



Understanding Environmental Governance and its Problems

Dr. Saheli Bose

Assistant Professor Department of Political Science Seth Anandram Jaipuria College, Kolkata

Abstract: Environmental concerns have emerged as one of the pressing issues of the modern world. The world is reeling under the negative environmental challenges and there seems to be no way out. Realizing the adverse consequences, it was the literary world and scientists that jumped into to produce literature that would make society aware of the problem, which was acknowledged later by policy makers and activists. Therefore, the aim of this paper is to understand the relation between climate change and global warming. It asks the question as why it is imperative to come up with strong and effective environmental governance by showing the negative impacts of climate change spanning over various aspects of physical and material world. The paper draws a trajectory of the environmental governance that emerged particularly after 1970. It also scans the various conventions related to climate change particularly the Earth Summit declaration, Kyoto protocol and the most important Paris Climate Agreement. The paper also touches upon that though the world acknowledges that climate change is one of the most devastating issues, it is difficult to come to any agreement because the world is divided between the rich and the poor countries, each with an understanding and agenda of their own problems.

Keywords: Environment, climate change, Kyoto protocol, global warming, governance

Introduction:

If any issue that all the nations across the globe is right now dealing with is the issue of environmental degradation. Some of the nations are less while others are more affected the consequences of environmental degradation. It is also true that how much a single nation tries to do in terms of tackling the adverse effects of climate change and global warming it is not possible, this is perhaps because of its trans-boundary nature which shows no respect for the national borders. Countries are environmentally vulnerable due to each other's activity and therefore a compositive action plan is required to deal with the problem (Heywood 2011). Environmental concerns are not new, there is been a long history of concerns for environment. For example, Plato, the Greek philosopher talked about degrading soil conditions due to extensive use of land for agriculture (Jackson 2002). Even evidences of environmental degradation were reported from Easter Island where the indigenous people- Rapanui destroyed their environment only to fall in trouble which affected their society. The history of Bishnoi community of Rajasthan is well known as to how they saved felling trees and later persuaded the local king to bring a ban on the cutting of trees. However popular consciousness about environmental degradation began to take shape particularly in nineteenth century with the onset of Industrial Revolution. The need for greater production led to growth of cities bourgeoning with population along with destruction of environment. With the idea anthropocentrism nature was merely seen as a ploy to fulfill the need of the human race. The magnitude of such human interference with nature has increased so much that some scholars prefer to call the present time as Anthropocene (Liana & Fair, 2019).

It was not earlier than 1960s and 1970s that ecologism emerged as a resistance to the anthropocentrism. Ecologism emerged through various resistance movements that highlighted the plunder of nature for human benefit. Primarily these movements concentrated on three problems. First was on resource problem which highlighted those renewable resources should be used instead of non-renewable resources and reducing population growth which leads to pressure on the resources, the second was on the sink problem which was to address the problem of damage that was done by pollution and developing greener technologies and the third was the ethical



problem which seeks to restore a balance between human beings and nature and develop respect for all the species on the earth (Heywood 2011)

There were several influential authors and their work like that of 'The Silent Spring' by Rachel Carson, 'Our Synthetic Environment' by Murray Bookchin, 'The Living Sea' by Jacques Yves Cousteau opened the doors for modern environmental movements. Biologist Garrett Hardin through his article 'The Tragedy of Commons' showed that the use of collective goods like the high seas, rivers, mountains and the atmosphere involves activities, decision making or choices that are interdependent. In 1972 the Club of Rome came up with a publication called the 'Limits to Growth' where computer models showed how degrading environment could put a limit on the growth around the world. It was speculated that the world would reach a point where there would be no scope of further recovery because it was simply exhausted and there would be point of no return.

Trajectory of Global Environment Governance:

Of the early organizations talking about environmental issues at the inter-governmental level was the International Commission for Rhine and Danube River in Europe and the International Joint Commission between US and Canada (Karen & Mingst 2004). In 1949, the United Nations(UN) convened its first conference on the environment which was called as the UN Scientific Conference on the Conservation and Utilization of Resources. The aim of the conference was to highlight the urgent need of prudent use of the earth's dwindling resources against the background of dramatic population growth and increasing demand for resources. (Keong 2021). It was later that in 1968, that the first international conference on biosphere was held under UNESCO's guidance. Later in 1972, the Stockholm conference took place. This conference effectively put environment as an important agenda under the UN and consciousness about degrading environment was globally spread. The Stockholm Declaration contained 26 principles and a process of dialogue was started between the developed (North) and developing countries (South) regarding the link between economic growth and levels of pollution. The conference called for creation of a body that will address the environmental issues and therefore UN Environment Programme (UNEP) was established (UNO 2021a). In 1987 report of the Brundtland Commission also known as World Commission on Environment and Development (WCED) 'Our Common Future' gave the call for Sustainable Development, that can meet the requirement of the present without jeopardizing the need of the future as a means to address the concerns with development. The report also pointed out that the countries of global South cannot develop in a similar manner as the North countries as this would mean more devastation to the environment. In 1987, the Montreal protocol called for banning all those substances that depleted the atmospheric ozone, which acts as a shield against the harmful ultraviolet rays of the sun. It is till date the only treaty that has been ratified by all the member countries of UN (UNO 2021b). In 2016, the Montreal protocol was amended which is known as the Kigali amendment to focus attention on global warming and to reduce hydrofluorocarbons (HFCs) (ibid). Another important which was formed in 1988 was the Inter-Governmental Panel on Climate Change (IPCC) by the World Meteorological Organization (WMO). Under this form hundreds of scientists come together to produce scientific reports called the Assessment Reports. Till 2021, it has produced six assessment reports to indicate various aspects of climate change and its impact.

Perhaps that most pressing issue that is intricately related to environment is the problem of Climate Change. A global problem like climate change requires global solution was thereafter reinstated through various conferences and convention. However, in order to understand why climate change is the most pressing issue of the present century, it is important to understand climate change, its causes and impact.

Understanding Climate Change:

Scientists and geographers have tried to delineate the changes that are seen in the atmospheric conditions of the earth across centuries. Yet non had come out a concrete definition of climate change. In simple terms climate change can be described as changes in the average conditions like temperature and rainfall over a region or an



area for a long period of time. Though there have been changes in the climatic conditions of the earth since long time yet in the last hundred years the anthropogenic cause has led to global warming and subsequent climate change. Global warming is the long term warming of the earth, while climate change includes global warming along with other broad range of changes that are happening to our planet. The speed at which the climate of the earth is changing is very fast than the past events which makes it more difficult to cope up with. The most important cause of global warming has been identified as the anthropogenic cause, which includes all those causes of global warming which are human induced. The most significant anthropogenic cause include burning of fossil fuel for vehicles, industries which release considerable amount of Green House Gases (GHGs), such as carbon-dioxide, methane, nitrous oxide and water vapour. These gases trap the heat from the earth's atmosphere and do not release it over a long period of time causing the average temperature of the earth to rise leading to global warming. This means that these gases act as a blanket and do not release the heat. It is reported that the average global surface temperature has increased by 1°C since 1900, and the atmospheric carbon-dioxide has increased by more than 40 % half of which increase occurred since 1970s (The Royal Society 2020). According to United Nations (UN), with the growth in population and economic activities coupled with increasing standards of living, will have a cumulative effect on the level of GHGs emission.

UN has identified some of the basic well-established scientific links between GHGs and Global warming, which are:

- The concentration of GHGs in the atmosphere of the earth is directly linked to the average global temperature of the earth.
- Since the time of Industrial Revolution there has been steady increase in the concentration of GHGs and temperature of the earth.
- Accounting for about two-thirds of GHGs is carbon dioxide which is mostly the result of burning fossil fuels.

Assessing Environmental Impacts of Global warming and Climate Change:

The IPCC in its 5th Assessment Report of 2014, states that human influence on climate change is clear and anthropogenic emission of greenhouse gases are highest in the history. The climate change has widespread impact on the natural system and as well as on humans (IPCC 2014). The 6th Assessment Report of IPCC states that human induced climate change has resulted in more 'frequent' and 'intense extreme events' and has resulted in irreversible damages to nature and people and 'pushed beyond their ability to adapt' (IPCC 2021). Some of the impacts of Climate change are discussed below:

Extreme weather events :

Due to global warming extreme weather events have become common. According to IPCC, an extreme weather event is an event that is rare at particular place and time of a year. For example, extreme weather events includes temperature extremes, which is caused by the concentration of the greenhouse gases in the atmosphere which leads to warming of the troposphere. This results in the changes in the atmospheric thermodynamic which lead to increase warmer climates which see more hot days and heat waves. The increase in temperature have also resulted increased moisture evaporation which leads to extreme rainfall leading to flood. The frequency and intensity of tropical storm have increased due to warming oceans. The cyclones in form of hurricanes, typhoons etc. are becoming stronger and intense in some parts of earth surface. The IPCC report also specifies that there will be increase in durations and severity of droughts. Global warming is rapidly increasing water shortage in already water stressed regions of the world.

Sea level rise and melting of glaciers :



GHGs which have resulted in global warming are significant cause for sea-level rise and melting of glaciers. Sea-level rise is the increase in the level of the oceans around the world due to the effect of global warming. Across the world, the coastal regions are heavily populated and settlement has grown there since centuries. In Bangladesh and India, it is estimated that by 2050, the sea-level will rise of 45 centimetre (cm) and 15-38 cm respectively. Major cities like that of Kolkata, Mumbai, Chennai, and Dhaka will be facing the existential threat. In Maldives the highest point is less than 2 meters above sea level and this could submerge with the rising tides and lead to erosion and damage to property and habitat loss.

Himalayan glaciers are important for the South Asian region as it feeds its rivers. However with the rising temperature, ice sheets of Himalayas are retreating faster than that of the global average. Increased warming might result in increased flows of water in the rivers initially, but in course of time the flow of rivers will start diminishing as the glacier diminishes. Similarly the polar ice caps of Arctic and Antarctic are melting fast. These region are also the permafrost regions store large amounts of methane which is a greenhouse gas that contributes to global warming, so when the polar ice melts this gas gets released into the atmosphere which can lead to major acceleration in the global warming. The melting of ice and the release of cold water could affect the flow of ocean currents such as Gulf stream and can bring freezing weather conditions to Northern Europe.

Effect on agriculture and ecosystem:

Due to changes in the temperature, rainfall will increase the vulnerability of agricultural production. The changes in the geographical conditions can lead to crop failure. Changes in the frequency and intensity of droughts and floods can reduce the crop production and affect the food security. The increase in temperature can also affect the growth of crops for example in 2010, in USA increase in night-time temperature affected corn yield across the country while warm nights caused pre-mature budding of the cherries in some of the states of USA. (United States Environment Protection Agency, 2021) According to Food and Agriculture Organisation (FAO) (2020), nearly 690 million people remains hungry which is roughly 8.9% of the total world population. Climate change is also projected to impact livestock and poultry. Increase in ocean temperature and acidity can effect aquatic species including fishes, which is a source of livelihood for many people across the coastal areas.

Incidents of Increased diseases:

Changes in climate may alter the distribution of important vector species (for example, mosquitoes) and may increase the spread of disease to new areas that lack a strong public health infrastructure. Warmer and wetter conditions will increase the potential for a higher incidence of heat-related and infectious diseases. Climate change may increase the possibility of malaria, dengue, Kala-azar and encephalitis. In the aftermath of flood the possibility of such diseases increases due to stagnated water, availability of clean water, lack of medicines. Contamination of water due to flood may also lead to epidemics to cholera, diarrhoea. Every year hundreds of lives are lost across the region due to incidence of malaria and dengue which are predominant in the tropical region. These have a direct effect on mental and social health of the people of the region.

Increases Poverty and displacement of people:

It is seen that climate change increases the risk of persisting poverty across the world. The change in temperature leading to agricultural failure, floods, prolonged droughts have direct impact on the income of the people. Flash floods, droughts can destroy livelihood and home of the people. Even increasing heat can make it almost impossible to work outside. According to the UN Refugee Agency (2021) 'the impacts of climate change are many and may both trigger displacement and worsen living conditions or even hamper return for those who have been displaced'. Also the agency estimated that an average of more than 20 million people have to leave their home due to weather extremes. Often people who have left their original place due to extreme weather events are termed as 'environmental refugees'.

Conventions on Climate Change:

To tackle the problem of climate change and global warming international cooperation is needed, this is however a problematic area. According to Heywood (2014), the task of tackling climate change is notoriously difficult. This is so because the origin of climate change is difficult to locate, it is not just related to a use of a single commodity or a specific productive process but in the process of industrialization. Therefore any attempt to find solution to the problems of climate change should address an alternative to carbon industrialization. One of the core challenge of negotiating climate change deals is that the developing countries thinks that the concern of climate change and decrease in greenhouse gases could become a 'selfish protectionism' of the developed countries (North bloc) that can hinder the economic development of the developing countries (South Bloc). The was one of the reason that during the Stockholm Conference, developing countries were more concerned with aggravating poverty as a result of the environment movements in the west which could directly stifle their development. Though there was a compromise stuck between the North-South countries in form of the Stockholm Deceleration and establishment of the Founex Panel (which comprised of 27 experts from developing and developed countries), yet the genuine efforts of the developing States were missing specially in context to severe economic recession and energy crisis of 1970s.

United Nations Conference on Environment and Development (The Earth Summit)

Twenty years after the Stockholm commission, in 1992 UN Conference on Environment and Development (UNCED) was held in Rio-de Janeiro, Brazil. This was also known as the 'Earth Summit.' The conference was brought together political leaders, diplomats, scientist, Non-Governmental Organisations (NGOs) on the same platform. The summit was attended by 179 countries along with 17,000 other participants. This was the most massive gathering organised by UN for the climate concerns. The primary objective of the 'Earth Summit' was to produce a broad agenda and blueprint for international cooperation on environmental and development issues. The Summit concluded that sustainable development was a essential goal which needs to be addressed, whether practised on local, national or international levels. The conference also recognized that integrating and balancing economic, social and environmental dimensions required new perceptions of the way we produce and consume, the way we live and work, and the way we make decisions (UNO 2021c).

The summit adopted the following documents to institutionalize sustainable development:

- a. The Rio Declaration and Development laying down 27 guiding principles for sustainable development.
- b. Agenda-21- This is the comprehensive 40 chapter blueprint of action plan which was to be taken by the countries regarding the managing the environmental issues. The key issues that were included was the right to exploit their natural resources, right of the states to develop, priority to the developmental needs of the developing countries and meeting the financial needs of the poor countries.
- c. Non-legally binding statement for the protection of all types of forests.
- d. Convention of Biological Diversity (CBD)
- e. The United Nations Convention to Combat Desertification (UNCCD)
- f. The United Nations Framework Convention on Climate Change (UNFCCC)—an international treaty for global cooperation to combat climate change by limiting the emission of GHGs.

The UNFCCC's objective is to stabilise the concentration of greenhouse gases in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The convention recognised the specific needs and problems of developing countries and introduced the principle of 'common but differentiated responsibilities and respective capabilities'. The convention also identified that historically the largest share of greenhouse gases came from the developed countries. The developed countries in the convention are categorized



as Annex I countries and the rest as non-Annex-I countries. Most of the countries signed and ratified the convention and this was put into force in 1994. After the convention came into force the first Conference of Parties (COP) was held in 1995 in Berlin. There was a declaration called the Berlin Mandate called out on the industrialized countries to reduce their GHG emission and exempted the developing countries from the same. The latest COP meeting called COP26 was held in United Kingdom in 2021.

Kyoto Protocol:

The COP3 met in Kyoto in Japan in 1997 and the adopted the Kyoto protocol, which made it binding for the developed countries to reduce their greenhouse gas emission. The protocol came into force in February 2005 and is 192 parties have ratified the it. The United States of America dropped the treaty in 2001 and Canada withdrew from the treaty in 2011 (European Parliament Report, 2019) other countries that are not part of the protocol are Andorra and South Sudan. The detailed rules for its implementation were adopted at COP 7 in Marrakesh in 2001, and are called the Marrakesh Accord. During the protocol's first commitment period which was from 2008-12, 37 industrialized countries and European Community committed to reduce their emission by an average of 5% against the 1990s level.

The Kyoto Protocol allows countries to achieve their emission reductions by three mechanism first being the carbon market or Emission Trading. It works on the same principle of 'cap and trade' mechanism where certain industries are given a cap or limit on the amount of greenhouse gases that can be emitted by it. Those who emit less can sell the extra to other industries by in turn gaining certain financial incentives. Therefore under the protocol if any developing country (who need not reduce the GHGs emission) can sell the credits to the developed country which would count that emission as its own. Secondly under the Clean Development Mechanism (CDM), developed countries were allowed to use certified emission reductions from mitigation projects in developing countries to achieve their commitments. Under Joint Implementation (JI), developed countries were allowed to acquire emission reduction units resulting from projects in other developed countries. Both CDM and JI are two 'project based' mechanisms which feed the carbon market. During the second commitment period from 2012 to 2020, where the emission cut were aimed at 18%, but in 2015 the Paris Climate Agreement replaced the Kyoto protocol.

The Kyoto protocol has been criticised from many angles. The fact that industrialised countries and their firms to offset their greenhouse gas emissions (GHG) in exchange for afforestation and reforestation in the developing countries' lands has questioned the integrity of the protocol and labelled as new form of carbon-dioxide colonialism. Also Kyoto has been criticised for its structure. It is based in carbon production and not on carbon consumption or the carbon footprints (Helm, 2012). The former is the measure of carbon-dioxide emission which is associated with the activities of a person or a country. It includes direct and as well as indirect emissions. Direct emissions are those that results from burning of fossil fuels and emissions from manufacturing industries, while indirect emissions are those that are related to emissions related to produce electricity which is further use in generation of goods and services.

In COP18 held in Doha, 2012, Doha amendment to Kyoto protocol was adopted, which raise the emission cuts for the developed countries and added nitrogen trifluoride to the list of GHGs. The amendment aimed to address the targets under the second commitment period of 2012-2020. In 2020, 144 countries adopted the amendment thereby laying the way for emission cut in 37 Annex-I countries. The amendment was put into force in December 2020.

Way to the Paris Climate Agreement:

COP15 held in 2009, in Copenhagen, Denmark and was the result of COP13 which was held in Bali, Indonesia which was convened in the background of the release of Fourth Assessment Report of IPCC. The Assessment report made it clear that the global warming was unmistakably due to the emission of GHGs, due to anthropogenic cause and if this was left unchecked it would cause more damage. Developing countries like China, India and



South Africa and other major developing countries for the first time agreed to fulfil the treaty obligation to reduce their emissions. This was because the developing countries were significantly contributing to the emissions as they were expanding their economies rapidly. The developed countries also at the same time agreed to scale up financial resources under the Copenhagen Accord and jointly mobilise US\$ 100 billion a year by 2020 to address the needs of the developing countries. In COP 20 held in Lima, the 'Lima Call for Climate Action' was adopted where the countries accepted the 'intended nationally determined contributions (INDCs)'.

Paris Climate Agreement:

The Paris Climate agreement was reached in COP21 in Paris twenty three years after the Rio declaration. The treaty is landmark because it is legally binding all the nations to take action for the cause of climate change. It was put into force in 2016. 196 countries have been part of it and its implementation is one of the way to achieve the goals of Sustainable Development Goals (SDGs). Especially for the implementation of SDG 13, which talks about Climate Action. The treaty aims at net-zero emission world or carbon neutral world. The operation or the implementation of the Paris Climate Agreement was agreed in COP 24 in Katowice in Poland and in COP 27 in Glasgow, Scotland the Paris Rulebook was finalized. It sets out a global action plan for emission-cutting by some of the long term goals which are as follows:

- a. To reduce the global GHGs emissions to limit the global temperature in this century to 2 degree or if possible below 1.5 degree.
- b. To increase the ability to adapt to the adverse impact of climate change and take strategies for mitigation.
- c. 'Finance flow' aims at not only making finance available to the developing countries but also addressing the finance flows within the countries.
- d. All the countries are to maintain nationally determined contributions (NDCs) to mark their contributions for the cause of mitigation of climate change which is to be reviewed every 5 year.
- e. All parties to the agreement should maintain appropriate sinks and reservoirs of greenhouse gases.

Apart from the above points, there is also another important feature of Paris Climate Agreement which is the 'ambition cycle'. This is however not explicitly mentioned in agreement but it refers to the overall architecture and goals of the agreement that results from the individual and collective obligations in the agreement. Linked to the 'ambitious cycle' is the NDCs which varies in scope and have to be progressive over time and is based on global stocktake(GST). It is the process of taking stock of the implementations of the Agreement with an aim to assess the worlds progress towards achieving the aim. Upon accessing the global stocktake the COP is informed and updated and then successive enhancement in the NDCs are made (UNFCCC 2016). In 2023 the assessment of global stocktake will take place.

It is to be said that climate change actions across the world needs to be increased to achieve the goals of the Paris Agreement. It is one such agreement which has already sparked low-carbon solutions and created market for such. More and more countries, regions, cities and companies are establishing carbon neutrality targets. The NDCs are one of the most important way created by Paris Agreement to contribute for example Chile had its goal of reaching its emission peak by 2025. (where emission peak is point from where emission decreases instead of increasing. India for example has NDC of achieving 40% of its installed electric capacity from non-fossil energy sources by 2030 and creating 2.5-3 Giga tone equivalent through additional tree and forest covers by 2030.

Understanding the Problems in Negotiation to tackle Climate Change:

According to IPCC the earth's average temperature has risen approximately 1.1 degree above the preindustrial levels and the report also predicts that the earth's temperature may exceed 1.5 degree of warming within two decades and there needs to be drastic action immediately. (IPCC 2014). Many see the Paris Climate Agreement



not enough to deal with the issue and some even called for creation of 'Climate Club'-an brain child of economist William Nordhaus of Yale University which will penalize the countries who do not meet their obligations. (Nordhaus, 2015). Therefore it is important to understand some of important impediments in negotiations. Based on Heywood (2011), there are four impediments in negotiations on climate change which are:

Conflict between collective good and national interest: Though everyone enjoys the collective goods or global commons and would benefit if its clean and healthy it comes at a cost of individual states capping development or accepting strategies for development which are way expensive for mitigation. Therefore states wants to be the free-riders meaning that each states wants to enjoy the benefits of global commons (like clean atmosphere, water, soil) without being held responsible for the cause of climate change. This creates a situation where binding targets are not acceptable to the states or if acceptable are generally below the desired level of action.

Tensions between developed and developing countries: This is particularly the problem of North-South division. From the Southern countries perspective the developed countries have the historic responsibility of emission of carbon-dioxide and North should be held responsible for that, as evident from the various climate negotiations like that of Earth Summit, Kyoto Protocol. While the Northern countries are of the view that developed and developing countries should be treated alike, especially with context to some of the developing economies like China, India and Brazil. China which is considered as the manufacturing hub of the world is the not only the highest emitter of carbon-dioxide but has overtaken USA to be the largest per capita emitter (International Energy Agency, 2021).

Economic and Ideological Obstacle: To some scholars of radical ecologist or deep ecologist the problem of negotiating climate change is not just bringing the countries on consensus but the problem rests with 'the economic and ideological forces that have shaped the capitalist modernity. The capitalist motive of profit have let loose a havoc on the environment.

Conclusion:

In conclusion it can be said that there is consensus to address the needs of climate change yet it become difficult to come on the table. There is a clear division between the North and the South and each climate decision taken in whatever form affects some country's interest. Yet there is an urgent need to understand that climate change and global warming will wait for non. There is a urgent to need in transition to energy efficiency, green technology and sustainable ways of life.

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