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Global Warming And Climate Change: A Sociological Study

Dr. Pragati Dubey[1]
[1]Assistant professor Department of Sociology G.P. S. Government Girls P.G. College Ambari Azamgarh

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Abstract

Global warming refers to the gradual rise in the earths average temperature due to changes in the chemical composition of the atmosphere. The process of global warming is closely related to the idea of green house effect the build of heat trapping green house gasses within the earths atmosphere. Global warming and climate change are pressing issues that transcend environmental concerns, encompassing social, economic, and political dimensions. Sociology provides a critical framework for understanding the human factors driving climate change. Global warming has become the biggest problem of the world today. Not only humans but every living creature on earth is troubled by it. Efforts are being made all over the world to deal with it, but till now no effective solution is visible.

The earth naturally receives heat from the sun's rays. These rays pass through the atmosphere and hit the earth's surface and then get reflected from there and return back. Some greenhouse gases are also present in the earth's atmosphere which form a kind of natural cover over the earth. This cover stops a part of the returning rays, which keeps the earth's atmosphere warm. As the greenhouse gases increase, this cover becomes thicker and starts stopping more rays of the sun. This is where global warming begins.

Keyword- Climate change, Global warming, Green house gasses

Introduction

The earth revolves around the sun at a suitable distance which gives us only that much heat from the sun which is necessary for life. If this distance was a little less or more, then life on earth would not have been possible. Due to human activities, a large amount of solar energy gets trapped in the atmosphere itself, which creates difficulties. Thirty percent of the sunlight coming towards the earth is reflected back by the outer atmosphere and spread into space and the remaining seventy percent reaches the surface of the earth. This light reaching the earth is reflected and goes upwards in the form of slow moving energy called "infrared radiation" where it is trapped by "greenhouse" gases like "water vapor", "carbon dioxide", "ozone" and "methane". These gases do not allow this radiation to escape from the atmosphere and it remains there. Although greenhouse gases are only one percent of the earth's atmosphere, they trap the heat and create a blanket of hot air around the earth which affects the climate. This is called the greenhouse effect. Well, greenhouse gases are absolutely necessary to keep the earth warm. If these gases were not there, the temperature of the earth would fall so much that life would not be possible here. Greenhouse gases are fine only up to a limit. Their excess is fatal for the entire ecosystem.

Human activities distort the natural process by producing more greenhouse gases and increase the ideal temperature of the earth. For the last 150-200 years, due to the indiscriminate use of coal, oil and natural gases, the level of carbon dioxide in the atmosphere is increasing, which is now being seen as "global warming

The greenhouse gases present in the lower layer of our atmosphere allow the light coming from the sun to reach the earth. As a result, the earth starts getting hot and emits infrared light. The greenhouse gases do not

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allow this light to leave the earth's atmosphere and thus a lot of heat gets accumulated around the earth. Greenhouse gases (carbon dioxide, methane, nitrous oxide and less water vapor) increase due to many human activities such as the use of fossil fuels, deforestation, agriculture etc. Volcanic eruptions also release many greenhouse gases and accumulate near the surface. According to IPCC, an international committee formed to study climate change, most scientists agree that human activities are increasing global warming. The Kyoto Protocol prepared under the supervision of the United Nations on this very question is a huge step taken by man in the interest of the environment. Through this, the emission of major greenhouse gases can be stopped.

According to the United Nations Intergovernmental Panel on Climate Change (IPCC) presented its first assessment report in 1992, confirming the increase in the earth's temperature. At that time, developed countries questioned its credibility instead of accepting it. But by the time its fourth report was released, everyone accepted that the earth's temperature is increasing and if measures are not taken to stop it, life on earth itself will be in danger. In 2007, 2,500 scientists from 130 countries, after thorough research, concluded that human activities are the main reason for the current global warming. Man-made global warming is called 'anthropogenic climate change'.

Due to reckless industrialization, deforestation and continuous increase in pollution, the amount of gases (greenhouse gases) like CO_2, methane, nitrous oxide in the atmosphere increases and this blocks the sun's heat on the surface of the earth. A large part of the heat coming from the sun to the earth is not able to go back into space, which leads to an increase in the temperature on earth. Since the year 1980, the average temperature of the earth has increased by 0.8 degrees Celsius. According to the report of the Intergovernmental Panel on Climate Change (IPCC), 11 of the last 12 years have been the warmest since 1950. The Arctic region has suffered the most from the rising global temperature. The ice here is disappearing rapidly. This vast ice region will become completely ice-free by 2040. In the Montana Glacier Park in the Northern Hemisphere, where there were 150 glaciers in 1910, only 27 are left. The Pindari glacier is shrinking at the rate of 13 meters (approximately) annually, the Gangotri glacier is shrinking at the rate of 30 meters annually.

Scientists from San Francisco have clarified that due to global warming, the sea level has increased from 4 inches to 8 inches in the last 100 years. Experts believe that if the sea level rises by 1 meter, then 17.5% of Bangladesh's land area will be submerged. In India, 43% of Goa's land area and all the important tourist places and its beautiful beaches will be submerged in the sea. 15,500 acres of Sundarban area is getting submerged due to rising seas.

Climate change impacts our society in many different ways. Drought can harm food production and human health. Flooding can lead to spread of disease, death, and damage ecosystems and infrastructure. Human health issues that result from drought, flooding, and other weather conditions increase the death rate, change food availability, and limit how much a worker can get done, and ultimately the productivity of our economy.

Climate change affects everyone, but the impacts are uneven across the country and around the world. Even within one community, climate change can affect one neighborhood or person more than another. Long-standing differences in income and opportunity, or socio – economic inequality can make some groups more vulnerable. Communities that have less access to resources to protect themselves or cope with impacts are often the same communities that are also more exposed to hazards.

Impact of green house gases on Agriculture and human health -

1.Sowing period Shortens

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2.Increase in insects and pests and Increase in Diseases
3. Increase in micro Organism

Some key sociological theories to apply:

1. Structural Functionalism
2. Social Constructionism
3. Marxist Theory
4. Environmental Justice Theory
5. Critical Realism

Key Sociological Concepts-

1. Environmental Justice: Examines disproportionate impacts on vulnerable populations.
2. Risk Society: Analyses climate-related risks and societal responses
3. Ecological Modernization: Studies efforts to mitigate climate change through technological innovation.
4. Political Economy: Explores economic interests and power dynamics influencing climate policy.

Social Causes of Climate Change-

1. Consumption Patterns: High-carbon lifestyles in developed nations.
2. Population Growth: Increasing resource demands.
3. Economic Systems: Capitalism's focus on growth and profit.
4. Technological Development: Energy-intensive technologies.

Social Consequences of Climate Change-

1. Health Impacts (heat stress, vector-borne diseases)
2. Economic Inequality (loss of livelihoods, resource competition)
3. Social Instability (conflict, community disruption)

Social Responses to Climate Change-

1. Climate Activism (grassroots movements, protests)
2. Sustainable Lifestyles (individual choices, behavioural change)
3. Climate Governance (international agreements, policy initiatives)

Recommendations-

1. Reduce greenhouse gas emissions through policy and technological innovations
2. Promote climate justice and equity
3. Foster sustainable lifestyles and cultural values
4.Support social movements and community-led initiatives

Key Findings-

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1. Climate change disproportionately affects vulnerable populations.

2. Economic interests and political power shape climate policy.

3.Climate change is disproportionately affecting vulnerable populations.

4.Climate change is linked to economic inequality and capitalist systems.

5.Climate change is shaped by cultural values and social norms.

6.Social movements are critical in addressing climate change.

Conclusion – India released its first report on climate change. On the initiative of the Ministry of Environment and Climate Change, the Indian Network of Climate Change Assessment (INCCA) has prepared this report, which included 220 scientists from a total of 120 institutions including the departments of Science and Technology, Earth Sciences. In this, an attempt has been made to know what will be the effect of climate change on the four major sectors of the economy, health, agriculture, water and biodiversity in the decade of 2030. The report has expressed the possibility of an increase of 1.5 to 4.4 degrees Celsius in the average temperature of the country. This report released by India on climate change is even more scary than the IPCC report, which was disputed last year that it was scary. In that IPCC report, there was talk of an increase of 1.5 to 2 degrees in global temperature. But there was no India-specific estimate in it, while in this report, four parts of India-

The Himalayas, Northeast, West Coast and coastal areas have been mentioned. These four areas are extremely sensitive in terms of climate change. A brief description of this report is as follows-

1. According to the report, the Himalayas, Northeast, West Coast and coastal areas The temperature will continue to rise till 2030.

2.By the year 2030, the number of cyclones will decrease but their intensity will increase. Due to the increase in sea temperature, aquatic life will move towards the shore They will start hunting them and their prey will increase.

3.Due to the effect of carbon dioxide on increasing temperature, paddy production will increase marginally but maize will increase in all the four areas.There will be a decrease in production.

4.Coconut production will increase in the Western Ghats, while its production will decrease in the eastern coastal region.

5. Apple production will decrease in the Himalayan region and apple farming will be affected. For this people will have to go to greater heights.

6.Due to increase in temperature, more steam will be produced which will lead to more rainfall in the Himalayan region. By 2030, the availability of water in this region will increase by 5 to 20%. In the remaining three regions, there will be an increase in some and a decrease in others.

7.Due to more rain, forest areas will increase,

8.Due to increase in temperature mosquito menace will start even in the cold areas of Jammu and Kashmir. The terror of these diseases will remain for a longer time in the North-East

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The impact of Global warming and climate change on society is multifaceted and far-reaching. Some of the significant effects include: Social, Economic, Environmental,Political and Policy impact.

Social Impacts:

1. Displacement and Migration: Rising sea levels, drought, and extreme weather events force people to migrate, leading to social, economic, and cultural disruption.

2. Health Impacts: Warmer temperatures increase the spread of diseases, heat stress, and other health issues.

3. Food Security: Climate change affects agricultural productivity, leading to food shortages, price increases, and malnutrition.

4. Economic Inequality: Climate change disproportionately affects vulnerable populations, exacerbating existing social and economic inequalities.

5. Cultural Heritage: Climate change threatens cultural heritage sites, traditional ways of life, and community identity.

Economic Impacts:

1. Damage to Infrastructure: Rising sea levels, extreme weather events, and melting permafrost damage infrastructure, leading to significant economic costs.

2. Loss of Productivity: Climate-related disruptions to agriculture, industry, and services lead to economic losses.

3. Increased Healthcare Costs: Climate-related health issues increase healthcare expenditures.

4. Tourism and Recreation Impacts: Climate change affects tourism, recreation, and related industries.

Environmental Impacts:

1. Biodiversity Loss: Climate change leads to extinction, changes in species distribution, and disrupted ecosystems.

2. Water Scarcity: Changes in precipitation patterns and increased evaporation affect water availability.

3. Air and Water Pollution: Climate change increases air and water pollution, harming human health.

Political and Policy Impacts:

1. Global Governance: Climate change requires international cooperation, straining global relations.

2. Policy and Regulation: Governments face challenges implementing effective climate policies.

3. Social Unrest: Climate change can lead to social unrest, protests, and conflict.

To mitigate these impacts, societies can:

1. Transition to renewable energy sources

2. Increase energy efficiency

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3. Electrify transportation

4. Carbon capture and storage

5. Climate-resilient infrastructure

6. Sustainable land use practices

7. Climate-smart agriculture

8. Disaster risk reduction and management

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