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Climate Change and Global Warming- An Introduction

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Abstract:-Global warming is arguably the most important and controversial issue in front of the world in the twenty-first century. Global warming: A very small introduction provides brief and accessible explanations of key topics in the debate: how and why changes are being made, establishing these changes in terms of past global climate change, looking at the predicted impact of climate change, finding Explain the political disputes of recent years, and the proposed solutions. From the American policy to the UK Climate Change Bill, and where we are now standing with the Kyoto Protocol, global warming and climate change are referred to an increase in the average global temperature. It is believed that natural events and human activities contribute to the increase in the average global temperature. This is mainly due to the increase in greenhouse gases like carbon dioxide (CO2). Long-term change in weather patterns, over a period of many years, is called climate change. Many factors combine to make the climate of a particular region, including average day and night temperatures, precipitation, humidity, air pressures, and wind direction. Sometimes, storms are also added in this list. Changes in these factors, which occur over a long time period is called climate change. For instance, a certain region will be receiving more rainfall than that was recorded in the previous decade and this practice continues for many years, gradually getting stronger. Many factors influence this phenomenon; some are natural like volcanic eruptions, plate tectonics, and changes in oceans and some are human caused like pollution. Climate change is a natural process; planet Earth is facing this right from its creation but now, due to above mentioned factors, this change has been accelerated by many folds, becoming a concern for human beings.

Keywords: - Global warming and Climate Change.

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Introduction:-A brief history of 'Global Warming Debate' describes the combination of factors that led to the recognition and acceptance of global warming, which started in the 1950s, from global warming science. The next steps came later in the 1980s: the speed seen in the global temperature data set; Increased knowledge of past climate change; Significant progress in global climate modeling; The emergence of environmental movement; Media interest increased; And finally, politicians and economists took the risk of climate change seriously since the late 1990s. In 1992, the signing of the United Nations Framework Convention on climate change and the ratification of the Kyoto Protocol in 2005 was also discussed in the Rio Earth Summit. Global warming is the increase in the temperature of the atmosphere, caused by emission of gases. Carbon dioxide, carbon monoxide and gases of Sulfur, are called as green house gases, which are considered a cause of Global Warming. Emissions from industries, burning of solid waste, and vehicles are the sources that emit large quantities of green house gases all over the world. Destruction of ozone layer is also enhancing global warming as more rays of sun are reaching to earth. Global warming is causing many changes in the geography of earth. For instance, due to increase in temperature, glaciers are melting at a faster pace, leading to rise in ocean level, which is engulfing many small island, and eventually many species of plants and animals are extinct, which were living on these islands.

Climate Change:-Climate change is one of the complex problems facing mankind today. The overriding complexity of the problem is attributed to its deeper global ramifications on a vast range of issues impacting the very survival of life on Earth. Understanding such a complex issue with vast and varied dimensions and implications, assumes greater significance for all stakeholders, especially for our policy makers. There are varieties of perceptions regarding the exact size and consequences of climate change. Yet, it is no secret that risks emanating from climate change are indeed profound, which call for urgent mitigation. There is now strong evidence that climate change is a reality. Today, it has been scientifically established that significant global warming is occurring. Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures,

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widespread melting of snow and ice and rising global average sea level. There is no denying the fact that the problem exists and it is assuming alarming proportions, each passing day. Therefore, there is an imperative need to take urgent and strong measures in the interest of calibrating an appropriate response to meet the emerging challenges of climate change. Present paper focus on the impact of climate change on the Indian agriculture, health, Ecosystems, sea level, food and safety, etc. in India.

Climate change refers to the variation in the Earth's global climate or in regional climates over time. It describes changes in the state of the atmosphere over time scales ranging from decades to millions of years. Climate change has been defined by many in many ways. While some define it as an offshoot of Earth's natural processes, others define it as a result of human activities. Striking a balance between these two varying perspectives, climate change is defined as "a change which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods". Truly, the present changes in the Earth's climate cannot be explained alone by the natural processes that explain Earth's previous warm periods. There is a broad scientific consensus that most of the warming in the recent decades can be attributed to human activities.4 If humanity is, in large part, responsible for this change, then whatever choices we make today, will have a significant bearing on the climate of the future. This makes climate change a formidable concern. India is both a major greenhouse gas emitter and one of the most vulnerable countries in the world to projected climate change. The country is already experiencing changes in climate and the impacts of climate change, including water stress, heat waves and drought, severe storms and flooding, and associated negative consequences on health and livelihoods. With a 1.2 billion but growing population and dependence on agriculture, India probably will be severely impacted by continuing climate change. Global climate projections, given inherent uncertainties, indicate several changes in India's future climate:

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Climate change is the subject of how weather patterns change over decades or longer. Climate change takes place due to natural and human influences. Since the Industrial Revolution (i.e., 1750), humans have contributed to climate change through the emissions of GHGs and aerosols, and through changes in land use, resulting in a rise in global temperatures. Increases in global temperatures may have different impacts, such as an increase in storms, floods, droughts, and sea levels, and the decline of ice sheets, sea ice, and glaciers.

Climate change versus global warming:-Climate change and global warming are the words that we usually hear these days, and often exchange interchangeably. However, they are two different incidents that are facing our world these days. Both of them are affecting the whole world because humans are facing unprecedented change in the patterns of the weather. Climate change and global warming are not only threatened for human beings, but also for all residents of planet Earth.

Global warming causes climate change, so the two terms are very much related. Global warming is the term used to describe the current increase in the Earth's average temperature. Climate change refers not only to global changes in temperature but also to changes in wind, precipitation, the length of seasons as well as the strength and frequency of extreme weather events like droughts and floods. Another difference between the two terms is that global warming is a worldwide phenomenon while climate change can be seen at global, regional or even more local scales. But both global warming and climate change can also produce different impacts depending on the local geography as well as the local inhabitants (plants, animals, etc). Many of these changes will cause unexpected and dangerous effects on life around the world. Climate change and global warming are two different phenomena that are causing drastic changes on the earth. Climate change is change in the climate of a region, which occurs over a long period. Global warming is the rise in average temperature of the Earth. Global warming is leading to climate change in some cases, as increased temperatures result in more rainfall and modify lowest and highest temperatures in a particular region. Human interference is the

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common factor, which is accelerating both, as air pollution is contributing to both global warming and climate change. These two are two different phenomena, but are interlinked, as one affects the other.

• Climate change is the change in the climate of a region, which occurs over a long period of time.

• Global warming is the rise in the average temperature of Earth.

• Global warming is also leading to climate change.

• Human interference is the common factor for both.

Effects of Global Warming:- Every year, scientists learn more about the consequences of global warming, and many people agree that there is a possibility of environmental, economic, and health consequences if some trends continue. Here's one thing we can look forward to:

• Glacier thaw, due to early snow fall and severe drought will cause more dramatic reduction of water and the risk of wild animals in the American West will increase.

• The rising sea level will cause coastal flooding on eastern seaboard, especially in Florida and in other areas such as the Gulf of Mexico.

• In the forests, farms and cities, there will be problems facing new insects, heat waves, heavy drift, and increased flood. All these factors will harm or destroy agriculture and fisheries.

• Disruption of coral reefs and alpine grasslands can inspire many plant and animal species to become extinct.

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• The outbreak of allergic, asthma and infectious disease will be more common due to pollen-bound ragweed, high levels of air pollution and the spread of favorable conditions of pathogens and mosquitoes.

Global warming is associated with extreme weather:-Scientists believe that the rising temperatures of the Earth are promoting long-term and high heat waves, more frequent dry, heavy rains, and more powerful storms. For example, in 2015, scientists said that the ongoing drought in California - the state's worst water scarcity in 1,200 years - was increased by 15% to 20% by global warming. He also said that the possibility of similar droughts in the future had almost doubled in the last century. And in 2016, the National Academies of Science, Engineering and Medicine announced that it is possible to specially attribute some weather events, just like some heat waves on climate change. Earth's ocean temperatures are getting very hot, which means that tropical storms can lift more energy. The earth's ocean temperatures are getting warmer, too—which means that tropical storms can pick up more energy. So global warming could turn, say, category 3 storms into a more dangerous category 4 storm. In fact, scientists have found that the frequency of North Atlantic hurricanes has increased since the early 1980s, as well as the number of storms that reach categories 4 and 5.

Causes of global warming: -Global warming occurs when carbon dioxide (CO2) and other air pollutants and greenhouse gases accumulate in the atmosphere and absorb sunlight and solar radiation which bounce off the surface of the Earth. Generally, this radiation is saved in space - but these pollutants, which can live in the atmosphere for centuries for centuries, make heat trap and cause the planet to heat. This is known as the greenhouse effect. To curb hazardous climate change, very deep cuts are needed in emissions, as well as the use of alternative fossil fuels across the world. The good news is that we have started a transition: CO2 emissions in the United States actually decreased from 2005 to 2014, thanks to new, energy-efficient technology and cleaner fuel use. And continue to develop new methods of modernizing scientific power plants, generating cleaner electricity and less gasoline. Therefore, burning the fossil fuel to make

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electricity is the biggest source of heat pollution, which produces about 2 billion tonnes of CO2 each year. Coal-burning power plants are by far the biggest pollutants. The second largest source of carbon pollution in the country is the transport sector, which emits approximately 1.7 billion tonnes of CO2 a year

Indicator of climate change:-Therefore, to help set up the record directly, we are going to focus on 10 major changes that scientists have seen in our climate system. Each of the indicators described below has been studied extensively over the last several decades, and many different data sets and technologies were captured.

The temperature is rising due to the increase in air temperature: - It is clear that the weather stations on the ground are showing average air temperature, and as a result, the frequency and severity of dry and heat waves are increasing. Drought can lead to disastrous forest fires, unsuitable crops and low water supply, many of which are deeply influenced by the southern regions of the United States and other parts of the world.

Air temperature over oceans is growing in such a way: - 70 percent of the world's population is covered by the oceans, so you can understand how hot air on them can make a big difference in the climate system. After the air gets hot, the ocean becomes more vaporized result. More floods, more storms and more extreme rainfall incidents.

Arctic sea ICE dispersing:- Satellite images from space show that the area covered with sea ice in the Arctic is shrinking, and it continues for the last 30 years. Arctic ice caps grow every winter when there is less sunlight, and reduces every summer when days are long, reach their lowest point of the year in September. Some research suggests that the Arctic can lose all summer ice cover by about 2100; others believe that it can melt altogether very soon in a few decades.

Glaciers are melting: - The disappearance of glaciers is one of the clear signs of climate change. Those who depend on melting the glacier's water, they are facing deficiency, and in many areas, the situation is getting worse. In the unaffected world of climate change, the glacier's

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mass remains balanced, which means that the snow evaporated in the summer completely changes with snowfall in the winter. However, when the glacier is melted more than snow, the glacier loses a large amount of time. And those who depend on the melting of ice for water to support their farming and life needs, they are deeply affected.

Sea levels are rising: -Sear level is rising for the last century. And in recent years, speed is only increasing because the glaciers rapidly melt and the temperature of the water increases, causing the oceans to expand. Can you imagine how it affects the nearly 40 percent of the population of America that lives in highly populated coastal areas? Do not forget that eight of the world's 10 largest cities are near a coast. Consider how many millions of people are at risk of rising sea levels, storms get faster, and more extreme floods occur. In addition, marine life is put in danger because salt water turns into fresh water aquifers, many of which support human communities and natural ecosystems.

Humidity (everyone's favorite) is increasing:- High humidity means more water in the air, due to which it feels sticky in hot weather. Water vapor itself is an important part of the water cycle, and it contributes to the natural greenhouse effect of the Earth. To increase the amount of water vapor in the air, we need to work hard to make the air conditioner feel comfortable. Which means that the use of more energy, which in turn can contribute to climate change more.

Ocean heating control is on the rise: - Sea reserves and release heat for a long time. It is a natural and important part of stabilizing the climate system. Natural climate patterns (think, El Niño) are due to regular hot water oceans and areas affected by regional climate and marine life. But it is short-lived, when there are natural climate patterns like El Nino, as the ocean is hot and warm, we know that major changes are taking place. Increased heat content leads to high sea levels, melting glaciers, and the marine ecosystem toward tension.

The temperature of the sea surface is rising: - The best equipment shows that the temperature of the water on the surface of the sea is increasing. To some extent, this is a normal pattern: the surface of the ocean gets hot because it absorbs sunlight. The sea then releases some of its heat in

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the atmosphere, making clouds of wind and rain. However, as the temperature of the ocean surface increases over time, the maximum heat is released into the atmosphere. Strong and more frequent storms such as tropical cyclones and hurricanes can come from this extra summer.

Snow is decreasing:-The snow-covered areas are becoming smaller in the Northern Hemisphere. Snow is important because it helps control how much energy of the sun absorbs the earth. Light colored snow and ice show this energy back in space, which helps in keeping the planet cool. However, as soon as the snow and ice melts, it is replaced by dark land and ocean, both absorb energy. The amount of snow and ice loss estimates in the last 30 years is more than that of many scientists, which means that more solar energy has been absorbed than Earth.

At least atmosphere temperature is increasing: - The lowest layer of this called troposphere is the layer from which we are most familiar - where we live and where our weather is. Satellite measurement shows that this lower layer of the atmosphere is getting hot because greenhouse gases from heat and trap heat from the surface of the earth. Scientists tell us that human activity, especially the burning of fossil fuels, has increased in atmospheric temperatures. In fact, the level of carbon dioxide has increased by about 40 percent since the industrial revolution began in 1750. And as long as we do not stop this tendency at the earliest, these levels - and temperatures - the probability will increase even more.

Dimensions of Climate Change: - The starting point for averting the dangers of climate change is to recognize the distinctive dimensions of the problem. These are:

Long-term Consequences of Green House Gas: - An important dimension is that carbon dioxide and other greenhouse gases stay in the atmosphere for a long time. There are no rewind buttons. People living in the next century will live with the harmful consequences of our emissions. Anthropogenic warming and sea level rise would continue for centuries due to the time scales associated with climate processes and feedbacks, even if GHG concentrations were to be stabilized. Even firm measures will not materially affect average temperature changes. The world will have to live with the deleterious consequences of climate change, which we are

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already facing. We are therefore making choices today that will affect our own lives, but even more so the lives of our children and grandchildren. This makes climate change different and more difficult than other policy challenges.

Need for Quick Response:-A sense of urgency is another dimension of the challenges posed by climate change. With climate change, every year of delay in reaching an agreement to cut emissions adds to greenhouse gas stocks, locking the future into a higher temperature.

Global climatologically:-Effect Another important dimension of the climate change challenge is its global scale. It amply demonstrates that no one country can win the battle against climate change on its own. Collective action is not an option but a compulsion. But ultimately, this is a preventable crisis that threatens all people and all countries. We have the choice between forging ahead collectively with a shared perspective and hanging separately. Our choice will determine our ability to find solutions to the climate change concerns.

Commitments of the Developed vs. Developing Countries:- Another significant dimension of climate change pertains to the varying commitments of the developed and developing countries. The challenge to limit and cut emissions and to adapt to climate changes is upon all of us, depending on the common but differentiated responsibilities of countries to take action. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.

Climate Change and the World's Poor: - In fact, the scientific community has already perceived the early warning signs, which are now being noticed even by a lay man. Vulnerability to climate has a strong linkage with poverty. Across developing countries, millions of the world's poorest people are already being forced to cope with the impacts of climate change. Increased exposure to severe droughts, intense storms, devastating floods and lasting livelihood insecurity is proving to be a major roadblock, holding back the efforts of the world's poor to build a better life for themselves and their children. Today, it is the poor who are bearing the

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brunt of global warming and climate change. Tomorrow, it will be humanity as a whole. The rapid build-up of greenhouse gases in the Earth's atmosphere is fundamentally changing the climate forecast for future generations. These are fairly unpredictable events with potential to engender ecological catastrophes and demographic dislocations, transforming human settlement patterns and undermining the viability of national economies.

Climate Change, Trade and Trade Protectionism: - There have been specific issues and tensions that keep on arising between international trade and the climate change regime in international trade negotiations. A range of international trade disputes about climate change measures have taken place, which would pose a very serious challenge to achieving a mutually supportive relationship between trade and climate change policies. The trade-and-climate-change debate is also expanding the notion of what constitutes "unfair" trade.

Climate Change and Business and Industry Environment: - An interface between climate change and present day business is another important dimension. To effectively meet the challenges of climate change, the business and the industries, especially in the manufacturing sector, need to reduce GHGs emissions. They need to undertake carbon trading by investing in the environment-friendly technologies, besides putting in place clean development mechanisms. In order to retain competitiveness of products in a rapidly changing global economy, they need to eschew energy intensive products and processes and adopt environment friendly changes in their practices, promoting energy efficient technologies, newer greener manufacturing methods, etc.20

Economics of Climate Change: - In addition to being a serious environmental issue, climate change entails a social and economic cost as well. The issue becomes more complex, as the climate change impacts the whole of globe. The Stern Review on the Economics of Climate Change assesses the effect of climate change and global warming on the world economy and explores the economics of stabilizing the greenhouse gases in the atmosphere. The Review concludes that solution to climate change may be affordable - may be more affordable than the

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costs of inaction. It suggests that mitigation must be viewed as an investment, a cost incurred now and in the coming few decades to avoid the risks of very severe consequences in the future.

Environmental Law and Legal Framework in India

1. The responsibility of the State regarding environmental protection has been laid down under Article 48-A of our Constitution, which is as follows: "State will protect and protect the environment and will try to protect the forests and wildlife of the country".

2. Environmental protection Under Article 51-A (G) of our Constitution, every citizen of this country has a fundamental duty, which reads as follows: "It will be the duty of every citizen of India to protect the natural environment including forests and Make corrections, be kind to the lakes, rivers and wildlife and living beings. "

3. Article 21 of the Constitution is a fundamental right which is as follows: "According to the procedure established by law no person will be deprived of his life or personal liberty."

4. Article 48-A of the Constitution comes under the Directive Principles of State Policy and Article 51A (G) of the Constitution falls under the fundamental duties.

5. Regarding the level of nutrition and improving quality of life and improving public health, the responsibility of the state is laid down in Article 47 of the Constitution, which is as follows: "State will be in relation to increasing the level of nutrition and its people Between your primary duties as an improvement in the level of living and public health, and especially, in the state, for the sake of intoxicating drinks and drug health, harmful Efforts will be made to tell about the prohibition of consumption, except for the medicinal purposes being done. "The 42nd Amendment in the Constitution was brought in the year 1974, it is the responsibility of the State Government to protect and improve the environment and to improve the environment. Protect the forests and wildlife. In the latter part of the fundamental duties, it is the basic duty of every citizen to protect and improve the natural environment, including forests, lakes, rivers and wildlife, and have mercy for living beings.

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Conclusion:- Global warming and climate change are a threat to every living thing on the planet, because the patterns of fast changing weather patterns are negatively affecting many animals and many rare species are disappearing from the face of the earth. Many organizations are contributing in creating awareness about the negative effects of these two, but some serious steps need urgent attention. The earth is increasingly showing the tendency of warming. This is mainly due to the increased concentration of GHG-especially carbon dioxide. Acceptance for this fact is the fact that the biggest contribution in the increase in CO2 concentration is burning fossil fuels and deforestation. This is causing climate change, which will have a huge impact on life on Earth. It will include an increase in temperature, flood, storm, storm, drought and sea level. If no immediate action is taken and GHG's concentration is allowed to increase uncontrolled, the resulting results are cumulative. The world community has acknowledged the need to limit the increase in temperature of Earth to 2 ° C and initiate change to achieve this objective. This will require the world to move away from burning fossil fuels and effectively reach a phase of zero carbon emissions. The way we precede, it will require a revolutionary change in the life of humanity.

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