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Climate Change and Global Politics

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Introduction

The UN defines sustainable development as the development that takes place through justified use of the earth's current resources in a way that it "meets the needs of the present without compromising the ability of future generations to meet their own needs"[1]. Yet only certain countries seem to be practising a model of development that allows this.

This essay seeks to understand the role that international politics plays in causing, controlling, or accelerating the destruction of the planet we inhabit. Beginning with an understanding of what constitutes climate change, the essay explains factors that have caused climate change and its effects on the biodiversity of the earth. This essay conducts a preliminary analysis of how countries perceive environmental change and how this understanding can help alleviate or solve the climate crisis and highlights the influence of global politics on climate change and vice versa.

Climate Change: An Overview

We live in a world where the President of the United States, Donald Trump, and a 16-year-old Swedish girl, Greta Thunberg, hold contrasting positions about climate change. The latter is an activist who believes in science and the need to save the environment, while the former firmly believes that cold days in America are a sign that "global warming is needed". There is enough data, science, and studies conducted that highlight the changing nature of our climatic system.

Climate change can be defined as a change in the climatic system of the Earth resulting in new weather patterns for a prolonged period of time. The climatic system of the earth comprises the atmosphere, lithosphere, hydrosphere, cryosphere, and biosphere. Throughout the timeline of our planet, climate has changed significantly. There have been seven cycles of glacial advance and retreat. The end of the last Ice Age (that lasted from about 2,580,000 to 11,700 years ago) marked the beginning of the modern climate era and the flourishing of human civilisation. Climate change is caused by internal variability as well as external forcing. Climate change so far had been caused by natural processes that are a part of the climatic system. However, in the last several decades, scientists have drawn attention to the anthropogenic factors that have caused and accelerated changes in the climatic system.

In 1996, the World Meteorological Organization (WMO) proposed the term climate change to encompass all forms of climatic variability on timescales longer than 10 years, regardless of cause. During the 1970s, the term climate change got attributed to human activities that had a potential to drastically alter the climate. The United Nations Framework Convention on Climate Change (UNFCCC) defined climate change as "a change of climate 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."[2]

The Intergovernmental Panel on Climate Change (IPCC) released its Fifth Assessment Report[3] in 2013 which concluded that climate change is real and human activities are the main cause. Satellites and other technologies have enabled scientists to gather data about the trends of the Earth's climatic changes. The data showed unequivocal scientific evidence for warming of the climate. This heating is of concern given that it is proceeding at a rate that is unprecedented

over decades to millennia. This heating can be observed in the planet's average surface temperature rise by about 1.62 degrees Fahrenheit (0.9 degrees Celsius) since the late 19th century. Since 2010, the five warmest years on record have been taking place with 2016 being the hottest year.[4] The oceans have absorbed much of this heat which is evident from the warming of the top 700 metres by more than 0.4 degrees Fahrenheit since 1969.[5] Data from NASA's Gravity Recovery and Climate Experiment show that between 1993 and 2016, Greenland lost an average of 286 billion tons of ice per year, while Antarctica lost about 127 billion tons of ice per year. Glaciers all around the world, including the Alps, the Himalayas, and Alaska are melting sooner and retreating. All this melted ice doesn't refreeze during the winters and instead becomes a part of the existing water bodies. This in turn has caused a rise in the sea level by 8 inches in the last century and this rate has doubled in the last two decades. Intense rainfall, cyclones, typhoons, and other such extreme calamities have flooded cities across the world. These are warning signs that demand attention towards the phenomenon of climate change before such cities are entirely drowned.

Causes of Climate Change

Today there is scientific consensus among climate scientists that the warming of the Earth's temperatures can be defined as global warming and this can be attributed to the greenhouse effect. In the 1860s, physicist John Tyndall recognised Earth's natural greenhouse effect and suggested that slight changes in the atmospheric composition could bring about climatic variations.[6] In 1896, a seminal paper by Swedish scientist Svante Arrhenius first predicted that changes in the levels of carbon dioxide in the atmosphere could substantially alter the surface temperature through the greenhouse effect.[7]

The greenhouse effect takes place when there is an increase in the concentration of certain gases, called the greenhouse gases, in the atmosphere. The Sun serves as the main source of energy for life on Earth. About half of the heat coming from the Sun is reflected by the Earth's surface as infrared rays. The greenhouse gases trap 90% of these rays which are radiated back to the Earth's surface. When there is an increase in the amount of greenhouse gases, the amount of infrared rays that get trapped also increase. This results in a rise of Earth's temperatures leading to global warming. The greenhouse gases include water vapour, carbon dioxide, methane, nitrogen dioxide, and chlorofluorocarbons.

Since pre-industrial times, the atmospheric concentration of CO_2 has increased by 40%, methane has increased by about 150%, and nitrous oxide has increased by roughly 20%.[8] The atmospheric concentration of carbon dioxide, the main greenhouse gas, now exceeds 410 parts per million, the highest level in 800,000 years.[9] Human activities such as deforestation, land use changes and especially the burning of fossil fuels have dramatically increased the release of carbon dioxide into the atmosphere. Methane is produced and released through human activities like decomposition of waste in landfills and manure management of livestock. Soil cultivation using fertilisers and biomass burning creates nitrogen dioxide. Chlorofluorocarbons are synthetic industrial compounds that are mainly found in aerosols like air conditioners, refrigerators, deodorants etc. These cannot be broken down and remain trapped in the atmosphere and may even lead to a decrease in the concentration of the Earth's ozone layer.

If these emissions continue unchecked, then further warming of 2.6 degrees Celsius to 4.8 degrees Celsius can be expected by the end of the century. There is a huge difference between two degrees and two and a half, three, four degrees. Even at the lower end, such an increase in temperatures would have serious implications for life on Earth.

Effects of Climate Change

Climate change has already created visible consequences that people are experiencing around the world. The paradox of climate change is such that there are floods and droughts in Bihar, India, at varying alternatives that kill thousands of people. These serve as warning signs of what is to come if the current patterns of development and living are left unchecked and unchanged.

According to the reports by the UNFCCC[10], IPCC[11] and WWF[12] and scientists all around the world, this crisis has affected each of the Earth's spheres separately and drastically. The atmosphere has now become thin and polluted which means that it can no longer protect life on earth from harmful radiations of the Sun. This in turn has led to illnesses such as cancer among people and loss of plant and animal life. The cryosphere has witnessed the destruction of glaciers and ice caps. The polar areas are evidence of how destruction of climate in cities across the seas, can have an impact on regions that are so far away from them. The hydrosphere is facing rise in sea levels which in turn swallows up low-lying regions of various countries. Aquatic life is also affected with the increase in

salinity of the waters and the changing temperatures that inhibit their breeding patterns. The increasing use of fertilisers and pesticides has drained the soil of its fertility, thus rendering the lithosphere as unfit for further use. Through the process of bio magnification, these chemicals have made their way into the human body and the concentration of their toxicity has also simultaneously increased. The biosphere, ranging from human life to bacteria, has seen a change in life patterns. Deadly new illnesses such as Zika, Ebola, and Nipah viruses have now found ways to spread across continents and be resistant to various kinds of medicines. On the other hand, useful animals and plants are disappearing which is creating an imbalance in the entire ecosystem.

The ecosystem is necessary for the survival of human life. Over the last several decades there has been incredible progress in medical science and access to health facilities have also increased globally. Yet, this is of very limited use given that we now face dangers as unpredictable as earthquakes, tsunamis and cyclones.

The Global North and the Global South Conundrum

In the last decade there have been plenty of debates on who is responsible for the depletion of the environment and who must take steps to fix this crisis. On the basis of socio-political development, comparative theorists have divided the world into the Global North and Global South.[13] The Global North refers to the richer countries of the world, most of which, are located in the Northern Hemisphere (with the exception of Australia and New Zealand). On the other hand, majority of the developing countries of the world are located in the Southern Hemisphere. This difference in development has been attributed to a wide variety of factors such as the beginning of the Industrial Revolution in the Western countries (part of the Global North) and the colonisation of the Asian, African and Latin American nations by the very same countries.[14] Once the Global South countries achieved independence, it took them several decades to catch up to the path of development that had been achieved successfully by the countries of the Global North.

The development model that has been followed by countries since the Industrial revolution involves maximum utilisation of fossil fuels and high levels of carbon emissions. Any talk on climate change often turns into a blame game between the

North and South. The North has caused and contributed maximum to current problem of climate change. But given their technological advancements, they now have measures to reduce their emission levels by shifting to renewable sources of energy such as solar and wind energy. But they firmly feel that the crisis of climate change cannot be resolved without the equal cooperation and responsibility on behalf of all countries in the world. On the other hand, the South believes that the North must take up the greater part of the burden to mitigate climate change given their larger contribution this problem. Furthermore, decolonised countries are still on the path of development and are unable to meet basic energy of their large populations without the use of fossil fuels. Hence, they demand that their special needs be taken into consideration while formulating environmental restrictions on them. This was based on the principle of historical responsibility and the principle of common but differentiated responsibility.

This difference in opinion among state actors was evident in the action taken by the international system to solve the crisis of climate change.

International Action on Climate Change

As early as 1959, the Antarctic Treaty was signed which set aside the Antarctic for scientific research and preservation and banned all military activity on the continent. In 1972, the Club of Rome published a book titled *Limits to Growth* which dramatised the potential depletion of the Earth's resources against the backdrop of rapidly growing world population. The United Nations Environmental Programme (UNEP) held international conferences and promoted detailed studies to get a coordinated and effective response to environmental issues. In 1987, the Brundtland Report *Our Common Future* was published in 1987, which warned that our traditional patterns of economic growth were not sustainable in the long run, especially in view of demands for further development by the global South. In the same year, the Montreal Protocol was also signed to protect the depletion of the ozone layer.

In 1992, the world-famous United Nations Conference on Environment and Development (UNCED) was held in Rio de Janeiro, Brazil. This Earth Summit was attended by 170 states, 1000 NGOs and many MNCs because by then it came to be understood that climate change had become a global political issue that needed cooperation from all stakeholders. At the conference, the difference in the objectives of the Global North and South became evident. The North focussed on

ozone depletion and global warming, while the South was concerned with the relation between economic growth and environmental management. While developed countries wanted to focus on environmental degradation as it stood then, the developing countries raised the concepts of historical and differentiated responsibility. This was reflected in the Rio Declaration which exempted developing countries from environmental laws and directed developed countries to provide cheap technology to the countries of the Global South. It also led to the formulation of an action plan titled Agenda 21 which detailed developmental practises that emphasised sustainable development. However, this non-binding plan was limited given that it was clearly biased towards economic growth over environmental management and it didn't outline the measures to achieve sustainable development.

As a part of the Rio Convention, the United Nations Framework Convention on Climate Change (UNFCCC) in 1994 recognised that the carbon emissions of developed countries were much higher than that of the developing countries even at that point of time. The Kyoto Protocol of 1997 was based on the principles of the UNFCCC and set targets to cut greenhouse gas emissions with exemptions for developing countries like India and China. However the U.S dropped out of this deal in 2001 on the claims by the U.S President George bush that "it exempts 80% of the world, including major population centres such as China and India, from compliance, and would cause serious harm to the US economy."[15] In 2011, Canada, Russia and Japan also declared that they would no longer take on further Kyoto targets. In 2016, in the Paris Agreement countries agreed to keep the average global temperature below 2 degrees Celsius above the preindustrial levels. However, in 2017, the U.S President, Donald Trump expressed his intentions to withdraw from the deal and changed the U.S policy to implement measures that are contrary to the agreement.

In 1997, India undertook a review of the implementation of agreements of the Earth Summit. The review concluded that there had been no meaningful transfer of technology by developed countries on concessional terms to developing countries. India strongly feels that developing countries must be given the carbon space for rapid development, given that the current developed countries also utilised a similar carbon space for the last several decades. Furthermore, India's emissions are predicted to rise from 0.9 tonnes per capita in 2000 to 1.6 tonnes per capita in 2030. This rise is still less than half the world average of 3.8 tonnes in 2000. [16] As a part of India's efforts to the environment, it is a part of regional

organisations such as SAARC (South Asian Association of Regional Cooperation) and BASIC (Brazil, South Africa, India and China) which ensures that these countries adopt a common position which gives their voice greater weight. In addition to this, India has adopted various laws to protect the environment such as National Auto Fuel Policy, the Energy Conservation Act, the Electricity Act, and the National Mission on Biodiesel. Recently India started to import natural gas and encourage the adoption of clean coal technology. Renewable sources of energy such as wind and solar require technology and finance which India is still unable to attain from the world. But given India's pressure, the World Bank and other developed countries are providing such incentives to India, to ensure that the shift to renewable energy takes place as quickly as possible.

There have been numerous fora held for climate change, but scalable solutions have been far and few in between. There seems to be a lack of consensus with the challenges and the ways to overcome them. There is also an attempt to redefine climate change and work according to different parameters. Geological surveys carried out also endeavour to mark a shift in the overall approach to climate change. Recently the World Economic Forum 2020 at Davos was dominated by topics of climate change. However, the solutions remain a distant dream.

The Road Ahead

Climate change is clearly one of the most pressing issues the world faces today. It has reached a point where it is not possible to solve this crisis without cooperation from all actors in the international system. Yet such international cooperation is difficult to achieve given the conflict between collective good and national interests, tensions between the developed and developing nations, economic and ideological obstacles.[17]

The collective good of protecting the environment often comes at the cost of pursuing the national interest of economic development. Thus, several countries often try to pay minimal costs to ensure a clean environment by free-riding on other countries that are bearing the expenses to achieve the same. But when each country thinks and behaves in the same way, ultimately no nation succeeds in achieving this common good.

According to the development economist, Jayati Ghosh, climate change talks must not be allowed to degenerate into a blame game between the Global North and the Global South. Rather, we need to focus on imaginative solutions that are

accommodative of all countries but keep environmental protection as their priority.[18] There needs to be re-definition of the meaning and ideas of development especially in countries that are already well off. On the other hand, developing countries face the "trolley problem" of whether they must focus on the economic development of the current population that lives below the poverty line or save the future generation from the crisis of climate change. There certainly is a pressing need to put these developing nations, like India, on a path of green development that goes hand in hand with the environmental restoration and preservation.

One of the major roadblocks in switching to renewables is the cost of innovating and installing energy efficient technology. According to Adnan Z. Amin, director general of IRENA "renewable energy has established itself as the technology of choice for new power generation capacity." This is mainly because of the cost of generating power from onshore wind has fallen by around 23% since 2010 while the cost of solar photovoltaic (PV) electricity has fallen by 73% in that time.[19] Other renewable energy sources such as hydropower, geothermal energy and bioenergy are also steadily becoming competitive. But even if the capital costs are to fall, there are difficulties involved in the sitting and transmission of such renewable energy appliances, since they require certain geographical favours to accommodate their installation and use. The difficulty in developing such infrastructure leads to developing nations being hesitant to switch immediately to these renewable sources of energy on a large scale. The only solution to this would be aid from the developed countries. Furthermore, there are also several misconceptions about the reliability of the renewable sources of energy given the climatic variations of the sun, wind, waves etc. as compared to coal, gas and nuclear plants. However, in reality, these renewable sources of energy are highly predictable and reliable when spread across a large enough geographic area and paired with complementary generation sources.

Ideological obstacles between reformist ecologists and radical ecologists have led to differences in the ideas about how the environmental crisis is to be solved. Reformists firmly push for ideas of green capitalism, green technology and transnational regulations through global governance. On the other hand, the radicals firmly believe that such ideas are inherently contradictory since capitalism, technology and governance are the root causes of environmental degradation in the first place. Hence, they call for radical change in social,

economic and political structures to mitigate and resolve the problem of environmental damage.

In India, the cost of building large scale solar installations fell by 80% between 2010 and 2018 due to low priced panel imports from China, cheap labour and abundant land. Thus, India can produce the world's cheapest solar power. When price for a certain technology falls, its demand increases. At this rate, renewable sources of energy will be certainly be cheaper than oil, coal and other fossil fuels. Given India's geographical advantages of sunlight throughout the year and an extensive coastline, renewable sources of energy require only technological harvesting. Thus, shifting to renewable energy is not just an ethical choice, but also an economic one.

This essay is limited in its understanding of what constitutes "international politics" that influences climate change. By focussing only on the action taken by nations and international organisations, we often ignore the impact of various individuals, communities and movements who have put enough pressure on governments to act. Furthermore, the disastrous effects of global warming have gone beyond class, race, gender, ethnicity, geography etc. Yet, there are certain sections of the society that suffer from these repercussions more than the rest of the world. The indigenous and tribal populations in different parts of the world had developed a knowledge system of sustainable social, economic and cultural practises that involved protecting the environment that they inhabited. However, development and deforestation carried out by the government has led to complete loss of their homes, livelihood and valuable knowledge systems. They were never provided with adequate rehabilitation or accommodation. Today they have become climate refugees- having to once again move and resettle with the destruction of their new settlements caused by global warming. The extent of the crisis we face today, certainly calls for the restoration of these ancient knowledge systems that would enable us to protect the Earth from further damage.

Furthermore, the climate change is not the only issue on the global environmental agenda. Increasingly, nations are raising questions about energy security and the emerging hierarchy among nations based on their ability to attain and harness energy. This is particularly relevant at a time when traditional sources of energy are depleting and renewable sources of energy are difficult to shift to immediately.

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