

Social impact of climate change: The source of climate injustice

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Abstract: *Climate change is one of the biggest threats to the world today. The climate change has not only caused danger to ecosystem or bio-diversity but has great impact on social, economic and political life of the people. The climate change has affected the economy, livelihood, health, migration pattern, socio-cultural life of the people and the community. Here arises the question of injustice. The poor, marginalised, vulnerable and the weaker section of the people are the most sufferer of climate change impact through they are least responsible or not responsible for the climate change. Not only the weaker section of the population, the under developed and poor states and even developing states of the south are the main victims of the climate change and they demanded climate justice. The paper is deal with the social impact of climate change and its relation with climate justice.*

Introduction:

Climate change is one of the most significant threats facing the world today and it is the cause behind the biggest socio political and economic injustice of the contemporary world. From the late 60s of the last century, the human environment is one of the emerging issues in global politics. The problem of environmental pollution and global temperature rise have led to changes in the nature of global climate which lead to melting mountain glaciers, global sea levels rise, coastal erosion, increase in the intensity and frequency of extreme weather events. Such climate events result in impacts on socio-economic structure, human health, and political system and also affect vital systems, such as growing food and energy supplies. They may occur immediately following the event or have longer-term implications. Significantly, these calamities affect all the people irrespective of north south but those people who live in developing southern countries are the worst affected as they do not have the capacities to grapple or cope with the changes. The most vulnerable are often disproportionately impacted by the costs of addressing climate change. Thus, in the discussion on climate impact the question of justice is becoming the central notion. Injustice is in part due to the differential socio-political impacts of climate change and uneven patterns of social vulnerability. The impact of climate injustice is becoming hardest for vulnerable

populations. Vulnerability is defined by both geographic (for example, coastal population) and socio- economic (such as low- income community) and also political (north- south division) factors. The source of injustice is more crucial because, who have done least to cause climate change are the one suffering most from its effects.

It is now well established that human caused global warming is fundamentally changing the ecosystem of the planet Earth. The wildlife and biodiversity of the world is highly affected by climate change. As a result of temperature rise some species are already extinct and some have migrated further north or higher cooler regions. The ecosystem changes for the worse. Some species will be able to adapt and some could become extinct. At the same time extreme climatic events like drought, floods, heat waves, cyclone, typhoon, hurricane, tornado, hail storm, dust storm, wildfire etc. are already having numerous negative impacts on the living condition of today's people, especially in the Global South (Robert & Parks, 2007). Climate change will have a whole range of direct and indirect consequences for society. There is no doubt that the consequence or impact of climate change is far reaching and its manifestations are often non- linear, complex and difficult to attribute and trace (Basu & Bazaz, 2019). Climate change has already started to affect all aspects of social life- livelihood, food production, the built environment, biodiversity, health, economy, human security and rights and so on.

The climate change has affected all the people and countries irrespective of developed or underdeveloped, rich and poor. But the people those are poor and marginal are the most vulnerable to the impact of climate change. They are the most sufferers by the negative effect of climate change as they have less capability to cope with or adapt the impact of climate change. Their existing vulnerability is multiplied by climate change impact. They bear an unequal burden of climate change though they are not responsible for the climate change. Not only persons or communities but the countries like developing, under developed and the small island states are also the victim of climate change injustice. They are not responsible or less responsible for the climate change. But they are most affected by the climate change impact. In some cases their existence is threatened by the climate change impacts. For example the sea level rise due to global warming has threatened the existence of many cities of small island states. The developing and underdeveloped states have primary need of development but this aim is jeopardized as they have to cope with the climate change impacts. Their rising carbon emission due to development process also has questioned by the

developed countries and they also pressurised to cut their carbon emission. There arises the question of injustice. Those who are not responsible or less responsible are have to bear the burden of climate change impact. These states demanded that the justice can be done if the common but differentiated responsibility principle is recognised as the basic principle by all the states irrespective of developed and under developed and developed countries financially help the vulnerable countries to adapt the climate change impacts. This study will discuss the social impact of climatic change and its relation with the question of climate justice.

Review of literature:

Climate change and climate justice have attracted the attention of the academicians, economist, political scientist, environmentalist and others. There are many books and articles available on the climate change impact and climate justice. One of the important works on climate change impact is ‘The politics of climate change and the global crisis’ (2012) by Praful Bidwai. The book discusses the impact of climate change and the politics of international negotiation and it also critically analyses India’s role to combat climate change. Another important literature on climate justice is ‘Routledge handbook of climate justice’ (2019) edited by Tasheen Jafry. It is an excellent knowledge source in the field of climate change impact and climate justice. Another important book is ‘Climate change and climate justice’ (2014) by Ian Preston et. al. this book assesses the social justice aspects of the impacts of climate change in the U.K. there are also many articles on how the climate impact affected the marginalized and most vulnerable people of the society. Such as “Thermal inequality: the relationship between urban structure and social disparities in an era of climate change” by Bruce C Mitchell and Joyjit Chakraborty, “Reasons why climate change is a social issue: not just an environment one” (2014) by Rosaly Byrd and Lauren Demates, “How climate change impacts the economy” (2019) by Renee Cho etc.

Objective of the study:

The objective of this paper is to find out the informative analytical causal relationship between the social impact of climate change and the climate injustice. That is to highlight the vastness of climate change impact which has devastating impact on the marginal and vulnerable peoples, communities and countries.

This paper will test the hypothesis that the impact of climate change is caused injustice to the vulnerable peoples and communities of the south countries.

Methodology:

The paper is basically a theoretical study. Specifically it is a descriptive, comparative and analytical study. The topics cover the understanding of climate justice in the context of the impact of climate change. The study is basically analyses the data available from relevant books, scholarly articles, media and newspaper reports, journal, articles etc. as a secondary data. The primary data is collected from IPCC reports, UNFCCC reports and reports from other bodies of UNO. In this study the problem have been observed and analysed to identify the causal relations between the variables.

Social impact of the climate change:

Climate change is no longer only an environmental problem. The effect of climate change will be social, economic, political and cultural and will alter people's lives in a myriad of ways. Climate change is mainly discussed from the economic perspective as the concept of sustainable development is closely related to the issue of climate change but climate change is an important social challenge as well. Climate change is a major cause of social injustice. The social impact of climate change can be focused from some perspective.

The impact of climate change on livelihood:

Achieving human wellbeing through improved and sustained livelihood is a major human development goal. Climate change and its associated hazards highly impacted this livelihood in particular that of poor and vulnerable people especially of developing South countries (IPCC, 2014, p. 796). They mainly depend on agriculture, fisheries, livestock production, small industry, tourism and outdoor services for their livelihood. The climate related change affected these activities in various ways (UNDP, 2017, p. 1-5).

The agriculture sector is the most important source of livelihood in developing countries of Asia, Africa and Latin America. The temperature rise, irregular rainfall, heat wave and unavailability of water reduce crop yields. Some crops do not grow well above a certain temperature, such as, rice, wheat, maize and other cereal crops (Edward & Walker, 1983, p. 5). The temperature rise reduces plant crop growth period, particularly during grain

filling and ripening stages. The temperature rise also increases pests and insects which threaten plants survival. Besides this, floods wash out of crops field and have drowned livestock and machinery which have impact negatively on agrarian livelihood.

Besides agriculture the poor people of the developing country also depend on livestock production, especially cattle for food, income and capital. The impact of climate change heightens the vulnerability of the livestock system (UNDP, 2017, P. 2). Increased temperature directly and indirectly affected livestock production in many ways. Moreover, change in rainfall and temperature regimes may affect both the distribution and abundance of vector born disease among cattle's. Drought and increasing temperatures also have an effect of lowering the reproduction of cattle and decreasing the herd size and it has economically affected the cattle owners. The flood and cyclones also pose direct and indirect threat to the livestock production in the country. Thus those people who depend on livestock production for their livelihood are gravely affected by the climate hazards.

The inland fisheries and fisheries in coastal areas are one of the important sources of livelihood of poor people. It also serves as an alternative livelihood for many people (FAO, 2009). The fisheries are also vulnerable to climate change. Water shortage, water pollution, habitat degradation, increase of water temperature directly affects the inland fisheries. In coastal areas sea level rise, coastal flooding, salinity of water, sea shore erosion also has adverse effects on coastal fisheries and sea fishing (IPCC, 2019, p. 21-25). The increasing number of storms and its increased intensity also has badly affected infrastructure and transportation systems.

Besides agriculture, fisheries and livestock production rural communities have adopted some alternative livelihood activities, such as, fire wood, fruit, leaves and honey collection from forest, honey production and caterpillar harvesting. Those people who live near the forest and mainly tribal population depend on forest for timber, fuel wood, fodder, leaf litter (that is used as bedding material for livestock) but deforestation has deprived them from their livelihood (IPCC, 1990, p. 26). Deforestation are continue to take place at a alarming rate. Between 2015- 2020 the rate of deforestation is estimated at 10 million hectares per year (FAO, 2020). The deforestation is caused by road construction, increased use of fuel wood, forest fire overgrazing and deforestation for transforming into agricultural land. The reduced rainfall, temperature rise and long duration of dry spell are held

responsible for decreased regeneration rate of trees in the forest area. With the decrease of forest area these people also lose their livelihood.

In rural areas those who depend on other than the agricultural sector are also affected by climate change. In some countries plantation and gardening is an important sector of the economy, such as tea, coffee, rubber plantation and fruit gardening. Like crops production these plantations and gardening are also affected by heavy rainfall, temperature rise, shift in precipitation, long warming spell etc. The owners of these plantations and gardening are economically affected and workers who depend for their livelihood on these fields are often deprived from their livelihood. Besides this, those people who work in infrastructure building are also affected by heat waves, floods and storms and lose their jobs. The businesses of small shopkeepers, firm holders are also affected by these weather events (Cho, 2019).

The impact of climate change on the livelihood has a far reaching effect in under developed and developing countries than developed industrialised North countries. Because most of the people in these developing countries depend on climate sensitive sectors for their livelihood and for that climate change affected their source of livelihood more adversely. On the contrary, developed industrialised global north depends mainly on industry and service sectors which are not weather sensitive like agriculture, fishery, forestry etc. In these countries the marginal and poor people are also vulnerable to climate change but the government has capacity to adapt to the climatic damage.

The impact of climate change on health:

The overall health effects of climate change are overwhelmingly negative but it is more crucial for the vulnerable people of Southern nations. Climate change affects many of the social and environmental determinants of health. These determinants are clean air, safe drinking water, and sufficient food and secure shelter etc. which are affected by temperature rise, climate disasters, variable pattern of rainfall etc. In the heat wave of summer 2003 in Europe, for example, more than 70000 excess deaths were recorded (WHO, 2018). The inhabitants that are socially vulnerable are exposed to greater risk due to their reduced capacity to adapt or to mitigate the effect of heat related hazards. Flood and extreme precipitation are also causing various diseases. Floods, sea level rising and storms disrupt the drinking water supply and water containment heightening the risk of waterborne disease such as diarrhoea, cholera. The water containment also creates breeding ground of mosquitoes

which causes malaria and dengue, encephalitis (UN, 2017). The storms and floods also disrupt medical and health services and cause damages to the health infrastructure. Changes in climate are likely to lengthen the transmission seasons of important vector borne diseases and to alter their geographic range. Malaria, dengue, encephalitis and other vector borne diseases are highly sensitive to climate conditions (UNFCCC, 2006). Some virus borne diseases are also affected by climate change, for example, Influenza. In Africa drought caused the death of millions of people in malnutrition. Every year 3.1 million deaths are caused by malnutrition. WHO reports has stated that climate change is expected to cause approximately 250000 additional deaths per year between year 2030 to 2050, due to heat exposure, diarrhoea, malaria, malnutrition and childhood under-nutrition (WHO, 2018).

All populations are affected by climate change but some people are more vulnerable than others. The health impacts of climate change may differ across population and are dependent on several factors, such as, existing vulnerabilities and adaptive capacity (WHO, 2019, p. 6). The poor and disadvantaged people of the under-developed and developing countries are the main victim of climate change. The city dwellers, especially the poor people bear the most burnt of heat stress related health hazards. Those who live in mountains and Polar Regions are also suffering more from health hazards caused by climate change. Children, in particular living in poor countries, are among the most vulnerable to the health risk and are exposed larger to the health consequences like malnutrition. Health effects are also more severe in case of elderly people. In the developing countries the health infrastructure is very weak and hence the people of these countries suffer more than the developed countries. These countries have needed assistance to prepare and respond to the problem (IPCC, 2014).

The impact of climate change on migration:

The relation between migration and environment is not new. The people have chosen or forced to migrate because of changes in their physical environments. Migration is defined as the geographic movement of people across a specific boundary for the purpose of establishing a new permanent or semi-permanent residence. In 1990 IPCC predicted that the gravest effects of climate change may be those on human migration (Perch -Nielson, 2004). Columbia University's Centre for International Earth Science Information Network (IESIN) predicts that 700 million to a billion climate refugees will be on the move by 2050. There is a

significant impact of climate change on international and internal migration. While individuals may take their migration decision primarily as economically motivated, that is, income, livelihood, opportunity, food and water scarcity can be significant but deteriorating environmental conditions may be behind such economic conditions. Climate change can be the primary driver of the decision to migrate. Environmental factors have caused an estimated 25 million people to relocate and that figure is expected to cross 250 million by 2050.

Climate change caused migration in various ways. The people have to migrate from their homeland to other parts of the country (internal migration) or to other states (international migration) due to extreme climate events such as, temperature rise, flood, storms, heat wave, wildfire etc. which caused food shortage, water scarcity, famine, homelessness etc. They might not leave because their lives are being threatened, but threats to their livelihood are forcing them to migrate. As a result of temperature rise or change in rainfall regime could affect agriculture productivity and there may be food shortage, scarcity of water, famine and epidemic which lead the people to live in miserable conditions. The combination of those factors often leads people to migrate in search of better or safer lives.

The temperature rise or melting of glaciers often creates scarcity of water resources. This can create pressure on the population to migrate for better access to water. For example, nomadic pastoralists are after pushed to alter their traditional routes and travel further and for longer periods in search of water and land resources. The migration is also caused by the sea level rise. Due to the rise of temperature, sea level is alarmingly rising and is expected to be 10 to 30 inches or higher by the end of the century which will cause many coastal cities to be under sea. The sea level rise also impacted on trade, fishing and tourism which are the main professions of the people. The coastal flood and storm make them homeless and jobless and forcing them to migrate. For example, thousands of Pacific Islander has to seek asylum in New Zealand. They might not be leaving because their lives are being threatened but threats to their livelihood are forcing them to migrate. In Fiji following tropical cyclone Winston in 2016, more than 60 villages were relocated to reduce people's exposure and vulnerability to further risks.

Climate migration is a reality in all parts of the world but the situation is challenging to the 'vulnerable southern countries'. Vulnerable countries are least developed countries

(LDCs), landlocked developing countries (LLDCs) and small island developing states (SIDS).

The impact of climate change on women, child and older:

Women, children and elderly people are more vulnerable to climate change. All countries, especially in developing southern countries, women are more vulnerable to climate change than men as they on average tend to be less educated, less poor and mobile and live longer. In many countries women do not have equal access to land, capital and other resources as men and at the same time bear the main burden of household and agricultural works (IPCC, 2014, p. 10). It may contain agriculture, food production, cooking, care for children and other family members and obtaining water and firewood for the families. These are exclusively women's responsibility due to gendered social roles. Climate change increases and hardened these responsibilities. As a result of deforestation and water shortage or disruption of supply they often have to go further distance to collect the water or firewood which results in more work and no leisure or less time for other works. Sometimes girl children have to leave school for these extra works or women are faced to switch away from paid work which reduces their earning potential, incomes and relative economic position. Displacement also threatens women's education and economic opportunities. Displacement also threatens women health in a number of gender specific ways.

Besides women, children are another sensitive age group, since their immune system and other bodily systems are still developing and they rely on others to care for them in disaster situations. At the time of drought children are highly affected as droughts cause food and water shortage. It caused malnutrition among the children. Every year a large number of children died due to malnutrition in developing countries. The climate hazards also affected their health and other conditions (UNFCCC, 2015, p. 5-18). These hazards often affected their house, their educational institution's infrastructure and often their livelihood. Older adults may be among the least able to cope with the impact of climate change. Older residents make up a larger share of the population, for example, the share of the US population composed of adults over age 65 is projected to grow from 13% in 2010 to 20% by 2050 (EPA, 2017). These elderly people are more susceptible to the health concerns associated with climate change. The temperature rise and heat wave caused more cardiovascular and respiratory disease among the elder persons. Increased strain on food

supply and its price due to reduced food production affected by the climate change may cause malnourishment of the elder population. The effects of climate change on women, children and elderly people are more acute in the global south than global north as they are less protected in developing countries. In these countries gender discrimination is a common feature. Children, especially girl children are not well protected and elderly people are deprived from insurance and state health service. Poverty and social conditions make them more vulnerable than those of developed countries.

Impact on indigenous and tribal populations:

The indigenous communities and tribes are among the most affected communities by climate change and they are the least responsible for climate change. Indigenous peoples are among the first to face the direct consequences of climate change due to their dependence upon and close relationship with the environment and its resources (UNDESA, 2008, P. 1). In every country there are some tribal or indigenous communities while each community and tribe is unique though may have many shared characteristics. They have spatial differences as some of them live in mountain space, some of them in forest areas, some of them in coastal areas and some of them live in the plain. They also differ from their food habits, dresses, religion and culture but have many shared characteristics that can affect their ability to prepare to respond to and cope with the impact of climate change. These include: 1) the communities or tribes living in rural areas or places most affected by climate change, such as coastal communities, tribal population in hill areas and forest areas. 2) They rely on the surrounding environment and natural resources for their food, income and cultural practices. 3) They are coping with a higher level of health risk when compared to other groups. They have difficulty to accessing quality health care. 4) Living in isolated or low income communities.

Climate change can impact the health and well-being of indigenous tribal populations in many ways. Climate change will make it harder for tribes to access safe and nutritious food as agriculture, livestock production, forest resources are impacted by temperature rise, heavy or less rainfall, change in precipitation regime, forest-fire etc. Many tribes already lack access to safe drinking water due to drought and sea level rise (EPA, 2017). They are the people who already have health risk and climate change is expected to increase their health risk associated with water pollution, unavailability of drinking water and diseases caused by water

containment. This tribal population's cultures are closely related to their environment and natural resources. By affecting the environment and natural resources of tribal communities, climate change also have threatens the cultural identities of indigenous people. As plants and animals used in traditional practices or sacred ceremonies become less available, tribal culture and way of life can be greatly affected.

Conclusion:

These consequences of climate change will not be felt equally either spatially or socially. Some groups of people will face greater challenges than others depending on where they live and they are how much vulnerable to climate change impact. Spatially, the climate change impacts are different in different parts of the world even in different parts of a country. Climate change may especially impact people, who live in areas that are more vulnerable to climate change, such as coastal areas, dry areas and mountain areas. For example, over the past few decades the coastal areas have become more sensitive to sea level rise, coastal flood and storm surges. The drier parts of the world bear the brunt of the temperature rise than any other parts of the world. Drought, heat waves and wildfire are more frequent in such areas like African countries. Population in mountain areas likely faces cloudburst, heavy snowfall, ice melting, soil erosion and Antarctic and Arctic residents will likely experience problems caused by thawing permafrost and reduced sea ice, reduced glacier etc. These spatial differences may worsen their existing vulnerability.

Just as climate change has varied spatial impact, so too, it has differential social impact. Those who emphasized that climate change is everybody's problem also obscured the way in which its impacts are socially distributed across human populations. Some populations suffer worst and first and they are often not those who caused the problem. Poverty and disadvantage are not only affecting the emission pattern that drives climate change but they are also significant in the distributional impact of climate justice. IPCC AR-4 already noted that 'socially and economically disadvantaged and marginalised people are disproportionately affected by climate change (IPCC, 2014, P. 796). Climate change has created direct and indirect consequences for the whole society but the consequences of climate change are not felt equally. People have different capabilities and capacities to respond to the challenges created by the extreme climate, so that climate change leads to unequal impact on people's wellbeing. The people who live in poverty may have difficult to

cope the challenges as they have limited financial resources to cope with, to relocate or evacuate, to respond to increase in food price older people, child, women and those in poor health are vulnerable to climate change and their vulnerability can be compounded by the social isolation and poor economic condition. Thus poor, disadvantaged, marginalised and weak sections of the society are the most vulnerable to the consequences of climate change and often face the most consequences of climate change. Those less responsible for climate change suffer its gravest consequences and which might reproduce or exacerbate their existing inequalities (Islam & Winke, 2017, p. 21). During a panel discussion on the right of disabilities, UN deputy high commissioner for human rights, Nada Al-Nashif said (2016), “When it comes to climate change, persons with disabilities inappropriately affected by climate change and one of the biggest reason for this, is that most persons with disabilities live in poverty”.

Another finding of the study is that, the effect of climate change will not be uniformly distributed across the world. Developing countries are more likely to disproportionately experience higher negative effects of climate change. On the one hand, these countries with per capita energy consumption and co2 emission being one sixth of that of the industrialised world are not primarily responsible for the climate deterioration. On the other hand they are the most vulnerable to climate change impact because they have fewer resources to adapt socially, technologically and financially support. There are multiple factors that can limit their ability to prevent and respond to the impact on climate change, such as, their geographical position, dependency on more heavily climate sensitive sectors, need for development, technological dis-advancement etc. (IPCC, 2014). Those climate change impacts not only affect developing countries economically but social and political system also more affected than that of developed countries. The small farmer, rural and urban poor, women, children and elderly people, indigenous groups and tribes are highly affected as they lose their livelihood, their home, their job and health. Thus the developing countries of the global south are more vulnerable and badly affected by climate change. They bear the unequal burden of climate change though they are less responsible for that. Not only that, the first priority of these countries is development as their main aim is to eradicate poverty and gaining self-sufficiency. Climate change is an obstacle in the way of this aim because to adapt the climate change impact a large amount of money is needed. As a result they have to relinquish their development plans and activities. For them the climate change for which they

are not responsible is a total injustice. Climate change can be achieved when they are compensated for the adaptation and development work by those who are responsible, that is, by the developed countries.

This unequal distribution of climate change impact has raised the question of climate justice. There is a sharp division between north and south states on the issues of climate justice. The whole process of negotiation among states on the issues of climate change under international regimes is heavily influenced by this debate. South states have claimed that they are not responsible or less responsible for the climate change but are the most sufferer of the climate change impact. Hence the north states that are two hundred years industrialisation are mainly responsible for the climate change ought to bear the burden of adaptation. For that they demanded common but differentiated responsibility principle should be recognised as the basic principle of climate justice and differential impact should be taken into account in the multilateral negotiation. But north countries have difference of opinion on this matter and for that up to Paris conference the problem remain unsolved.

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