

A STUDY ON CLIMATE CHANGE AND ITS IMPACT ON INDIA'S SUSTAINABLE GROWTH AND HUMAN SECURITY

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Abstract

As a geographically large country, India features climate zones ranging from tropical to arid in its various regions. Consequently, the effect of Climate change encapsulates a significant population, which in turn impacts sustainable growth and human security. The study aims to understand how climate change affects long-term developments and human security with a narrative review by understanding primarily two aspects of climate change: Ecological challenges and human security in the context of India. The direct and indirect effects of different variables compositely contribute to these long impending issues of Climate change and are even presenting a significant risk for human security in the form of food and water scarcity, as well as an indirect threat in the form of human conflicts; these issues are often sidelined in the name of natural and anthropogenic incidents in contemporary times – so these lacunas are the interest of the study. Different policy circles underpin the academics of climate change and sustainable development, so to understand the substantial relationship, the literature highlights these issues from a policy discourse perspective to establish the linkages between the ecosystem and societal conflicts, with national and international policies as a mediator, the paper also asks for structural changes through practical adaptation approaches for India's sustainable growth. In doing so, it has focused on secondary data collected from international reports and government surveys. Enhancing the existing literature, the findings of the narrative analysis show a shift of scientific and innovative changes in sustainable development policies. Still, in India's local scales, 'resilience and response' policies have a minimum positive impact on the potential conflicts and cooperation dynamics. In concluding remarks, the study states that in today's world, it is an attempt to look into the societal contexts of Climate Change by reconciling it within the paradigm of sustainable development rather than implementing policies to address it as a never-ending issue.

Key Words: Climate change; sustainability; human security; conflict; development

1. Introduction

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Because of India's large population and reliance on climate-impacting zones and industries like agriculture and fish farming, as well as other natural assets and resources like water, exotic wildlife, the Sealife Ecosystem, and the plains, this developing country has a population of over 1.38 billion. According to India's "National Communication Report" submitted to the "United Nations Framework Convention on Climate Change (UNFCCC)", all-natural systems, as well as social and economic systems, are projected to be affected by climate change.

Hadley Center's "Regional Climate Modeling (RCM)" system, known as "PRECIS," when applied to India using the IPCC scenarios A2 and B2 show the following:

- It is predicted that annual mean surface temperatures would rise by 3 to 5 degrees Celsius under the A2 scenario and 2.5 to 4 degrees Celsius under the B2 scenario by 2100 with warming being most obvious in the Indian Subcontinent.
- Except for Tamil Nadu, Punjab, and Rajasthan, which are projected to suffer a little decline, India's monsoon season rainfall is projected to increase by 20 percentage.
- Variations in highest and lowest temperatures, and severe rainfall levels, are expected to grow, particularly alongside India's pacific coast and even in west-central India.

1.1 Impacts of climate change in India

Billion Indigenous people's access to clean water, food, and healthcare will be jeopardized by climate change in the coming century. India's water resources are quite uneven. There are two areas in the northwest and northeast that are the driest. In the last several years, India has seen a variety of harsh weather conditions. 330 million people in 10 states were adversely affected by the 2016 drought, resulting in a \$100 billion in damage to the economy (ASSOCHAM Report, 2016). Since the impacts of climate variation on water sources vary so considerably throughout India's many regions and river basins, it is hard to generalize about them. Due to climate change, India's water supplies are still insufficient for transdisciplinary integration. On the other hand, Health implications such as increased exposure to heat and poor air quality, extreme climate changes and changes in vector-borne disease transmission as a result of biological, socioeconomic, and cultural variables. Climate change threatens to exacerbate current gender-based health inequities in India, where fast environmental changes occur. Incorporating a gendered approach into established climate, development, and disaster-risk reduction policy frameworks can help to reduce negative health effects and influence their expansion. Multisectoral coordination, improved data acquisition, monitoring of gender-specific targets, and fair stakeholder participation and security are all required to reduce climate risks.

Between June and September, India experiences the southwestern monsoon, which provides for around 80% of the country's annual rainfall (Lacombe and McCartney, 2014). There was, however, a little drop in the average annual rainfall in India, except in the northwest and peninsular areas (Mondal et al., 2015). Precipitation is expected to rise by 30 percent in the medium (2040–2069) and by 50 percent overall (2070–2099) in numerous Indian river basins, based on observations from 1971–2005 and five CMIP5 GCMs (Mishra and Lilhare, 2016). An increase in pre-monsoon rainfall of about one hundred millimeters is projected in the Brahmaputra basin by 2071–2100 under the PRECISE (Providing Regional Climates for Impacts Studies) model using the base period of 1961–1990 (Ghosh and Dutta, 2012).

According to national data, 2016 was the hottest year in India since records began in 1901 (IMD, 2016). The previous 16 years have seen the five hottest years on record. Between 1971 and 2003, the national average yearly temperature increased by 0.22 degrees Celsius each decade

(Kothawale and Kumar, 2005). Using data from 1881 to 1997, researchers have found average annual warming of 0.57°C over India (Pant and Kumar, 1997). Between 1880 and 2080, CMIP5 models predict that India's average temperature would climb by 2–4.8 degrees Celsius (Chaturvedi et al., 2012). The PRECIS climate model prediction for 2071–2100 predicts a rise in temperature over India, with nighttime temperatures rising faster than daytime temperatures (Kumar et al., 2006).

Drought is a yearly occurrence in India that impacts a vast number of people. Food security and socioeconomic fragility are at risk since a third of the country are affected by drought (Mishra and Desai, 2005), primarily as a result of unpredictability in the monsoon (Shah and Mishra, 2015). About 2.28 106 km² of India is made up of dry terrain (arid, semi-arid, and dry subhumid) (Ministry of Environment and Forests, 2010). In the previous three decades, the intensity of meteorological, vegetational, and short-term droughts has increased in contrast to long-term drought numbers (Zhang et al., 2017). Droughts are expected to become more common in India's central and western regions in the second half of the 21st century under the IPCC SRES A2 scenario, which uses seventeen global climate models (Ojha et al., 2013).

Indus, Ganges, and Brahmaputra rivers' flow and water availability, as well as agricultural growth in India, can be influenced by glacial retreat and expansion. In the Indus, Ganges, and Brahmaputra basins, India contains 9,040 glaciers that occupy an area of 18,528 km² (Sharma et al., 2013). Long-term mass balance data shows that, except for a few exceptions, the Indian Himalayan glaciers have been losing mass for the previous four decades (Pratap et al., 2016). For example, glacial retreat in the Indian Himalayan area has been between 0.2 and 0.7 percent each year for 11 river basins between 1960 and 2004, with a mean extent of 0.32 to 1.4 km² (Kulkarni et al., 2011). In Himachal Pradesh's Chandra River watershed, the mass balance of Chhota Shigri Glacier (15.7 km²) shows a net loss of 1,000 meters between 2002 and 2009 (Ramanathan, 2011). Tree ring width data from Gangotri Glacier (143 km² and 30 km long) in the Western Himalayas has shown that elevated winter temperatures are due to substantial glacier retreat during the last four hundred years (Singh and Yadav, 2000). Zemu Glacier, located in the Sikkim Himalayan area, was found to have a reduced snout part in contrast to the studied toposheet of the Zemu Glacier region (2014), according to satellite imagery (1935) (Singh, 2016). Some sections of the country will be hit worst by global warming in the years to come. Hydrological system design, flood and drought management, and urban management and design will all be affected by changes in precipitation. Indian agriculture, which is primarily reliant on the monsoon and enough water for output, faces a challenge from climate change. NAPCC, the first national framework for addressing climate change's consequences, mitigation, and adaptation, was unveiled in 2008. Reducing water usage by 20% while increasing forest area from 23% to 33% of India's land area is the long-term target for India (Pandve, 2009).

1.2 Climate Change and Sustainable Growth

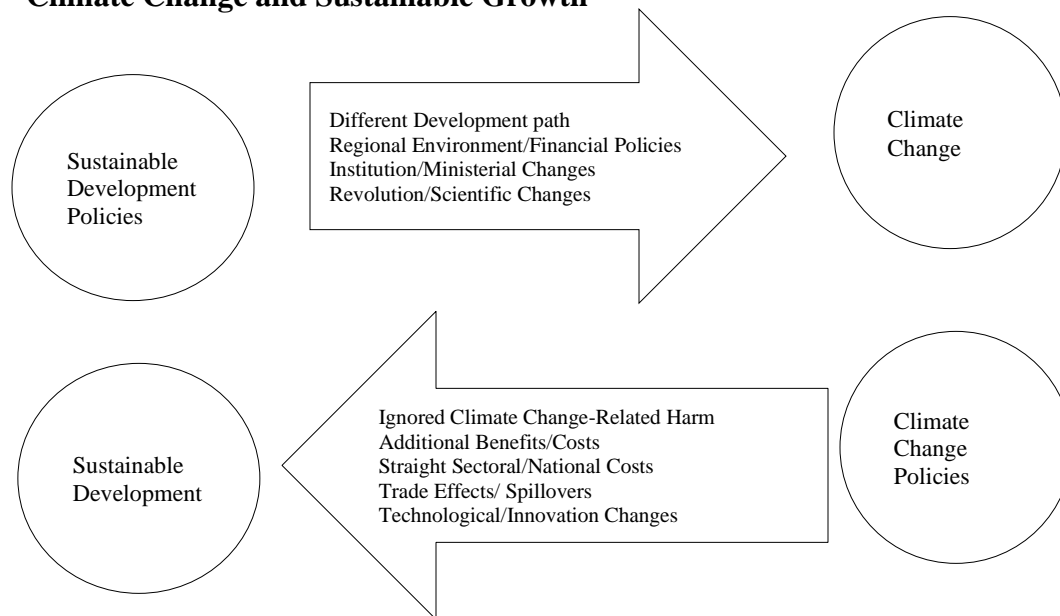


Fig 1. Linkages between sustainable development, climate change, and policies

Source: <https://www.sciencedirect.com/science/article/abs/pii/S1469306203001013>

All global climate change policy discussions have been made more sustainable after the adoption of Agenda 21 and the accompanying conventions from the 1992 "United Nations Conference on Environment and Development (UNCED)." The Brundtland Commission's widely recognized and widely used definition is "development that meets current demands without jeopardizing future generations' ability to provide for one's needs ". Sustainable growth has evolved into a holistic concept that encompasses economic, social, and environmental concerns. Sustainable growth does not rule out the use of finite natural assets/resources, but it dictates that any such use be properly counterbalanced. Developing countries reject this approach because it disregards their objectives for evaluation and growth. Furthermore, emerging countries cannot attain sustainable development without strong economic growth.

Sustainable growth can only be achieved by a combination of economic growth, social equality, and environmental preservation. Do existing economic gains (GNP, employment) have to be sacrificed to protect the environment. Policymakers in developing nations often see wage growth and environmental sustainability as an exchange. Evidence is emerging that environmental conservation is not a commodity but an obligation, especially in developing countries where economic growth and development have been most pronounced in the previous several decades. Because of the current unsustainable practices with natural assets/resources such as water, soil, jungles, land, wildlife, and groundwater, climate change is expected to worsen their degradation over the next 25 to 50 years.

Environmental degradation and freshwater shortages are already major problems in India. There are numerous approaches to pursuing sustainable growth methods that benefit climate change management. Below given a few examples:

- Implementation of value energy-efficient technology in power generation, transmission, and allocation, as well as reductions in greenhouse gas emissions, can cut prices and prevent environmental degradation.
- Shifting to renewables, which are often now cost-effective, can improve long-term energy supplies while also lowering pollution levels in the surrounding area.
- Forest preservation, replanting, afforestation, and jungle management practices can help with biodiversity conservation, shoreline protection, local employment, enhanced forest dweller incomes, and carbon sink enhancement.
- Metro railroads and other efficient, rapid, and dependable public transportation systems can help to minimize traffic congestion, pollution, and greenhouse gas emissions.
- When jungle management, local energy, and agriculture are integrated into a long-term rural development strategy, greenhouse gas emissions can be reduced, or carbon sinks increased.
- Reasonable energy prices based upon that long-run marginal-cost concept can create fair competition for renewables, accelerate the adoption of efficient energy sources with renewable energy systems, and utility companies' economic sustainability, inevitably leading to a reduction in carbon emissions.

Intergovernmental Panel on Climate Change (IPCC)

Scientists investigating climate change have begun to realize the need of including sustainable growth in their research. According to the IPCC's "Third Assessment Report (TAR)" (Banuri et al., 2001), the "International Panel on Climate Change (IPCC)" has provided an effective plan for mitigating climate change (Smit et al., 2001). People, environment, habits, and population have all been shown to be intertwined with climate change in the most current state review of social science literature pertinent to climatic changes (Rayner and Malone, 1998).

Greenhouse Gas (GHG) Emissions

The combination of the atmosphere, sea, land, and plantation, as well as fossil fuel deposits, makes up the global carbon cycle. 39,000 gigatons of carbon (GtC) are found in the oceans, 16,000 GtC in fossil fuel deposits, 2500 GtC in soils and vegetation, and 760 GtC in the atmosphere. Land-use alteration is predicted to have generated 136 GtC since 1850, while fossil fuel combustion has produced 270 GtC. 180 GtC settled in the earth's atmosphere, 110 GtC was collected by growing plants, and the rest was consumed by the oceans. Concerns about global warming are being spurred by growing levels of atmospheric carbon dioxide.

The primary contributors to increased Carbon dioxide and other greenhouse gases are the usage of fossil fuels and other human activities. Between 1990 and 1999, the burning of fossil fuel generated an estimated 6.3 GtC per year, while forest vegetation burning generated another 1.6 GtC per year. The absorption of 2.3 GtC/year by increasing plantation and the sea compensated for this. This left a 3.3 GtC/year carbon balance in aerospace. We know that one way to reduce greenhouse gas emissions is to reduce the reliance on fossil fuels, land usage, and the burning of plants and flora. To slow down global warming as well as sea-level rise, people may cut the emissions of greenhouse gases. If we can reduce carbon emissions faster and more completely, we will see a reduction in global warming and sea-level rise. So, emissions from history, current, and the future do have an impact on how quickly the planet warms in the years to come (Sathaye, J., et al 2006).

1.3 Human Security During Climate Change

The human security concept lay at the heart of CLICO's study and was the subject of every project's case studies. There are different meanings of human security, which is another essential phrase utilized here (Goulden and Porter, 2010). "Human security can be said to have two fundamental dimensions," according to the UNDP definition. In the first place, long-term threats like starvation, sickness, and dictatorship must be guarded against. Second, it protects people against sudden and detrimental interruptions in their everyday routines, whether in their homes, businesses, or communities. Risks of this nature can occur at every level of national wealth and development" (UNDP, 1994: 23). People-centered human security principles are linked to concerns of development, equality, freedom (e.g., human rights), and justice (Brauch, 2006).

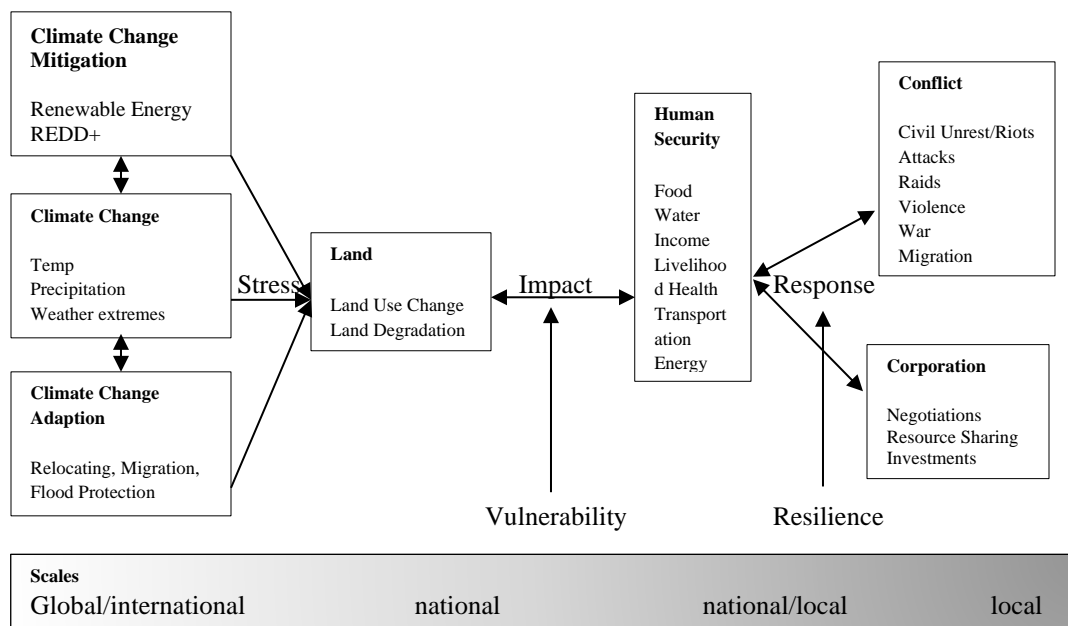


Fig 2. Conceptual framework of direct and indirect effects of climate change on resource availability and potential conflict and cooperation dynamics

(Source: Current Climate Change Reports 2019)

The vulnerability associated with environmental dangers has a strong relationship to human security. CLICO's conceptual framework includes many more dimensions (Goulden and Porter, 2010; Goulden and Graininger, 2012). According to Brauch (2005), A person's survival or well-being may be threatened by the actions of governmental actors, globalization, environmental degradation, and terrorism. When it comes to human security, climate change has the prospective to significantly raise the level of hydro-climatic hazards and environmental assets/resources such as water, based on the scope to which humans and groups are proportionally dependent on natural ecological systems, how well these systems are impacted by climate change, and how groups respond to different changes (Barnett and Adger, 2007). Poverty, demographic trends, ongoing wars, policies, and resource decisions are all common contributors to human insecurity rather than a single, monocausal component. Uncertainty among people may be a source of conflict (an overview of the studies on this topic can be found in Gerstetter et al., 2012). Barnett and Adger (2007) mention several reasons that have the potential to intensify violent conflict, including the

loss of livelihoods due to environmental change, as well as a fragile state and migration. This necessitates a thorough examination of the connections between climate change, sustainable development, human safety, and conflict/cooperation. The CLICO theoretical foundation aimed to contain this intricacy at its core through a series of conceptual diagrams.

2. Review of literature

To find out how climate change affects India's long-term economic growth and human well-being discussions on the theoretical underpinnings of global warming, environmental sustainability, and human safety are required. The literature review focuses on changing climate, environmental sustainability, and human security. Throughout the world, there has been extensive and detailed research on how climate change affects India's sustainable growth and human security. The review of literature is broken down into the following sections based on the number of variables in the study:

- a) Ecological challenges
- b) Sustainability Development Goal and climate change
- c) Threats to human security

2.1 Ecological challenges

Water supplies, human systems, regional agribusiness, and food security will all suffer as a result of climate change. Even though India has only 4% of the planet's water supplies and 9% of the world's agricultural land, it has witnessed enormous economic growth over the past two decades. The driest place on Earth, the Thar Desert in western India, received more rain than the whole northeastern India region. According to the previous century, India's rainfall, as well as temperature, have drastically changed during the recent decade (Goyal and Surampalli, 2018). The fishery and the communities that are dependent on it for their survival are suffering as a result of climate change. Extreme events like cyclones and floods necessitate greater preparedness and adaptation by vulnerable populations. Natural resource resilience may be improved by developing policies and programs that assess risk and vulnerability, increase understanding of climate change consequences and strengthen important institutions. One of the greatest threats to agricultural productivity and human well-being is global climate change. As a result of having to constantly adapt to changing weather conditions, farmers are the most severely affected. Farmers have seen an increase in temperature, a delay in spring's emergence, intermittent dry spells, and decreased soil moisture (Dhanya and Ramachandran, 2014). One of the most critical issues of day is that of global climate change. It has been particularly hard on rural communities because of the rise in temperatures as well as harsh weather occurrences and dwindling water supplies for agricultural operations. For tropical monsoon failure, the structural features of climatic vulnerabilities are crucial since climate change directly impacts agriculture and the negative implications of climate change monsoon failure, in particular, increases pre-existing socioeconomic gaps (Dagdeviren et al., 2021). Despite its low per capita emissions, India, with a population of over a billion people, is a crucial factor in the global fight against climate change. more advantages will be realized in urban areas and state with less socio-economic development than in rural areas and states with more socio-economic development (Dimitrova et al., 2021). Dr. Ram Lakhman Ram (2016) found that climate change is identified as a bigger danger to species survival and ecological integrity around the world. The increase in concentrations of greenhouse gases (GHG) such as methane (CH₄), carbon dioxide (CO₂), and nitrous oxide (NO_x) is primarily responsible for the rise in global atmospheric temp (NO₂). Burning fossil fuels, rapid industrialization, deforestation,

agricultural operations, luxury/modernization of lifestyle (home appliances), space explosion, grazing, wetland degradation, and land use change are all linked to increased GHG emissions. The precise impact of climate change on soil health and the sericulture sector is still unknown, but numerous theories have been advanced in this area. According to several researchers from various Indian institutions, the temp in various parts of the country may rise from 0.5 to 4.0o in the next few decades due to the gathering of anthropogenic greenhouse gases in the atmosphere, which may drastically change sericulture practices and economies in temperate regions and have a marginal or beneficial effect in tropical regions in India.

2.2 Sustainability Development Goal and Climate Change

If future generations can meet their needs without risking today's, then sustainability is achieved. Sustainable Development Goals implementation in the poorest countries will have an enormous impact on the global SD agenda (Khalid et al, 2018). India is the world's second-most populous developing country. Many environmental issues, including climate change and resource depletion, e-waste, and pollution of the air, water, and land, affect India. These environmental issues are caused by a variety of reasons, including population increase, technological improvement, contemporary lifestyle, and the industrial revolution. There is a clear link between population increase and other elements, such as the economy and the environment. before implementing sustainable practices in various areas, raising consciousness about sustainability through the provision of a sustainability unit in educational institutions, awareness programs such as workshops, education, and seminars, financial support from management, and a thorough understanding of the benefits and risks of sustainability (Batth, 2020). As global temperatures and sea levels rise, many countries are facing an increase in evapotranspiration, groundwater depletion, water salinity, and habitat loss. The impacts of climate change are becoming increasingly apparent, particularly in agricultural practices, human health, and population mobility. Adaptation and mitigation plans must be developed in a wide context that includes scientific, environmental, demographic, and socioeconomic considerations in the aftermath of climate change (Bhargava, 2019). Climate change affects the entire globe. Climate change necessitates a shift in human behavior to manage and adapt to the new conditions. People that engage in sustainable behavior take responsibility for their carbon emissions and consider the effects their actions will have on future generations. Adopting the Sustainable Development Goals effectively can aid in climate change mitigation (Rishi, 2022). GHG emissions reduction and increased renewable energy generation are vital for lowering environmental pollution, enhancing efficiency, and cutting energy prices in the energy business to reduce GHG emissions and promote environmental sustainability (Chowdhury et al., 2018). Contrary to sustainable development, Baruah (2012) observed people living in Lower Subansiri of Assam have refused to align with growth conversations when it results in banishment and "turns the waterways into no expense power source for hydropower plants, despite the impact on people "s health and livelihood." As a result, climate change and sustainable growth dialogue in India remains difficult and debatable, both politically and economically.

2.3 Threats to human security

There should be no violence or conflict, political oppression or poverty or starvation or disease, or any environmental or health threats under this concept of human security. Security threats to

human well-being include conflict and tragedy; underdevelopment; diseases; economic downturn; and the deterioration of people's dignity. The regional impact of climate change on various facets of human security is a result of the interdependence and intertwining of environmental, economic, and variables (Sartori and Fattibene, 2019). As a preventative and reactionary approach, catastrophe risk reduction and climate change adaptation (CCA) frameworks refer to population migration (Ferris and Weerasinghe, 2020). More emphasis is being paid to ocean governance, mitigation measures, and the role they play in alleviating human insecurity as it pertains to adapting to climate change. Climate change mitigation and human security are linked substantially (Zervaki, 2018). Human security debates, policies, and practices have been focused on environmental deterioration for the past two decades, so it is sensible to start there when examining how the 1994 Human Development Report (HDR) environmental pillar has fared. Increasingly, the idea of environmental security is being separated from its potentially vital human security foundations. In favor of liberation, the author said that this has led to the loss of human freedom and dignity rather than the preservation of it (Elliott, 2015). Buhaug, H., & von Uexkull, N. (2021) discussed how climate change would provide negative consequences for a variety of human security outcomes, but not every country is equally exposed to natural disasters. Current humanitarian crises demonstrate the intricate relationship between the causes and impact of conflict and socioeconomic vulnerability, yet scientific study frequently isolates either of these phenomena. The author has linked the literature on sociological susceptible to climate change, the repercussions of conflict and the security impacts of climate change in the study. The author highlighted strong overlaps as well as the possibility for places to become entrapped in vicious cycles of vulnerability and conflict. In addition, Vally Koubi (2019) discovered two possible linkages between climate change and conflict: The first believes that the environment influences the chance of interpersonal conflicts, such as murder, rape, assault, and robbery, by influencing psychological and physiological aspects. Warmer temps enhance animosity and violence by increasing levels of discomfort and aggression. The second channel proposes that resource scarcity causes intergroup conflict, i.e., conflict between groups such as civil war, civil conflict, protests, or riots. As a result, the majority of extant evidence suggests that the impact of climate change on conflict is mediated by economic factors such as decreased economic output and agricultural yields, as well as higher food prices and increased migrant flows. Adams, et al, 2018) warned for some time that cases on the dependent variable are frequently used in human security and climate change research. His research is the first to present comprehensive, empirical proof that certain claims are true. One or two case studies are more likely to look at locations in which the dependent variable (violent conflict) is present, but which has nothing to do with the independent variable (economic development) (vulnerability to climate change). Furthermore, research on climate conflict favors situations with the most accessible access to the field or data.

3 Discussion

The most intensive scientific study and policy evaluation effort has focused on climate change. A scientific evaluation by national academies and the “Intergovernmental Panel on Climate Change (IPCC)” indicates a high degree of scientific concurrence on different implications of climate change, particularly concerning the physical dimensions of international warming, but also concerning the availability of measures which are profitable and even cost zero to none to reduce GHG emissions and the insecurity to impact the climate. There appears to be no end to the worldwide climate change policy gridlock. Human security and violent conflict are typically

addressed as distinct concerns in the study, even when the two are intertwined. Rather than concentrating on the choices of players to participate in violent acts, the bulk of risk factors for the development of violent disputes, including that of all contributors in the so-called "greed versus grievance debate," emphasizes essential factors that raise the likelihood of violence. Many factors contribute to the spread of violence, including a weak state, natural assets/resources," "loot ability," and the fact that some individuals like to engage in with and against peace. Moreover, sustainable growth has become a common term in today's development debate. In spite of its broad usage and adoption over the years, numerous people continue to have questions about the meaning and history of the idea and the contents and suggestions it includes and makes for development theory and practice. By elucidating this paradigm and its implications for human thought and conduct in the quest for long-term development, the study hopes to add value to SD discussion. Besides, the idea of Political ecology provides an essential method to enhance discussions on human security and adapting to climate change in relation to Indian agricultural landscapes. Current human security ideas help situate resilience to climate change within social justice issues, but they are less open when it comes to providing analytical tools to understand the relationship between power, inequality, and vulnerability. In recent years, several allegations of neo-Malthusian scenarios about climate change's conflict-inducing impacts have surfaced in public debate. Because climate change has so many potential effects on the physical environment, humans might expect a wide range of conflict scenarios. However, the causal chains proposed in the literature have rarely been backed up by trustworthy evidence to date. The gaps in information concerning the effects of climate change on conflict and security appear daunting, given the coupled constraints of climate and conflict studies.

Ghosh P K (2009) said that humans have discovered that climate change is regarded as a direct threat increasing human security problems, likely as water and food insecurity, and also indirectly leading to conflict which is violent in places exposed to climate change. Climate preparedness and response methods can influence land and land use in regard to climate change-related environmental threats, such as droughts and floods. For example, large-scale renewable energy facilities and efforts at relocation are both examples of this type of project [IPCC, 2001]. Warmer temps and increased evaporation, combined with changes in precipitation characteristics (such as total precipitation, variability, and frequency of extremes), have the potential to affect the average discharge, flood frequency and severity, soil humidity, and potable water for irrigation and hydropower generation in the affected areas. Steps in evaluating the impact of climate change on groundwater include prediction of climatic differentiates such as temp, humidity, mean sea level pressure, etc. at a worldwide platform, downsample selection of worldwide climatic change to local waterways variables, and computational methods of possible risks of hydrologic extremes for planning and management of water.

Climate change and sustainable growth have been regarded in vastly different academic and policy circles. However, there are substantial connections between both areas. So, studies should be done on the experimental connections and evaluates the convenience for integrated policy development they bring, as well as the essential requirement to assess the dangers of trade-offs. Integration is recommended not just for providing new opportunities, but also as a must for properly addressing both concerns. Due to the possibility of sustaining greenhouse gas concentrations based on broad sustainable growth pathways, climate policy responses must be seamlessly integrated through a much larger case of globalization and technology economic policy development, despite being perceived as an afterthought by these wider policies.

4 Conclusion

Future climate change forecasts are dependent on the trajectory of future emissions. Even if all greenhouse gas emissions ceased today, the earth would continue to warm for decades, and impacts including such sea-level rise would last generations because the environmental repercussions of emissions do not manifest themselves immediately. It is no secret that climate change is a hot-button issue right now, and it will only become worse if humans do not act now. Individuals have experienced how climate change impacts farming, forestry and fisheries, and natural resources like water, animals, and marine areas for their livelihoods in the examples above. It has emerged that climate change is seen as a major threat to human security, including food and water shortages, as well as the potential for violent conflict. Climate change challenges to security, such as droughts and floods, can impact land and land usages also; mitigation policies through the lens of climate-effective adaptation measures such as 'Green Initiative' have been protecting and sheltering the hazardous outcomes to some extent. Relocating and constructing large-scale renewable energy facilities are two instances of this. Current and future generations must be influenced to strive and develop toward a sustainable future with no conflict or anxieties if humans are ever going to achieve it. Humans need to adapt to the technological and natural assets or resources which are renewable, inexpensive, profitable, and cost zero to none and influence present and upcoming generations to work and build towards a sustainable future with no conflict and insecurities.

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The research, writing, and publishing of the paper were not affected by any potential conflicts of interest on the part of the authors.

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Data Availability Statement (DAS)

The paper has used only secondary data from secondary sources such as journal, book and official website. Source of these secondary data has been cited.

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