
Globalisation's Climatic Challenge: Exploring the Economic Dimension of Climate Change

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Abstract

The states, societies, global economies, cultures, and people have witnessed huge interconnectedness and interdependence due to globalisation, particularly in the last few decades. This process has contributed to uplifting the men's standard of living due to economic collaboration on one hand. On the other hand, it also profoundly impacts the environment across the globe. For example, climatic challenges are known as a byproduct of globalisation in scholarly discourses in both natural and social sciences. Climatic changes have undermined the potential of globalisation. It is menacing the sustainability of both developed and developing states. Particularly, developing states cannot deal with its challenges due to its diverse nature and absence of planning. It has social, economic, political and ecological aftereffects. This research discourse examines the multifaceted nexuses between globalisation and climate change, determining the economic and environmental dimensions, as these two are closely related. The analysis reveals both positive and negative impacts of the unavoidable process of globalisation on the climate crisis, indicating the complex interplay between global economic integration and environmental sustainability. However, mitigating the impacts of globalisation on climate change requires inter-state collaboration because no state can deal with it single-handedly. The method of critical analysis of the scholarly contributions on both climatic changes and globalisation has been chosen to reach the findings of this research article. The main added value of the paper is the synthetic forecast of the economic effects caused by global climate change. It may enrich the discussion about the effects of climate change through disseminating and accepting scientific knowledge.

Keywords: Global Climate Changes; Economic Globalisation; Social Integration, Ecological Degradation, Political Collaboration

Introduction

Climatic change is an unprecedented threat to sustainable living in the world. Outrageous climatic happenings, extreme transitions in temperatures causing the snow to melt in unprecedented ways, and changing rainfall patterns have turned out to be frequently discussed agendas for the policymakers and people of developing nations. It is more vicious, where institutions at the helm of affairs are fragile in preparing themselves socially, politically, and economically to deal with this phenomenon.

Globalisation refers to the process by which people interconnect through modern means of communication and transportation and integrate themselves into a global entity besides their cultural, racial and ethnic diversity. The world is now interconnected and interdependent to achieve survival, resilience, and better living. Globalisation has served its purpose through economic liberalisation and human consciousness but has also contributed significantly to environmental degradation and climate change. This thesis poses some basic questions, such as how globalisation has contributed to uplifting human living on this globe. How it influences

climate change, considering factors such as economic integration, industrialisation, and the global spread of cultural and social ideas, ecological decay and political management in this regard. This article explores the intricate nature of globalisation and its climatic challenges in economic and environmental dimensions.

Main Argument: Rapid globalisation is contributing to economic decline along with ecological decay due to climatic changes

Research Questions:

1. How are globalisation and climatic changes interconnected?
2. How are climatic changes undermining the benefits of globalisation?
3. How unprecedented climate change is economic and ecological decay?
4. How can global political collaboration mitigate the impacts of climate change?

Dependent Variables: climatic changes, ecological degradation, economic decline

Independent Variable: Globalisation, economic integration, political collaboration

Literature Review:

Globalisation is a dynamic and global phenomenon. It directly impacts the global climate. It also impacts the political sphere of states. It causes ecological degradation, mainly due to mismanagement and the absence of proper planning. Developing states are drastically impacted by climate change in the social, economic, and ecological spheres.

The existing body of literature mainly focuses on economic integration and ecological impacts. This is mainly due to their interconnectedness. Despite the existing body of literature on the subject, not very much literature is available on climate change's economic and ecological implications. Much of the scholarly contribution can be seen in natural and social sciences on the said subjects, but there is still space to analyse their intricate relationship. The climatic challenge of globalisation is causing undue pressure on the developing states. It is imperative to see this phenomenon with political collaboration to mitigate its impacts.

Charles Kenny (2024) argues with a different perspective on globalisation and climate change. He argues that globalisation can help to reduce the negative effects of climate change and even help reduce CO2 emissions by adopting CO2 mitigating technologies and mutual collaboration. David G. Hallman (2021) argues that various aspects of globalisation, particularly economic liberalisation, are hindering the abilities of states to make environmental legislation mainly due to the economic benefits. The climatic challenges are particularly intriguing due to their environmental, social, economic, political and ethical aspects. Another perspective on globalisation and climate change is presented by Magdalena Raftowicz (2021). He argues that climatic challenges should be taken as the product of globalisation. Another perspective is that globalisation has both negative and positive effects. (Stobierski, 2021) Positive impacts are the benefits of economic liberalisation, whereas negative impacts are income inequality widening the difference between developed and developing nations. It also disturbs the eco-balance of nature and biodiversity.

Global warming and climate change are matters of scholarly debate, but it is imperative to consider the role of globalisation in this regard. This research contributes not only to the recent trends of globalisation but will also examine the economic and ecological implications of climate change through the lens of globalisation.

Research Methodology:

This article analyses the impact of globalisation on climatic changes from an economic and ecological perspective. Secondary data is taken from books, journals, online journals, online research articles and data produced by governmental and non-governmental bodies and organisations in the form of reports. It is

qualitative research along with descriptive and critical analytical approaches. An analysis is drawn based on data obtained from various governmental and nongovernmental organisations (NGOs). Quantitatively produced reports and articles have been reviewed to draw a more realistic analysis.

Theoretical Construct:

Contemporary debates in globalisation are about how to address the challenges of climatic changes, particularly sustainable economic development, the implications of ecological degradation, how to mitigate societal impacts in this regard and how political collaboration can mitigate the impacts of climatic changes. All this manifests the evolving nature of globalisation and climatic changes. The research in this domain continues to be a sparkling and evolving discipline. States are adopting various approaches to deal with the complexities of climatic changes, ranging from traditional dimensions that highlight how economic development costs human ecology to critical viewpoints that indicate how in-depth study of social, economic, and ecological aspects offer valuable frameworks for understanding the historical, and current, and future perspectives of unstoppable globalisation landscape as the world is shrinking, it is undergoing extreme transformation. This continuous evolution remains crucial for navigating the complexities, challenges, and possibilities of globalisation's climatic challenges.

Currently, no single theory can mitigate the challenges of climate change. States are adopting new ways and means to find a practical solution, as globalisation is unavoidable.

Contribution of the Research:

The discourse on climatic changes has attracted scholarly attention at the global and national levels. Much scholarly material has been produced on the dynamics of globalisation and its impact on climatic changes in the economic and ecological sphere. Nonetheless, there is a need to focus on the impacts of climatic changes in economics and environmental sciences. This is the need of the hour to see the relationship between global integration and ethnographic issues of class struggle between and within the states. This research will help understand the theoretical perspective and interpretation of statistical data on the subject matter. Lastly, this study will assist policymakers in incorporating the administration in formulating policy and innovative solutions to the current challenges of climatic changes, particularly in the social and political domains.

Contemporary Trends of Globalisation:

Globalisation is not something new. Since the beginning of human civilisation, people have been accustomed to exchanging goods through the barter system. For centuries, the Ancient Silk Road connected Europe, North Africa, East Africa, Central Asia, South Asia, and the Far East. According to the Education Desk of National Geography, The Triangular Trade network of exchange for raw materials, goods and enslaved people between the Americas, Europe and Africa, known as the Columbian Exchange, was an eminent example of past experiences of globalisation. The current wave of globalisation surged due to innovative technologies in transportation and communication that facilitated financial assets exchange across borders. Moreover, global fiscal policies and trade mechanisms support globalisation and political and economic stability. (Appleton, 2024) In this way, it has transformed the world.

Globalisation has empowered the world for collective well-being and prosperity, driving economic growth. Both exports and imports have contributed to immense economic growth, such as the industrial revolution of the UK and the rapid growth of Taiwan and South Korea from East Asian Economies. (Kenny, 2024) Likewise, India's per capita income escalated from \$304 in 1991 to \$2,600 in 2023. It also accounted for 0.45 per cent of global exports in 1986, a 1.5 per cent share of global merchandise exports, and 4.1 per cent of global services exports for India only. (Aiyar, 2023)

Meanwhile, pharmaceutical imports have played a vital part in enhancing the global life span, particularly in countries that depend on others for vaccines or antibiotics. Even countries with low public health infrastructure

are witnessing longer life spans.

Global integration has also reduced the cost of better living. For instance, in Denmark, anyone who earns and lives on less than \$30 is considered poor, which is equal to the criteria for someone poor in other high-income states in Europe and the US (Kenny, 2024). In addition to economic liberalisation, the process also has cultural and environmental dimensions.

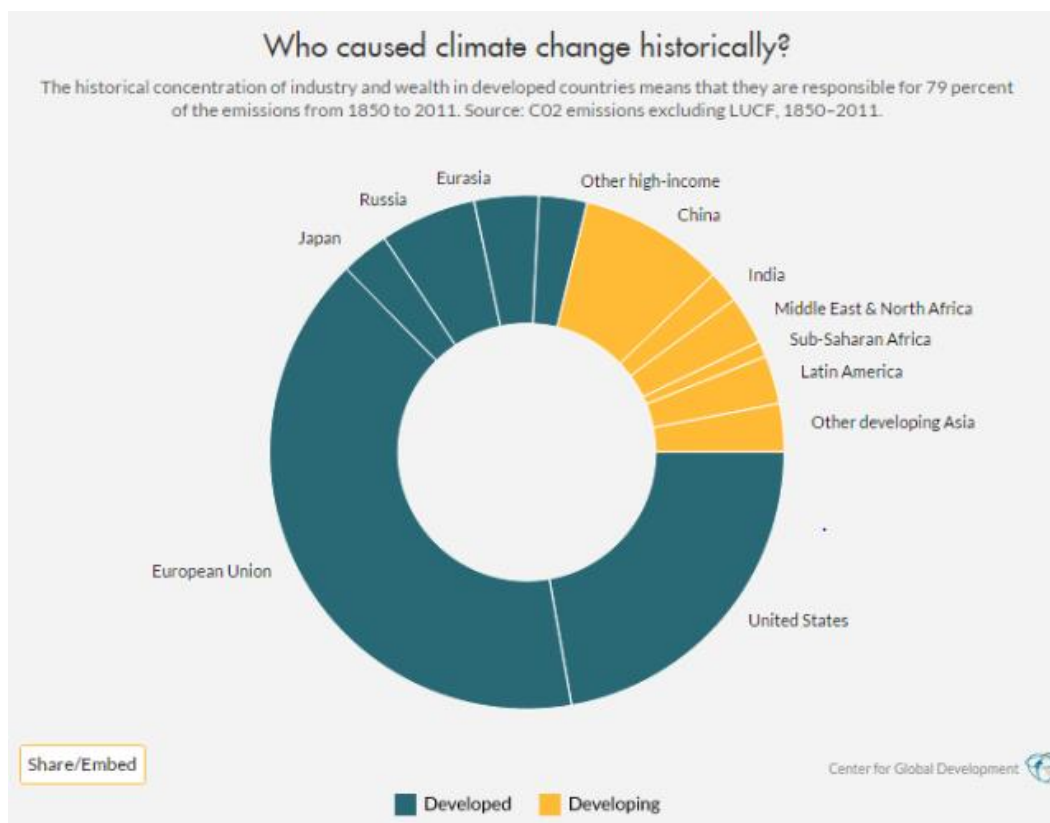
Culturally, people have integrated through advanced social media networks and means of transportation. The human consciousness has connected the humans like never before. Hybrid culture, the emergence of democracy as a guarantee of public liberties, and common concepts like human rights, child labour, and so on are a few illustrations of global connectedness in terms of human consciousness. Likewise, human conscience about greenhouse effects and global warming emerged due to the sharing of knowledge and ideas across the globe, and these are the byproducts of globalisation, just like climate change on the other hand (Raftowicz, 2021). Hence, the projection of climate change's impacts in public as scholarly discourse and as an immediate agenda in governmental and nongovernmental organisations is also due to more and more human interactions.

Globalisation and Climate Change:

Climate change is a worldwide issue. According to a report by UNDP (2023), climate change refers to the unprecedented and prolonged changes in the planet's climate that are escalating the overall temperature of the atmosphere, ocean and land. According to Hallman (2021), climate change refers to the transition in the atmospheric composition surrounding Earth. The transitioning of atmospheric composition is due to the emanations of many polluting substances (called ozone-harming gases - GHGs) from various sources like industry, transportation, farming and consumer consumption. This thick layer of gases is causing gradual atmospheric warming and is anticipating droughts and floods, rising ocean levels, unprecedented rainfall patterns and more outrageous rises or falls in temperatures. It also causes erosion of coastal areas, melting of glaciers, and loss of ice tips due to imbalanced ecosystems and biodiversity.

The change in the atmospheric composition began due to human activities in the 18th century. Man's aspiration to maximise absolute economic advantage by integrating the various parts of the world through the collectivisation of raw materials led to the rise of the average temperature of about 1.2 degrees Celsius. A report by UNDP (2023) illustrates that almost two-thirds of this temperature rise occurred after 1975. Due to this climatic transition, about 3 billion people are already living with vulnerabilities due to the climatic crisis. The same report also mentioned the risk of an increase of 1.5 degrees Celsius, possibly putting human civilisation at serious risk. Developing states are more risk-induced due to climate change. Thereby three reasons for that. First, developing states increasingly aspire to gain absolute economic advantages by integrating with the developed world. Secondly, there is less sensitivity and maybe less consciousness of the devastating impacts of climate change despite being at more risk. Thirdly, developing states cannot deal with these challenges mainly due to poor infrastructure and the absence of planning, without knowing that developed countries are developing at the cost of their sustainability. The Center for Global Development (2024) mentioned that the developed states are historically responsible for 79 per cent of carbon emissions from 1850 to 2011.

See **Figure 1** for the percentage of carbon emissions from developed nations for the past one-and-a-half century.



Source: <https://www.cgdev.org>

Developed states are not very concerned about saving the developing world from the devastating impacts of climate change despite so much noise on the subject through multilateralism and bilateralism. For instance, the Green Climate Fund had raised just \$ 1 billion by 2016 and \$ 5.3 billion in the next four years, though it was expected to raise \$ 100 billion for the third-world state to adapt to the climatic challenges. (GCF, 2020). International Monetary Fund (IMF) has warned in one of its recent reports that middle and low-income states are already experiencing high temperatures, and the temperature rise will be devastating for them, though they are responsible for a small percentage of cumulative emissions. Adaptation is a necessary response to a problem they did not cause. (Massett, 2022) The issue of climate change is particularly intriguing due to rapid globalisation, which encompasses many ecological, social, economic, political, and ethical aspects. This raises particular concerns for both the developed world and the developing world.

Economic Dimension of Climate Change: From Global Markets to Global Warming

Economic globalisation is where states, organisations, and business entities integrate globally for rapid economic benefits. This rapid economic integration is causing unprecedented climate changes, now considered a global economic well-being barrier. Hence, economic integration and environmental sustainability are interrelated and have been a subject of scholarly debate in developed and developing nations since the 1990s. Besides climate change, which will be discussed later, economic integration has long-lasting impacts on resource exploration and extraction. Just take the example of oil; USD 22.87 trillion is expected to be invested in oil exploration and extraction till 2035 globally, whereas the estimated worth of the oil reserves is around USD 50 trillion only. This fact raised serious concerns for future generations, particularly with investments as low as USD 7.32 trillion in renewable, hydro and nuclear energy compared to investments

in oil exploration. (Jacobson, 2009) It is also questionable regarding resource allocation. Most recently, about 85% of the world's population earns less than 30 dollars per day, of which 62% (about one-third) live with less than 10 dollars per day. (Kenny, 2024) The economic inequality is evident. These issues are just the two most important concerns arising out of unstoppable economic integration, but the climate is hindering the advantages of economic integration as a whole.

Literature on climate change from three decades ago was based on available information and assumptions. For instance, one of the studies done in the 1990s suggested that the impact of climate change would be negative in future (Tol, 1995). A recent UN report shows that the world has witnessed two million climate change-induced deaths and \$4.3 trillion economic losses. It also mentioned categorically that 60 per cent of these losses occurred in developing states (Schonhardt, 2023). Thus, climate change can be characterised as a first barrier to the well-being of the planet Earth as more frequent and destructive natural disasters are expected in future. In 2019 alone, almost 396 climate-related events occurred, affecting 95 million people worldwide and escalating to \$103 billion in economic losses. This magnitude of natural disasters exceeded the previous decade's annual average. (McKenna, 2024) Many other issues associated with climate change are improvised biodiversity, water scarcity, polluted oceans, excessive use of phosphorus and nitrogen, diminution of the ozone layer, contaminated atmosphere, etc. (Rockström, 2009)

It is also proposed in the work by Tol (1995) that the impact of climate change will not be uniform, a naked truth now. According to Mendelsohn and Morrison (2000) and IPCC (2014), the influence of climate change is not the same on economic output across the globe. Mendelsohn, Schlesinger, and Williams (2000) found that developed nations are still at the edge, even at the cost of economic losses of developing nations due to climate change. Similar is the case with the hot and cold regions. With the unusual temperature rise, economic growth in the hotter regions is likely to shrink, but there exists an ambiguity about the magnitude of the temperature rise, which is a warning sign. (Adom, 2024) The impacts of climate change on economies can be observed in per capita GDP, per capita consumption, productivity, capital depreciation, and poverty.

Fankhauser (1992) predicted that a rise in temperature of 3°C and 2.5°C would shrink global GDP by 1.5 per cent. Stern (2007) and Nordhaus (2013) have predicted the loss of almost 0.3 per cent of global GDP if Earth is likely to experience the rise of 2°C temperature by 2060, out of which OECD economies will likely flourish, whereas the rest of the global economy will shrink. Another important dimension of the issue is that the economies of low-latitude states will be at more risk than the high-latitude states. With the rise in temperature of 2°C, this risk will be more devastating for low-latitude states. Stern has also anticipated a loss of 0.2 -2% of global gross domestic product (GDP) by 2100 at under 2°C, whereas per capita suffer from so suffer by 13 per cent to 8 per cent. (2007)

A naked truth on which experts and scholars on climate change agreed that low-income states are at more risk than high-income states. One of the key reasons is the absence of their capacities. For instance, multinational corporations are shifting their production units to developing states to avoid cumbersome ecological regulations. Free trade arrangements also harm the state's ability to implement environmental protocols. (Hallman, 2021) This trend is putting these states at more risk on one hand.

On the other hand, a decade ago, China's daily average earnings were 12.3 dollars, whereas India's was 4.50 dollars. To bring both these nations' poverty criteria near those of rich nations, they will contribute 60% of the global carbon dioxide emissions. Still, the populations of these two nations account for only three billion. The total population of the developing world is twice the mentioned numbers (Kenny, 2024).

Along with CO₂ emissions, the world's greenhouse gas volume rose by 30 to 40 percent from 1990 to 2009. (Lewis, 2013). See Figures 2 and 3 for the intricate relationship between global GDP growth, global trade, CO₂ emissions, and GHG.

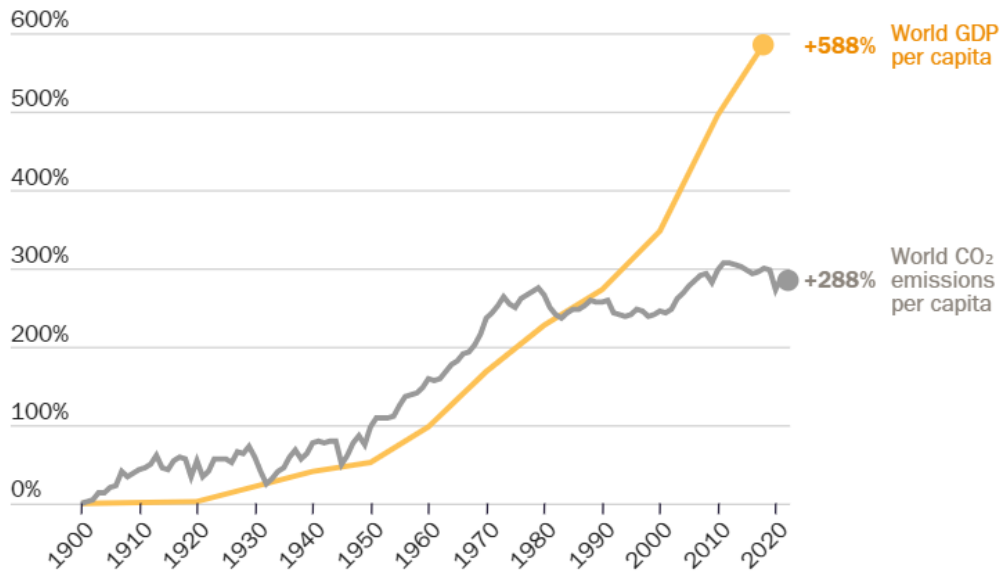


Figure 2: The relationship between World GDP per capita and World CO2 emissions per capita from 1900-2020

Source: <https://ourworldindata.org>

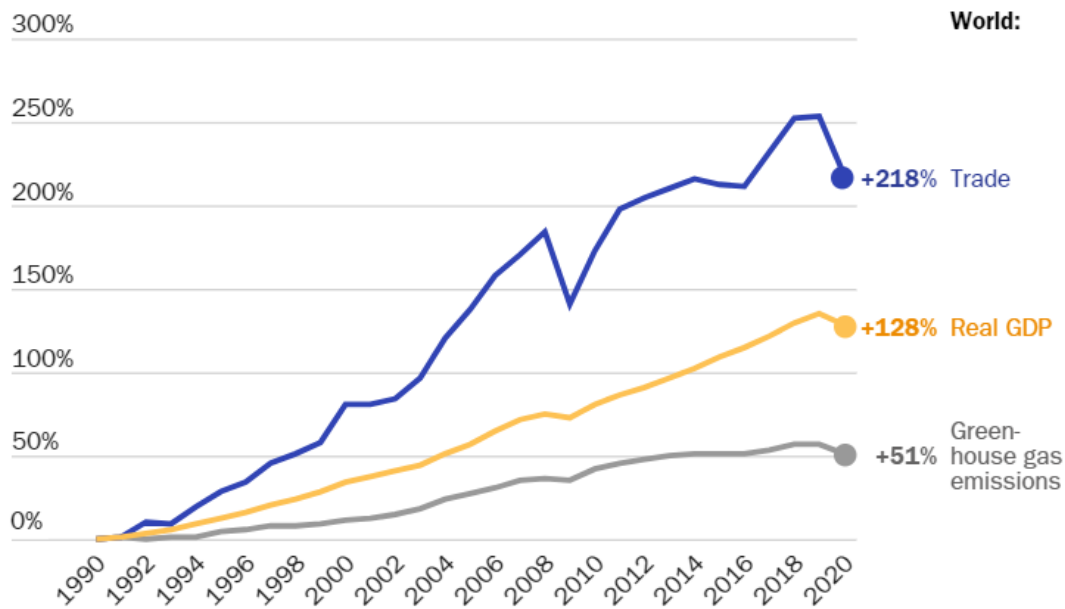


Figure 3: Relationship between global Trade, GDP and GHG from 1990-2020

Source: <https://www.cato.org>

Another sector that is severely implicated due to the warm climate is agriculture. This sector heavily depends on land, water resources, atmospheric temperature and climate. It is projected that the low-income states are already suffering due to the unprecedented warm climate; more temperature rise will implicate their agriculture, contributing a larger fraction to their economies. (Mendelsohn R. N., 1994) Besides low-income states, it is worrisome for high-income nations. For instance, according to the United States Environmental Protection Agency (EPA) (2024), about half of the land in the US is used for farming and cropping, but the

number of farms has declined since the 1930s. It is affecting the food industry and causing food insecurity despite the government's efforts to adapt to climate change in the sector. It affects the productivity rate and composition of land and water resources mainly due to unusual changes in rainfall patterns and temperatures, air pollution, and depleted oxygen levels in water bodies due to the temperature rise, which is known as hypoxia. All this is happening in an industrially and agriculturally advanced country, but it has far-reaching and devastating impacts on agriculture in developing and undeveloped states. Natural catastrophes like floods, cyclones and droughts make producing food all the more difficult. Eventually, people are at more risk of food insecurity, hunger and poverty. Climate-induced poverty states by the news desk of the United Nations (2019) predict that by 2030, more than 120 million more people are expected to be vulnerable to poverty. This vicious circle of poverty leads to climate-induced migration. People also migrate from flood-hit and unusual rise of sea-level risk areas in search of safe places. In 2022 alone, almost 32 million new internal displacements were recorded due to climate-induced hazards. A careful estimation of the United Nations International Organization of Migrants (IMO) reveals that nearly 216 million people are expected to suffer as internal climate migrants by 2050. (IMO, 2024)

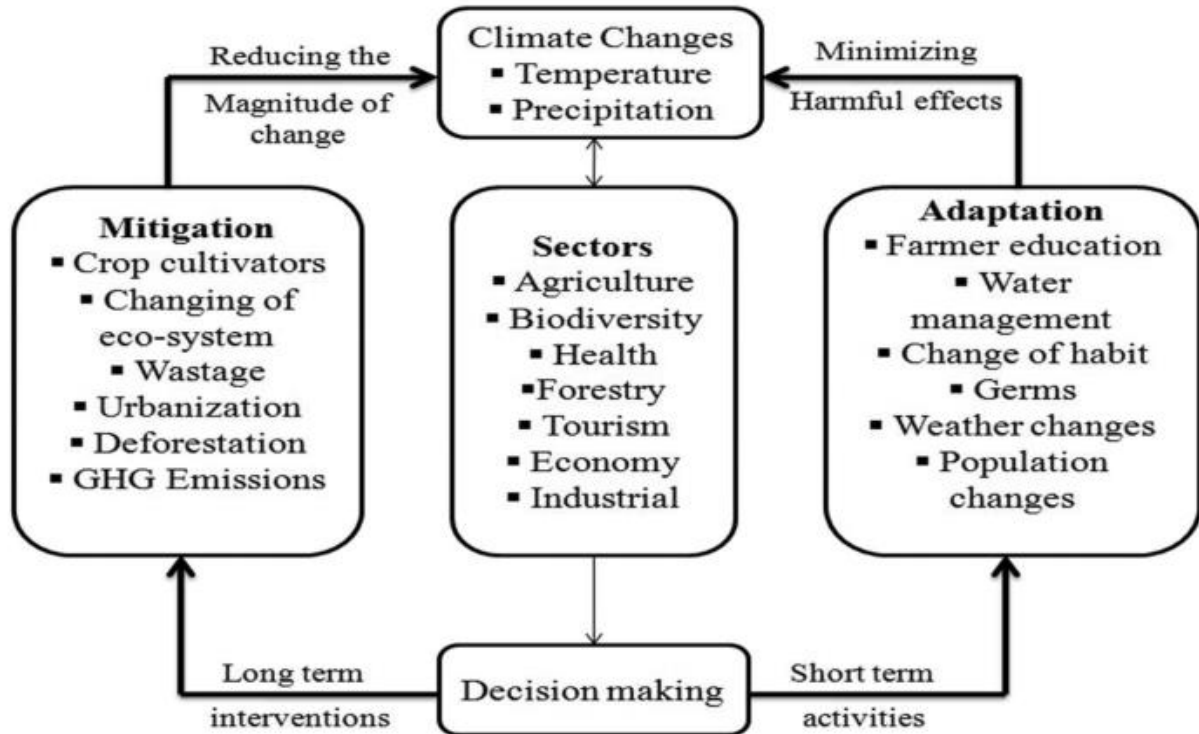
Malnutrition has been climate change's most important health impact, particularly since 2014. The UN Agency on Food and Agriculture recorded that 690 million people were affected due to malnutrition, nearly 9% of the global population in 2019. The large number of them are from the developing and underdeveloped countries. (FAO, 2020) The 2020 Global Report on Food Crises (2020) presented that nearly 135 million people across 55 countries were affected due to climate shocks and natural disasters regarding food insecurity and poverty. Climate change is expected to push 20% of people globally to hunger; probably, Africa is at the most risk. According to a World Health Organization's report of 2017, the death toll may reach 250,000 per year from 2030 to 2050 due to climate-induced malnutrition, pandemics and heat stocks.

Last, developed, developing, and underdeveloped areas will be affected regardless of their participation in ecological balance disruption. The lower-income nations are more vulnerable despite their small fraction of emissions (Massett, 2022). This is probably due to their incapacity to mitigate the impacts of climate change. This calls for the adaption of climate change as globalisation is unavoidable. Globalisation has facilitated the global economy and led to vicious climate-induced concerns that require prompt and immediate action for sustainable human existence.

Sustainable Measures to Mitigate the Impacts of Climate Change:

Since the last century, industrially developed states have been responsible for discharging almost 90% GHG annually over the past hundred years. Ironically, these industrially developed states account for only 20 per cent of the global population. The Climate Change Convention held at the Rio Earth Summit in 1992 led to the formulation of the UN Framework Convention on Climate Change, and these states conceded to reduce their emission levels of GHG till 2000. Except for England and Germany, most seem unable to reach their commitment shortly. (Hallman, 2021) The World Council of Churches (WCC) commenced a petition campaign in industrially developed nations to raise the public consciousness in their states through churches. Developing nations are unwilling to allocate funds to reduce climate-induced challenges, particularly for developing nations. (Kliestik, 2021) As states of the Global South are looking for rapid economic development, the Global North is more responsible for foreseeing the gravity of the issue. The ethical dimension of the climatic challenges refers to the developed world to distinguish between "the luxury emissions of the rich' and the survival emissions of the poor". Luxuries versus food, water, electricity, health care, and education cannot stand on the same footing for the ethical dimension of climatic challenges strategies. (Hallman, 2021) Sustainable Development Goal (SDG) 13 of the 2030 United Nations Sustainable Development Agenda and its 17 Sustainable Development Goals (SDGs) reinforce the urgent need for environmental sustainability and call for efforts for mitigation of impacts of climate change. (Ngozi Adeleye) Adaptation is the mandatory response to the issue for developing and underdeveloped nations, though they

are not causing the issue in many fractions (Massett, 2022). Essential factors to meet the challenges of climate change are mitigation and adaptation. Sectoral methodologies and strategies are required to adapt and mitigate the impacts of climate change. Agriculture, industry, forestry, transport, and land use are the main sectors in this regard, both at the national and international levels, for economic and social development. (Kashif Abbass, 2022) Figure 4 depicts some sectors that can reduce the impacts of climate change with adaptation and mitigation measures globally



Source: (Kashif Abbass, 2022)

Conclusion:

From global markets to global warming represents the intricate relationship between climate change and the economic dimension of globalisation. Globalisation has accelerated economic well-being and growth and deepened carbon footprints. This caused drastic changes to the global climate. Climate change has emerged as a multifaceted and dynamic process that contributes to ecological disruption and puts the people of developing and underdeveloped states at more risk despite their low fraction of emissions. It has social, economic, and environmental dimensions, and all of them are interrelated. It is crucial to reduce the sources of carbon emissions, shifting to cleaner and more sustainable energy sources and practices to lessen their adverse effects on the ecosystem. Adaption and mitigation are essential to the sustainable future of our world.

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