



Reframing Climate Change Narratives in Pakistan: A Critical Ecolinguistic and Multimodal Discourse Analysis

Research Article

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Abstract

Climate change discourse, becoming progressively multimodal in character, requires critical scrutiny of the interaction between language and images in creating ecological narratives. In Pakistan, a climate-impacted country, government language influences public understanding and ecological identity. This study critically examines how the Ministry of Climate Change Pakistan employs semiotic resources to frame climate narratives on its official website. Using Stibbe's ecolinguistic framework and Kress and Van Leeuwen's visual grammar, six visuals (2022–2023) were analyzed through a qualitative lens. The findings reveal strategic use of urgency metaphors, national-global identity synthesis, and multimodal cohesion to promote eco-consciousness and public responsibility. The research argues that these discursive choices not only reflect Pakistan's environmental vulnerabilities but also aim to construct a persuasive, collective ecological ethos aligned with global sustainability discourses. This study extends critical ecolinguistic analysis by prioritizing how visual textual synergies function in government climate discourse and contributes



practical insights to discourse analysts, policymakers, and environmental planners working to strengthen eco-advocacy through combined semiotic strategies.

Keywords: ecolinguistics, climate change discourse analysis, visual grammar, salience, multimodality

1. Introduction

In the 21st century, climate change has emerged as an existential threat, demanding strategic communication from governmental bodies worldwide. Language and visuals increasingly serve as pivotal tools in framing public understanding and influencing policy directions (Corner & Randall, 2011). For countries like Pakistan, which ranks among the most climate-vulnerable nations (World Bank, 2022), effective climate discourse is not only necessary for domestic awareness but also for international engagement. The Ministry of Climate Change Pakistan actively constructs climate narratives through its digital platforms, blending textual and visual resources. Initiatives such as the ‘One Billion Tree Tsunami’ and ‘Clean and Green Pakistan’ campaign signify the country’s commitment to Sustainable Development Goals. However, the catastrophic floods of 2022 placed Pakistan at the forefront of global climate discussions, highlighting both environmental vulnerability and the urgent need for persuasive public communication. Ecolinguistics, an emerging subfield of applied linguistics, examines how language shapes ecological perspectives and behaviors (Stibbe, 2015). Simultaneously, Multimodal Discourse Analysis (MDA) enables researchers to decode how visual, textual, and spatial elements co-construct meaning (Kress & Van Leeuwen, 2020). Despite their growing relevance, little research combines these frameworks to analyze governmental climate discourse, particularly in South Asian contexts.

While prior studies have explored media representations of climate change globally, few have critically interrogated how state institutions in the Global South employ multimodal ecolinguistic strategies to frame climate crises. This study fills this gap by applying an integrated ecolinguistic and multimodal approach to analyze Pakistan’s official climate change visuals, offering new insights into the discursive construction of eco-conscious national identity.

1.1 Research Question

1. How does the Ministry of Climate Change Pakistan employ semiotic resources in online visuals to construct environment-friendly narratives?
2. In what ways do these semiotic resources integrate ecolinguistic strategies to create cohesive and persuasive eco-conscious appeals?

2. Literature Review

Ecolinguistics, as a field, highlights the pivotal role of language in constructing ecological ideologies and framing environmental narratives. The term ecolinguistics was first coined by Marcellesi (1957), and later scholars like Trim (1959) and Voegelin (1967) expanded its scope to include the study of language’s relationship with environmental consciousness. Halliday’s (2001)

functional approach, which links language to ecological behavior, brought ecolinguistics into environmental discourse analysis. In this vein, Stibbe (2015) proposed the framework of “stories we live by,” which focuses on the implicit ideologies shaping how we view the environment. The field further evolved with the contributions of Mühlhäusler (2003), who advocated for the ecocritical approach, focusing on metaphors and grammar as tools to examine environmental issues. Other notable schools within ecolinguistics include the biolinguistic school, which links multilingualism with biodiversity loss (Nettle & Romaine, 2000), and ecosystemic linguistics, as outlined by do Couto (2017), emphasizing the ecological responsibility of linguists. Additionally, Steffensen and Fill (2014) made development in unifying diverse views on language ecology, thus broadening the interdisciplinary focus of ecolinguistic research.

MDA grounded on Hallidayan Systemic Functional Linguistics and explores how different modes—text, visuals, sound—work collectively to generate meaning. Kress and Van Leeuwen (2020) developed Visual Grammar, which is central in analyzing the semiotics of images, directing on elements such as information value, salience, and framing. MDA reveals how meaning-making occurs not just through written text, but through visual semiotic resources, including layout, color, and spatial arrangements (Bateman, 2008; Royce, 1998). The vital tenet of multimodal theory is that meaning develops from the collaboration between numerous semiotic means, where images and texts work together to strengthen the narrative. Additionally, Lemke (1998, 2002) further supported this stance by research on visual science texts, which highlighted the complex relationship between images and words in developing meanings, particularly in scientific discourse.

In the discourse of climate change, there are two prevalent paradigms: the positivist one, which posits that professional scientists are the primary authors of the story in ecology, and the constructivist one, which prioritizes the role of various sources and signs of representation (Boykoff, 2011). The constructivist paradigm focuses on how media, politics, and public discourse shape the way climate change is understood and acted upon, often tailoring narratives to local contexts (Carvalho & Burgess, 2005; Hulme, 2007). Recent empirical studies have utilized Critical Discourse Analysis (CDA) and MDA to examine climate change representations in various media formats. For instance, Carvalho and Burgess’ (2015) study examined British newspapers’ coverage of the climate change debate using CDA, highlighting the rhetorical strategies employed by journalists. Hulme (2007) offered insight from within the narratives about climate change, looking at how discourse about the environment is constructed by its broader socio-economic and political context.

There has been increasing interest in applying ecolinguistics and multimodal discourse analysis to climate change communications. Studies by Ahmed et al. (2021) and Ain et al. (2023) focused on the use of metaphors in Pakistani advertisements to analyze their ecolinguistic implications, applying Stibbe’s framework and Lakoff and Johnson’s conceptual metaphor theory. Furthermore, Nasir et al. (2022) examined the Clean Green Pakistan initiative, analyzing how semiotic resources are employed in advertisements to construct eco-friendly narratives. Despite these contributions, research on Pakistani climate change discourse from an ecolinguistic and multimodal perspective remains sparse. Notable studies by Nazeer and Alam (2024) and Hayat et al. (2024) have utilized CDA to analyze the rhetorical devices used in climate change representations in Pakistani media, focusing on newspapers and advertisements. More recently, Sadiq et al. (2025) extended this

analysis to digital media, analyzing climate change framing in both print and digital forms across Pakistani media. These studies underscore the multimodal nature of climate change communication and its critical role in shaping public understanding.

While existing research has significantly advanced the understanding of climate change discourse through ecolinguistics and multimodal discourse analysis, there remains a gap in analyzing official governmental climate change communications in Pakistan, particularly through digital platforms. The current study fills this empirical gap by applying Stibbe's ecolinguistics and Kress and Van Leeuwen's visual grammar to analyze the semiotic resources used by the Ministry of Climate Change Pakistan in constructing climate change narratives on its official website. This research not only contributes to the growing body of literature on multimodal ecolinguistics but also provides valuable insights into the practical application of these frameworks in the Pakistani context, an area that has been underexplored in recent studies.

3. Research Methodology

This is done using the qualitative methodology in a paradigm approach that achieves a triangulation of strategies through Stibbe's ecolinguistic model and the Visual Grammar model by Kress and Van Leeuwen. The integration of these two theoretical frameworks enables a holistic examination of the collaborative and complementary activities of textual and visual semiotics in building climate change narratives. This methodology offers the multi-dimensional window through which to contextually analyze the language-visual correspondence in the promotion of communications under the theme of the environment.

3.1 Data Collection

Data for this study was purposively selected from the official website of Pakistan's Ministry of Climate Change. This site was chosen because it serves as the primary government platform for releasing public environmental campaigns. The visual content examined spans from 2022 to 2023, ensuring the analysis reflects the most current and relevant representations of the Ministry's climate change initiatives. A purposive sampling approach was employed to select six key visuals that represent a broad range of environmental campaigns, including sustainable development, eco-awareness, and climate disaster initiatives. These visuals were selected for their ability to convey the Ministry's overarching eco-friendly narrative and engage the public in climate change discussions. To accurately reflect the diversity of the Ministry's initiatives, priority was given to visual content diversity—incorporating perspectives on gender, pollution, and water scarcity. This strategy supports the study's goal of providing a thorough analysis of how Pakistan's official climate communication uses semiotic strategies across various environmental issues.

3.2 Theoretical Framework

The theoretical framework for this study integrates two main paradigms:

3.2.1 Stibbe's Ecolinguistics

Stibbe's (2015) approach was applied to study the ideological, evaluative, and identity-forming properties of the textual elements in the visuals. Stibbe's framework underlines the hidden ideologies and identities entrenched in linguistic and visual practices, revealing their role in shaping societal understanding of ecological matters. Stibbe's approach is based on the development of positive narratives about climate change through language to encourage shared responses and environmental justice.

3.2.2 Kress and Van Leeuwen's Visual Grammar

The Kress and Van Leeuwen's (2020) Visual Grammar model permits the scrutiny of visual semiotics, while focusing on: salience, information value, and framing. These tools assist in understanding the structure and layout of the visuals portrayal of messages and sentiments related to the climate change discourse. This model raised attention towards: modes of representation, patterns of color, arrangement in space, as well as role of visual elements in the construction of eco-aware identity and shared responsibility towards the preservation of the environment.

Table 1: Analytical Categories Used in Frameworks

Visual	Textual Ideology	Visual Grammar Feature
1	Climate justice, gendered effects	Left-right dynamic (known to new)
2	Collective conservation	Salient pollution imagery (foregrounding trash)
3	Water scarcity awareness	Framing of dry river bed (ideal vs. real)
4	National-global unity	Top-bottom ideal-real structure
5	Biodiversity valorization	Central placement of elephant, harmonious composition
6	Environmental restoration	Circular framing, green color dominance

3.2.3 Justification for Visual Selection

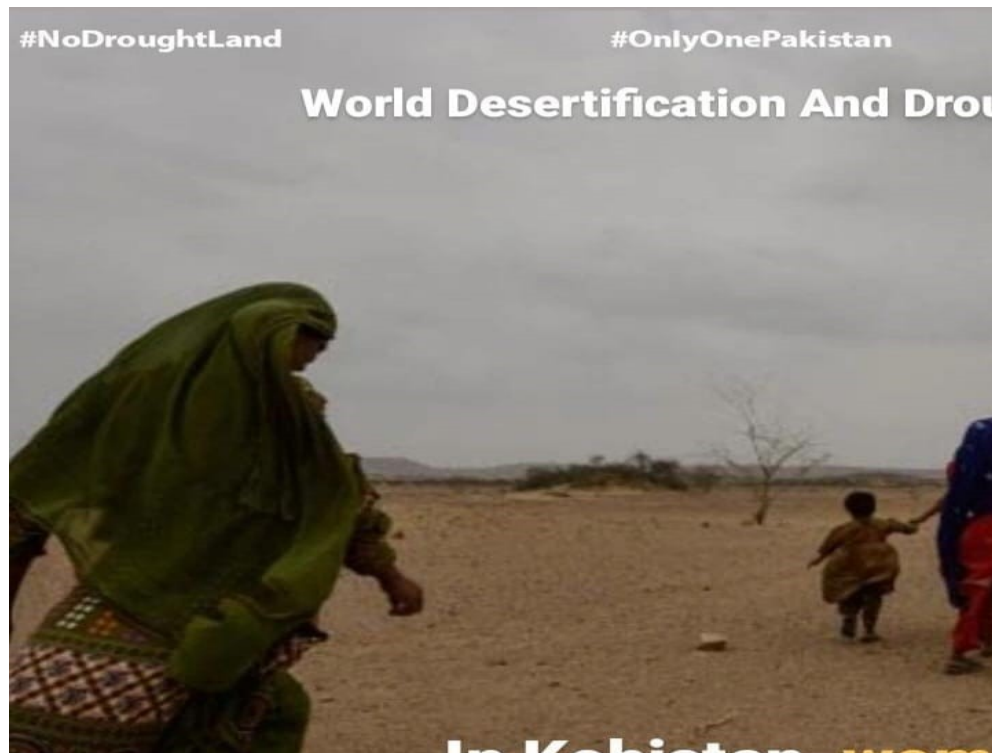
The data of the six visuals chosen were inspired by the desire to represent the range of topics in climate change and the semiotic tactics employed by the Ministry. These visuals were cautiously chosen to replicate the range of environmental issues in Pakistan: water scarcity, pollution, gendered effects, and biodiversity conservation. The visuals also represent the public-facing communication efforts of the Ministry, emphasizing both national responsibility (Pakistan-specific issues) and global interconnectivity (e.g., sustainable global actions). The year chosen for the data range (2022–2023) guarantees the most up-to-date efforts and challenges in the climate change conversation in the digital space in Pakistan.

4. Analysis and Discussion

For the analysis, we employed both Kress and Van Leeuwen's Visual Grammar and Stibbe's *Stories We Live By* framework. Each image is analyzed using the concepts of salience, framing, and

composition from Kress and Van Leeuwen's framework, as well as ideology, identity, and evaluation from Stibbe's approach.

Figure 1.



The first picture from ministry of climate change reflects environment change message on world drought day. The picture on the left side is commonly associated with what is known, confidential, or specified, whereas the picture on the right side suggests the recent information. In the given image, people are walking from left to right symbolizing a journey from the current, known state towards an incalculable future affected by desertification. The top represents the ideal whereas the bottom represents the real. The hazy sky in the top part of the picture represents the ideal of a balanced environment which is often obscured. The barren land in the bottom part of the picture represents the bitter reality of drought and environmental degradation. Thus, the picture represents a country drastically effected by scarcity of water and ultimate desertification. The figures of the women and children are the principal elements due to their size and position. Thus, they are foregrounded. This draws attention towards the human aspects of environmental issues and their experiences. It also depicts that the images in foregrounding are mostly affected by impending drought and desertification. The muted earth tone predominantly highlights the parched, dry surroundings. The overcast sky represents a gloomy atmosphere and emphasizes the drought's bitter reality. Therefore, overall color and light represents gloom and despair.

In particular, the text focuses on a general problem of the gendered effects of climate change and the difficulties women have to face while gathering water. It places the image in a specific setting and situation. It is fairly aligned with the stark reality of Pakistan where women and children are

the most disadvantageous class. Text and image work hand in hand to create a narrative that is more powerful than either mode alone. The text provides particular information that complements the graphic account of adversity.

Stibbe's model is applied in this picture to highlight hidden ideology. The text in the visual 'climate change affects all genders but particularly it focused on how women were most vulnerable to climate change. This is a climate justice ideology, acknowledging that though climate change affects all yet does not affect everyone equally, suggesting a need for equitable solutions. A solution which highlights equitable burden on all irrespective of cast color or gender. As discussed earlier, we can align this with our literature review in which Pakistan, a minor contributor of greenhouse emission effects badly by climate change due to droughts and excessive flooding.

Figure 2.

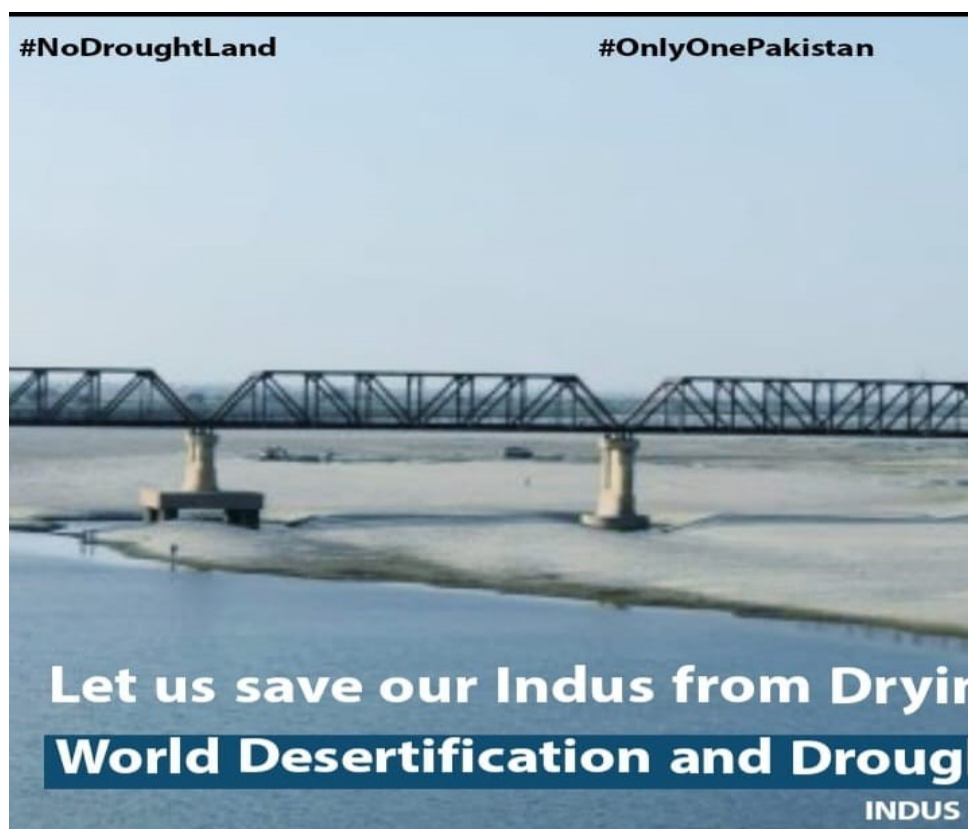


The left side shows the ocean depicting the natural clean state of the beach. Whereas the right cluttered with trash shows the effects of pollution. The peaceful, clean and calm horizon at the top represents the ideal contrasting with the harsh reality of a polluted beach at the bottom. The debris in the foreground is made salient through its size and sharp focus, in particular the black shoe. The black shoe represents human element in polluting country's shores and needs immediate attention. The coastline serves as a horizontal framing device that separates the ocean from the beach, clearly highlighting the difference between a polluted state of a beach and the sea's inherent beauty. It also represents ultimate goal to make country's shores clean as the oceans. The composition is divided between the clean, tranquil ocean horizon and the polluted beach, drawing a visual contrast between the natural and the contaminated. The pollution is highlighted through the contrast

between the vibrant colors of the litter and muted colors of sand and water. The natural and gloomy lighting may evoke a feeling of neglect. The focus on rubbish predominately the shoe personalizes the problems of pollution suggesting that humans are partly to blame. Text and images work hand in hand to motivate the action. The image of pollution along with the text suggests a sense of urgency.

The use of possessive pronoun 'our' reflects a collective identity. This is conservationist ideology, stressing on the need to collectively take action to 'save our oceans'. It gives a worldwide perspective on environmental problems that affect our local communities. It is aligned to UNO's sustainable goal number 14. The use of word 'Pakistan's seashores deserve to look better' project a specific type of country's identity which requires action from everyone to make it clean. Pakistan is a part of the international community who wants to improve the current dangerous state of its seashores and contribute to the global attempts of ocean preservation.

Figure 3.



The bridge connecting the left and the right shows a journey representing the transition from past abundance to current scarcity. The top part of the image shows the expanse of the sky symbolizing an uninterrupted, idyllic state of nature whereas, the lower part of the image shows a river that is drying up, highlighting the issue of water scarcity. The diminished water levels in the river are the most salient feature. The bridge draws attention towards the river's drying bed. The contrast between parched river bed and the water future enhances the salience. The banks and the bridge

enclosing the river provides a natural frame symbolizing the restrictions and limitations imposed on this natural resource. In all the images, these elements work together to give each photo its meaning and message. The information value establishes the context and narrative, salience draws attention to the core elements of that narrative, and framing connects these elements to strengthen our understanding of the relationships and significance within the image. The horizontally flowing river in the image and the bridge in the distance are helping to create a sense of scale and the extent of the problem. It also represents that problem is of greater magnitude. The pale, dull and faded colors represent the drought and heat. The blazing light emphasizes the dryness of the landscape. The harsh and intense light stresses on how dry the surroundings are. The text and the image are closely related where the visual scene is laying stress on the text's message about the importance of water conservation.

This ideology presents the idea of water and ecological conservation, bringing to light the significance of strong water bodies like the Indus River from drying out. The use of word 'Indus' localizes the problem because Indus is the largest river of Pakistan. It means that Pakistan is facing acute shortage of water. Pakistan is portrayed as a country well-aware of its ecological issues, specifically desertification, and how it is looking forward to addressing them.

Figure 4.

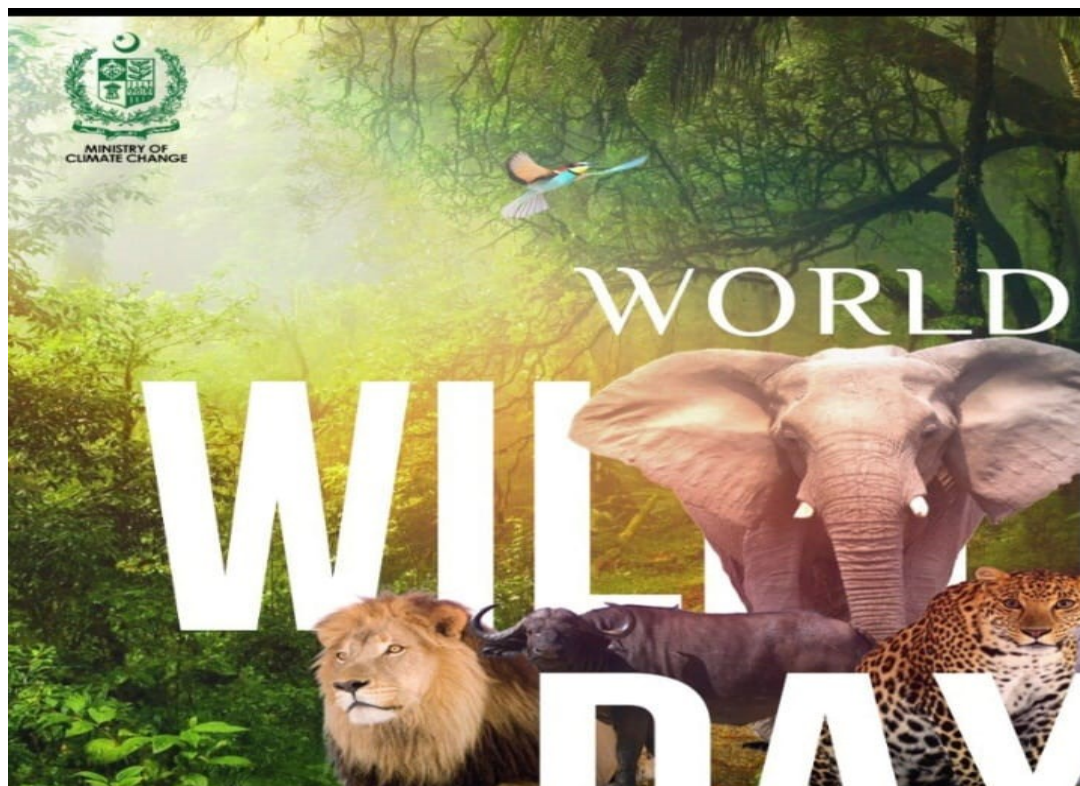


The structure does not give a left Right dynamic as much as top/bottom. The words written at the top provides the given info (we have only one Pakistan), whereas the words at the bottom provides the given info (only one earth - world environment day 2022). The top section gives a story what is

already in our understanding. The individuality and captivation of Pakistan's natural landscape. The bottom part conveys a practicable message and situates it in the present world. The natural sight is the most notable because of its bright colors in the picture. The writing, which is noticeable, plays an important part in the attractiveness it captures. The written ingredient captures the picture at top and bottom forming a conceptual frame that connects the concept of vitality of the environment to national identity and international responsibility. The image is beautifully balanced with the text covering the top and the bottom showing the beautiful landscape. Different colors are used in the image to show the natural beauty of the landscape, with an appropriate balance of light and shadow enhancing the features of the landscape. The text is beautifully combined with the pleasing beauty of the image giving us a meaningful message for protecting the environment.

This image shows that it is our special duty to conserve the environment, highlighting the fact that there is 'only one Earth' and 'only one Pakistan,' showcasing the individuality and fragility of this planet. The ideology of Oneness is portrayed here in which all nations and countries should unite to save this earth which is fairly aligned with UNO's sustainable goal number 13. It emphasizes on the shared challenges and obligations in environmental preservation while promoting a collective national identity that has a strong connection to the worldwide community. The use of collective pronoun 'we' gives a collective global identity. It provides an implied evaluation of how dreadful the situation is for the environment right now and makes a call to action to safeguard unique Pakistani landscape.

Figure 5.



The picture appears to be well- balanced, with no major left/right value differentiation. The elephant placed in the middle provides a focal point. The top part of the picture with the light sky and flying bird may represent the ideal - the freedom, the independence and vitality of wildlife. Whereas The bottom, with the ground-dwelling animals is suggesting the reality of their being and the need for preservation. The elephant, due to its massive size and central placement serves as the most salient feature, drawing quick attention that somehow reflects its role as a keystone species in the environment. There is almost no explicit framing separating the elements within the picture, which portrays a sense of harmony, oneness and continuity among the depicted wildlife though consistent with the message of collective preservation. The biodiversity of the area is brought to light by placing the wildlife species in the center and the surrounding deep forest. The wildlife is highlighted through the use of bright, vibrant contrasting colors and the use of light suggests a blooming environment. The image along with the variety of animals also conveys the conservation message integrating the commemoration of life with the appeal for urgent action.

The image portrays an ideology that acknowledges wildlife's intrinsic worth and diversification. It portrays that all species irrespective of their size are important in the holistic perspective of nature. Pakistan appeared as a global citizen and steward, participating in a worldwide effort to preserve wildlife. It suggests that educational role is also important in raising awareness about the value of all species. It is a positive initiative taken to save wildlife, highlighting the wide range preservation efforts to protect diverse species.

Figure 6.



There is no particular focus on the left or right side of the image but has powerful top and bottom distinction. The top of the image contains the text and symbol for the conference, which represents the ideal and the goals. In contrast, the bottom portion, depicting the trees, represents the actual project and the tangible efforts being undertaken. The text at the top is made salient through its vibrant coloring scheme and placement against the darker background. The graphical depiction of the trees in the picture is made less salient but grounds the image in appropriate environmental themes. The circular shape serves as a frame that unifies the text and the image of the trees suggesting a worldwide perspective and the cyclical nature of environmental stewardship. In each image, these compositional elements work together to lay stress on certain information, drawing the viewer's attention to core elements, and create a sense of oneness or separation within the content, all these details altogether contribute to the overarching message of environmental awareness and action. The image is vividly designed, featuring a top-down view of a forested area. The text is arranged in a circular pattern, symbolizing global continuity and natural cycles. The color scheme is dominated by green, highlighting themes of nature and growth. Absence of shadows and the use of bright lighting contribute to a sense of clarity and transparency.

The ideology of active environmental restoration and sustainability is being promoted by this image. 'Ten Billion Tree Tsunami' is a large-scale preventive programme taken to combat environmental degradation. This is the flagship programme of Pakistan's previous government. The former premier of Pakistan Imran Khan took a lot of credit for this groundbreaking project. The projection of this initiative in Stockholm conference reflects global reverence of Pakistan with its climate change initiatives. Pakistan stands as a regional leader in environmental preservation, leading mega projects to re-establish ecosystems. The initiative creates a sense of collective responsibility and action as a nation. The project is favored as a leading way in the ecosystem's preservation decade. It is considered a remarkable and a proactive initiative towards ecological recovery.

Aligning with research questions, the ministry of climate change used different semiotic resources to project an eco-friendly narrative. The co-construction of text and visuals is used deliberately by ministry of climate change to give a persuasive appeal to Pakistani audience to do concrete steps for the preservation of ecosystem. As discussed earlier, Pakistan is badly affected by climate change catastrophe in the form of recent flooding. By analyzing each visual from multiple perspectives, the multiple layers of meanings are revealed. By using Stibbe's framework of ideology, identity and evaluation, comprehensive stories reveal which focus on climate friendly ideologies. In some visuals there is a semblance of global and local identity projection. The use of certain pronouns like 'we' and 'us' gives an inclusive look incorporating all nations and posing a collective responsibility to world community. Every image uses these features in a distinguished way to deliver the message of environmental understanding, accountability, and preservation, aiming to motivate viewers to understand and contribute to these initiatives. There is the diversity of images used by Ministry of Climate Change in its official website. These visuals portray multiple perspectives on diverse range of topics ranging from gender specific climate vulnerabilities; to drought ridden rivers; polluted seashores and endangered animal species. The use of state initiatives is also reflected in these visuals like the 'one billion tree tsunamis. These initiatives project Pakistan at par with developed countries in combating climate change.

5. Conclusion

This research has critically examined how climate change narrative is formed by the Ministry of Climate Change Pakistan through the combination of visual and textual semiotics. The Ministry employed a balanced blend of visual grammar and linguistic strategies to convey a message that calls for immediate action and draws attention to environmental awareness. Through strategies: salience, information value, framing, and color composition, these visuals assisted to represent both local and global environmental apprehensions, emphasizing the urgent need of climate related action. The embedded ideologies and identity construction within the visuals reveal the Ministry's effort to frame climate change as not just a global issue, but a national responsibility. This study also found that textual petitions amplify the visual narratives, providing a multi-layered, influential communication that is associated with the Ministry's broader goals of environmental awareness and public mobilization. The findings of this research highlight the critical role of multimodal communication in climate change discourse and underscore the importance of governmental digital platforms in shaping public perceptions of environmental urgency. These visual and textual syntheses provide useful insights for the formulation of more efficient climate change campaigns. The evidence-based methodology—based on major government endeavors like the Billion Tree Tsunami—also adds weight to the authenticity as well as policy significance of the constructed narrative.

For the future, the study opens several gates for study. While the scope in this study was focused on Pakistan's digital media, subsequent studies might widen the scope by examining climate change communications in various genres and forms of disparate media. Comparative cross-country studies could also provide valuable insights into how different nations craft and disseminate their climate narratives, with a particular focus on the use of semiotic resources in political discourse and policy documents. Furthermore, a broader analysis incorporating TV programs, films, and talk shows could shed light on how climate discourse is framed and received across various public and multimodal platforms. Analyzing these multiple data sources in the future can enhance our knowledge of the identity configurations and ideological currents involved in global and local discourses of climate change and ultimately make informed contributions towards the evolution of more effective communications strategies for preventing environmental disasters.

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