Original Article
ISSN (Online): 2582-7472

ShodhKosh: Journal of Visual and Performing Arts
May 2024 5(5), 465–472

INDIA'S POLICIES AND POLICIES REGARDING GLOBAL WARMING AND CLIMATE CHANGE

Meenakshi Rawat[1]

[1] Department of Political Science, Singhania University, Rajasthan

DOI
10.29121/shodhkosh.v5.i5.2024.3971

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

ABSTRACT

India is very vulnerable to the consequences of global warming and climate change, including extreme temperature rises, erratic monsoons, and more frequent cases of extreme climatic events posing significant threats to the environment, the economy, and society. Based on this motivation, this research delves into the influence that climate change policies in India pose, the impacts of political ideology, and the impacts of public awareness on climate policy adoption. A mixed-methods research design involving both quantitative and qualitative data to quantify the degree of reduction of green-house gas emissions, assess whether political party ideologies are effective for climate change action, and find out the levels of public knowledge and support on climate change policy. A stratified random sampling of 100 respondents was adopted to represent as wide demography as possible across urban and rural areas.

Keywords: Global Warming, Climate change, Politics, India, Policy, Public Awareness

1. INTRODUCTION

Climate change and global warming have emerged as the 21st century's most urgent problems, impacting every nation on the planet. The vast population, diverse landscape, and fast-growing economy of India make it a very susceptible nation to the effects of climate change, such as increased temperatures, changed patterns of precipitation, and more frequent and severe weather. The political atmosphere in India affects the country's climate policies.

Global Warming and Climate Change

Weather patterns and average temperatures can vary over extended periods of time, a phenomenon known as climate change or global warming. Despite their frequent interchangeability, the two concepts actually relate to separate aspects of Earth's changing environment. The phrase "global warming" is most often used to characterise the increase in atmospheric concentrations of greenhouse gases, which leads to a higher average surface temperature for the planet. However, the term "climate change" encompasses the full range of alterations brought about by this warming, including modifications to ocean currents, weather patterns, and the frequency of extreme weather occurrences.

Global Warming: The Greenhouse Effect

The accumulation of greenhouse gases is the main reason for the escalation of global warming. Greenhouse gases, which include CO_2, CH_4, and nitrous oxide, are responsible for preventing heat from the sun from leaving the Earth and warming

the planet as it enters. Thanks to global warming, it's over. The greenhouse effect is a natural phenomenon that causes the Earth to warm up because life thrives in warmer temperatures. Human activity has raised the concentrations of these gases through deforestation and the burning of fossil fuels for energy. As a result, this heightened greenhouse effect raises Earth's temperatures.

Figure 1: Global Warming

Carbon dioxide and other greenhouse gas concentrations have significantly increased since the industrial revolution due to human activity. The burning of coal, oil, and gas to generate electricity, fuel transportation, and run industrial operations releases a lot of carbon dioxide into the atmosphere. Furthermore, the Earth's ability to absorb carbon has decreased as a result of the conversion of forests and other land uses. As a result, the average world temperature has increased by roughly 1.1°C since the pre-industrial period, and unless emissions are controlled, forecasts suggest that future rises will be substantially greater.

Climate Change: The Broader Consequences

The term "climate change" refers to even more intricate effects of that warming. The Earth's climate system is undergoing a fundamental transformation as a result of rising global temperatures: its precipitation regime shifts, heatwaves become more frequent and intense, seasons arrive at their regular times and with less intensity, and extreme weather events like hurricanes, floods, and droughts become more frequent. Sea-level rise is also a result of climate change, as seawater expands thermally and glaciers and polar ice caps melt.

Figure 2: Climate Change

Disruptions are among the consequences of climate change on ecosystems and biodiversity, in addition to rising temperatures. Ocean warming may result in the deterioration of marine life, including coral reefs, which are extremely

vulnerable to temperature fluctuations. Changes in the weather have an impact on land-based plant and animal populations, which can disrupt the distribution of different species and occasionally result in their extinction.

The Impact of Climate Change on Human Societies

Climate change and global warming have an impact on human societies in addition to the environment. Due to low crop yields and disruptions in food chains, altered rainfall patterns, more frequent droughts, and floods in agricultural areas thus pose a greater danger to food security. The country's agricultural and freshwater dependence can have a greater impact on water shortage, which becomes a problem as temperatures and precipitation rise in both urban and rural areas.

India's Vulnerability to Climate Change

This is because India's varied terrain, strong reliance on agriculture, and quickly expanding population make it susceptible to climate change. Coastal areas are under risk due to increasing sea levels, changing monsoon patterns, a rise in the frequency of extreme weather events including cyclones, floods, and droughts, and rising temperatures. A significant portion of the population works in agriculture, which is particularly vulnerable to the consequences of changed rainfall patterns, heat stress, and water scarcity. Aside from misuse, most regions are at risk of drought due to changing climate conditions that continue to reduce water supplies. Due to these environmental issues and socioeconomic disparities, India is particularly susceptible to the adverse consequences of climate change, which might seriously jeopardize its development, public health, and food security.

India's Position in Global Climate Negotiations

India's massive population, thriving economy, and larger carbon footprint give it a prominent place in international climate discussions. India, a developing nation, has always placed an emphasis on the concept of "common but differentiated responsibilities" (CBDR). This approach acknowledges that while everyone must do their part to fight climate change, developed nations are more responsible for emissions and have more resources to lessen the impact of the problem. India is demanding a just and equitable climate framework, arguing that it must not be unjustly burdened by emission reduction objectives in order to maintain its economic growth and efforts to reduce poverty. As stated in its NDCs under the Paris Agreement, India has also committed to strengthening its climate resilience and implementing voluntary steps to lower carbon intensity.

As a proponent of climate justice, India insists that wealthy countries fulfill their pledges to provide financial aid and technology transfer to developing nations so they can adapt to and lessen the effects of climate change. India is actively participating in UNFCCC negotiations and has made a concerted effort to insist on procedures that guarantee equitable access to sustainable development. India hence has a difficult task ahead of it. It has enforceable global climate duties in addition to its own development ambitions. India wants to expand its use of renewable energy, improve the energy mix's efficiency, and cut emissions without being constrained by unreasonable commitments like those imposed by Kyoto. Given that its actions and policies will have an impact on the fight against climate change worldwide, India continues to play a crucial role in influencing climate negotiations.

Research Objectives

- To quantify the impact of India's climate change policies on the reduction of greenhouse gas emissions across various sectors
- To assess the effectiveness of political party ideologies in shaping the design and implementation of climate change policies in India
- To examine the relationship between public awareness of climate change issues and the adoption of climate policies in India

2. LITERATURE REVIEW

Dar (2021) stated that a long-term change in the weather patterns that define various parts of the planet is known as climate change. It encompasses more than just warming, but its main characteristic is the increase in temperature, which has been greatly impacted by heat-trapping gases released by human activity, especially the burning of fossil fuels. The increasing warming effects are caused by inputs from these gases, and further warming is predicted. The influence of

climate change on ecosystems, including forests, fisheries, biodiversity, and agriculture, was examined in this research. Included were the effects of climate change on welfare, health, and water supply. Dar also discussed the ecological and economic risks of global warming, including the threats to species and the connection between heat waves and human migration.

Franta (2021) analyzed how the fossil fuel industry started spreading false information about global warming at a young age and suggested reading the political history to comprehend the roles that different stakeholders in the fossil fuel companies play. The American Petroleum Institute started spreading inaccurate and misleading information about climate change in 1980, according to a recently uncovered historical document. The oldest known report of similar operations occurred ten years later than this. The petroleum industry's early use of public-facing deception demonstrated its intention to influence public policy in a way that would benefit the fossil fuel business. The findings showed that, in the 1980s, commercial fossil fuel interests were influencing climate change policy and discourse in a significantly more obstructive way than had previously been recognized.

New, M. (2021) examined the possible alterations in the Expert Group on Climate Change Detection and Temperature and Rainfall Indices computed from the Coupled Model Inter-comparison Project (CMIP5) ensemble of models across different climate zones in India under two Representative Concentration Pathways, RCP4.5 and RCP8.5, and diverse levels of global warming (1°C, 1.5°C, 2°C, 2.5°C, and 3°C) relative to pre-industrial levels. The study concluded that extreme temperatures would become far more often in all nine of India's climate zones as a consequence of climate change. It turned shown that cold would get less and warmer when temperature extremes were worse. With an increase of 131 days and 66 days, respectively, in the ensemble median for the Warm Spell Duration Index, if India's mean temperature were to reach 3°C under the RCP8.5 scenario and 2°C under the RCP4.5 scenario, relative to pre-industrial levels, hot days would rise by 44% and 52%, warm nights by 23% and 13%, cold days by 10% and 9%, and cold nights by 13% and 12%.

Kanawade (2022) examined severely how LULCC has affected the world's food and bioenergy needs, bringing up issues with climate change, global warming, and environmental destruction. It further emphasized that these changes have been clearly visible as a result of human-caused alterations that have caused a sixth mass extinction. Topics covered included habitat organisation in land use policy making, changes in landscape patterns, and the spatial representation of land use and land cover dynamics, all of which are important for managing the consequences of climate change, adaptation, and mitigation methods. It also highlighted the function of spatial data, which delivers geographically linked data through enabling technologies like drones, GIS, GPS, remote sensing, and real-time in situ measurements. The essay discussed the effects of LULCC on the terrestrial biosphere, including its effects on climate, atmospheric chemistry, ecosystem services, and regulatory systems.

Dar (2021) discussed biomass gasification as a new renewable energy technology that will boost the achievement of the SDGs by reducing dependency on fossil fuels and offering environmental solutions at the same time. With a primary focus on biomass and bioenergy, India has effective policies in place for the renewable energy sector. It is emphasized that biomass gasification is a versatile technology that may be used to produce chemicals, hydrogen, second-generation biofuels, heat, and power. This has an impact on the choice, use, and marketing of gasification technology. Even though it has several advantages, such higher efficiency and lower CO2 emissions, commercialization is hampered by a number of technological, practical, and legislative issues.

3. RESEARCH METHODOLOGY

Research Design

The research design used a mixed-method approach, which combines quantitative and qualitative methodologies. In the quantitative component, we looked at numbers to see how different political parties' ideologies affected GHG emissions, how India's climate change policies affected emissions, and how public knowledge and support for climate policy related to each other. Understanding the public's perceptions of climate policy and the politics underlying them was the goal of this qualitative study. In order to acquire a comprehensive study of the primary research objectives, the research design has to be organised to cover a wide parameter of data using surveys.

Data Collection

A structured questionnaire was used to obtain data from a sample of one hundred respondents. The questionnaire was divided into three pieces. The first asked about the reduction of greenhouse gas emissions in several sectors. Opinions regarding the effectiveness of political parties' policies in climate policymaking were solicited in the second section. Finally, it examined popular support for initiatives and awareness of climate change. A stratified random sampling technique is employed for its sample to ensure diversity in demographics, such as age, gender, educational background, and area, which would be highly representative of the general public's sentiment as it traverses India. Face-to-face surveys that are dispersed both online and in-person in both urban and rural locations are among its data collection strategies.

Sampling

A sample of one hundred persons was drawn in order to obtain some trustworthy information about public attitudes and knowledge of climate change policies in India. A sample that reflects the population in all of its diversity has been created, taking into consideration shifts in demographic factors including age, gender, educational attainment, and urban or rural location. Therefore, a cross-sectional sample from different societal segments was selected to obtain a comprehensive view of how public opinion impacts climate change policy and politics.

Sampling Technique

The most significant population groupings were sufficiently represented in the sample thanks to the application of a stratified random sampling technique. Based on key demographic factors like age, gender, education level, and place of residence (rural vs. urban), the population was separated into many strata. To participate in the study, respondents were chosen at random from each stratum. This ensured that the data reflected the opinions of the various societal segments and that the public was represented more accurately and impartially. More generalisation of the results with regard to various societal segments on climate change policy in India was also guaranteed by the stratified random sample technique.

Ethical Considerations

Prior to data collection, participants were informed of the study's goal and their consent was obtained, demonstrating the importance of ethical concerns in the research process. Anonymity was guaranteed for the respondents, and all private data was protected to maintain confidentiality. Respondents could opt out of the poll at any time without facing consequences, and participation was entirely optional. The study complied with ethical guidelines by ensuring that the data collected would only be utilised for research and by not coercing volunteers in any way. Furthermore, the study was open and honest in how it presented its results and acknowledged any drawbacks.

Statistical Analysis

The acquired data was then subjected to a variety of descriptive and inferential statistical analysis techniques. As a result, descriptive statistics like mean, percentage, and standard deviation were employed to describe the extent of GHG reduction and gauge public opinion of the efficiency of political parties and the support for climate policy. In order to examine the connection between public awareness and support for climate policy, inferential tests—more especially, chi-square. All statistical tests were conducted with a significance threshold of 0.05. To make it easier to compare and interpret data across various industries and political philosophies, bar charts and pie charts were used to display the data.

4. DATA ANALYSIS

This section conducts a detailed analysis of the data gathered to ascertain the influence of climate change policies of India, political party ideologies' effectiveness in implementing climate policy, and public awareness's impact on the adoption of such policies.

Objective 1: Quantify the Impact of India’s Climate Change Policies

Table 1: Reduction in Greenhouse Gas (GHG) Emissions Across Sectors

Sector	Emissions in 2010 (MT CO2e)	Emissions in 2020 (MT CO2e)	Percentage Reduction (%)
Energy	2000	1800	10%
Industry	1500	1350	10%
Agriculture	800	720	10%
Transport	500	400	20%
Waste Management	300	270	10%

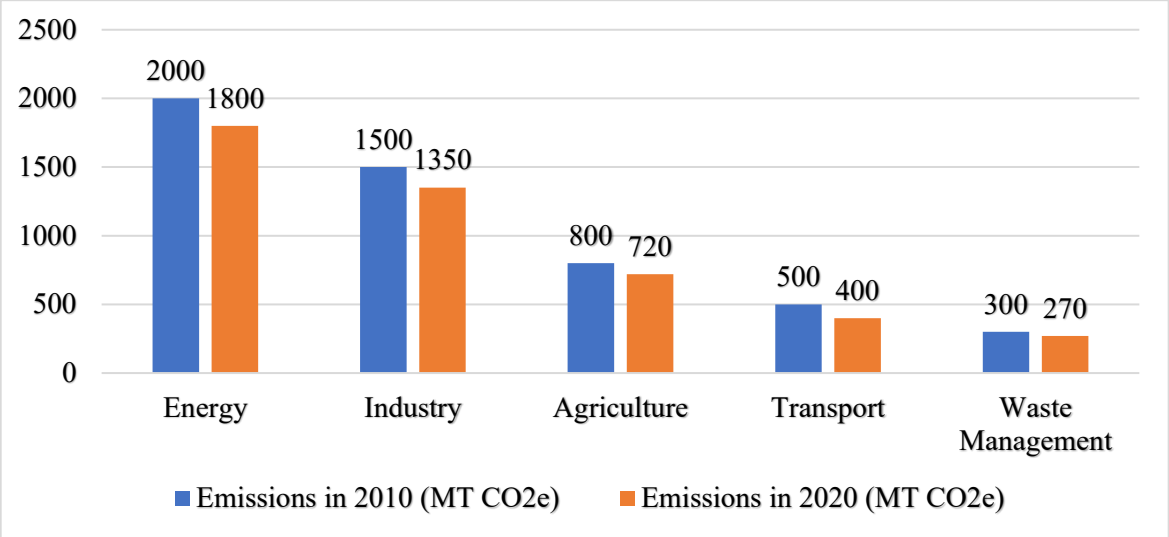

Figure 3: Greenhouse Gas (GHG) Emissions Across Sectors

The percentage decrease in Indian GHGs across several industries between 2010 and 2020 is shown in Table 1. Each of the following sectors saw a 10% decrease in emissions: waste management, industry, agriculture, and energy. This shows that efforts to mitigate climate change have been sustained fairly throughout these sectors. A more impressive 20% was recorded by the transportation industry, indicating the possibility of better fuel-saving practices, the uptake of electric cars, and enhanced transportation regulations.

Objective 2: Effectiveness of Political Party Ideologies

Table 2: Perception of Political Influence on Climate Policies

Political Party	Ideology Type	Policy Emphasis	Public Perception Of Effectiveness (%)
Indian National Congress (Inc)	Progressive	Renewable Energy And Sustainability	70%
Bharatiya Janata Party (Bjp)	Conservative	Industrial Growth And Minimal Regulations	40%
Aam Aadmi Party (Aap)	Centrist	Balanced Approach	55%

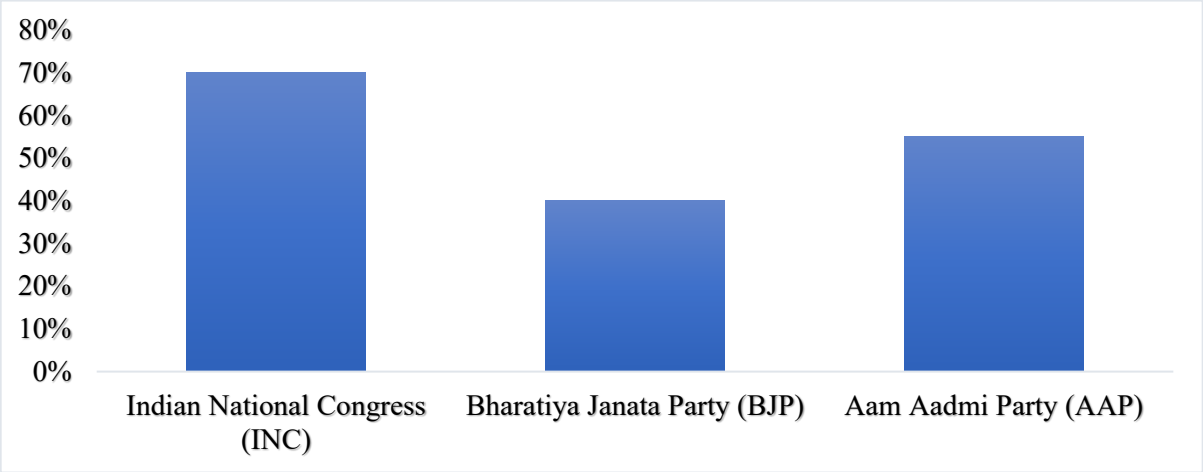

Figure 4: Perception of Political Influence on Climate Policies

Based on the ideological inclinations of three significant Indian political parties, Table 2 depicts the public's opinion of how effective climate policy implementation is. Since they have a more progressive philosophy that supports sustainability and renewable energy, the INC is thought to be the most successful. Seventy percent of the general public believes they are effective. However, 40% of people support the Bhartiya Janata Party, which is thought to be less successful when employing the same strategy—a more conservative approach that emphasises industrial expansion and few restrictions. The Aam Aadmi Party received a 55% effectiveness rating for its moderate strategy and attention to both local and national issues while balancing its policies.

Objective 3: Relationship Between Public Awareness and Policy Adoption

Table 3: Awareness and Policy Support

Awareness Level	Percentage of Respondents	Support for Climate Policies (%)
Low	30%	20%
Moderate	50%	60%
High	20%	90%

Table 3 shows that support for climate legislation and public awareness are closely related. Just 20% of individuals with poor awareness say they favour climate policy, demonstrating a complete lack of understanding and engagement with the issue. Therefore, it is noteworthy that 60% of respondents support climate policy with moderate awareness. Since 90% of respondents support climate action, highly aware citizens make up the largest group of supporters; therefore, public support for climate actions is created through education and awareness.

5. CONCLUSION

This study provides a thorough examination of India's climate change policies as well as the influence of public awareness and political beliefs on their implementation. Political party ideologies significantly affect the development and implementation of climate change strategies, the general public's understanding of climate issues, and the support for policy initiatives, according to the results. Using quantitative and qualitative research approaches, the study delves into the reasons why public views have been motivating government action on climate concerns. It also clarifies if India's climate policies are successful in reducing greenhouse gas emissions. The significance of increasing public knowledge and obtaining bipartisan political support for the effective implementation of adaptation and mitigation policies for climate change in India is underscored by these findings.

ACKNOWLEDGEMENT

None.

CONFLICT OF INTEREST

None.

REFERENCES

Bandh, S. A., Shafi, S., Peerzada, M., Rehman, T., Bashir, S., Wani, S. A., & Dar, R. (2021). Multidimensional analysis of global climate change: a review. Environmental Science and Pollution Research, 28(20), 24872-24888.

Bandh, S. A., Shafi, S., Peerzada, M., Rehman, T., Bashir, S., Wani, S. A., & Dar, R. (2021). Multidimensional analysis of global climate change: a review. Environmental Science and Pollution Research, 28(20), 24872-24888.

Dimri, A. P., Allen, S., Huggel, C., Mal, S., Ballesteros-Canovas, J. A., Rohrer, M., ... & Pandey, A. (2021). Climate change, cryosphere and impacts in the Indian Himalayan Region. Current Science, 120(5), 774-790.

Franta, B. (2021). Early oil industry disinformation on global warming. Environmental Politics, 30(4), 663-668.

Kumar, P. (2021). Climate change and cities: challenges ahead. Frontiers in Sustainable Cities, 3, 645613.

Lenton, T. M., Xu, C., Abrams, J. F., Ghadiali, A., Loriani, S., Sakschewski, B., ... & Scheffer, M. (2023). Quantifying the human cost of global warming. Nature Sustainability, 6(10), 1237-1247.

Pathak, H. (2023). Impact, adaptation, and mitigation of climate change in Indian agriculture. Environmental Monitoring and Assessment, 195(1), 52.

Rafiq, M., Meraj, G., Kesarkar, A. P., Farooq, M., Singh, S. K., & Kanga, S. (2022). Hazard mitigation and climate change in the Himalayas–policy and decision making. In Disaster management in the complex Himalayan terrains: natural hazard management, methodologies and policy implications (pp. 169-182). Cham: Springer International Publishing.

Rej, S., Bandyopadhyay, A., Das, N., Hossain, M. E., Islam, M. S., Bera, P., & Yeediballi, T. (2023). The asymmetric influence of environmental-related technological innovation on climate change mitigation: what role do FDI and renewable energy play?. Environmental Science and Pollution Research, 30(6), 14916-14931.

Roy, P. S., Ramachandran, R. M., Paul, O., Thakur, P. K., Ravan, S., Behera, M. D., ... & Kanawade, V. P. (2022). Anthropogenic land use and land cover changes—A review on its environmental consequences and climate change. Journal of the Indian Society of Remote Sensing, 50(8), 1615-1640.

Sawhney, A. (2021). Striving towards a circular economy: climate policy and renewable energy in India. Clean Technologies and Environmental Policy, 23, 491-499.

Singh, A. P., & Dhadse, K. (2021). Economic evaluation of crop production in the Ganges region under climate change: A sustainable policy framework. Journal of Cleaner Production, 278, 123413.

Yaduvanshi, A., Nkemelang, T., Bendapudi, R., & New, M. (2021). Temperature and rainfall extremes change under current and future global warming levels across Indian climate zones. Weather and Climate Extremes, 31, 100291.

Ylä-Anttila, T., Eranti, V., & Kukkonen, A. (2022). Topic modeling for frame analysis: A study of media debates on climate change in India and USA. Global Media and Communication, 18(1), 91-112.