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GLOBAL WARMING

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ABSTRACT

This paper is focused on the issue of global warming and its effects. Global warming is a huge challenge faced by the mankind in the twenty-first century and beyond. Many researchers, engineers and environmentalists are expressing deep concerns about changes in the overall climate of the planet. Fossil fuels are being continuously used to produce electricity. The burning of these fuels produces gases like carbon dioxide, methane and nitrous oxides which lead to global warming. Deforestation is also leading to warmer temperatures. The hazard of global warming is continuously causing major damage to the Earth's environment. Most people are still unaware of global warming and do not consider it to be a big problem in years to come. What most people do not understand is that global warming is currently happening, and we are already experiencing some of its withering effects. It is and will severely affect ecosystems and disturb ecological balance. Because of the treacherous effects of global warming, some solutions must be devised. The paper introduces global warming, elaborates its causes and hazards and presents some solutions to solve this hot issue. Above all, alternative energy sources (solar, wind, hydro, geothermal, bio mass) need to be seriously pursued. Finding and using renewable sources of energy is one of the methods to combat the ever increasing global warming effectively The paradox of ecology lies in the pervasive attitude of lay people who overtly condemn pollution but do not alter their individual practices. Unfortunately, the scientific community has still not reached unanimous conclusions about the causes or impacts of global warming.

Keywords :- Global warming, climate change, greenhouse gases, deforestation, pollution

INTRODUCTION

It is really disturbing that the planet's temperature is continuing to rise. Global warming is the underlying factor in this. When sunlight reaches the Earth, global warming starts. The remaining sunlight is absorbed by the oceans, air, and land, with only approximately 30% of it being reflected back into space by clouds, atmospheric particles, reflective ground surfaces, and ocean surfaces. The resultant heating of the planet's surface and atmosphere makes life possible. This solar energy is released through thermal radiation and infrared rays as the Earth warms, spreading directly out to space and cooling the earth. However, some of the emitted radiation is transmitted back to the Earth's surface after being re-absorbed by gases in the atmosphere such as carbon dioxide, water vapor , ozone, and methane. Because of their ability to trap heat, these gases are frequently referred to as greenhouse gases. It should be mentioned that this process of reabsorption is beneficial since without greenhouse gases, the Earth's average surface temperature would be quite low. The problem arose as a result of humankind purposely increasing the quantity of greenhouse gases in the atmosphere during the previous 200 years at an alarming rate. Thermal radiation is further hampered by higher levels of greenhouse gases, leading to a phenomenon known as the human enhanced global warming effect as of 2004. Over 8 billion tonnes of carbon dioxide were pumped. Recent observations of global warming have supported the hypothesis that the earth is actually warming as a result of a human-enhanced greenhouse effect. Over the past 100 years, the planet's surface temperature has increased the most. The average surface temperature of the Earth increased by 0.6 to 0.9 degrees Celsius between 1906 and 2006, but only marginally annually. Landfills and agricultural decomposition of biomass and animal manure produce millions of pounds of methane gas. Different nitrogen-based fertilizers such as urea and diammonium phosphate, as well as other soil management practices release nitrous oxide into the atmosphere. These greenhouse gases remain in the atmosphere for decades or even longer after being released. The levels of carbon dioxide and methane have increased by 35% and 148%, respectively, since the industrial revolution in 1750, according to the Intergovernmental panel on Climate Change (IPCC). But it is obvious that the climate problem is escalating at a pace unlike ever

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before, as evidenced by the most recent IPCC report, which was released in April 2022, warning that it is "now or never" to limit global warming to 1.5C. Climate change is being exacerbated by a number of factors, from deforestation and droughts to air and plastic pollution, and its effects are being felt all across the world.

LITERATURE REVIEW

Global warming refers to the increase in the earth's average temperature that occurs naturally or, as theorized in recent years, is induced by human activity. Most discussions on global warming today cite a correlation between an increase in global temperature and the increase in carbon dioxide, nitrous oxide, methane, and chlorofluorocarbons (CFCs) in the atmosphere. Human activity increases the amount of these gases in the atmosphere and, as a result of the greenhouse effect, increases the earth's temperature. As the earth's temperature rises, glaciers melt, ocean levels rise, and unusual weather patterns occur. Scientists warn of the loss of ecosystems and the endangerment of human lives and communities as a result of climate change.

FACTS AND FIGURES

- Global warming is the result of increase in the earth's average surface temperature due to greenhouse gases like carbon dioxide and methane. These gases are required for the presence of human life on earth. However, global warming is happening due to over-emittance of these gases.
- The World Health Organization (WHO) reports that climate change is responsible for at least 150,000 deaths per year, a number that is expected to double by 2030. The effects of global warming will cause dire health consequences:
  - ✓ Infectious diseases
  - ✓ Heatwaves
  - ✓ Loss of agricultural productivity
  - ✓ Asthma and other respiratory diseases
- It was started with the industrial revolution, the burning of fossil fuels like coal, oil and gas started on a massive scale. This not only increased greenhouse gases but was also responsible for large scale deaths due to asthma and other respiratory diseases.
- According to IPCC 2007 report, sea levels will rise by 7-23 inches by the end of this century due to global warming.
- The Arctic ice is melting rapidly. By 2040 the region is expected to have a completely ice free summer, or even earlier.
- Melting of glaciers will cause sea levels to rise on one hand and water shortages in areas that depend on natural sources of water.
- Due to global warming and pollution, coral reefs are suffering the worst bleaching with the highest dying record since 1980.
- The populations of countries that have contributed the least to global warming are the most vulnerable to death and diseases brought about by higher temperatures. The coastlines along the Pacific Ocean and the Indian Ocean and in sub-Saharan Africa will be at higher risk of enduring the health effects of climate change.
- There has been a tremendous increase of water vapor, carbon dioxide, methane nitrous oxide and especially greenhouse gases due to polluting substances emitted as a result of industrialization, pollution, deforestation.
- More than 1 million species have become extinct due to disappearing habitats, ecosystems, acidic oceans all caused due to global warming.

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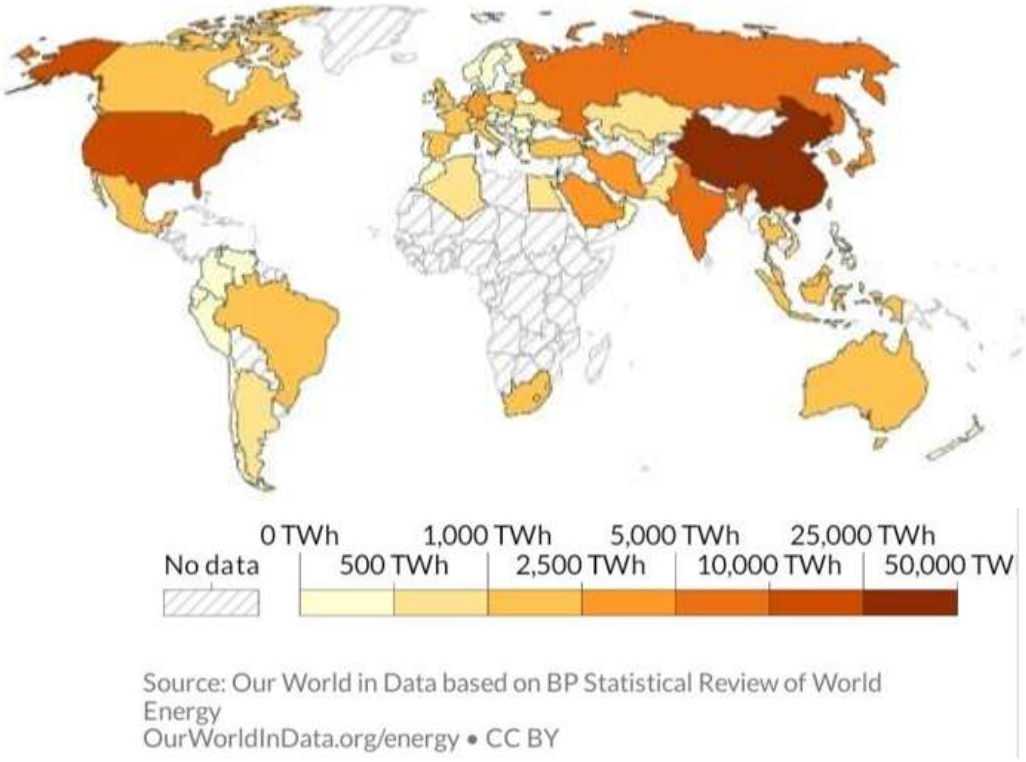
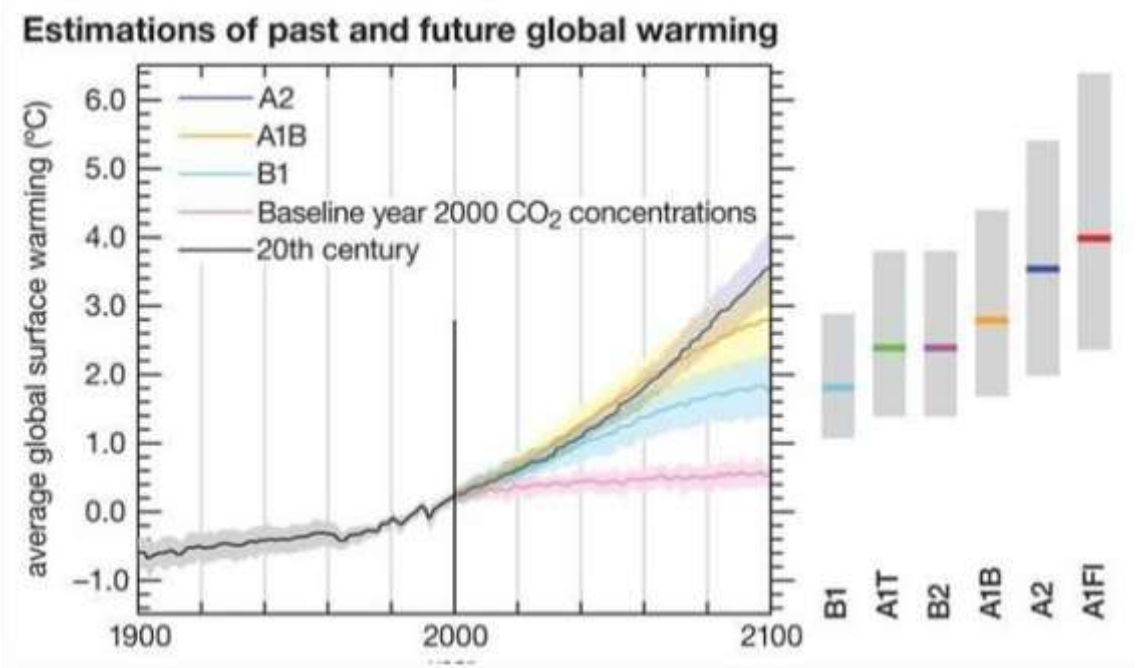
- By year 2100, the average temperature will rise by 5.8 degrees as a result of global warming.
- As per climate change performance index 2023 released by German watch , the 57 countries including India and EU part of this together generate 90%+ of global greenhouse gas emissions.
- Droughts, hurricanes, wildfires, extinction on endangered species, melting of polar icecaps, storms are few of the effects of global warming.
- When fossil fuels are burned, they release large amounts of carbon dioxide, a greenhouse gas, into the air. Greenhouse gases trap heat in our atmosphere, causing global warming. Humans are emitting more carbon dioxide in the atmosphere, faster more than the absorb ingrates of plants and the oceans.

Fossil Fuels Consumption, 2021



Some estimates



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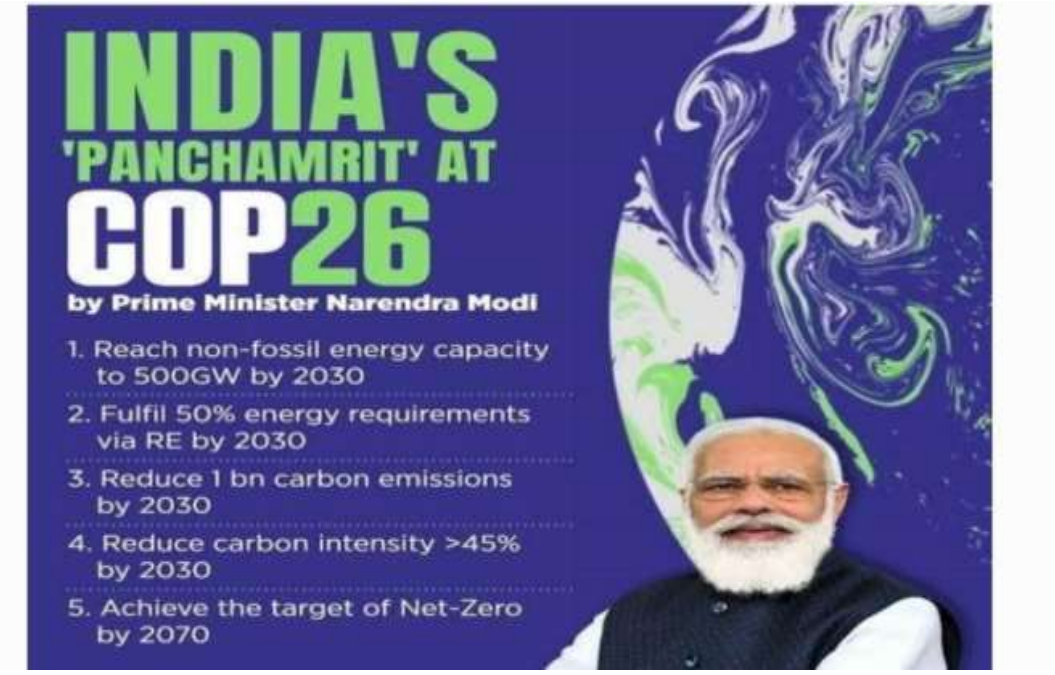
Some technological innovations and initiatives to tackle the Global Warming

- Electric vehicles- No License required for charging stations
- Smart Metering- Procurement of 50 lakh smart meters done
- Energy efficiency- Energy Star labeling program
- Energy Conservation Building Code for energy efficient buildings launched in June 2017

Goals determined by India to tackle climate change

- The Union Cabinet approved India's Updated Nationally Determined Contribution (NDCs) to be communicated to the United Nations Framework Convention on Climate Change.
  ✓ Reducing the emission intensity of its GDP by 45% by 2030, compared to the 2005 level.
  Status – India had already achieved 21% of its emissions intensity as a proportion of its GDP in line with its commitment.
- Approval translated Prime Minister ' Panchamrit ' announced at COP26 (Conference of Parties) into enhanced climate targets.
  ✓ A step towards achieving India's long term goal of reaching net-zero by 2070.



- Prime Minister's concept of mass movement for ' **LIFE** ' – '**Lifestyle for Environment'** as a key to combating climate change.
- Recently, India submitted its Long-Term Low Emission Development Strategy to become carbon neutral by 2070 to the United Nations Framework Convention on Climate Change (UNFCCC) at ongoing 27th Conference of Parties (COP27) in Sharm el-Sheikh, Egypt.

(1) The National Hydrogen Mission, launched in 2021 aims to make India a green hydrogen hub.
(2) At least a three fold increase in nuclear capacity by 2032.
(3) Achieving an ethanol blending target of 20% by 2025.
(4) Maximizing the use of electric vehicles, increase public transport.
(5) Increased climate finance to be provided by developed nations.
(6) The long- term strategy aims at keeping global temperatures well below 2°C and ambitiously, 1.5° C by the century end.

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Conclusion

From the above information it can be concluded that global warming is a bigger challenge and has a huge impact on humans and environment. It is a major issue in today's world. The unnatural rise in temperature and ozone layer depletion are primarily to blame for the current environmental crisis. This also has a negative impact on the living conditions. It has a significant impact on the seasonal cycle, rainfall, and air quality. Humans are primarily to blame for this unusual peak in heat and climate crisis. It is up to us to take the necessary steps to protect our environment from destruction. Climate change with its adverse effects has reached our doorsteps. It is time humans act wisely, to be able to cope with the changes and take precautions to avoid disasters in the future.