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Climate Change And Environmental Sustainability

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Abstract

In this research I am looking into the formation, implementation of actions and habits, completed environmentally conscious people, working in the most polluting industries. With the findings of this research, I wish to create a basis for further research of the sociological and psychological factors, influencing pro-environmental behaviour. Human environmental conditions are largely determined by the climate. Because of human-induced climate change, extreme weather events have become more frequent and intense. Therefore, in the short term, climate change has a direct impact on human mortality and environmental sustainability, while in the long term, it poses complex and protracted indirect serious risks. This study looks at the three levels of environmental impact risks that climate change poses to human mortality. It offers a conceptual framework for creating an empirical event-based database of human mortality associated with climate change and communication tactics to improve sustainability, resilience, and environmental adaptation worldwide.

Keywords: climate change; pollution; science communication; human mortality; global sustainability

Introduction

Extreme environmental conditions and threats brought about by climate change may not always result in direct human deaths at a specific location, but they do cause acute and chronic morbidity as well as premature and avoidable human mortality in many parts of the world. Numerous elements of the human environment are influenced by climate change. Droughts, wildfires, floods, landslides, and severe heat waves and cold winter storms are just a few of the severe threats it has brought about globally. There has been significant progress in acknowledging the significance of research on climate change. The greatest global health threat of the twenty-first century is thought to be climate change; in US cities, human mortality is said to be highest during extremely hot and muggy summer days, but winter mortality rates are much higher than summer rates.

However, monitoring, quantifying, and communicating climate change in terms of human mortality has received insufficient attention. Large-scale, systematic attempts to measure the effects of climate change on human health related to heat have not been made. At any level, including town or city, region, country, or global, there is no established database on human mortality specifically associated with climate change.

The effects of environmental changes have been made more complex and pronounced by human-induced climate change. As a result, climate change brings about a number of environmental dangers and harsh circumstances that endanger human life and health, possibly to the point of collapse. Effective, immediate monitoring and communication are required to address the cumulative and compound effects of climate change on human mortality. The effects of environmental changes have been made more complex and pronounced by human-induced climate change. As a result, climate change brings about a number of environmental dangers and harsh circumstances that endanger human life and health, possibly to the point of collapse. Effective, immediate monitoring and communication are required to address the cumulative and compound effects of climate change on human mortality. The poorest nations will probably be most impacted by the increased risks of climate-related disasters in a warmer world, and the impacts and damages of climate

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change are not distributed equally. The cumulative and long-term impacts of climate change on human mortality probably surpass the severity of severe natural catastrophes like earthquakes and volcanic eruptions. In addition to being the cause of climate change, humans also suffer negative effects from it. Variations in human mortality over time and space reveal a wide-ranging dynamic imbalance in environmental sustainability linked to climate change.

Statement of the Problem:

Changes in the composition of the atmosphere have been the main focus of climate research. Numerous studies have shown that shifting the area under agriculture results in a significant alteration to the climate by altering the physical

characteristics of the land surface. Using the idea of radiative forcing, surface albedo change can be compared to greenhouse gas emissions (Betts 2000). However, variations in vegetation cover can also directly alter surface heat flux.

Through teleconnections, long-term weather patterns and changes in land cover at the regional level can affect the global climate system (Avisar 1995; Pielke 2001a; Claussen 2002).

The patterns of ocean and atmospheric circulation and how they affect the planet's climate are dynamic, unpredictable, and changeable. These make it more difficult for us to forecast how changes in agriculture area and landscape dynamics would affect climatic patterns. The climatic effects on the crop will be necessary for a more thorough indication of human contributions to climate change. Pattern and additional procedures should be taken into consideration while developing mitigation solutions for climate change. Global warming has altered farming areas, and cropping patterns have changed significantly in recent decades.

Need and important of the study:

India is a populous, sizable agricultural nation. Large tracts of woodland and grassland have been transformed into agricultural land over the course of many thousand years of historical development. The possible effects of climate change on the global distribution of key ecosystem complexes are now being evaluated using a variety of bioclimatic models (Holdridge, 1967; Budyko, 1974; Emanuel, Shugart & Stevenson, 1985; Prentice et al., 1992). All of these global models, however, have serious shortcomings when it comes to identifying crucial local and seasonal features of vegetation and climate. The hydrological cycle, which affects runoff, moisture availability, sedimentation and erosion, and, moreover, the recycling of organic matter and soil nutrients, will change in response to variations in temperature and precipitation. Therefore, in order to investigate and estimate the potential scale, such as the extent of cropping pattern and cultivation regions in the research area, the regional bioclimatic model must be developed and then used.

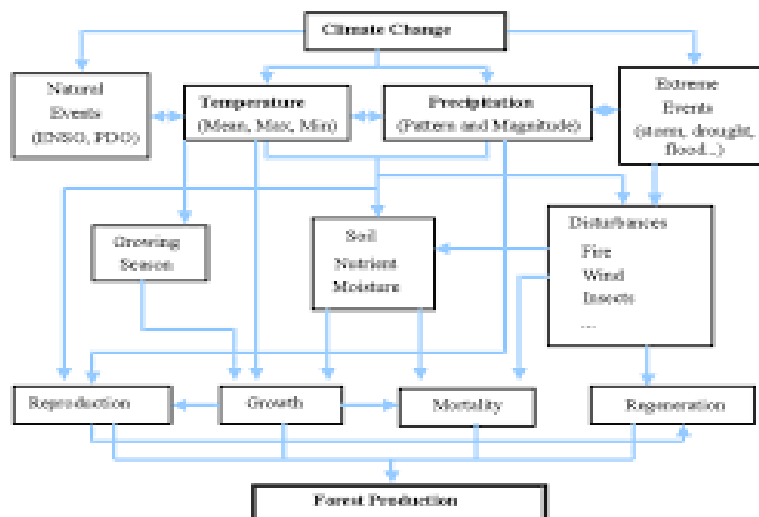
Issue of climate change and controversy : By itself, the Kyoto reduction is insufficient to stabilise global change by the year 2100. To start stabilising long-term greenhouse gas emissions in the future, a more significant and ongoing reduction will be required, akin to the Kyoto Protocol's 2008–2012 phase. Sea levels will continue to rise for several centuries and global warming will persist for several decades even if greenhouse gas levels are stabilised. However, it is very evident from IPCC research that industrialised nations cannot accomplish this decrease on their own.

The current trends of increasing emissions from developing countries alone could push the atmospheric concentration above stabilization levels of 550 parts per million, even if their emissions were cut to zero in the near future. A successful global effort to halt the increase in greenhouse gas emissions requires the

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involvement of all nations, including developing nations like India. What is the most effective way to divide the cost of stabilizing climate change among the nations in a fair and just manner? Much of the ongoing negotiations conducted under the UNFCCC's auspices center on this issue



Addressing Climate variability and Climate Change :

Given that both long-term climate change and climate variability have an impact on the agricultural sector, the kind of adaptation strategy chosen is obviously essential.

Long-term trends will be impacted by climate change, but the effects of climate variability will primarily be local in scope. Studies that concentrate on the effects of adaptations to changing average climate conditions differ from those that focus on adjusting to inter-annual variations and extremes, as evidenced by the literature. This distinction also emphasizes the need for distinct policies to address climate variability and the effects of climate change, as argued below. Numerous studies have emphasized the significance of adapting to both changes in the mean climate and climate variability. (See also Schneider and others 2000; Polsky and Easterling 2001; Brumbelow and Georgakakos 2001, in addition to those mentioned in the preceding section.) Climate change-related stimuli, according to Smit and Pilifosova (2001), include variability and related extremes in addition to changes in average annual conditions. It has been observed that poorer developing nations are particularly affected by climate variability and extreme events (Hay 2002; Hay 2002).

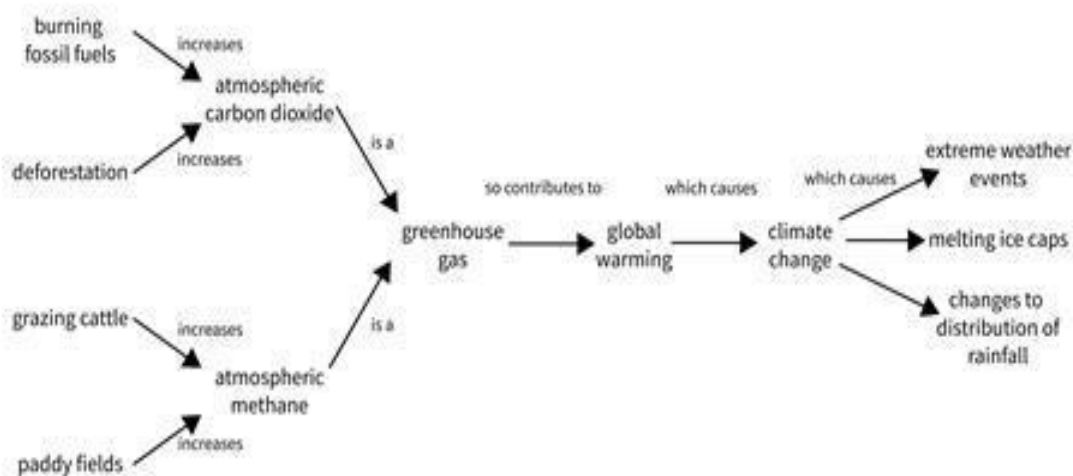
The main effects of climate change on the Environment :

Over the past few decades, research on climate change has accelerated. Numerous environmental hazards linked to climate change have been progressively brought to light. Numerous levels and time periods may experience the effects of climate change. We further divide and analyze them into primary, secondary, and tertiary impact risks in order to gain a better understanding of them. Unusual weather events like sea level rise, stronger tropical storms, floods, intense heat waves and wildfires, and frigid winter storms were directly caused by the main effects of climate change. Sea levels will rise, more glacier ice will melt, and ocean surface temperatures will continue to rise as a result of global warming. By 2100, the tropics will be more vulnerable as the predicted 100-year extreme sea-level event turns into an annual (or more frequent) occurrence .

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Environmental Sustainability :

UNDP's support to protecting and sustaining the environment will include continued support to Government and communities to develop more rigorous responses to address and reverse environmental degradation. UNDP will also step up its support towards a more gender responsive governance of environmental issues. This will include support to women's empowerment and participation in decision-making around land use, land management and the protection of the environment and natural resources. This support will be provided through continued and new collaborative interventions with ongoing and new partners at national and subnational levels. The ultimate objective will be to ensure women's ownership of and access to natural resources and benefits from the environment.

There are 17 sustainable development goals (SDGs) on the FAO's 2030 agenda, intended to eradicate hunger and poverty worldwide while addressing climate change through the sustainable use of food, agriculture, and natural resources; the production of food crops like rice, wheat, and maize is directly related to food security. The social, economic, and environmental facets of human existence are all included in the sustainability of the agriculture sector, and as a social foundation, farming and related activities provide a living for roughly 65% of the poor. Because the farming industry provides raw materials and creates demand for industrial output, a one percent increase in agricultural output results in a two percent increase in non-agricultural output, demonstrating the economic significance of agriculture (Marden, 2014). However, given that agriculture and related activities account for 24% of GHG emissions and that rising surface temperatures coupled with changes in precipitation exacerbate the issue of hunger and survival, the significant two-way relationship between agriculture and climate is currently the greatest concern (IPCC, 2014).

Policy for environmental sustainability :

The purpose of introducing the history of environmental sustainability research was to emphasize the fact that the world's political leaders' current disdain for this phenomenon is a departure from the advancements made in the previous 200 years. A unique report was released in 2019 by the IPCC, which detailed the consequences that the planet would face if global temperatures increased by 1.5 degrees above pre-industrial levels. Among the consequences are an incredibly high likelihood of droughts and more precipitation in some areas, hastening increased extreme temperatures above land areas, mass extinction of animal species, particularly cities with a

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high population density as opposed to Oceans. The regions of the Arctic and Antarctic will encounter Sea levels will rise as a result of a 5-degree increase, which is more than three times the average temperature increase. Global ecosystems, human health, and food production will all suffer greatly as a result of these occurrences. Climate change has already had a significant financial impact that is expected to increase rapidly over the next several decades. Compared to three climate change-related events in 2010, there was only one event in 2019 that cost more than \$1 billion (Kramer & Ware 2019). Over ten billion dollars was spent on seven of these incidents.



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Addressing climate change and sustainable development :

Into consideration Due in large part to Agenda 21's adoption and the numerous conventions that emerged from the UNCED-1992, sustainable development has become a topic of discussion in all global climate change policy discussions. According to the Brundtland Commission, "development that meets the needs of the present without compromising the ability of future generations to meet their own needs"¹⁹ is the widely accepted and applied definition. Sustainable development has evolved into a concept that integrates social, economic, and environmental concerns. While using finite natural resources is not prohibited by sustainable development, any use must be suitably offset. Many developing nations find this idea unacceptable because it appears to ignore their goals for progress and development. Furthermore, substantial economic growth in developing nations is a prerequisite for sustainable development. Environmental sustainability, social equity, and economic growth are three essential elements in fostering sustainable development. The frequently posed question is whether long-term environmental preservation should come at the expense of present economic growth (GNP, employment, etc.). Environmental sustainability and economic growth are frequently seen as trade-offs by policymakers in developing nations. However, there is mounting evidence that, when it comes to long-term economic growth and development, especially in the least developed nations, environmental conservation for the sustainability of natural resources is not a luxury but rather a necessity. The deterioration and reduction of natural resources, including land Climate change is expected to worsen the current unsustainable use patterns of soil, forests, biodiversity, and groundwater over the next 25 to 50 years. There are already serious issues with freshwater scarcity and land degradation in parts of Latin America, Africa, and

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South Asia. Sustainable development strategies that help mitigate climate change can be pursued in a variety of ways. Below are some examples.

In addition to lowering greenhouse gas emissions, the adoption of economical, energy-efficient technologies in the production, transmission, distribution, and end-use of electricity can also lower costs and local pollution.

- Implementing sustainable forest management techniques, afforestation, reforestation, and forest conservation can help preserve biodiversity, protect watersheds, create jobs in rural areas, raise the incomes of forest residents, and improve carbon sinks.
- Using a participatory approach to rural energy, irrigation water management, forest management, and rural development in general can encourage long-term development initiatives and guarantee a reduction in greenhouse gas emissions or an improvement in carbon sinks.
- The long-run marginal cost principle, which guides rational energy pricing, can level the playing field for renewable energy sources, promote the adoption of energy-efficient and renewable energy technologies, and improve utility companies' financial stability, all of which will contribute to a decrease in greenhouse gas emissions.
- Transitions to renewable energy sources, some of which are already affordable, can improve the sustainability of the energy supply and lower greenhouse gas emissions and local pollution.
- Metro-railways and other effective, quick, and dependable public transportation systems can lower greenhouse gas emissions, local pollution, and urban traffic.

Methodology :

The purpose of this study is to comprehend how people's personal environmental values and career aspirations relate to their experiences working in highly polluting industries. Ten semi-structured interviews with environmentally conscious workers from major manufacturing and oil and gas companies were carried out in order to accomplish this goal. This group was selected because, on the one hand, they decided to pursue careers in a field that is known to have negative environmental effects. According to earlier studies, this group is therefore most likely to prioritize their financial security and convenience over environmental concerns. They should, however, act in a way that is pro-environmental since they identify as environmentally conscious. However, by identifying as concerned about the environment, they should also exhibit pro-environmental behaviour. With this juxtaposition of values, I aim to uncover certain facts about environmental behaviour and how these choices can overlap, influence each other. In addition, this group can provide an extreme first-person perspective, of how to implement change in companies that require the biggest changes. By understanding their background, the reasoning behind their work choice and the connection to their beliefs about climate change, I hope to create a blueprint for environmental awareness in the rest of society. The selected employees and their habit formation will hopefully serve as an example of implementing environmentally friendly behaviour. At the very least, it will provide insights of value formation on an individual level, in the most extreme money-oriented environment.

Purpose of the Study :

Based on the gaps identified through extensive literature review, the present study aims to propose and empirically test a conceptual model that investigates the relationship between environmental sustainability

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leadership, GHRM, environmental sustainability culture and environmental sustainability performance. Second, the researcher aims to present research implications that could assist managers and policy makers in taking decisions to effectively implement the green management models in organizations. To achieve the purpose of the research, the following objectives and research questions have been formulated. Figure 1.5 shows the transformation of research gaps into research objectives.

Objectives of the Study :

The main objective of the present research is to introduce and study a comprehensive environmental sustainability performance model in the context of large manufacturing and service organizations in India that is involved in environmental sustainability; that is practical in application; and will assist managers in reducing their environmental footprint. Thus the objectives are:

Objective 1: To develop a conceptual environmental sustainability performance model for organizations in India that is engaged in environment management activities.

Objective 2: To examine the proposed path relationships in the conceptual model by studying the effect of environmental sustainability leadership on GHRM, environmental sustainability culture and environmental sustainability performance.

Objective 3: To examine the effect of GHRM strategies on environmental sustainability culture and environmental sustainability performance.

Objective 4: To examine the effect of environmental sustainability culture on environmental sustainability performance.

Objective 5: To examine the mediating effect of GHRM strategies between environmental sustainability leadership and environmental sustainability culture and between environmental sustainability leadership and environmental sustainability performance.

Suggestion :

The intricate relationships and feedbacks that happen within the Earth's climate system, making it challenging to predict how severe the effects of human activity will be or how soon we might be able to clearly identify climate change. It is essential to deepen our comprehension of the climatic system's inherent variability, to create more accurate climate models with more explicit and more accurately depict meteorological phenomena, as well as to lower uncertainty in forecasts of the contributions of human activity to the system of climate.

As a result, there is pressing need to improve the translation of changes .in climate could refer to the weather, weather patterns and potential extreme, which can then be converted into effects on different facets of human endeavor and society. Better methods for coping with constantly shifting environment on Earth could be impacted in this way.

Conclusion and discussion :

All things considered, it is evident that socioeconomic factors combined with climate change can make both wealthy and developing nations more vulnerable. This can have a negative impact on nature and wildlife and jeopardize the sustainability of the environment. Therefore, regardless of one's income or way of living, it is crucial to participate in the efforts in both of these countries and to take some action. Regardless of the region

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they reside in, everyone on Earth is equally impacted by climate change. In general, there are two primary categories of greenhouse gas emissions linked to transition risk: transition risks and mitigation activities. Measures that can be taken to limit changes in the global climate brought on by human activity are included in climate protection. The goal of science and research that promote climate protection is to better understand change and the knowledge that guides climate protection policy. In addition to addressing other pressing issues facing the planet, we must combat climate change. The world cannot afford to ignore climate change or the more general sustainability issue given the magnitude of these problems, which could take months or even years to resolve. The reality is accompanied by an increased risk of physical and economic dangers, and the only way to avoid them is to aggressively decarbonize the economy and everyday life. Communicating sustainability, individual actions and behavior were seen as influential. Humans must change our behavior in the near term to mitigate the overall effects of climate change in the long run, and policymakers need to develop environmental policies to motivate and foster individual behavioral change. Communication plays an important role in disseminating scientific information about climate change and the consequences and connection between human mortality and climate change.

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