IMPACTS OF CLIMATE CHANGE ON SOCIETY

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Abstract
Climate Change presents one of the greatest challenges of the 21st Century. It will massively affect human societies in complex and multiple ways. And it seems to be almost uncontrollable in the near future. Climate change could affect our society through impacts on a number of different social, cultural, and natural resources. Climate change results from a complex process of societal transformations, which we all need to understand to better cope with the challenges it presents. Climatic conditions play a significant role and interfere with people's lives in multiple ways. The causes are essentially known, based on unequivocal human action. It is social and human action in both individual and social settings that are decisive for the future pathways of climate change and its disentanglement. The paper attempts to analyse the impacts of climate change on society and economic activities.

Keywords: Climate Change, Society, Economic Activities and Health.

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Introduction

Climate change presents perhaps the most profound challenge ever to have confronted human social, political, and economic systems. The stakes are massive, the risks and uncertainties severe, the economics controversial, the science besieged, the politics bitter and complicated, the psychology puzzling, the impacts devastating, the interactions with other environmental and non-environmental issues running in many directions. Climate change also represents the greatest challenge of the 21st Century and is affecting the people in far-reaching ways. Climate change affects human health and wellbeing through more extreme weather events and wildfires, decreased air quality, and diseases transmitted by insects, food, and water.

The social problem-solving mechanisms we currently possess were not designed, and have not evolved, to cope with anything like an interlinked set of problems of this severity, scale, and complexity. There are no precedents. So far, we have failed to address the challenge adequately. Problems will continue to manifest themselves—both as we try to prevent and as we try to adapt to the consequences of climate change—so human systems will have to learn how better to respond.

An Overview

Climate change refers to long-term shifts in temperatures and weather patterns, mainly caused by human activities, especially the burning of fossil fuels.

"Climate change is now affecting every country on every continent. It is disrupting national economies and affecting lives, costing people, communities and countries dearly today and even more tomorrow. People are experiencing the significant impacts of climate change, which include changing weather patterns, rising sea level, and more extreme weather events. The poorest and most vulnerable people are being affected the most."

I Causes of Climate Change

As greenhouse gas emissions blanket the Earth, they trap the sun's heat. This leads to global warming and climate change. The world is now warming faster than at any point in recorded history. The main Causes of Climate Change are explained below:

Generating power

Generating electricity and heat by burning fossil fuels such as coal, oil, and natural gas causes a large chunk of global emissions. Most of the electricity is still produced from fossil fuels; only about a quarter comes from wind, solar, and other renewable sources.

Manufacturing goods

Manufacturing and industry produce emissions, mostly from burning fossil fuels to produce energy for making things like cement, iron, steel, electronics, plastics, clothes, and other goods. Mining and other industrial processes also release gases.

Cutting down forests

Cutting down forests to create farms or pastures, or for other reasons, causes emissions because when trees are cut, they release the carbon they have been storing. Since forests absorb carbon dioxide, destroying them also limits nature's ability to keep emissions out of the atmosphere.

Using transportation

Most cars, trucks, ships, and planes run on fossil fuels. That makes transportation a major contributor of greenhouse gases, especially carbon-dioxide emissions. Road vehicles account for the largest part, but emissions from ships and planes continue to grow.

Powering buildings

Globally, residential and commercial buildings consume over half of all electricity. As they continue to draw on coal, oil, and natural gas for heating and cooling, they emit significant quantities of greenhouse gas emissions.

Consuming too much

Your home and use of power, how you move around, what you eat and how much you throw away - all contribute to greenhouse gas emissions. So does the consumption of goods such as clothing, electronics, and plastics.

II Impacts of Climate Change

Thousands of studies conducted by researchers around the world have documented increases in temperature at Earth's surface, as well as in the atmosphere and oceans. Many other aspects of global climate are changing as well. Human activities, especially emissions of heat-trapping greenhouse gases from fossil fuel combustion, deforestation, and land-use change, are the primary driver of the climate changes observed in the industrial era.

(A) Impacts on Society

Impacts related to climate change are evident across regions and in many sectors important to society—such as human health, agriculture and food security, water supply, transportation, energy, ecosystems, and others—and are expected

to become increasingly disruptive in the coming decades.

Rise in Global Temperatures

The planet's average surface temperature has risen about 1.62 degrees Fahrenheit (0.9 degrees Celsius) since the late 19th century, a change driven largely by increased carbon dioxide and other human-made emissions into the atmosphere. Most of the warming occurred in the past 35 years, with the five warmest years on record taking place since 2010.

India is already experiencing a warming climate. Unusual and unprecedented spells of hot weather are expected to occur far more frequently and cover much larger areas. Under 4°C warming, the west coast and southern India are projected to shift to new, high-temperature climatic regimes with significant impacts on agriculture. With built-up urban areas rapidly becoming "heat-islands", urban planners will need to adopt measures to counteract this effect.

Glacier Melt

Glaciers in the north-western Himalayas and in the Karakoram range - where westerly winter winds are the major source of moisture - have remained stable or even advanced. On the other hand, most Himalayan glaciers - where a substantial part of the moisture is supplied by the summer monsoon - have been retreating over the past century. At 2.5°C warming, melting glaciers and the loss of snow cover over the Himalayas are expected to threaten the stability and reliability of northern India's primarily glacier-fed rivers, particularly the Indus and the Brahmaputra. The Ganges will be less dependent on melt water due to high annual rainfall downstream during the monsoon season.

The Indus and Brahmaputra are expected to see increased flows in spring when the snows melt, with flows reducing subsequently in late spring and summer. Alterations in the flows of the Indus, Ganges, and Brahmaputra rivers could significantly impact irrigation, affecting the amount of food that can be produced in their basins as well as the livelihoods of millions of people (209 million in the Indus basin, 478 million in the Ganges basin, and 62 million in the Brahmaputra basin in the year 2005).

Rise in Sea Level

Mumbai has the world's largest population exposed to coastal flooding, with large parts of the city built on reclaimed land, below the high-tide mark. Rapid and unplanned urbanization further increases the risks of sea water intrusion. With India close to the equator, the sub-continent would see much higher rises in sea levels than higher latitudes. Sea-level rise and storm surges would lead to saltwater intrusion in the coastal areas, impacting agriculture, degrading groundwater quality, contaminating drinking water, and possibly causing a rise in diarrhoea cases and cholera outbreaks, as the cholera bacterium survives longer in saline water.

Kolkata and Mumbai, both densely populated cities, are particularly vulnerable to the impacts of sea-level rise, tropical cyclones, and riverine flooding. Building codes will need to be strictly enforced and urban planning will need to prepare for climate-related disasters.

Changing Rainfall Patterns

A decline in monsoon rainfall since the 1950s has already been observed. The frequency of heavy rainfall events has also increased. A 2°C rise in the world's average temperatures will make India's summer monsoon highly unpredictable. At 4°C warming, an extremely wet monsoon that currently has a chance of occurring only once in 100 years is projected to occur every 10 years by the end of the century.

An abrupt change in the monsoon could precipitate a major crisis, triggering more frequent droughts as well as greater flooding in large parts of India. India's northwest coast to the southeastern coastal region could see higher than average rainfall. Dry years are expected to be drier and wet years wetter. Improvements in hydro-meteorological systems for weather forecasting and the installation of flood warning systems can help people move out of harm's way before a weather-related disaster strikes.

Agriculture and Food Security

Even without climate change, world food prices are expected to increase due to growing populations and rising incomes, as well as a greater demand for bio fuels.

Rice: while overall rice yields have increased, rising temperatures with lower rainfall at the end of the growing season have caused a significant loss in India's rice production. Without climate change, average rice yields could have been almost 6% higher (75 million tons in absolute terms).

Wheat: recent studies shows that wheat yields peaked in India and Bangladesh around 2001 and have not increased since despite increasing fertilizer applications. Observations show that extremely high temperatures in northern India - above 34°C - have had a substantial negative effect on wheat yields, and rising temperatures can only aggravate the situation.

Seasonal water scarcity, rising temperatures, and intrusion of sea water would threaten crop yields, jeopardizing the country's food security. Should

current trends persist, substantial yield reductions in both rice and wheat can be expected in the near and medium term? Under 2°C warming by the 2050s, the country may need to import more than twice the amount of food-grain than would be required without climate change. Crop diversification, more efficient water use, and improved soil management practices, together with the development of drought-resistant crops can help reduce some of the negative impacts.

Energy Security

Climate-related impacts on water resources can undermine the two dominant forms of power generation in India - hydropower and thermal power generation - both of which depend on adequate water supplies to function effectively. To function at full efficiency, thermal power plants need a constant supply of fresh cool water to maintain their cooling systems.

The increasing variability and long-term decreases in river flows can pose a major challenge to hydropower plants and increase the risk of physical damage from landslides, flash floods, glacial lake outbursts, and other climate-related natural disasters. Decreases in the availability of water and increases in temperature will pose major risk factors to thermal power generation. Projects will need to be planned taking into account the climatic risks.

Health

Climate change is expected to have major health impacts in India- increasing malnutrition and related health disorders such as child stunting - with the poor likely to be affected most severely. Child stunting is projected to increase by 35% by 2050 compared to a scenario without climate change. Malaria and other vector-borne diseases, along with and diarrheal infections which are a major cause of child mortality, are likely to spread into areas where colder temperatures had previously limited transmission.

Heat waves are likely to result in a very substantial rise in mortality and death, and injuries from extreme weather events are likely to increase. Health systems will need to be strengthened in identified hotspots. Improvements in hydro-meteorological systems for weather forecasting and the installation of flood warning systems can help people move out of harm's way before a weather-related disaster strikes.

Ocean acidification

Since the beginning of the Industrial Revolution, the acidity of surface ocean waters has increased by about 30 percent. This increase is the result of humans emitting more carbon dioxide into the atmosphere and hence more being absorbed into the oceans. The amount of carbon dioxide absorbed by the upper layer of the oceans is increasing by about 2 billion tons per year.

(B) Impacts on Economic Activities and Services

Certain areas of the country benefit from being located close to natural resources that support the local economy. Climate change could threaten these resources, as well as the goods and services they produce and the jobs and livelihoods of those who depend upon them. For example, climate change will likely affect farming communities, tourism and recreation, and the insurance industry.

Communities that developed around the production of different **agricultural crops**, such as corn, wheat, or cotton, depend on the climate to support their way of life. Climate change will likely cause the ideal climate for these crops to shift northward. Combined with decreasing rural populations, as in the Great Plains, a changing climate may fundamentally change many of these communities.

Climate change will also likely affect **tourism and recreational activities**. A warming climate and changes in precipitation patterns will likely decrease the number of days when recreational snow activities such as skiing and snowmobiling can take place. In the Southwest and Mountain West, an increasing number of wildfires could affect hiking and recreation in parks. Beaches could suffer erosion due to sea level rise and storm surge.

Climate change may make it harder and more expensive for many people to insure their homes, businesses, or other valuable assets in risk-prone areas, or preclude them from insurance altogether.

Insurance is one of the primary mechanisms used to protect people and communities against weather-related disasters. We rely on insurance to protect investments in real estate, agriculture, transportation, and utility infrastructure by distributing costs across society and build resilience. Climate change is projected to increase the frequency and intensity of extreme weather events, such as heat waves, droughts, and floods. These changes are likely to increase losses to property and crops, and cause costly disruptions to society.

III Our Initiatives

"In a world of more than seven billion people, each of us is a drop in the bucket. But with enough drops, we can fill any bucket." David Suzuki

Everyone can help limit climate change. From the way we travel, to the electricity we use and the food

we eat, we can make a difference. Here are some ways you can help fight and tackle climate change:

- Get charged up with renewables and invest in renewables
- Save energy at home
- Walk, cycle, or take public transport
- Use energy wisely — save money, too!
- Help put a price on pollution
- Throw away less food
- Consume less, waste less, enjoy life more
- Switch to an electric vehicle
- Reduce, reuse, repair & recycle
- Divest from fossil fuels

IV Conclusion

As a society, we have structured our day-to-day lives around historical and current climate conditions. We are accustomed to a normal range of conditions and may be sensitive to extremes that fall outside of this range. Climate change could affect our society through impacts on a number of different social, cultural, and natural resources. For example, climate change could affect human health, infrastructure, and transportation systems, as well as energy, food, and water supplies. Some groups of people will likely face greater challenges than others. Climate change may especially impact people who live in areas that are vulnerable to coastal storms, drought, and sea level rise or people who live in poverty, older adults, and immigrant communities. Similarly, some types of professions and industries may face considerable challenges from climate change. Professions that are closely linked to weather and climate, such as outdoor tourism, commerce, and agriculture, will likely be especially affected.

V Points to Ponder

- Climate change will affect certain groups more than others, particularly groups located in vulnerable areas and the poor, young, old, or sick.
- Cities are uniquely sensitive to many impacts, especially extreme weather impacts.
- Climate change may threaten people's jobs and livelihoods.

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