

Newspaper Framing of Climate Change in Tamil Nadu, India

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As one of the most pressing global challenges of our times, climate change has thrust the media into a crucial position, wielding influence over public understanding and shaping policy debates. This study investigates how climate change is framed in Tamil Nadu by analysing articles from *The Hindu* published in 2023. This study combines the frame analysis model developed by Semetko and Valkenburg with the Climate Action frame from Sustainable Development Goal 13 (SDG 13) added on. This study analysed 600 articles through the lens of six distinct frames: responsibility, conflict, economic, human interest, morality, and climate action. These framing categories form the basis of the analytical framework. The Responsibility frame emphasises governmental accountability in addressing climate issues, the Conflict frame elucidates disagreements concerning resource allocation, the Economic frame examines the financial implications of risks associated with extreme weather events, the Human Interest frame incorporates a human perspective into climate narratives, the Morality frame integrates ethical perspectives, and the Climate Action frame focuses on climate adaptation and climate mitigation strategies. This study provides valuable insights into how regional climate change narratives are constructed in the state of Tamil Nadu, south India, and offers insights into how a global crisis is contextualised in print media through strategic framing.

Keywords: Climate change, media framing, Tamil Nadu, *The Hindu*, Semetko and Valkenburg, Climate Action frame, SDG13

Introduction

Climate change poses substantial threats to various sectors, including health, agriculture, biodiversity, and food security. The health sector contributes significantly to greenhouse gas emissions in developed countries, with an increasing climate impact in low-income nations (Holmner et al., 2012). Climate change affects all aspects of biodiversity, potentially resulting in irreversible ecosystem shifts and the loss of essential services for human survival (Rinawati et al., 2013). The Green Revolution enhanced agricultural production, but incurred environmental costs, contributing to climate change through the intensive use of fossil fuels and agrochemicals. Traditional agriculture is gaining recognition as a climate-smart strategy for sustainable food production (Singh and Singh, 2017). Artificial intelligence (AI) has emerged as a tool for climate change mitigation, with applications in weather prediction, energy management, and industrial pollution

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analysis (Kumar et al., 2024). Agricultural adaptation strategies include optimising geographic distribution, cultivating climate-resilient crops, adjusting cropping patterns, developing water-saving irrigation systems, and enhancing disaster prevention capacities (Liu et al., 2021).

Media framing of climate change influences public perception and understanding of this global issue, and media portrayals affect public cognition and responses (Schuldt & Roh, 2014). A study of US newspapers found that although articles on climate change decreased from 2007-2008 to 2011-2012, there was an increased focus on the public health aspect (Weathers and Kendall, 2015). Additionally, framing has shifted from apocalyptic futures to more diverse narratives, with a “Sustainable Future” frame emerging alongside the “Global Doom” and “Local Tragedies” frames (Guenther et al., 2021). Framing varies across countries and political ideologies, as seen in Indian newspapers (Billett, 2009), and differences between conservative and liberal newspapers in Chile (Dotson et al., 2012).

News media framing of climate change has agenda-setting and framing effects that impact public understanding and behaviour (McCluskey et al., 2016). The terms “global warming” and “climate change” evoke distinct cognitive associations across political affiliations. Conservatives associate heat-related impacts more with “global warming”, while liberals associate these impacts equally in both terms (Schuldt and Roh, 2014). This highlights the importance of language choice in climate communication. Media framing effects vary across facets of public opinion, with stronger effects on future expectations than current attitudes (Sheafer & Dvir-Gvirsman, 2010). Media framing shapes public discourse on climate change, but its efficacy can be influenced by political partisanship, personal identity, and terminology (Benjamin et al., 2016).

Semetko and Valkenburg’s (2000) frame analysis is a prominent methodology in media-framing research. Their scale encompasses five news frames: responsibility, human interest, conflict, morality, and economic consequences (Muhamad and Yang, 2017). This deductive approach enables researchers to investigate how news narratives are framed across various topics and media platforms and continues to be an important tool for examining media framing in news coverage. As media landscapes evolve, researchers may need to adapt and integrate diverse framing analysis techniques to capture the complexities of contemporary communication (Knüpfner and Entman, 2018).

Climate Action Goal 13 of the Sustainable Development Goals (SDGs) stresses urgent measures to address climate change and its effects by incorporating adaptation and mitigation strategies. This goal aims to enhance education, awareness, and the institutional capacity for climate change mitigation, adaptation, impact reduction, and early warning systems (Hwang et al., 2021). Cities incorporate these aspects into local climate action plans, acknowledge synergies, and avoid conflicts and trade-offs (Grafakos et al., 2019). This integrated approach is vital for sustainable urban development and efficient resource use. Transformative solutions are crucial for addressing highend climate change because conventional strategies may be insufficient to prevent major disruptions in social-ecological systems (Tàbara et al., 2018). Effective climate action under SDG 13 requires a balanced and integrated approach to adaptation and mitigation strategies. Climate change has significantly

impacted Tamil Nadu. Districts such as Dharmapuri, Vellore, and Tiruvannamalai have faced severe groundwater depletion, highlighting spatial variability. Despite the water levels exceeding 8 m under various climate scenarios, the region remains largely unaffected owing to its elevated topography (Rao et al., 2020). This is in contrast with the vulnerabilities observed elsewhere in Tamil Nadu. Climate change pressures on Tamil Nadu's water resources, particularly groundwater, are vital for agriculture. The spatiotemporal variations identified in groundwater storage will help water resource managers and policymakers formulate strategies to enhance food and water security (Chinnasamy and Agoramoorthy, 2015). Although some areas showed resilience to specific climate change impacts, the overall trend indicates the need for comprehensive adaptation and mitigation measures in Tamil Nadu.

While climate change is a global issue, its manifestations and media representations differ markedly across regions. Tamil Nadu, with its coastal vulnerability, urbanisation, and frequent climate-related disasters, offers a unique context for examining the media framing of global environmental challenges. There is limited research on how the media have framed climate change in regional contexts, particularly in Tamil Nadu, South India. This represents a gap in our understanding of how this global issue is perceived and communicated at the local level. Tamil Nadu, with its diverse ecosystems, extensive coastline, and vulnerability to climate-related events such as cyclones and droughts, offers a unique perspective on climate change impacts and adaptation strategies. Exploring how local media outlets in Tamil Nadu frame climate change could provide insights into the region's specific challenges, public awareness, and policy responses. This study does not assess behavioural changes or cognitive impacts on the audience. Instead, it focuses on mapping how climate change is represented in print media using frame analysis.

Materials and Methods

This study examines climate change framing in *The Hindu*, one of south India's leading English language newspapers, in the calendar year 2023. *The Hindu* has an average daily circulation of 4,81,197 copies in Tamil Nadu and 1.5 million copies in India, with readership approximately three times the circulation figures. The analysis of *The Hindu*'s coverage highlights how the framing techniques are used when reporting on climate change in the Indian context. The study has employed frame analysis by combining Semetko and Valkenburg's (2000) framework with the Climate Action (SDG 13) frame from the UN Sustainable Development Goals. The articles were analysed using MAXQDA software, employing the frames developed by Semetko and Valkenburg (2000), added up with the Climate Action frame derived from SDG13. With regard to the unit of measurement, one predominant frame was identified and coded for each newspaper article studied.

The Responsibility frame within climate change discourse highlights the role of governments in addressing environmental challenges. This frame emphasises the need for policymakers to take decisive action, implement regulations, and formulate strategies against climate change. The Conflict frame evokes the tensions in

allocating resources to combat climate change. It examines the competing interests of stakeholders, including industries, environmental groups, and communities, as they contend with limited resources and influence in shaping climate policies. This framework highlights the geopolitical dimensions of climate change, such as disputes between developed and developing nations regarding historical emissions and climate finance distribution. The Economic frame examines the financial implications of climate-related risks, particularly those associated with weather events. It evaluates the costs of climate change adaptation and mitigation strategies and potential economic opportunities from transitioning to a low-carbon economy. The Human Interest frame provides a personal dimension to climate narratives by focusing on individual stories and experiences. This frame makes the abstract concept of climate change relatable to the public. It also showcases the efforts of individuals and grassroots organisations to combat climate change, inspiring others to take action. The Morality framework incorporates moral and ethical considerations into climate discourse, exploring questions of intergenerational justice, global equity, and moral obligations to address climate change. It examines the disproportionate impact on vulnerable populations and future generations, raising questions regarding fairness and responsibility. The Climate Action frame concentrates on practical strategies for adapting to climate change impacts and reducing greenhouse gas emissions, emphasising proactive measures and innovative solutions. This frame focuses on technological advancements and policy interventions that can contribute to climate mitigation and adaptation. The Climate Action frame also emphasises the urgency of taking immediate and sustained action, stressing the importance of setting ambitious targets and implementing comprehensive strategies across all sectors. These frames collectively provide a multifaceted approach and offer diverse perspectives on climate change. The objective of this study is to identify and analyse the different frames used in climate change articles published in *The Hindu*, focusing on six specific frames: responsibility, conflict, economic, human interest, morality, and climate action. While Lasswell's communication model also encompasses audience effects (with what effect), this study concentrates on the 'who says what in which channel' components using frame analysis. It does not assess audience response. The following are the research questions:

RQ1: How is climate change framed in the media coverage of *The Hindu* in Tamil Nadu during the year 2023?

RQ2: What are the most prevalent frames identified in the study?

Findings and Discussion

The Responsibility frame is frequently employed, appearing in 168 articles and constituting 28% of the total, as shown in Table 1. It focused on the role of governments in addressing climate change. The high frequency suggests *The Hindu* emphasise holding policymakers accountable and advocating for governmental intervention. While the Responsibility frame underscores government actions, the Economic frame underlines financial implications, illustrating the interconnected

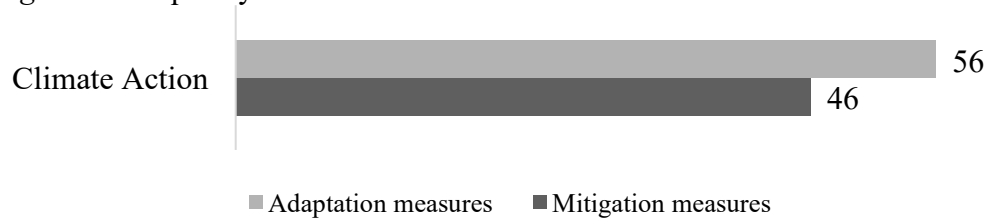
nature of policy decisions and economic outcomes. The Economic frame, the second most prevalent, appears in 112 articles (19%) and concentrates on the financial consequences of climate change. The economic considerations lead to discussions of resource allocation in the Conflict frame. This transition showcases how financial concerns give rise to tension among stakeholders. The Conflict frame appears in 103 articles (17%), highlighting tensions in allocating resources to combat climate change. The Climate Action frame accounts for 17% of the articles (102 articles), focusing on strategies for adapting to and mitigating climate change impacts. While the Climate Action frame focuses on broader strategies, the Human Interest frame complements them by bringing issues to a personal level, making impacts and solutions more relatable. The Human Interest frame, used in 88 articles (15%), introduces a personal dimension to climate narratives by focusing on individual stories and experiences. The personal stories lead to discussions of moral and ethical considerations captured in the Morality frame, bridging individual experiences with broader questions on justice and moral responsibility. The Morality frame, the least frequently used, appeared in 27 articles (4%), incorporating ethical considerations into climate discourse.

Table 1. Distribution of Frames by Frequency and Percentage

Frames	Frequency	Percentage
Climate Action	102	17%
Conflict	103	17%
Economic	112	19%
Human Interest	88	15%
Morality	27	4%
Responsibility	168	28%
Total	600	100%

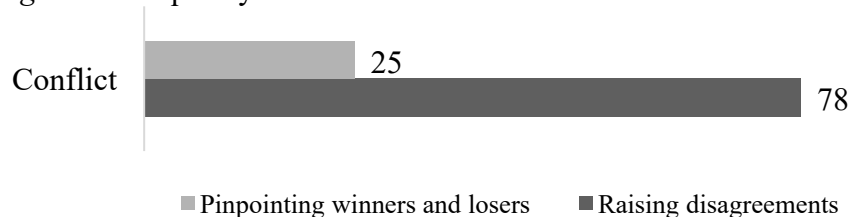
The Climate Action frame comprises the adaptation and mitigation measure subframes. The adaptation measures discussed in 56 articles, as shown in Figure 1, focused on strategies to adjust to climate change impacts, such as developing resilient infrastructure, implementing water-saving techniques, and adopting climate-smart agricultural practices. The mitigation measures featured in 46 articles addressed the root causes by reducing greenhouse gas emissions, covering topics such as renewable energy projects, carbon capture technologies, and carbon footprint reduction policies. For instance, an article on the rejuvenation of waterbodies focused on how storage capacity in tanks, rainwater harvesting, and wastewater reuse will improve water resilience in Tamil Nadu as a climate action measure.

Figure 1. Frequency Distribution of the Climate Action Frame and Subframes



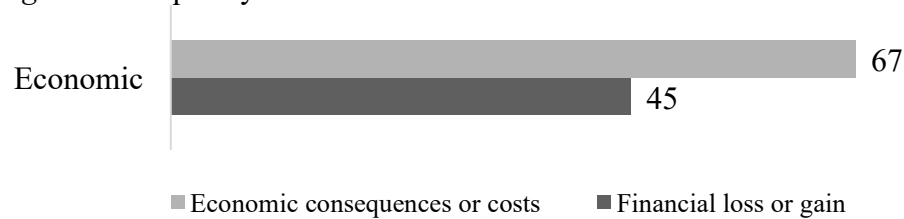
The Conflict frame includes two subframes: identifying winners and losers, and highlighting disagreements. The pinpointing winners and losers was framed in 25 articles, as shown in Figure 2, discussed the conflicting social implications in various sectors. The rising disagreements were framed in 78 articles and focused on conflicts among stakeholders, including governments, industries, and environmental groups, and the debates on resource allocation, policy decisions, and international climate agreements. For instance, the article on the UN's Conference of Parties (COP28) underscored the disagreements over language on fossil fuels that led to a deadlock, with developing countries demanding more financial support while some developed countries hesitated to commit, highlighting a significant conflict in addressing climate change equitably.

Figure 2. Frequency Distribution of the Conflict Frame and Subframes



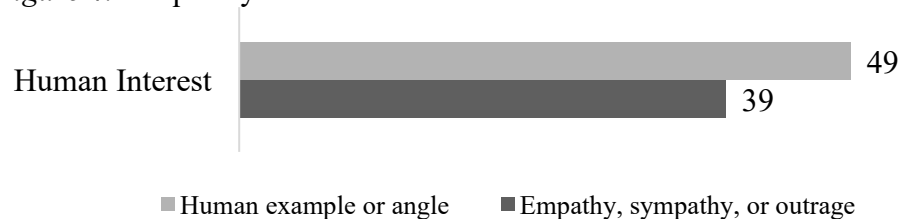
The Economic frame comprises two subframes: mentioning economic consequences or costs, and referring to financial losses or gains. The mentioning economic consequences or costs subframe was framed in 67 articles, as shown in Figure 3, and they explored the financial implications of climate change and associated policies, including implementation costs, economic impact of climate-related disasters, and benefits of transitioning to a green economy. The financial loss or gain subframe was framed in 45 articles and emphasised the direct financial effects such as insurance claims from extreme weather events, renewable energy investments, and economic opportunities from sustainable practices. For instance, the article on the popularity of seafood highlighted that seafood exports hit a record high as a union minister highlighted the economic growth in seafood exports, despite growing concerns about the impact of climate change on fisheries and marine resources.

Figure 3. Frequency Distribution of the Economic Frame and Subframes



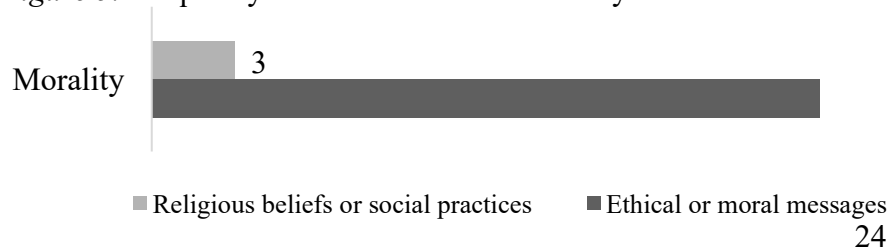
The Human Interest frame has two subframes: attributing a human example or angle, and carrying adjectives that generate empathy, sympathy, or outrage. The first subframe emphasised personal narratives and experiences associated with climate change in 49 articles, as shown in Figure 4. It incorporated stories of individuals and communities affected by climate change, underscoring their challenges and resilience. The second subframe employed emotive language to evoke emotional responses from readers in 39 articles to foster an emotional connection with the audience. For instance, an article on the impact of women on extreme weather events emphasised that women bear the brunt of extreme weather events due to gender roles, with reports showing their higher risk of loss during calamities and their unpaid labour increasing due to climate-induced challenges.

Figure 4. Frequency Distribution of the Human-Interest Frame and Subframes



The Morality frame has two subframes: mentioning religious beliefs or social practices, and embracing ethical or moral messages. The first subframe was present in only three articles that examined the influence of religious beliefs and social practices on climate change perceptions and actions. The second subframe was more prevalent and appeared in 24 articles, and explored broader ethical considerations such as intergenerational justice, global equity, and moral obligations to address climate change.

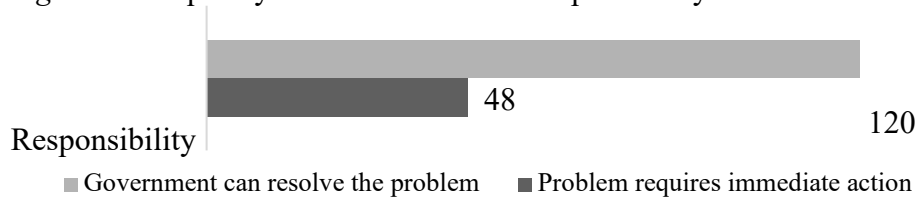
Figure 5. Frequency Distribution of the Morality Frame and Subframes



Alan Rusbridger, former editor-in-chief of *The Guardian*, while undertaking The Guardian Newspaper Climate Campaign, targeted the fossil fuel lobby rather than the carbon emissions of individuals. This is probably because individuals form the main constituency of the newspaper, and they need to be kept in good humour. However, in this study, we could see articles by leaders like the President and the Prime Minister calling upon Indian citizens to reduce carbon emissions, and to lead a simple lifestyle – which takes the Indian climate discourse a level higher on the moral plain. In an article on how Buddha’s teachings can solve global problems, the Prime Minister said that each person should contribute to climate change through lifestyle choices, such as eating habits and travel, and stressed that Buddha’s teachings can provide solutions to contemporary problems such as climate change.

The Responsibility frame has two subframes: advocating that the government can resolve the problem and attributing that the problem requires immediate action. The first subframe underscored the role of governmental bodies in addressing climate change, as evident in 120 articles, as shown in Figure 6, exploring government policies, regulations, and initiatives to mitigate climate change and promote sustainability. The second subframe focused on the critical need to address climate change issues, which were framed in 48 articles, emphasising swift measures to avert catastrophic climate consequences. For instance, an article said that the Tamil Nadu government will release scientific data on carbon emissions by each of its departments as the state government is aspiring to realise the net zero goal ahead of the national target of 2070.

Figure 6. Frequency Distribution of the Responsibility Frame and Subframes



The Responsibility frame, identified as the most frequent in this study, highlights the role of governments in addressing climate change as shown in Table 2. This aligns with Schuldt and Roh (2014), who emphasised the impact of media framing on public perception and policy advocacy. The Economic frame, that addressed the financial implications of climate change, also emerged prominently. This is consistent with Singh and Singh (2017), who discussed economic costs and potential benefits of climate-smart agricultural practices. The Conflict frame, emphasising tensions in resource allocation, aligned with Dotson et al. (2012), who explored competing interests in climate policy debates. The Human Interest frame evoked a personal dimension to climate narratives, making it more relatable to the people was aligned with Schuldt and Roh (2014), who noted that different frames can stimulate emotional response. The Morality frame, although least frequent, incorporated ethical considerations into climate discourse and aligned with Benjamin et al. (2016), who emphasised the importance of ethical messages in shaping public attitudes. *The Hindu*’s articles highlighted intergenerational justice and global equity, challenging readers to consider moral

and ethical obligations. The Climate Action frame emphasised practical strategies for adaptation and mitigation, reflecting the integrated approach advocated by Hwang et al. (2021) in their discussion of SDG 13.

Table 2. Frequency distribution of frames and subframes

Frames	Subframes	Total
Climate Action	Does the article cover adaptation measures of climate change?	56
	Does the article feature mitigation measures of climate change?	46
Conflict	Does the article pinpoint winners and losers?	25
	Does the article raise disagreement between individuals, groups, or countries?	78
Economic	Does the article mention an economic consequence, or the cost of the expense involved?	67
	Does the news article refer to any financial loss or gain at present or soon?	45
Human Interest	Does the news article attribute a human example or a human angle?	49
	Does the news article carry adjectives that generate empathy, sympathy, or outrage?	39
Morality	Does the news article mention religious beliefs or social practices?	3
	Does the news article embrace any ethical or moral message?	24
Responsibility	Does the news article advocate that the government can resolve the problem?	120
	Does the news article attribute that the problem requires immediate action?	48
Total		600

Conclusion

This study analysed the framing of climate change in *The Hindu's* newspaper coverage in Tamil Nadu in 2023 by examining 600 articles through six distinct frames, namely responsibility, conflict, economic, human interest, morality, and climate action. The findings indicated that the Responsibility frame is the predominant frame, underscoring the central role of governments in addressing climate change, as vital issues like climate change are addressed mostly by government agencies as a societal responsibility. The Economic frame focused on financial implications, featured prominently, reflecting the recognition of the economic stakes involved in climate change. The Conflict frame highlighted tensions in resource allocation and illustrated the complex dynamics of climate change discourse with the competing interests of stakeholders. The Human Interest frame evoked a personal dimension to climate narratives, making it more

relatable to the public by featuring emotional connections. The Morality frame, although least frequent, incorporated moral and ethical considerations into the climate discourse. The Climate Action frame focused on practical strategies for adaptation and mitigation, reflecting the approach advocated by SDG 13.

Based on the findings, it is recommended for newsrooms to broaden their climate coverage by incorporating underrepresented frames, particularly those on ethics, grassroots resilience, and public agency. Policymakers can use these insights to develop climate messages that are more inclusive and emotionally resonant. The dominance of institutional framing may lead to a policy-centric narrative, which could potentially restrict citizen engagement. The least prominence of ethical and justice-oriented frames indicates a major gap. It is imperative to adopt more inclusive and critical storytelling to represent the complex social dimensions of climate change.

Limitations of Study

Limitations of the study are that it does not address internal editorial policies, journalists' ideologies, or gatekeeping mechanisms, and audience response. Although framing patterns are identified, the underlying newsroom practices fall outside the scope of this research.

For Future Research

Future research might consider employing interview-based methodologies to explore production-level dynamics. Audience-level investigations may be conducted using media effects frameworks, such as that of Potter (2012). Future research may also investigate how these frames affect readers' perceptions through media effects modelling.

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