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India's Strategies and Policy on Climate Change

Dr.Bindu

Associate Professor in Geography, Govt. P.G. College for Women, Rohtak, India

ABSTRACT: Alterations in the global climate pose a serious threat to the planet's ecosystem. India has a lot of issues right now. Agricultural production, water supplies, forest and biodiversity, health, coastal areas, and other sectors are all vulnerable to the negative effects of climate change. Administration, and the temperature has been rising. The major effect of global warming on India is a decrease in agricultural production. Most people's daily lives, either directly or indirectly, are tied to the agricultural sector. Rapid industrialization, urbanisation, and economic expansion have already placed a heavy burden on the world's natural and social systems; climate change will only add to that strain. Climate change and its many manifestations are dissected in this research, with special attention paid to its effects on India.

KEYWORDS: Agriculture; Climate Change; Development; Economics; Energy; Indian Economy

I.INTRODUCTION

Traditional educational programmes that established human nature and the environment thoroughly with each other contributed to the long-term viability of traditional economic and cultural systems. Unfortunately, colonial, industrial, and global experience have eroded traditional knowledge and wisdom. The limiting attitude that environment and culture are only as significant as economic production has largely supplanted traditional values and schooling systems. Due to modern education's disregard of global and cultural realities, the information, values, and skills necessary for sustainable living are in their last stages of development. The learnt and buried truths often play a crucial role in revitalising the social and environmental ideals of our contemporary, affluent, consumer-centered culture. Food production, natural ecosystems, freshwater supply, health, etc. are all threatened by climate change, making it one of the most pressing environmental concerns confronting mankind today. The most recent scientific consensus is that there has been clear evidence of changes to the Earth's climate system at both the global and regional levels since the beginning of the industrial revolution. And there's enough of data to suggest that humans are responsible for the vast majority of the warming (0.1 ^{o} C per decade) seen over the last 50 years.

By 2100, the Intergovernmental Panel on Climate Change predicts a possible rise of 1.4% to 5.8% in the average temperature of the Earth. Hydrological systems, ecosystems, sea levels, agricultural production, and associated processes are all likely to be severely impacted by this unprecedented surge. Developing nations like India, which are concentrated in the tropics, will be hit especially hard (Jayant et al., 2006). Recognizing common but differentiated responsibilities and respective capabilities, as well as social and economic conditions, the UN Framework Convention on Climate Change (FCCC) was established in 1992 as a result of the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro. By 1994, the Convention had entered into effect. Consequently, the Kyoto Protocol of 1997, which entered into effect in 2005, reaffirmed the significance of stabilising atmospheric concentrations of greenhouse gases in accordance with sustainable development principles. Carbon dioxide, methane, nitrous oxide, chlorofluorocarbon, hydrofluorocarbons, and perfluorocarbons are all considered greenhouse gases, and the Protocol established rules and recommendations for how much each participating industrialised countries should cut its emissions of these gases. As per the 2001 Census in India, there were 286 million people living in urban areas, making up 27.80% of the overall population of 1.02 billion. By the year 2012, this number is expected to increase to 368 million. In India, there are 5,161 urban areas, all of which are under severe water and sanitation strain. The World Bank warns that by 2020, India's water supply would be severely stressed, and by 2050, demand will have exceeded availability. The need for water will increase in a rapidly developing economy.. Scientists have warned for a long time that even strict adherence to the Kyoto Protocol would do nothing to slow climate change, and yet the world has spent over 15 years crafting a policy that is certain to fail. The interests of poor nations are not served by the Kyoto Protocol's almost exclusive emphasis on mitigation. While just 25% of the world's population resides in the wealthy industrialised nations, their excessive spending habits have a significant impact on the planet's environment (Parikh et al., 1991). The potential negative effects of climate change on India warrant the country's attention. While we don't yet know the entire extent of climate change's effects on India, we know that agriculture, sea level rise that threatens to inundate coastal regions, and the frequency of severe events all offer significant risks. The

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effects of climate change on India are thoroughly discussed in this study. Topics covered include agriculture, water, health, forests, sea levels, and risk events.

II.LITERATURE REVIEW

M.Camilleri, R. Jaques, &N.Isaacs (2001) The implications of the study's results for the future of building performance, design, standards, and law are discussed in this article. Adapting a structure to the new weather conditions is important since it might influence many systems. Like many other countries, New Zealand has a low replacement rate for buildings, and with the average age of a building projected to reach 70 years by 2100, the country's existing and future building stock will be profoundly affected by any long-term (30-70 year) changes in climate. Knowing what effects climate change may have on buildings, how severe these effects may be, and what action (if any) may be taken to address these issues is essential for ensuring that future building performance is not impacted. The numerous possible futures for New Zealand's climate influenced the scope of the climate change assessment made for building performance. We analysed the most important aspects of a building's performance for each predicted climate shift to see whether any of them will have a major impact. When feasible, the research' findings were published, and their effects' magnitude was evaluated. Using a risk profile method, the worst consequences of climate change may be hidden from view. These include floods (both inland and along coasts), tropical cyclones, and excessive heat. This is a great treatment for homes and workplaces alike.
Michael Camilleri, Roman Jaques and Nigel Isaacs(2010) All about the Climate change has the potential to hinder the efficiency of a wide variety of structures both in use and in the planning stages. By analysing the effects of climate change, determining how severe they may be, and contemplating methods to mitigate them, future building function is not jeopardised. The researched range of climate change on building performance is shown by New Zealand climate change scenarios. For each kind of climate fluctuation, crucial components of a building's performance were assessed to see whether any discrepancies existed. Researchers looked into the areas with the most significant impacts, and they were given numerical values whenever possible. Some of the worst effects of climate change are flooding, tropical cyclones, and severe temperatures, thus a risk-profiling software was developed to take these into consideration. The techniques were altered to account for the varied implications of climate change, which would each result in a variable rate of return. Strategies to reduce greenhouse gas emissions are also considered. Considering the anticipated future implications of climate change, it may be important to reevaluate present building and zoning regulations. Potential outcomes for the future of building performance, standardisation, and regulation are discussed.

Garlati, Adrián (2013) Because of climate change, Extreme Climate Events (EWEs) are becoming both more often and more frightening, especially in low-income developing countries. The united nations is increasingly advocating the establishment of adaptation financing to address this problem. Measures assessing vulnerability and submission to EWEs play a crucial role in ensuring a transparent, cost-effective, and fair distribution mechanism in these funds. Latin American countries that contribute little to changing climate but are severely impacted by EWEs need a new index urgently to justify their demand for financial and technical help. Utilizing data collected by DesInventar, this study creates a unique Disaster Exposed Index (DEI) that accounts for the impact of many different types of disasters. Some area that was thought to be secure turns out to be susceptible when DEI calculations are run. This research emphasises the need of developing regional indicators for use in allocating adaptation funds at the global, national, and subnational levels.

SariehZareaian& Khaled Aziz Zadeh (2013) What this study reveals about how shifting barometric factors affect civil processes and building development is really important. Learn the average and extreme temperatures, humidity, wind direction and speed, and the severity and frequency of any potentially damaging environmental occurrences, such as strong downpours, high winds, rapid temperature changes, glacial period, snow storms, etc. near the building site. It is crucial to do this before moving on with the actual building design. Taking into consideration these aspects, especially the more severe ones, would contribute to the durability and strength of the structure against desirable provincial climatic occurrences, as well as a decrease in energy loss during the duration of exploitation. Damage and loss may be reduced by prioritising climate components, knowing the weathering state, and constructing structures with these things in mind. Dam-building workshops situated near rivers must take flood estimate into consideration in the worst-case scenario to prevent the loss of costly locomotive equipment and potential harm to workers. This study is to find long climate data and the future of weather condition in order to stress the critical necessity of weather patterns information in building operations.

Mohammed N Alshebania and GayanWedawatta. (2014) For this article, we interviewed three people from different corporate positions who had all worked in the scorching temperature of the Middle East. During this process, we conducted semi-structured, open-ended interviews. Therefore, the findings demonstrate that the skills acquired in managing projects under such extreme heat conditions are essential for future site operations scheduling and planning.

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P.O. Akanni, A.E. Oke, O.A. &Akpomiemie (2014) This study investigates the hypothesis that environmental factors have a significant impact on the success or failure of a building project and that the success of such an endeavour depends on a well-developed guiding philosophy and the skill of its management team. This study set out to do just that by looking at the relationship between the state of the environment and building quality in Delta State, Nigeria. A questionnaire was administered to clients (both private and public sector developers) and four categories of professionals (architects, builders, surveyors, and engineers). Analyses were performed using Chi-Square, Granger Correlation, and Kendall's Coefficient. In order to better characterise the effect on building project performance, twenty-nine distinct factors were categorised into the areas of politics, law, construction resources and expertise economics and business society and culture and the physical environment. Spearman correlation analysis revealed that the identified factors affecting project performance were most strongly correlated with the Economic and Financial or Political clusters' time overrun (p=0.004) and cost overrun (p=0.07). According to the results, understanding the characteristics that fall into these three buckets is essential for good project management and avoiding going over budget or falling behind time.

Gary Martin & Patricia Ballamingie (2015). The purpose of this paper is to contribute to ongoing debates between industry and government officials in and outside of Ottawa, Canada concerning the possible consequences of climate change on residential development legislation and industry practises. The effects of urban form on GHG emissions, and vice versa, must be recognised by both private and governmental actors if urban sustainability is to make any real progress.

Impact of Climate Change on Forest Types

The projected level of change in each forest type is shown by comparing the area expected to be in that type under the current climate regime with that under the two future climate scenarios. A total of 10,864 grid points (10 min x 10 min) in the Indian area were used to run the BIOME42 model using the CRU3 10-min climatology. However, the model could only identify plant types to 10,429 of these grid points due to missing data relating to soil parameter values. Earlier I noted that we were able to use data from 35,190 FSI grids by comparing them to the FSI database, which is accessible at a much finer resolution of 2.5 min x 2.5 min. The forest types designated by FSI were generally consistent with those anticipated by BIOME4. As a result, we know that the southern Western Ghats and the northeastern area are home to tropical evergreen forests, and that fir, spruce, and deodar woods thrive in the corresponding temperate zones (Ravindranath et al. 2006). For this reason, various species may become extinct on a local and global scale as a result of climate change's effects on forest ecosystems (IPCC, 2001a and 2001b). The time needed to respond, such as via migration and regrowth, is greatest in forest ecosystems (Leemans and Eickhout, 2004). More so, the timber industry's adaptation techniques have a considerable gestation time before they can be implemented..

Increased Temperatures and Extreme Events

As a result of climate change, we should expect an increase in the frequency of extreme weather phenomena including heat waves, droughts (which can lead to water table reductions, crop failures, and other issues), and cyclones. From 1970 to 2002, Kothawale (2005) examined the frequency occurrence extreme heat conditions in India using data from 40 equally distributed locations around the nation. It was his observation that heat waves were more common in the months of May and June than in the months of March and April. He also said that, before the monsoons hit, the number of hot days is greatest in the central area of India and lowest on the west coast. In the summer, climate change is expected to increase rainfall. Less snow has been falling on the highest summits of the Himalayas and the Alps in recent years as temperatures have risen (Cyranoski, 2005). Summer monsoon rainfall in southern India is reduced due to increased concentrations of small dust particles in the lower atmosphere (Ramanathan et al., 2002). Analysis of meteorological data in India has already shown substantial regional differences in lowest temperature and cloud cover. The disastrous repercussions of climate change have already been felt in many parts of the globe. Nine of the ten hottest years since 1988 are more than a century old. The month of July 1988 was the hottest on record globally. In 1998, India saw its worst heat wave in fifty years, killing more than three thousand people. Around 10,000 persons lost their lives in the 1999 Orissa tropical storm. Gangotri's Himalayan and glacial ice caps are disappearing at a rate of 18 metres per year. Increased greenhouse gas concentrations in the atmosphere are expected to cause major increases in precipitation and temperature in the 21st century. India might see a temperature increase of between 2.33 and 4.78 o C if CO2 concentrations were to double (Longern 1998). By 2040, experts predict an increase of 0.7 to 1.0 degrees Celsius over 1980s-era average annual temperatures (Lal et al., 1995). The annual number of wet days is falling over most of the United States.

Policy of Indian Government on Climate Change

It is predicted that the consequences of climate change on social systems throughout the world would differ in light of these and other regional and local factors. Therefore, different locations and societal structures would require for a wide range of

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model analyses, adaptation strategies, and technology infrastructures. However, separating the effects of global warming on different agro-climatic zones is complicated by the fact that scientists still know very little about the processes involved in climate change. To achieve this goal, advancements in observational and modelling methodologies and infrastructure are required to back both theoretical and applied studies in the area of climate science. India is too large for typical regional policies about climate change to be effectively applied there. Due to the high levels of uncertainty associated to the projected impacts of climate change in various regions, it is presently not viable to construct strategic action plans for different areas within the country. Due to a number of limitations, the current state of the country's knowledge system prevents it from producing the desired and essential outcomes for efficient action. The National Mission on Strategic Knowledge for Climate Change will focus on overcoming these barriers via strategic measures including the development of adequate infrastructure and personnel. Accordingly, the Mission has defined the following objectives.

- Increasing the country's ability to simulate the effects of climate change on specific regions, in terms of both seasonality and livability, is a top priority.
- The creation of international technology watch organisations equipped to conduct research on risk-averse technology selection for developmental decisions.
- The creation of a proper policy framework and institutional support for the sharing and exchange of data among the current knowledge institutions involved in research and development in the field of climate science.
- Agriculture, health, natural ecology, bio-diversity, coastal zones, etc. are all crucial socio-economic sectors that will feel the effects of climate change..
- Raising people's consciousness of the most important facets of our changing environment, as well as the dangers and repercussions that stem from those changes.
- Agreements on scientific and technological cooperation at the international and bilateral levels to promote cooperation between countries and regions in combating climate change Formation of Alliances and Partnerships.

III.CONCLUSION

Climate change is expected to have a wide range of effects on human well-being, including economic, ecological, health, and migratory concerns. Given the current state of economic knowledge, however, it is not known how to determine the value at stake, despite the urgency of the problem. To achieve true development, which necessitates at the very least a shift from an agricultural to a nonagricultural economy, it is crucial to lessen dependency on agriculture. More than 70% of the labour population depends on agriculture in some way for their livelihood, therefore boosting agricultural production to ensure food self-sufficiency is crucial for reallocating resources to the manufacturing and service industries. Given the current climate change conversation, it is crucial to show that India is doing a lot in terms of legislation, programmes, and activities to address climate change. The government's drive to reduce energy use might be sped up through the dissemination of innovative technologies and the provision of more funding. Still, efforts to lessen poverty should be prioritised.

REFERENCES

1. Zaveri, E., Grogan, D.S., Fisher-Vanden, K. Frolking, S., Lammere, R.B., Wrenn, D.H., Prusevich, A., Nicholas, R.E. Invisible water, visible impact: groundwater use and Indian agriculture under climate change. Environmental Research Letters, 2016; 11(8) 084005: 1-13. http://dx.doi.org/10.1088/1748- 9326/11/8/084005.
2. Mekonnen, M.M. and Hoekstra, A.Y. Four billion people facing severe water scarcity. Science Advances, 2016; 2(2): e1500323. https://doi.org/10.1126/sciadv.1500323.
3. National Intelligence Council Special Report NIC 2009-03D. India: Impact of climate change to 2030 a commissioned research report, 2009. https://www.dni.gov/files/documents/ climate2030_india.pdf
4. Fogel, R.W. Capitalism & democracy in 2040: Forecast and speculations. NBER Working Paper 2007; 13184: 1-23. http://www.nber.org/ papers/w13184.
5. Global Change Data Lab. Our world in data: cumulative CO2 emissions by world region. Online dataset, 2020. https://ourworldindata. org/grapher/cumulative-co2-emissions-region.
6. Phillip, P., Symons, W., Ibrahim, C., Hodges, C., McGrath, M. India's Turning Point: How climate action can drive our economic future, 2020, 1-46. https://www2.deloitte.com/content/dam/ Deloitte/in/Documents/about-deloitte/in-indiaturning-point-noexp.pdf.

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| DOI:10.15680/IJMRSET.2022.0101018 |

7. Dubash, N.K. An introduction to India's evolving climate change debate: from diplomatic insulation to policy integration. India in a warming world: integrating climate change and development, Oxford Scholarship online, 2019. DOI: 10.1093/oso/9780199498734.001.0001.
8. Batten, S., Sowerbutts, R., Tanaka, M. "Let's Talk About the Weather: The Impact of Climate Change on Central Banks", Staff Working Paper No. 603, Bank of England, 2016; 1-38.
9. Krishnan, R., Sanjay, J., Gnanaseelan, C., Mujumdar, M., Kulkarni, A., Chakraborty, S. Assessment of Climate Change over the Indian Region: A Report of the Ministry of Earth Sciences (MoES), Government of India, 2020; ISBN: 978-981-15-4329-6, 1-243. https://link.springer.com/book/10.1007 %2F978-981-15-4327-2.
10. Cruz, R.V., Harasawa, H., Lal, M., Wu, S., Anokhin, Y., Punsalmaa, B., Honda, Y., Jafari, M., Li, C., HuuNinh, N. Asia. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Parry, M.L., Canziani, O.F., Palutikof, J.P., van der Linden, P.J., Hanson, C.E. Eds., Cambridge University Press, Cambridge, UK, 2007; 469-506.
11. Deser, C., Phillips, A.S., Alexander, M.A. Twentieth century tropical sea surface temperature trends revisited. Geophys. Res. Lett. 2010; 37: L10701. https://doi.org/10.1029/2010GL043321
12.Sanjay, J., Revadekar, J.V., Ramarao, M.V.S, Borgaonkar, H., Sengupta, S., Kothawale, D.R., Patel, J., Mahesh, R., Ingle, S., Achuta Rao, K., Srivastava, A.K., Ratnam, J.V. Temperature Changes in India. Assessment of climate change over the Indian region, Springer, Singapore, 2020; pp 21-45. https://doi.org/10.1007/978- 981-15-4327-2_2.
13. Roxy, M.K., Ghosh, S., Pathak, A., Athulya, R., Mujumdar, M., Murtugudde, R., Terray, P., Rajeevan, M. A threefold rise in widespread extreme rain events over central India. Nature Communications, 2017; 8(708): 1-11. DOI: 10.1038/s41467-017-00744-9.
14. All India Rainfall Time Series, India Meteorological department, Ministry of Earth Sciences, Government of India, 2020. https:// mausam.imd.gov.in/imd_latest/contents/ rainfall_time_series.php.
15. Mallya, G., Mishra, V., Niyogi, D., Tripathi, S., Govindaraju, R.S. Trends and variability of droughts over the Indian monsoon region. Weather Clim. Extremes 2016; 12: 43-68. https://doi.org/10.1016/j.wace. 2016.01.002.
16. Kahn, M.E., Mohaddes, K., Ryan, N.C., Ng, R.N., Pesaran, H., Raissi, M., Yang, J. Longterm macroeconomic effects of climate change: a cross-country analysis. IMF Working Paper, WP/19/215, 2019. https://www.imf.org/en/ Publications/WP/Issues/2019/10/11/LongTerm-Macroeconomic-Effects-of-ClimateChange-A-Cross-Country-Analysis-48691.
17. Ruosteenoja, K., Carter, T.R., Jylhä, K., Tuomenvirta, H. Future climate in world regions: an intercomparison of model-based projections for the new IPCC emissions scenarios. The Finnish Environment 644, Finnish Environment Institute, 2003; 83pp. https://www.ipcc-data.org/ documents/scatter_plot_report.pdf.
18. McLean, R.F., Sinha, S.K., Mirza, M.Q., Lal, M. Tropical Asia, in The Regional Impacts of Climate Change: An Assessment of Vulnerability. eds. Watson, R.T., Zinyowera, M.C., Moss, R.H. A Special Report of IPCC Working Group II, Published for the Intergovernmental Panel on Climate Change, Cambridge University Press. 530pp. 1998). https://www.ipcc.ch/site/assets/ uploads/2020/11/The-Regional-Impact.pdf.
19. Whitman, S. World Poverty; 2006. http://www. fao.org/newsroom/en/news/2006/1000392/ index.html.

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