
Global Climate Change and Response: Analysis from Sociological Perspectives

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Abstract

Climate change is one of the greatest challenges of the contemporary world. From the beginning, natural sciences within the specific discipline have dominated climate change research and have been successful in identifying the relationship between human action and environmental change but are unable to see the relationship within society that builds environmentally damaging social structure. Sociologists have made important contributions in identifying the effects of social structure on greenhouse gas (GHG) emissions. Sociology provides a wealth of resources including different concepts and theories that take into account the influence of social norms, values, cultural beliefs, power, social inequalities, vulnerabilities, and global systems in causing climate change. This paper is based on the review of different articles, book chapters and research reports related to climate change and examine the causes, impacts and response measures from sociological perspectives and insights. The study showed that the individual's consumption behaviour that drives GHG emissions is constrained by the contexts of the society and the working of the global system. The impacts of climate change are varied among social groups and societies so need to take account the underlying causes of social inequalities, vulnerabilities and climate injustice at both national and global levels. The paper concludes that without understanding the complex interaction between individuals and the socio-cultural, economic and political context of the society we cannot deal with the current challenges of climate change.

Keywords: *climate change, sociology, social structure, sociological perspectives, social inequalities*

Introduction

Climate change is one of the most pressing global problems of the twenty-first century. Global warming, rising sea levels, flooding, droughts, melting polar ice, wildfires, coastal storms, and declining biodiversity etc are some of the effects of global climate change. Natural scientists contend that an increase in the concentration of greenhouse gas (GHG) emissions in the atmosphere is the prime factor of global climate change and human activities (anthropogenic driving force) are primarily responsible for the increase in GHG emissions (Intergovernmental Panel on Climate Change (IPCC 2007, 2014, 2023)). So they claim that

burning fossil fuel and deforestation are two of the main things that humans are doing that lead to climate change. Climate change was from the beginning the field of natural scientists who tackled the issue within the boundaries of the specific discipline (Grundmann & Stehr, 2010, p. 900). However, there is a growing view that natural sciences are insufficient to deal with the complex dynamics and challenges of global climate change, so there is a need to incorporate social science research and analyses in climate studies (Brulle & Dunlap, 2015, p. 15). Sociology provides an insight into understanding in more detail the characteristics of societies and their socio-cultural, economic, and political factors that drive GHG emissions. Without understanding how and why societies use resources and manage their environments we cannot develop ways to reduce fossil fuel use and deforestation as well as to modify the human behaviour that drive climate change (Rosa et al., 2015, p. 33). The primary driving force behind climate change is socio-structural. Its issues are embedded in institutions, norms, values, cultural beliefs, and practices. Thus climate change is a sociological issue.

Natural scientists have been successful in assessing the relationship between human actions and their effects on nature but are unable to visualize the interrelationship between human actions and the context of society that helps to make up this environmentally damaging social structure (Norgaard, 2017, p. 171). This second concept is the sociological imagination. The concept of sociological imagination was given by sociologist, C. W. Mills. According to Mills, "Sociological imagination enables us to grasp history and biography and the relations between the two within society.....No social study that does not come back to the problems of biography, of history and their intersections within a society has completed its intellectual journey..... Perhaps the most fruitful distinctions within which the sociological imagination works is between the personal troubles of milieu and the public issues of social structure" (Mills, 1959, p. 3-24). Mills emphasized the interrelationship between the life of an individual and the history of society. If we take Mill's stance, we will start to believe that every problem faced by an individual has roots in society as a whole and is faced by many others. "The application of a sociological imagination and a few other sociological concepts allows us to powerfully reframe four central questions in the current interdisciplinary conversation on climate change: why climate change is happening, how we are being impacted, why we have failed to successfully respond so far and how we might be able to effectively do so" (Norgaard, 2017, p. 172).

Sociology has never ignored the environmental issues from the past. Classical sociologists Marx, Durkheim, and Weber mentioned the relationship between nature and society in their writings. Marx mentioned human beings are part of nature and that human activity transforms nature. Writing in *Capital*, Marx frequently blamed "capitalist production for the interruption of the human-nature integration but also industrial development as the main causes of ecological problems" (as cited in Jarvikoski, 1996, p. 77). Durkheim regards society as a part of nature. Writing in *The Division of Labour in Society*, He writes "Man depends upon three kinds of environment: the organism, the external world and society" (as cited in Jarvikoski, 1996, p. 80). He argued that the culture provides the lens, for viewing

nature. Thus Durkheim in fact, spoke about the social and cultural construction of nature. Similarly, Weber grasped the tension between capitalist growth and the environment. In *The Protestant Ethic and the Spirit of Capitalism*, he argued “Modern economic order is now bound to the technical and economic conditions of machine production which today determine the lives of all the individuals who are born into this mechanism.... with irresistible force. Perhaps it will so determine them until the last ton of fossil fuel is burnt” (as cited in Foster et al., 2012, p. 1629). Indeed, Weber depicted capitalism at various places in his writings as a major driver of environmental change.

Brulle and Dunlap (2015) claim that sociology contributes climate change research by examining the social dimensions in two distinct ways. They say,

First, sociology is well-equipped to examine the causes, consequences, and potential solutions to climate change, and can therefore provide considerable insights into these phenomena. Efforts to ameliorate and adapt to climate change require an understanding of the social dynamics at various scales from the global to the local level. Sociology can thus contribute to climate change not only through interdisciplinary engagement but also through the analysis of discipline-specific subject matter related to socio-structural processes and climate change. Second, sociology provides a social critique by analyzing and questioning the existing belief systems and the dominant ideologies such as market-based policies as the only viable option for reducing GHG emissions. (p. 16-17).

Climate change is undoubtedly the dialectical of nature and society therefore it is a concern for sociology. Sociologists have made important contributions to broaden our knowledge of the human drivers of climate change by including the effects of social structure and global system on GHG emissions (Dietz et al., 2020, p. 1). Sociology, by looking beyond technical entities provided by natural sciences, consider social dimensions such as norms, values, cultural beliefs, power, inequality, vulnerability, global system etc. that condition human behaviour.

This paper is based on the review of different research articles, book chapters and research reports related to the topic. It examines the different concepts and theories provided by sociologists on the causes and impacts of climate change. It also offers sociological insight on effective response measures. The main objective of this paper is to analyze the climate issues from the sociological perspective.

Driving Factors of Climate Change

Human population, economic production and consumption, and the types of technologies society develops and uses are widely recognized by natural scientists and sociologists as the key driving forces of global climate change (IPCC 2014, 2023; Islam & Kieu, 2021, p. 2-3). Studies suggest that the effect of population on GHG emissions is large in magnitude in both developed and less developed countries (Jorgenson & Clark, 2010, p. 38). However, the GHG emissions do not depend directly upon the population growth but on the consumption

pattern of the population. Study shows that a moderate amount of population growth that has very high levels of consumption can have a severe effect on the environment than substantial population growth that has modest levels of consumption (Rosa et al., 2015, p. 37-38).

Since World War II, population growth has increased dramatically in the less developed countries but its contribution to GHG emissions is low as compared to developed countries whereas developed countries have low population growth rates but higher GHG emissions. However, over the last few decades, the increase in the pattern of consumption has changed even in less developed countries due to the emergence of middle classes that consume at rates comparable to most developed countries (Meyer and Kent, 2003, p. 4964). The rising number of middle class is widely recognized as a driver of increased GHG emissions. However, from the macro-scale sociological approaches consumer demand and consumption behaviour are created by the producers or the capitalists who control market organizations. Thus focusing on the underlying social factors such as the production process, actions of the corporations, marketing mechanisms and the interests of capitalists helps to reveal the genuine drivers of GHG emissions and climate change.

Two dominant theories, including treadmill of production theory (TOP) and ecological modernization theory (EMT), have explained how social factors influence climate change. "TOP have argued that contemporary capitalist political economies have prioritized economic growth rather than social inequality and environmental protection whereas EMT has stressed that as modernization proceeds, ecological rationality gradually increases and environmental problems are taken seriously" (as cited in Islam & Kieu, 2021, p. 3 & Rosa et al., 2015, p. 38-42). Thus both TOP and EMT are primarily concerned with the capitalist system and growth logic as the drivers of GHG emissions. Market environments have also been the main factor that drives organizational choices about GHG emissions. Perrow and Pulver (2015) conducted case studies of three different economies: neoliberal market economies with the United States as the representative case, coordinated market economies such as the European Union and the rapidly emerging economies with BRICs (Brazil, Russia, India and China). These studies showed variations in government regulation of climate-related issues. In the neoliberal market economy, market organizations are dominant in creating climate policy thus government regulations favoured limited restrictions on market organizations. Coordinated market economies have more evenly distributed power between market organizations and state regulators than liberal market economies. The market environments in emerging economies have mixed results. In some countries, market organizations have resisted government regulation of GHG emissions, but there were some successes after adopting international policies and programs to reduce GHG emissions. Apart from this case study, in most of the contemporary societies neo-liberalism and growth have become a dominant culture despite causing environmental harm with this growth (p.73-83).

The sociological research considers the forms of economic globalization such as ecologically unequal exchanges and the transnational organization of production both of which are contributing factors to GHG emissions. The study on ecologically unequal

exchanges believes that the aspects of international trade allow for developed countries to externalize their consumption goods along with GHG emissions to developing countries (Hornborg, 1998, p. 127). The increasing flow of raw materials from developing countries to developed countries and consumable items from developed to developing countries have created subsidiary global corporations and firms in developing countries for the consumer markets. Such production networks have increased environmental harms in the developing countries.

The research on transnational organization of production was conducted in 37 developing countries from 1975-2000 (Jorgenson, 2009). The study assesses the effects of manufacturing sector foreign investment on GHG emissions. The results showed that foreign investment in manufacturing is positively associated with GHG emissions (p. 69).

An examination of different sociological literatures above showed that the increasing consumption pattern and the behaviour of the individual influences GHG emissions in both developed and developing countries however their consumption behaviour is constrained by economic, political and cultural contexts. In the current global capitalist economy, the macroeconomic forces are the primary drivers of high GHG emissions and global climate change.

Impact of Global Climate Change

The impacts of climate change are diverse and highly varied among societies. The impacts of ecological change such as droughts, floods, unstable weather patterns, intensification of wildfires and storms are experienced differently by populations around the world. Disadvantaged groups such as poor people, indigenous communities, women, the elderly etc. suffer more than others from the effects of climate change (Cizreli et al., 2023, p. 73). These events can result in death, property damage and displacement. Disadvantaged people are more likely to live in low-lying areas or areas with poor infrastructure which are open to being affected by the types of events. In addition, they have fewer resources for preparing and recovering from crises. As a result ecological changes that undermine social contexts simultaneously reproduce class, ethnic, racial, gender and age inequalities in complex ways. Sociological research has addressed the ways that different forms of existing social inequalities influence the type and degree of risk in various scales among different groups in society.

Ulrich Beck (1992) looks at the current environmental problem as an aspect of risk society that is different from earlier forms of industrial society. He argues that the risk society focuses on the ecological question and the distribution of risks instead of the production and distribution of wealth (p. 19). He establishes connection between social inequality and climate change. In this case, Beck (2010) argues that climate change globalizes and radicalises social inequalities (p. 257). He suggests that without taking account of impact of climate change one cannot conceptualize social inequalities as well as climate change. Beck (2013) also mentions that the catastrophic potential of climate change can only be revealed by the study

of the social vulnerability of certain countries and population groups. He writes, “without the concept of social vulnerability, it is impossible to understand the catastrophic content of climate change” (p. 7). Following Beck, the sociological understanding of vulnerability helps to reveal the underlying causes of social vulnerability of different countries, social groups or populations and their coping capacity with the threats of climate change.

The Impact of climate change varied along the consumption pattern of the communities and the nations. Research shows that the consumption pattern of economically marginalized communities and the nations are less than the wealthier nations and the people and are less responsible for GHG emissions (Harlan et al., 2015, p. 128;). Similarly, the IPCC (2023) report mentions that consumption-based emissions per person are higher in wealthy nations and the more vulnerable nations generally have lower emissions per capita (p. 45). This variation in consumption patterns has created climate injustice. Harlan et al. (2015) argue that climate change is a justice issue as it affects nations and people very differently leaving the most vulnerable people at a cumulative disadvantage. He contends three underlying reasons for climate injustice. “First, social inequalities have driven overconsumption; second, the impacts of climate change have been experienced unequally by the rich and poor, which may extend to future generations; Third, policies that have been designed to deal with climate change have had unequal consequences for the poor and the powerless” (Harlan et al., 2015, p. 127). He put forward that to attain a level of understanding of climate impact, researchers and policymakers must be sensitive to the inequalities of power, wealth and privilege.

Reviewing the literature above on climate change impacts depict that the sociological perspective helps to take account dimensions of social inequality, vulnerability and climate injustice at both national and global levels.

Response to Climate Change

The impact of climate change can be minimized through adaptation and mitigation strategies (Ehrhardt-Martinez et al., 2015, p. 199). Climate change adaptation strategies seek to moderate harm from the actual and expected climate impacts as well as to enhance the capacity to live with the changes that will occur in the future. It aims to identify how climate change contributes to vulnerability and to reduce existing and future vulnerability. Vulnerability is a characteristic of individuals and groups and their varying positions in society, as determined by a variety of social inequality measures, including class, caste, ethnicity, gender, race, age, disability and other power relationships (Bolin, 2006, p. 114). It includes all characteristics of individuals, households, and communities that influence their capacity to cope with, resist, and recover from the impacts of a natural hazard (Cardona, 2003, p. 42). Sociological knowledge provides a means for better understanding how social dynamics shape the underlying causes of social vulnerabilities as well as effective response measures to reduce such vulnerabilities.

John Urry (2011) emphasizes the sociological approach to the response to climate change instead of the market-based rational actor approach of economics that has dominated so far. He contended that sociology has paid scant attention to the resource dependence of

particular societies and the roles of resources in constructing social systems. He points out how to transform such systems to bring about a low-carbon world (p. 123). This shows that the existing dependency of societies on resources has hindered the impact of climate change. Sociological theory and research provide insight to understand socio-structural dynamics to attain adaptation goals. World system theory has explained the global division of labour in which the developed or core nations have an unequal exchange of resources and labour with the less developed or peripheral nations (Wallerstein, 1974). This theory shows the underlying power differences between developed and less developed countries. Carmin et al. (2015) suggest the analysis of the political economy of the world system and developments are important to the formulation of effective adaptation strategies (p. 186).

Carmin et al. (2015) offer structural, institutional and societal adaptation measures for reducing vulnerability and enhancing adaptive capacity. Structural measures focus on making physical, technological and ecological systems less vulnerable, institutional measures focus on laws, regulations, government policies and economic incentives to encourage adaptation and societal measures aim to encourage adaptive behaviours and reduce problems that are caused by climate change (p. 167).

Mitigation efforts focus on reducing the emissions of greenhouse gases (GHGs). Varieties of mitigation efforts are underway in different countries around the world but the achievement is far from sufficient. The current global economic system relies heavily on fossil fuel energy sources. An assessment of IPCC reports predominately considers the technological approaches to climate change mitigation often ignoring the social and cultural factors. From a sociological perspective, GHG emissions are deeply rooted in the current organization of socio-economic and political systems and the cultural practices that support those systems (Ehrhardt-Martinez et al., 2015, p. 202). Sociological knowledge offers insight on different aspects such as governance, power structures, political activism, labour policies, drivers of consumption, systems of global production, cultural values and range of other factors that shape and constrain mitigation opportunities apart from technologically focused solutions (p. 201).

Scholars in other disciplines such as economics and psychology as well as leading climate reports, emphasise the potential role of individuals and their consumption behaviour in climate change mitigation strategies but undermine the role of social context in shaping consumption behaviour. From a sociological perspective, mitigation strategies consider the working of socio-cultural, economic and political systems as well as the understanding of the intertwined relationship between different components of the systems such as individuals, households, national and international organizations, technologies, economic policies and networks (Ehrhardt-Martinez et al. 2015, p. 202). Sociological understanding helps to assess the effects of such components and their roles in shaping or constraining mitigation efforts.

Norgaard (2017) offers key insights from sociology to develop an effective response to climate change. "First, the reality and operation of social structures at multiple dimensions of social order from the individual to the cultural and large scale, and Second, the ability to

see the relationship between these so-called micro, meso and macro dimensions of social order” (Norgaard, 2017, p. 174).

Scholars in sociology have common agreement that climate change issues should consider social inequalities from the global to the local level. Islam and Kieu (2021) contend that environmental issues cannot be solved without addressing the problem of inequality due to three prime reasons. “a) there has been inequality in suffering, with the poor and vulnerable populations suffering more; b) the poorer and less developed nations have had less bargaining power than the richer and more developed nations; and c) the lessons from the failures of the Kyoto Protocol and the Copenhagen Accord have shown that an effective climate agreement cannot be achieved without addressing global inequality” (p. 6).

Putting it briefly, climate change response measures need to understand the complex interaction between individuals, households, national and international organizations, government policy and regulations, socio-cultural, economic and political context of the society as well as the power dynamics and the working of the global system.

Conclusion

Reviewing the broader literature on climate change above, the paper has uncovered that human activities that influence climate change are constrained by the characteristics of societies and their socio-cultural, economic and political context. Sociology offers different concepts, theories and methods that help to examine the underlying causes of climate change, its impacts and potential solutions. Climate change issues are embedded beyond technical entities but in norms, values, cultural beliefs and social practices; social inequalities and vulnerabilities; economic institutions and policies, global systems and power relations.

Sociological perspectives recognize the interconnection and interplay of the social system at different levels, from individuals and households at the micro level, to organizations and cities at the meso level, to nations and global systems at the macro level. It helps to uncover the effects of social structure, institutions, power and inequalities as well as the roles that they play in causing GHG emissions. Global inequalities have created vulnerability and injustice in the poorer nations as well as an unwillingness and inability of poorer nations to participate effectively in international efforts to address climate change. Sociological insight can help to examine different forms of inequalities within and between nations and offers effective response measures.

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