

Research Article

Exploring Climate Change Communication in Afghanistan on the X Platform over the Last Six Months of 2024

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ABSTRACT

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Social media has emerged as an accessible communication tool for mass audiences worldwide. These new platforms are widely used in Afghanistan for various purposes. Given Afghanistan's high vulnerability to climate change impacts, the country requires effective public awareness and communication strategies across both traditional and new media. To inform policymaking for collective climate action, there is a need to analyze the content of social media discourse on climate change. The primary aim of this study is to explore climate change communication on the X platform to develop effective policies and strategies for leveraging social media, particularly the X platform, to communicate about climate change impacts in Afghanistan. The study employed a descriptive research design combined with a content analysis approach. The results indicate that the social media discourse revolved around key themes, including climate change impacts, Afghanistan's vulnerability to droughts, flash floods, monsoon rains, and unexpected snowfall, the lack of funding for climate change communication and mitigation efforts, and the disproportionate impact on women. The analysis also found that the total user engagement during the five-month study period reached 424,522 interactions, including reposts, replies, likes, and views. The findings of this study can inform the development of targeted, evidence-based communication strategies and policies to raise public awareness and catalyze collective action on climate change in Afghanistan, leveraging the reach and engagement potential of social media platforms.

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Introduction

The topic of climate change is a critical global issue that presents substantial obstacles and risks to the planet and societies impacting various aspects of human life, such as the environment, economy, and social dynamics (IPCC, 2018). Effective communication regarding these global issues and challenges plays a crucial role in enhancing public awareness, fostering comprehension, and encouraging collective action to tackle this significant challenge (Leviston et al., 2018). Social media platforms have recently emerged as potent tools for communication and information dispersal, providing new avenues for engaging with diverse audiences on matters of global significance (Kaplan & Haenlein, 2010).

Afghanistan faces particular susceptibility to the negative impacts of climate change. In recent times, the nation has encountered various climate-related hurdles, including droughts, sudden floods, and extreme temperatures, which have severely affected its agricultural systems, water resources, and overall socioeconomic stability (UNDP, 2016). Given the distinctive socio-political context of the country and the increasing influence of social media, comprehending the role and effects of these platforms on climate change communication in Afghanistan becomes exceedingly crucial.

The utilization of social media in society has transformed how individuals access information, expressed their viewpoints, and participated in online dialogues. Platforms like Facebook, Twitter, Instagram, and YouTube have become popular mediums for individuals, communities, and groups to convey their perspectives, exchange information, and mobilize for social causes (Boyd & Ellison, 2007; Castells, 2012). In the realm of climate change, social media offers a unique arena for individuals and organizations to disseminate scientific discoveries, enhance public awareness about climate-related matters, and advocate for sustainable behaviors by proposing effective approaches.

The examination of social media climate change communication in Afghanistan is a complex and multifaceted occurrence that impacts elements such as limited internet connectivity, language barriers, cultural standards, and the prevalence of misinformation, which present hurdles to effective communication and involvement (UNESCO, 2018). Furthermore, the digital gap within the country's communities, characterized by variations in technology access and digital literacy, could exacerbate disparities in climate change communication and impede the transmission of accurate and trustworthy information (Melkote & Steeves, 2001).

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Nonetheless, this investigation seeks to analyze climate change communication in Afghanistan on the X platform during the last half-year from January to May 2024. By scrutinizing the dynamics and trends of information distribution, public engagement, and knowledge acquisition related to climate change on the X media platform within Afghan society.

This study aims to illuminate the communication of climate change by investigating the following crucial elements:

- Dissemination of information: The examination will focus on the varieties of climate change information distributed on the X platform in Afghanistan, encompassing scientific data, news articles, personal stories, and visual materials.
- Engagement of the public: The evaluation will gauge the extent of public involvement and engagement in climate change dialogues on the X platform. It will scrutinize the trends in user interactions, such as likes, views, responses, and resharing, to determine how effectively the X platform encourages discussions, cooperation, and joint efforts on climate change matters.
- Preference for knowledge: The objective of the research is to evaluate the preferences for knowledge formats on the X platform regarding understanding and acquiring knowledge of climate change among the concerned population, which includes UN agencies and international bodies addressing this matter in Afghanistan.

The research will investigate how the X platform enhances climate change literacy, shapes public opinions, and influences behavioral changes towards sustainable practices by analyzing the quantity and types of shared information, as well as user interactions by quantifying the frequencies of responses, reposts, likes, and views. By comprehending these dimensions, this study aims to offer a comprehensive insight into user engagement in climate change communication in Afghanistan during the previous six months. The outcomes will aid in formulating efficient strategies for utilizing social media platforms, particularly the X platform, to bolster awareness, education, and initiatives concerning climate change in the nation.

Additionally, this research will enrich the existing knowledge base by delving into social media advocacy regarding climate change communication in the distinct context of Afghanistan. By grasping user engagement in climate change communication on the X platform, policymakers, climate change proponents, and entities can tailor their messaging and tactics to effectively engage with the Afghan public. The results of this study might also guide the creation of targeted measures and campaigns that exploit social media, especially the X platform, to enhance climate change awareness and advocate for sustainable behaviors in Afghanistan.

Problem Statement

Despite the increasing acknowledgment of climate change as a global issue, effective communication and public involvement regarding this matter pose significant challenges. The utilization of social media in the facilitation of climate change discourse has garnered international attention. Nevertheless, in the specific context of Afghanistan, there has been a lack of extensive research aimed at comprehending how social media, particularly the X platform, has facilitated communication on climate change and public involvement in efforts toward climate change mitigation and adaptation. Afghanistan faces notable susceptibility to climate change impacts, such as droughts, severe weather occurrences, and shifting rainfall trends. The nation's diverse populace, characterized by varying degrees of access to traditional media, digital disparities, and educational opportunities, underscores the importance of exploring the role

of social media platforms particularly the X platform in climate change communication and public engagement. A comprehensive understanding of the usage, topics, narratives, and user engagement concerning climate change on the X platform in Afghanistan is imperative for devising efficient strategies to enhance awareness, nurture comprehension, and stimulate collective action.

Research Questions

1. Considering the distinctive sociocultural, economic, and technological landscape of the nation, in what manner is the utilization of the X platform for climate change communication observed in Afghanistan?
2. What predominant themes and narratives concerning climate change can be identified on the X platform in Afghanistan?
3. In what format do users prefer to acquire knowledge regarding climate change communication on the X platform?
4. What levels of user engagement can be observed in climate change communication on the X platform in Afghanistan?

By examining the impact of social media, specifically the X platform, on climate change communication in Afghanistan, this study seeks to address the current knowledge gap by offering insights into the specific dynamics, obstacles, and opportunities for engaging the Afghan public via digital platforms. The results of this study will aid in formulating targeted strategies and interventions that utilize the X platform to enhance awareness, knowledge, and sustainable behaviors related to climate change in Afghanistan. Ultimately, this research endeavor will support initiatives to tackle the pressing challenges of climate change in Afghanistan and foster effective communication strategies for climate action.

Meta-Analysis of Literature Review

This meta-analysis integrates existing literature concerning the impact of social media on climate change communication. The chosen studies collectively offer valuable insights into various facets of this subject.

León (2021) scrutinizes the strategies employed by entities for communicating climate change via social media, emphasizing the significance of delineating objectives, involving citizens, and fostering user engagement. Arlt (2018) delves into the factors influencing participation in online discussions on climate, underscoring the influence of social media, information search behavior, and interpersonal dialogues in promoting involvement. Diehl (2019) probes the correlation between utilizing social media for news consumption and attitudes toward climate change, accentuating the role of political beliefs and confidence in scientific information. Pearce (2018) conducts a critical assessment of the existing body of literature on social media's impact on climate change, stressing the necessity for exploring alternative platforms and the function of public perception. Fernández (2016) suggests a methodology for scrutinizing user actions regarding climate change on social media, aiming to enhance communication strategies and engagement in environmentally friendly campaigns. On the other hand, scholars focused on public awareness. For instance, Hope (2015) underscores the influence of social media in molding public opinion on climate change, stressing the importance of comprehending trust, credibility, and subjectivity in the information disseminated on platforms such as Reddit. Schäfer (2015) acknowledges the pivotal role of media channels, including social media, in shaping public consciousness and

understanding of climate change. Falkenberg (2021) exposes the escalating polarization concerning climate change on social media, particularly propelled by right-wing participation during specific occurrences like the UN Conference of The Parties on Climate Change (COP). Bahar (2020) investigates the utilization of Twitter by the Afghan administration and the Taliban for spreading misinformation and propaganda.

Some scholars directly or indirectly delved into climate changes in Pakistan and Afghanistan. Malik (2020) highlights the potential of media in comprehending the interconnection between climate change and development. Ahmed (2022) stresses the importance of media campaigns in enhancing awareness regarding climate change among the general populace. Balaji (2016) underscores the influential role of media in disseminating information and fostering awareness about climate change and sustainable development. Ganta (2017) accentuates the role of media in educating individuals on climate change issues and encouraging positive behavioral changes. On the other side, scholars like Mehrad (2020), Shroder (2016), Nasimi (2020), and Nasrati (2018) centered their attention on climate change in Afghanistan. Mehrad (2020) underscores Afghanistan's susceptibility to climate change, encompassing water resource depletion, agricultural constraints, and evolving environmental landscapes. Shroder (2016) draws attention to desertification, water scarcity, and recurrent droughts as prevalent occurrences in the area, posing risks to water security and overall existence. Nasimi (2020) corroborates these findings by pointing out the escalation of floods, droughts, and groundwater depletion. Nasrati (2018) highlights the adverse consequences of climate change on agriculture, including reduced precipitation and concerns regarding food security.

Additionally, Latoon (2019) delves into the role of Facebook in advancing social harmony in Nangarhar City, Afghanistan, with a focus on community development and peacebuilding. Osman (2014) scrutinizes the impact of social media on social movements and uprisings, offering insights into its transformative potential in Afghanistan. Meulen (2012) contemplates the function of social media in social movements, conflicts, and military operations on a global scale.

To sum up, while these studies collectively provide valuable insights into the impact of social media on climate change communication, some do not directly address the specific context of climate change discourse in Afghanistan. Additionally, these papers generally focused on social media more broadly, without delving into user engagement or the specific X platform. Therefore, this study was conducted to examine climate change communication on the X platform and the corresponding user engagement, to formulate effective strategies to address the issue and mitigate the impacts of climate change in the country.

Conceptual Framework

The models of the 5Ts established the foundation of this research. The 5T model is centered on monitoring and engaging in virtual conversations, word-of-mouth marketing, and discussions, the model states who talks (talkers) about what (topics) in which channel (tools) for taking part and tracking virtual spaces (Hu and Wu, 2019; Yusdasilan and Pamungkas, 2018, and Kai and Liwen, 2012)). The model is used to center climate change communication on the X platform in Afghanistan. It articulates the individuals involved, the subjects discussed, the tools utilized to engage in the activities, and the observation of patterns when applicable.

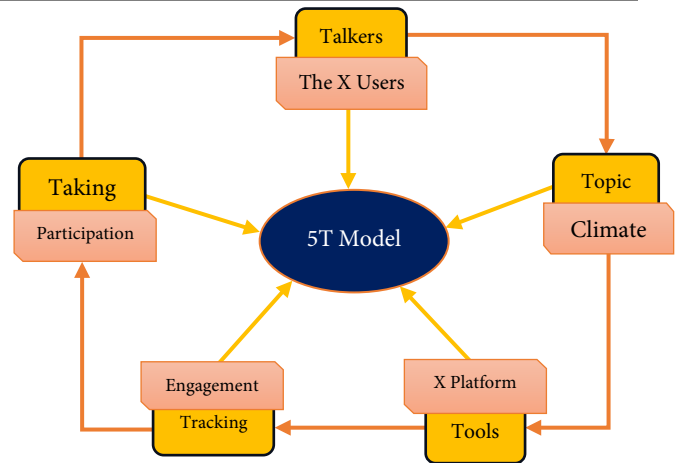


Figure 1: 5T Model Word-of-Mouth Marketing Applying Climate Change Communication on the X Platform in the Context of Afghanistan

Figure 1 indicates that in the unique context of Afghanistan, users share their perspectives, reflections, and worries regarding climate change-related topics on the X platform. The level of engagement through reposting, liking, replying, and viewing suggests user participation in the discussion and discourse within the virtual space. The involvement of relevant organizations is crucial to steer the discussion towards collective action to effectively address the issue.

Methodology

The primary goal of this study is to recommend an evidence-based policy framework to guide collective action in addressing climate change challenges in Afghanistan. Afghanistan is one of the countries most vulnerable to the adverse impacts of climate change, such as increased frequency and intensity of droughts, floods, and extreme weather events, which have had significant socioeconomic and environmental consequences for the country.

To address this pressing issue, the current study takes a multi-pronged approach. First, a comprehensive literature review was conducted to identify the gaps in previous research on climate change communication and engagement on social media platforms. This informed the problem statement and research objectives for the present study.

The study focuses on analyzing climate change-related content on the X social media platform, a widely used digital communication channel in Afghanistan. The units of analysis include posts, reposts, replies, likes, and views, which provide insights into the level of user engagement and sentiment around climate change discussions.

A content analysis was designed and carried out, examining English-language posts from January to May 2024. Advanced natural language processing (NLP) techniques, including topic modeling, were employed to extract major themes and trends from the collected data. Additionally, statistical analysis using SPSS was conducted to quantify the degree of user engagement with climate change-related content on the X platform.

The findings from these methods approach will help to recommend a policy framework to guide collective action and enhance climate change communication efforts in Afghanistan. This framework will leverage the insights gained from the social media analysis to recommend strategies for leveraging digital platforms to raise awareness, promote climate-resilient behaviors, and mobilize stakeholders toward collaborative solutions to address the country's climate change challenges.

Data Analysis and Presentation

Major themes revolving around climate change in Afghanistan were posted on the x platform during the sampling period from January to May 2024 and are listed below:

- **Climate Change Impacts in Afghanistan:** Afghanistan is one of the country’s most vulnerable to the severe impacts of climate change, including devastating droughts, floods, landslides, and other natural disasters.
- **Lack of International Support and Attention:** Afghanistan is isolated from global discussions and preparations for climate change, and lacks sufficient support and funding for adaptation and disaster response.
- **Importance of Agriculture and Rural Livelihoods:** Agriculture is crucial for addressing the basic needs of Afghanistan's rural population, despite the challenges posed by climate change.
- **Politicization and Misinformation:** Climate change in Afghanistan is politicized, with the spread of misinformation about the causes of extreme weather events.
- **Gender Impacts:** Women in Afghanistan are particularly affected by the impacts of climate change, and their participation and leadership are important for addressing the crisis.
- **Need for Increased Funding and International Support:** There is an urgent need for more climate adaptation funding and international assistance to help Afghanistan cope with the devastating effects of climate change.
- **Extreme Weather Events:** Afghanistan is experiencing increasingly severe and frequent extreme weather events, such as floods, droughts, and late snowfall, which are causing casualties and disrupting infrastructure.
- **Engagement of Stakeholders:** The Taliban government, the UN, donors, and NGOs are engaging in discussions about the impacts of climate change in Afghanistan and planning for a more resilient future.
- **Disproportionate Impact on the Vulnerable:** Climate change in Afghanistan disproportionately affects the poor, elderly, and women, exacerbating existing inequalities.
- **Adaptation and Resilience-Building Efforts:** Communities in Afghanistan are taking steps to mitigate the effects of climate change, such as building the 200-meter Gabian Wall in Laka Tiga Village.

Table 1: Outlines of different categories of posts on the platform and their corresponding frequencies

Post Types	Posts Frequency	Percentile	Cumulative Percentile
Video	30	28.3	28.3
Photo	45	42.5	70.8
Link	9	8.5	79.3
Text	10	9.4	88.7
Info-Graphic	12	11.3	100
Total	106	100	

Table 1 illustrates that a total of 106 messages were published on X's platform regarding the topic of climate change in Afghanistan within the specified sampling period. The content encompassed 45 images, 30 videos, 9 links, 10 textual posts, and 12 informative graphics. Furthermore, the data

presented in the table indicates that 42.5% of all posts were image-based, accompanied by detailed descriptions, while 28.3% were video-based. The remaining posts were comprised of 8.5% links, 9.4% textual content, and 11.3% informative graphics on the platform of X.

Table 2: Frequencies of posts every month of the sampling time period

Monthly Base	Frequency Post	Percent	Valid Percent	Cumulative Percent
May	69	65.1	65.1	65.1
April	25	23.6	23.6	88.7
March	10	9.4	9.4	98.1
February	2	1.9	1.9	100.0
January	0	0	0	
Total	106	100.0	100.0	100.0

Table 2 shows that the majority of the posts happened in May with 69 posts (65.1%). April had the second-highest number of posts with 25 (23.6%). In contrast, March had 10 posts (9.4%), and February had the fewest with 2 posts (1.9%). There were no posts about climate change in Afghanistan on the platform of X in January.

Table 3: User engagement with posts containing videos during the sampling period

Time Frame	Repost	Reply	Like	View
May	623	146	1500	101564
April	325	118	797	29499
March	27	7	42	814
February	0	0	0	0
January	0	0	0	0
Total	975	271	2339	131877

Table 3 shows that during May, the 30 video posts were reposted 623 times, received 146 replies, 1,500 likes, and were viewed 101,564 times. In April, the 12 video posts were reposted 118 times, received 118 replies, were liked by 797 users, and were viewed 29,499 times. In March, the 4 video posts were reposted 27 times, received 7 replies, were liked by 42 users, and were viewed 814 times. There were no video-related posts in January.

Table 4: User engagement in posts containing photos during sampling period

Time Bases	Repost	Reply	Like	View
May	137	68	420	76328
April	47	33	158	20167
March	39	6	130	18357
February	26	1	52	3949
January	0	0	0	0
Total	249	108	760	118801

Table 4 indicates users interacted with the posts containing photos on the X platform the most in May, similar to how they interacted with videos in that month. In May, 137 users reposted the posts containing photo captions and explanatory messages. The photo posts received 68 replies, 420 likes, and were viewed by 76,328 users. In April, users on X reposted 47 photo posts, replied 33 times, liked 158 posts, and viewed 20,167 photo posts. In March, 39 users reposted photo posts, 6 people replied, 130 users liked, and 18,357 people viewed the photo posts. In February, users interacted with photo posts by reposting 26 times, replying once, liking 52 times, and viewing 3,949 times. There were no photo posts or interactions in January.

Table 5: User engagement with infographic posts during the sampling period

Time Bases	Repost	Reply	Like	View
May	151	45	483	103623
April	23	1	71	7255
March	0	0	0	0
February	0	0	0	0
January	0	0	0	0
Total	174	46	554	110878

Table 5 shows that users interacted with infographic posts only in May and April during the sampling period. In May, 151 users reposted the infographic posts, 45 people replied to them, 483 users liked them, and 103,623 users viewed the infographic posts. In April, the number of reposts for infographic posts was 23, there was 1 reply, 71 likes, and 7,255 views. There were no infographic posts nor any user engagement with such posts in March, February, and January.

Table 6: User engagement with text-based posts during the sampling period

Time Bases	Repost	Reply	Like	View
May	80	18	235	30346
April	13	3	59	12500
March	0	0	0	0
February	0	0	0	0
January	0	0	0	0
Total	93	21	294	42846

Table 6 indicates that the highest level of user engagement was with text-based posts in May, with April being the second-highest month. In May, users reposted the text-based posts 80 times, replied 18 times, liked them 235 times, and 30,346 people viewed the text-based posts. In April, there were 13 reposts of text-based posts, 3 replies, 59 likes, and 12,500 views. There were no text-based posts nor any user interactions with such posts recorded in March, February, and January.

Table 7: User engagement with link-based posts during the sampling period

Time Bases	Repost	Reply	Like	View
May	10	2	30	4296
April	37	19	69	4265
March	2	3	3	5500
February	0	0	0	0
January	0	0	0	0
Total	49	24	102	14061

Table 7 shows that April and May had the highest levels of user engagement with link-based posts during the sampling period. In May, users reposted the link-based posts 10 times, replied 2 times, liked them 30 times, and viewed them 4,296 times. In April, users reposted the link-based posts 37 times, replied 19 times, liked them 69 times, and viewed them 4,265 times. Additionally, in March, users reposted the link-based posts 3 times, replied 3 times, liked them 3 times, and viewed them 5,500 times. There were no link-based posts nor any user engagement with such posts recorded in February and January.

Table 8: Cumulative user engagement on posts containing videos, photos, info-graphics, text, and links

Posts Types	Repost	Reply	Like	View
Video	975	271	2339	131877
Photo	249	108	760	118801
Info-Graphic	174	46	554	110878
Text	93	21	294	42846
Link	49	24	102	14061
Total	1540	470	4049	418463

Table 8 indicates that X users interacted the most with posts containing videos, reposting them 975 times, replying 271 times, liking them 2,339 times, and viewing them 131,877 times. Users secondly preferred to engage with photo-based posts, reposting them 249 times, replying 108 times, liking them 760 times, and viewing them 118,801 times. Infographic posts were the third most engaged with, being reposted 174 times, replied to 46 times, liked 554 times, and viewed 110,878 times. Text-based posts saw 93 reposts, 21 replies, 294 likes, and 42,846 views, while link-based posts had 49 reposts, 24 replies, 102 likes, and 14,061 views from X platform account holders.

Table 9: Mean and percentile of user engagement with posts during the sampling period

Posts Types	Mean	Percentile	Cumulative Percentile
Video	33865.5	31.91	31.91
Photo	29979.5	28.25	60.16
Info-Graphic	27913	26.30	86.46
Text	10813.5	10.19	96.65
Link	3559	3.35	100.00
Total			100.00

Table 9 shows that the mean and percentile for interaction with video-based posts are greater than for any other post type relating to climate change in Afghanistan. The mean for video-related posts is 33,865.5, accounting for around 32% of total interactions. Photo-related posts stand second in terms of mean and percentile, with a mean of 29,979.5 (28.25% of interactions). Infographic posts stand third with a mean score of 27,913 (26.30% of interactions), while text-based posts are fourth with a mean of 10,813.5 (10.19% of interactions). Link-related posts have the lowest mean score of 3,559 (3.35% of interactions).

Discussion

León (2021) scrutinized the methodologies employed by entities in disseminating climate change information through social media, with a focus on stimulating user engagement through the establishment of clear objectives and citizen involvement. Furthermore, Arlt (2018) delved into the variables that impact online interaction and discourse, particularly emphasizing climate change and the sway of social media. Conversely, this research concentrated on proposing effective strategies through an examination of content on the X platform pertaining to climate change communication. The outcomes demonstrate that visualized content captivates attention, prompting users to actively participate and engage in discussions on climate change in Afghanistan.

Diehl (2019) and other scholars have scrutinized the relationship between social media utilization for news consumption and attitudes towards climate change communication, highlighting the significance of political ideologies and trust in scientific data. This study, however, delineates the content found on the X platform to recommend efficacious strategies for heightening user engagement metrics

within the nation. Conversely, Pearce (2018) critically evaluated the existing corpus of literature concerning social media's impact on climate change, emphasizing the need to explore alternative platforms and the role of public perception. Pearce (2018) seeks to propose a paradigm shift in social media usage and public perception, whereas this study primarily focuses on enhancing climate change communication on social media, specifically on the X platform in Afghanistan.

Fernández (2016) proposes a methodology for scrutinizing user behaviors related to climate change on social media, with the aim of refining communication strategies and engagement in eco-friendly campaigns, whereas this research employed a descriptive approach utilizing content analysis to deepen the understanding of climate change communication in Afghanistan and to advocate for policy recommendations for the effective utilization of social media, particularly the X platform. Conversely, scholars such as Hope (2015) underscore the impact of social media in shaping public opinion on climate change, underscoring the necessity of grasping trustworthiness, credibility, and subjectivity in the information disseminated on platforms like Reddit. Schäfer (2015) acknowledges the crucial role of media outlets, including social media, in molding public consciousness and comprehension of climate change. Falkenberg (2021) reveals the increasing polarization surrounding climate change on social media, particularly driven by right-wing involvement during specific events such as the UN Conference of The Parties on Climate Change (COP). Bahar (2020) investigates the use of Twitter by the Afghan government and the Taliban in spreading misinformation and propaganda.

Furthermore, various researchers have directly or indirectly explored the topic of climate change in Pakistan and Afghanistan to investigate public awareness. For example, Malik (2020) emphasizes the significance of media in understanding the relationship between climate change and development. Ahmed (2022) highlights the crucial role of media campaigns in increasing awareness about climate change among the general population. Balaji (2016) underscores the influential aspect of media in disseminating information and promoting awareness about climate change and sustainable development. Ganta (2017) emphasizes the role of media in educating individuals about climate change issues and encouraging positive behavioral changes. Conversely, scholars such as Mehrad (2020), Shroder (2016), Nasimi (2020), and Nasrati (2018) have focused on climate change in Afghanistan. Mehrad (2020) underscores Afghanistan's vulnerability to climate change, including issues like water resource depletion, agricultural challenges, and changing environmental landscapes. Shroder (2016) draws attention to desertification, water scarcity, and recurrent droughts as common phenomena in the region, posing risks to water security and overall sustainability. Nasimi (2020) supports these findings by highlighting the increasing occurrences of floods, droughts, and groundwater depletion. Nasrati (2018) points out the negative impacts of climate change on agriculture, including decreased precipitation and concerns regarding food security. Conversely, this study is particularly focused on analyzing the English-medium posts on the X platform regarding climate change in Afghanistan, with the aim of proposing strategic policies for advocating the effective use of social media, especially the X platform, for climate change communication in the country.

Moreover, Latoon (2019) examines the role of Facebook in promoting social cohesion in Nangarhar City, Afghanistan, focusing on community development and peacebuilding. Osman (2014) analyzes the influence of social media on social movements and uprisings, providing insights into its transformative potential in Afghanistan. Meulen (2012) explores the function of social media in social movements, conflicts, and

military operations globally. On the other hand, this research did not use the same methodology nor did it share the same findings and results as the previous study.

Overall, the literature review offers a comprehensive summary of the current research on the intersection of social media, climate change communication, and the specific contexts of Afghanistan and Pakistan. It presents a variety of viewpoints, from the strategies used by organizations to communicate climate change through social media to the factors impacting public awareness and engagement in online climate dialogues. The review outlines the following key findings:

- The importance of delineating goals, engaging citizens, and promoting user participation in climate change communication on social media platforms are highlighted (León, 2021; Arlt, 2018).
- The impact of social media, search behavior for information, and interpersonal conversations in encouraging public engagement in climate dialogues is discussed (Diehl, 2019; Pearce, 2018).
- The role of political ideologies and trust in scientific knowledge in influencing attitudes towards climate change is examined (Diehl, 2019).
- The need to explore other platforms and grasp the role of public perception in the context of social media's influence on climate change is emphasized (Pearce, 2018).
- The crucial function of media channels, such as social media, in molding public awareness and comprehension of climate change is underscored (Schäfer, 2015).
- The increasing polarization on social media regarding climate change, particularly fueled by right-wing involvement during specific occurrences, is a significant concern (Falkenberg, 2021).
- The potential of media in understanding the link between climate change and development, along with its role in enhancing public consciousness, is explored (Malik, 2020; Ahmed, 2022; Balaji, 2016; Ganta, 2017).
- The vulnerability of Afghanistan to climate change, including issues like water resource depletion, agricultural limitations, and changing environmental landscapes, is discussed (Mehrad, 2020; Shroder, 2016; Nasimi, 2020; Nasrati, 2018).

The current study employed the 5T model as a conceptual framework to examine the content of the X platform, with a specific focus on climate change communication aspects such as flooding, prolonged drought, monsoon patterns, climate change impacts, and Afghanistan's susceptibility to climate change. The findings of the study indicate that video-based content emerged as the most engaging format for discussions on climate change, accounting for 32% of total user interactions. This highlights the potential of visual storytelling and multimedia tools in enhancing awareness and promoting climate-related actions within the intended audience. Similarly, posts featuring photos and infographics also garnered significant levels of engagement, underscoring the importance of visually appealing and data-driven approaches in climate communication. These formats play a crucial role in simplifying complex scientific information into accessible and impactful messages for the general public. Although text-based posts received a smaller share of user interactions, they remain essential for delivering in-depth analysis and contextual insights.

Conclusion and Policy Recommendations

The principal aim of this research is to propose a policy framework grounded in evidence to direct joint efforts in confronting climate change issues in Afghanistan. To

accomplish this goal, a descriptive inquiry concentrating on content analysis was executed. The outcomes of this thorough examination of climate change communication in Afghanistan on the X platform offer valuable insights to shape an evidence-based policy framework. The main points to be noted are as follows:

- Video-based content emerges as the most captivating form for climate change dialogues, capturing 32% of overall user engagements. This indicates that exploiting the influence of visual storytelling and multimedia can be a successful approach to raise awareness and stimulate climate action.
- Photo-based and infographic posts also exhibit high levels of engagement, emphasizing the significance of visually appealing and data-oriented climate communication. These forms can aid in translating intricate scientific data into more understandable and impactful messages.
- Despite text-based posts receiving a smaller portion of engagements, they still fulfill an important role in providing detailed analysis and contextual details. A well-rounded content strategy including various formats would be most advantageous.
- The relatively limited engagement with link-based posts suggests a necessity to thoughtfully curate external resources and ensure their high relevance and user-friendliness.

Drawing from these observations, the subsequent policy suggestions are recommended to direct climate change communication and collaborative efforts in Afghanistan:

- Allocate resources towards generating top-notch, visually appealing video content that can effectively convey the urgency and human aspects of the climate emergency.
- Promote the use of infographics and data visualizations to distribute climate science and policy information in a convincing and easily understandable manner.
- Harness the influence of influential social media figures and opinion leaders to amplify climate change messaging and motivate grassroots involvement.
- Embed climate change education into the national educational program, utilizing multimedia tools to engage and reach the youth demographic.
- Cultivate partnerships among various stakeholders including the government, civil society, and private sector to devise comprehensive, synchronized climate communication strategies.

Through the implementation of these evidence-based policy recommendations, Afghanistan can enhance its climate change communication endeavors and enable its populace to actively participate in addressing this urgent global issue.

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