxide rise resulting in increased global warming.

Another factor that plays its part in soaring temperature world wide is Green House ^Effect. Green house effect has been existing for very long time. In this phenomenon the radiation reflected by Earth are absorbed by gases in atmosphere. This results in temperature elevation, but the rise in temperature is making this temperature inhabitable, if this phenomenon occurs in limited extent. ~~or~~ lately,

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because of increased gases in atmosphere, the intensity of green house gas effect has increased, and the temperature difference is also increasing. This fact has been mentioned by United Nations Climate Action Plan that the temperature of our planet has risen 1.1°C more than expected rise, so it can be said that green house effect is an engine that is driving force between climate change, and human activities releasing harmful substances in atmosphere are fuel of that engine.

In contrast to aforementioned human activities, some activities that apparently seem to be of no grave concern, are also playing their part in global warming. The ^{UNEP} ~~UNEP~~ annual report has suggested that methane is the second biggest contributor to global warming after carbon dioxide among all the emissions released. The biggest contributors of methane in atmosphere are live stock and some crops. The crops which require more

water, or are grown in stagnant water emit methane. Methane is formed as a reaction between fertilizers, water and CO₂. One such example is fields of rice: paddy fields. Similarly ~~the~~ cows in livestock have been the main cause of methane emission. So it is safe to state that livestock and some crops are also playing their part in raising temperatures.

In addition to these factors, one factor that is causing the worsening of situation is industry. Industry of all types, either ^{manufacturing} generating goods or chemicals etc is causing trouble. On one hand some plants emit gases such as carbon dioxide, methane and nitrous oxides. These gases play their part by contributing toward Green House green house effects eventually leading toward soaring temperatures.

On the other hand some of the emissions from industrial plants, result in ozone depletion which too is one of the causes of global warming. Thus global warming

can only be controlled, if industrial emissions are made free from harmful substances.

In contrast to all the factors increasing global warming through increased global warming, ozone depletion is one that does increase the temperature but in different manner. Ozone depletion refers to thinning of ozone layer and appearance of holes in ozone layer, which has mainly resulted from emissions like CFCs, mostly released in atmosphere, by air conditioning and refrigeration industry. Ozone keeps Sun's high energy radiations from reaching Earth's surface, but depletion of ozone has resulted in, these radiations reaching to the surface of our planet, and delivering more heat, as these radiations causing more heat delivered. So ozone depletion has its fair share in current climatic circumstances of our environment.

This problem of global warming has resulted in several repercussions. Most of these repercussions are evident by now, one such impact which can be felt or noticed by majority of population, ^{even} without the scientific knowledge, is the soaring temperature. The temperature is soaring beyond the limits, considered normal. With every passing year the rise in temperature is breaching the established thresholds and setting new records. The reports released by United Nations Environmental Programme suggest that, since 1920s, temperature in successive decades has increased, not a single decade was characterised by drop in temperature. These reports further indicate that, ^{the} last decade, from 2010 to 2020, was the hottest decade ever recorded in human history, similarly hottest day ever recorded was observed in the summer of 2023. Hence soaring temperature is most significant outcome of global warming.

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Another outcome or adverse effect of global warming, very rampant these days, is the melting of glaciers and ice at increased pace. The World Wildlife Fund has suggested that glaciers and ice caps are covering 10% of earth's surface; WWF has forecasted that if glaciers keep melting at current rate; by year 2100 1/3rd of these glaciers will melt completely; even with current regulations for conservation of climate in place. Melting of glaciers at rapid pace causes an increased flow of water in rivers. Which often turns into floods. Floods then cause devastation, loss of life and property and many such problems. So it can safely be stated that global warming has caused glaciers to melt at a very rapid speed, eventually giving rise to floods.

In addition to floods, droughts and famines are also becoming rampant owing to global warming. Drought refers to a condition in which an area or region faces severe scarcity of water and reduced rainfall. Famine is shortage of food; lack of agricultural produce leading to shortage of all types of food. Most of the times drought is one of the main ^{causes} reasons of Famine. Global warming has resulted in drastic changes in water cycle, leading to a significant drop in rainfall in many regions of the world giving way to drought; similarly too high temperatures have resulted in reduction of plants' ability to convert energy into carbohydrates by photosynthesis, as extreme temperatures are not suitable for this process, and leading to food scarcity and water shortage.

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Lately, the phenomenon of global warming has unleashed, to the nature, a devastating scourge, forest fires. Mostly caused by global warming forest fires are mostly erupted in summers. These fires can be seen in different regions of the world. Our country has also started to experience these fires in last couple of years. Forests of mangalla National Park caught fire in summer ~~last~~ season last year. These fires along with, deforestation and global warming have led to a huge loss of biodiversity including both plants and animals. The European commission, in this regard, has stated that the world is losing species at a rate 1000 times more than ever recorded in the history of mankind. If remained unchecked, a day will arrive when this hydroa of rising temperature will engulf every thing, and will leave nothing behind.

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warming of the oceans and rise
in the level of oceans of the leading
indicators of global warming. The water has
very high capacity of absorbing heat
in comparison to solid land mass; ocean
absorb majority of heat, a rise in amount
of heat the temperature and level of
oceans rise. Melting of glaciers at very
high rate, the contributes toward rise
in level of oceans. This rise in ocean
level has resulted in submergence of
the low-lying area of many countries,
such as Maldives. On the other hand
the warmer oceans are posing threats
to marine life, as the temperature goes
beyond the limits which can be endured
by some of the marine organisms. This
eventually affects human being; in the
issue of climate change in coastal
areas and affected marine organisms
being a part of food chain, all these
troubles can be attributed to warming
of globe.

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Prevalent soaring temperature and climate change have also affected human health adversely. As per European Commission, climate change, global warming being the major contributors or constituent in climate change, has resulted in 13 million deaths every year world wide. In Pakistan's perspective, situation is even worse. A report released by [unclear] has suggested that, adverse effects of climate change may result in loss of four years in life expectancy of people residing in Pakistan. Soaring air temperatures have also resulted in increased heat strokes, which may result in to deaths particularly, in summer. Higher temperature also cause food to become stale rapidly because of increased bacterial activity, resulting in infections, food poisoning, etc. leading to deterioration of human health.

The situation is worsening with every passing day. Now is the time to attend to this issue with complete sincerity, lest it goes beyond, what has not yet been imagined. Planting trees and reforestation is one thing that immediately comes in one's mind as a way to handle this issue. Forests remove tons of carbon dioxide from atmosphere. As they utilize carbon dioxide for the process of photosynthesis, similarly they reduce temperatures by absorbing huge chunk of sunlight. Leaves of the plants, have this function to absorb sunlight. Transpiration, evaporation of water from leaves, also produces a cooling effect. All this factors combined result in overall depression in the temperature of region where forests are being grown. So planting more plants and reforestation are the factors which will ameliorate existing situation of our environment.

Another initiative that will drastically improve the situation is climate change involving renewable energy, as a significant chunk of total energy production. Even in this day and age, fossil fuels are the main constituent of energy or electricity production mix, with developing countries being the main consumers of fossil fuels for electricity generation. Countries like China, Pakistan and India depend on thermal power to fulfill as a major component to fulfill their energy needs, thermal energy, necessarily, uses coal, diesel, gas, etc. for generation purpose. This suggests that a sudden shift, from thermal energy being the backbone of electricity production, to non-renewable energy is very difficult to achieve, but this transition can be done gradually. Renewable energy resources, such as solar energy, wind energy, hydro power etc. and tidal energy do not emit

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a single component which may lead to adverse impacts on the climate. Reduced emissions, as a result of increased contribution of renewable resources, will definitely help to counter the spectre of global warming.

Co-operation with global community is imperative, if a country wants to overcome this crisis. Kyoto Protocol and Montreal Protocols are examples of such cooperation.

Although, it cannot be said that the abovementioned protocols are very successful, still these protocols have resulted in some positive outcomes. Similarly,

Pakistan can get support, both in technical and financial terms, from international institutions dealing with the problems related to climate. The United Nations Environment Programme has one such example in its annual yearly report for the year 2022. Under its "United For Efficiency" initiative UNEP

worked with Pakistan towards better energy management; regulations that will save up to 1.3TWh of energy by year 2030; which amounts to 630,3000 passenger vehicles being taken off from the road. So, to overcome this problem cooperation with global community and organizations is very important.

Another initiative which can help in not only emission reduction, but also in lowering the burden of fuel prices is introduction of electric vehicles. Electric vehicles produce no emissions, as these vehicles do not combust fossil fuels, which result in emission of carbon dioxide. As of now, it is not possible to completely replace traditional vehicles, with internal combustion engines, with the electric vehicles, but a fraction of vehicles can be replaced by electric vehicles. It will be more beneficial

if electric vehicles are introduced in public transportation; public transport vehicles usually emit more pollutants than ~~most~~ privately owned vehicles owing to diesel engines. Electric vehicles, on the other hand, are battery operated, producing zero emission and hence, eliminating any hazard to environment.

Furthermore, legislation and implementation of environmental laws, relevant to current situation, will improve situation drastically. For instance government should ask legislature to ^{in passing} enact laws targeting to curb emissions. Already existing laws can be amended to meet modern requirements. For example carbon foot print in manufacturing processes is a factor contributing toward climate change; Pakistan has not attended to this issue as yet. Similarly incorporation of electric vehicles in mass transportation, would ^{require} ~~require~~ special attention. melting

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of flat glaciers, deforestation and emissions can only be reduced, when laws pertaining to the above mentioned issues are framed and implemented properly.

One cannot ignore the importance of public's role. Such problems, of enormous magnitude, cannot be handled by a few organizations. General public is not only a big contributor towards global warming, but also has been at receiving end of its grave consequences.

So, main focus should be on creating awareness among the masses about global warming; factors contributing to it; strategy to prevent it from causing more damage. Government can run awareness campaigns; educating masses about the possible repercussions of global warming; ~~also~~ elucidating the responsibilities of citizens; establishing a mechanism for

communication in this regard. Little changes by citizens in their lifestyles can be very beneficial to thwart the possible effects of global warming.

After an in-depth analysis of all important pertinent facts, it becomes irrefutable fact, that global warming is posing serious threat to our planet.

With every passing day its intensity will only increase, if left un-attended.

One can not absolve human beings from the accusations, that they have been the

driving force behind the worsening of environmental conditions. Burning of fossil

fuels; cutting down the trees;

manufacturing goods and chemicals;

all these have added fuel to fire in case of global warming. In return this

spectre of global warming has disturbed

the naturally existing equilibrium:

fast melting of glaciers, soaring temperature

, loss of biodiversity, etc. In this regard, serious efforts are needed to quell the adversity of global warming.

This can be achieved by co-operation of all major stakeholders: global community, governments and the general public. Cutting ^{down} fossil fuel burning, growing more forest, apt legislation, etc. are some of the efforts which may lead to improvement in situation.

By adopting correct measures, global warming can definitely be controlled, which ensures cleaner and greener earth for generations to come.