



Research Article

DOI: 10.58966/JCM2024349

Dimensions of Environmental Organization's Tweets: A Content Analysis

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ARTICLE INFO

Article history:

Received: 18 September, 2024

Revised: 16 October, 2024

Accepted: 29 October, 2024

Published: 23 December, 2024

Keywords:

Twitter, Media Ecology Theory, Environmental Tweets, NGOs, Content analysis

ABSTRACT

In this digital age, most environmentalists use social media to reach a large audience and disseminate accurate and factual information. Through various platforms, social media allows everyone to express their thoughts, opinions, and ideas. Twitter is one such medium of expression. Twitter has emerged as the primary information channel in recent years. As a result, environmental activists use social media to communicate about environmental issues. Organizations are worthy of academic study. This research is also significant because it can aid in understanding Twitter's role in shaping environmental discourse. As a result, the researcher examined and analyzed the environment-related conversation between Indian environmental organizations through the media ecology of their tweets. The study is based on the content analysis method, with the goal of determining the dimensions of tweets by environmental organizations. This study examined the popularity of Twitter in India on environmental issues and how frequently people will be involved or react towards environmental issues. The Google web browser is used to find the top-ranked environmentalist organization. Later, groups and non-governmental organizations were chosen from the top list using random sampling. The researcher investigates and explores the Twitter handle of Environmental groups & NGOs using a random week sample. The network of topics uncovered that climate change is the trending subject among all environmental discourses discussed by environmental organizations. It highlights that 36.6% of the tweets by environmental organizations express their concerns towards the environment and 30% of tweets are based on the advertisement, and 74.58% of tweets contain graphics and visual elements to spread awareness. The research traces that Twitter environmental communication will evolve as a new medium of activism in India.

INTRODUCTION

Mankind experienced a decade of a climate change revolution in the seventies of the 20th century, (Sekar, 1981). There is a need of hour to raise public awareness and attention to issues concerning the human environment, (Sekar, 1981). There is a need for greater emphasis on creating an environment for the conservation of our planet. Increasing public awareness is essential to effectively combating environmental issues like climate change, (Tan et al., 2008 as cited in Mooney et al., n.d.). Where we all need to work together, we only provide future generations

with a better world to live in. Where they can breathe fresh and clean air, drink pure and clean water, enjoy different varieties of fruits and vegetables, experience species of flora & fauna, enjoy other weather conditions, and relish the greenery of nature & purity of lakes, rivers & oceans. Environmental problems are a result of human actions that lack civic conscience and solely consider how they will affect their own financial well-being and future generations. When the ecosystem is unable to withstand the pollution, the long-term effects of environmental contamination become apparent, (Saheb et al., 2012).

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Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Therefore, “environmental communication is necessary to provide an understanding among the people” (Sekar, 1981). Various environmental challenges are occurring on a local and international level due to the rise of information and communication technologies. Social networking platforms offer opportunities for individuals to participate in public debates about the environment which might generate new discourses about environmental issues to change individuals’ perceptions, which have been greatly influenced by mainstream media coverage in the past (Tong & Zuo, 2018). Environmental groups and NGOs around the globe cultivate environmental awareness in society through social media platforms. One of the most popular platforms that become the contact zone and most reliable platform of information exchange is Twitter. Governments, politicians, the media, social groups, and organizations, in addition to ordinary Twitter users, use the platform to publicize their messages for various goals. Citizens can communicate directly with political leaders, organizations, and institutions without using the news media (Tong & Zuo, 2018). The focus of the study is to assess the function of Twitter in environmental discourse by environmental groups and NGOs.

Social Media – A Powerful Tool of Environmental Communication

Social media is evolving and has the power to bring about change. Social media is a strong tool for raising awareness for the significant climate change issues, and end users are becoming more cautious of their purchase decisions, opting for environmentally friendly products and services. It is critical to begin developing and implementing solutions that will aid in environmental preservation (Sharma K, 2021). This can be accomplished through bringing together the public and private sectors as well as brand-new, cutting-edge platforms in order to increase public understanding of the value of environmental preservation and sustainable development for a safe and healthy future. Social media is offering an essential and wide platform for social activists to spread their message and persuade people to take action in favor of environmental conservation (Sharma, 2021). According to Castells (2009), “The internet has grown to be an important organizing and mobilizing tool for environmentalists worldwide.” (Kurniawan & Rye, 2014). An effective communication tool for activists, the internet enables them to coordinate with regional’s or local organizations as well as probable, prominent participants in the global environmental campaigns, as well as accept and spread information, much of it more controversial than that made available on official websites (Sullivan & Xie, 2009).

Social Media in India

With more than 680 million people using the internet regularly, India has embraced the internet wholeheartedly.

Over the past ten years, the country’s digital population has exploded. Began with as e-mail exchanges have developed into a digital cosmos, with social networking ventures such as Facebook, Twitter, and Google being a part of millions of Indian household families, (Keelery, 2021). India’s social media users are anticipated to increase to 518 million by 2020 as a result of the country’s easy access to the internet. Furthermore, it is anticipated that there will be nearly 1.5 billion social network users in the nation by 2040. As of 2020, the most popular social media platform is still Facebook (Statistia.com). In the United States, where the micro-blogging site had 73 million users as of July 2021, Twitter is incredibly popular. “Japan and India came in second and third, with 55.55 and 22.10 million users, respectively,” (Keelery, 2021).

Twitter

In terms of interactivity, Twitter has a distinct advantage over other social media platforms and even traditional news distribution methods due to its constant and sustained velocity of communication, (Wasike, 2013). Twitter’s popularity has increased over time. Nielsen News, “stated in February 2008, Twitter were approximately 500,000 users; within a year, this figure had increased by 1,382 percent. (Mc Giboney, 2009 as cited in Small, 2011). Even numerous Twitter controversies have gained mainstream media attention; Social-media is being mined by mainstream media for news, opinions, and current events, (Rajput, 2014). The results of the 2012 US Presidential election demonstrated how important social media is to politics, (Rajput, 2014) (J Tong & L Zuo, 2018).

In India, where political leaders are typically not considered technologically sophisticated, recent events have driven them to embrace new-age media (Rajput, 2014). For the first time in India, social media, Twitter a micro-blogging site, played a significant role in the party’s communication strategy, adding to the BJP’s diverse range of communication channels for reaching out to voters. The popular press dubbed the 2014 election, “India’s first Twitter election equating Modi’s usage of social media to Barack Obama’s use during the 2008 presidential election drive in the United States” (NDTV, 2014). Even In 2009, Iran’s tumultuous presidential election was the most talked-about issue on Twitter (Twitter 2009). The hashtag #iranelection was used to identify information about the protests. Twitter is the newest social media platform that is believed to be altering politics (Small, 2011). Twitter is too popular in politics. According to Statista, “The use of Twitter to advocate policies, engage with the public, and communicate with other politicians has grown in importance in both domestic and international politics. Most foreign ministries and leaders around the world have official Twitter accounts”, (Statistia.com). Hutchins (2016) highlights the concept of “how you might use” Twitter implies a wide range of potential applications



and complexity that must be “learned.” Depending on the political and social environment, Twitter should be seen as a multidimensional transactional digital platform that may be used for a variety of objectives, (Hutchins, 2016).

Twitter is probably the best platform for social engagement. Its distinctiveness resides in the capacity it allows a small business to amplify your business large number of loyal readers in a lesser amount of time and with brief bursts of information, (Wasike, 2013). Even in the absence of the media, Twitter has the power to give correct breaking news at breakneck speed. Within minutes after the terrorist strikes in Mumbai, India on November 26, 2008, Twitter began giving an accurate telecast of news using the hashtag #mumbai. This was before any Television news channel or newspaper had reported on the story. This occurrence, according to The Guardian, was “when Twitter became a major tool for news delivery”(Arthur, 2008, November 27; Lewis, 2008, November 28 as cited in Wasike, 2013).

Theoretical Framework: Media Ecology Theory

The media ecology theory helps to explain that the medium is the message and how these medium changes with the passage of time. According to the notion, as time progresses, people will connect with one another and receive knowledge in different ways. In this digital age, people are connected with each other through social media platforms. One of these platforms “Twitter” is now becoming a new public sphere and this public sphere is now known as Twitter-sphere. Pezzullo & Cox (2018) theorize that “The proliferation of voices across a wider geographical distance more quickly than ever before has transformed how people foster engagement in the public sphere.” Twitter, which is available on the internet and on mobile devices, has been widely utilized during major political events such as elections and referendums, demonstrating its political influence potential, (Tong & Zuo, 2018). The concept, “the medium is the message was coined by Marshall McLuhan in his 1964 book *Understanding Media: The Extensions of Man.*”, (Wikipedia contributors, 2022). This means that the message and the mode are inextricably linked; the medium incorporates into every message it disseminates, forming a mutually beneficial relationship in which the medium shapes how the message is received. The theory of Media Ecology is born here. Technology changes our surroundings, and each medium encourages distinct behaviors and engages different senses. Changes in technology have an impact on our surroundings, and each medium encourages distinct behaviors and engages different senses, (Gupta & Meenakshi, 2019).

Marshall McLuhan, a Canadian professor, proposed the notion of media ecology in 1964, and Neil Postman coined the word in 1968. “Media ecology” describes to the broadening of the meaning of media beyond only a

method of communication to include the complete living environment. In the 1950s and 1960s, media ecologists were more concerned with how diverse media technologies provided a social context for society and human existence than with the messages communicated. The phrase “media ecology” has recently gained widespread acceptance, particularly with the founding of the Media Ecology Association in 1998, (Gupta & Meenakshi, 2019). Cali (2019) suggests that “Based on McLuhan’s insight that each new medium more or less perceptibly alters the entire scene, media ecology is the study of environments or the circumstances in which communication is processed. The premise that technology, procedures, forms of information, and communication codes play a significant effect in human affairs is studied through the lens of media environments”, (Cali, 2019).

“New social structures and modes of perception are produced by new technology” (Kevin DeLuca and Jennifer Peeples, 2002) as cited in (Pezzullo & Cox, 2018, p. 131). With the widespread use of technology, the world has shrunk, and since the development of a human who discovered how to handle new technologies, media ecology has continued to undergo countless iterations. It helps to clarify that, with the development of the internet, technology has changed at a rapid pace in the last few decades, and with the process of convergence, communication methods have also changed. In this digital era, the emergence of social media sites & easy access to the internet provides people with a new public sphere where they connect with each other throughout the world, share & express their thoughts, and most important can directly communicate without any mediation. “A system comprised of human people, media, and technology within which they connect and communicate with one another,” according to the definition of a media ecosystem”, (Gupta & Meenakshi, 2019). Environmentalist organizations embraced Twitter as a new model of the public sphere to reach out to people and change their attitudes toward the environment. This platform was also used by environmental organizations to gain support for their advocacy efforts. Individuals can use social media to participate in public conversations about the environment, which could affect governmental decisions, (Tong & Zuo, 2018). NGOs exist in every country to advocate for a variety of environmental concerns and hopes, (Pezzullo & Cox, 2018). Therefore, a need exists to identify that Twitter is popular in India in terms of environmental issues put forward by an environmental organization.

Review of Literature

A study by Jasanoff (1997) titled “NGOs and the Environment: From Knowledge to Action” examines how NGOs might change environmental governance. According to this, NGOs play three important roles: (1) critiquing and redefining environmental knowledge; (2) creating

inclusive “epistemic networks” that connect local and global environmental issues; and (3) assisting in the transfer of technology and ideas. By incorporating local knowledge, standing up for underrepresented groups, and encouraging global cooperation, NGOs support national and international governance. Challenges in environmental action, however, include addressing different cultural norms, preserving credibility, and balancing power relations.

“Scientific Literacy, Environmental Issues, and PISA 2006: The 2008 Paul F-Brandwein Lecture” by Bybee (2008) highlights that Scientific literacy is crucial for citizen participation, with a focus on resource use and environmental quality. This talk highlights students’ responsibilities for sustainability in remembrance of Paul F. Brandwein. Environmental quality, resource utilization, and population increase are all included in “Science in Personal and Social Perspectives” of the National Science Education Standards. The outcomes demonstrate pupils’ attitudes and abilities regarding environmental issues. These themes are crucial for societal engagement and scientific literacy, even though some states and districts ignore them. Climate change and resource depletion are two examples of concerns that affect the global environment and emphasize how important it is for people everywhere to comprehend complex environmental issues.

Sullivan and Xie’s (2009) article “Environmental Activism, Social Networks, and the Internet” examines how social media and internet technologies interact to promote environmental activism in China. It focuses on how activists use digital tools to get beyond logistical, financial, and legal barriers and promote group action in a politically constrained setting. The study shows that social networks and the internet work together to greatly benefit environmental action in China. With the help of these instruments, activists can reach stakeholders through several channels, garner public support, and affect environmental results in a complicated sociopolitical environment. The article highlights how the relationship between offline activism, internet networks, and state regulatory frameworks needs to be further investigated.

An article by Kurniawan and Rye (2014) titled “Online environmental activism and Internet use in the Indonesian environmental movement” examines the importance of internet use in Indonesia’s environmental movement with a particular focus on Environmental NGOs (ENGOs) that conserve forests. It emphasizes how information sharing, political engagement, and international networking are made possible by the internet, which in turn improves activism. Smaller grassroots organizations that have resource and access challenges contrast with larger, well-funded ENGOs with international connections. While urban middle-class activists are empowered by online tools, underrepresented rural populations continue to face obstacles in digital inclusion and equitable environmental governance.

The study “Understanding popularity, reputation, and social influence on Twitter from 2009 to 2016” by Garcia *et al.* (2017) focuses on comprehending social dynamics in online social media, particularly inside the Twitter network. Through the analysis of extensive data sets, researchers investigate social influence, popularity, and reputation among more than 40 million users over a seven-year period. This study emphasizes the significance of reputation in social influence processes and attempts to answer problems regarding social behavior using computational social science methodologies. In the Twitter network, popularity and reputation can be compared with geometric terms. In a network, trustworthy users occupy high places in a pyramid structure, whereas popular users have high degrees at the center. On Twitter, user incentive rises with reputation and popularity while the chance of quitting the network falls.

Environmental Issues

Environmental issues are a worldwide concern. Human activities such as waste accumulation, ecosystem destruction, and resource depletion had a significant effect on the world environment. Climate change has been a focal point of science and public policy at all levels, from local to world, for more than a decade. As a result, environmental risks are frequently highlighted in the media, and residents of all countries are increasingly required to comprehend complex environmental issues (Bybee, 2008). In September 2015 UN general assembly adopted SDGs. According to the Brundtland Commission Report (1987) (sections 81, 1) of the United Nations, “sustainable development” is defined as “action that aims to promote harmony among human beings and between humanity and nature,” and, more importantly, “meets the requirement of the current generation without adversely affecting future generations’ ability to meet their own needs.” as cited in (Pezzullo & Cox, 2018, p. 197).

In the preamble to the 2030 Agenda for Sustainable Development Goals, “leaders of the world proclaimed that they are determined to safeguard the planet from degradation, including through sustainable consumption and production, increases efficiency its natural resources, and taking urgent action on climate change, so that it can support the needs of present and future generations.”, (UN Conference 2015). The United Nations Environment Conference in Stockholm in 1972 put environmental issues on the global agenda. “This global conference brought together political leaders, diplomats, scientists, media representatives, and non-governmental organizations (NGOs) from 179 countries for a massive attempt to concentrate on the impact of human socioeconomic environmental aspects.”, (UN conference 1992). Since then UN held 12 global conferences on environment & sustainable development with the aim save environment, and action against climate change. The number of international treaties and conventions has increased



significantly; states have drafted agreements on issues such as depletion of the ozone layer, ocean pollution, acid rain, climate change, the trade in critically endangered species, biodiversity, hazardous waste disposal, and environmental conservation in Antarctica, (Jacobson & Weiss, 1995 as cited in Conca, 2014). Karen Litfin (1993) estimates that there were more than 650 such agreements in operation by the early 1990s. "The majority of these are bilateral or regional agreements with a narrow focus on particular environmental issues or disputes", (Conca, 2014).

Environmental Communication & Online Activism – The New Public Sphere

Communication leads to real-world outcomes. Communication directs our attention to specific events, individuals, and, yes, wildlife. We find our voices to be a part of a discourse with others since different people value nature in different ways, (Pezzullo & Cox, 2018 p. 39). The importance of the public sphere is allowing different voices to communicate about environmental issues. The pragmatic and constitutive modalities of manifestation of our ecological bonding in the world, including those with non-human systems, elements, and species, are referred to as environmental communication, (Pezzullo & Cox, 2018, p. 34). Castells (2004), Castells uses the feminist, environmentalist, and democratic globalization movements as illustrations of how to change one's resistance identity into one's project identity, (Castells, 2004, p. 70) and work to change the larger social structure, (Castells, 2004, p. 8). All social campaigns have enemies and a societal purpose, and they are both reactive and proactive. So, for example, environmentalism isn't just proactive; it also sees pollution and polluters as enemies, (Castells, 2004 as cited in Fuchs, 2009).

Fuchs (2009) recognizes this, "Because the Internet is a globally decentralized many to numerous and one to numerous communication medium, anybody may produce and disseminate information relatively readily. However, not every piece of information is accessible or given the same amount of attention. How other users pay attention to the information in this shifting informational ocean is the problem with the information deluge in cyberspace" (Fuchs, 2009). The public sphere, according to Habermas (1974, 1991), "is a forum where people can freely debate and discern social problems and issues of fraternal interest, and, if possible, achieve a consensus judgment, and a component of the public sphere comes into reality in every single conversation in which every single individual join to create a public body", (Habermas, 1991 as cited in Carew, 2014) (Habermas, 1974 as cited in Pezzullo and Cox 2018, p. 41). A public sphere, according to Pezzullo and Cox (2018), is described as the forums and exchanges in which various individuals engage with one another regarding issues of shared concern or that affect a larger community, ranging from neighborhoods to international

affairs. The Internet has altered the nature and scope of activism. Online activism has been widely utilized to share information, link people, and mobilize crowds to view their unhappiness, particularly in the last three decades. Nowadays, the Internet is frequently described as a "new" type of public sphere, having numerous different and favorable characteristics when contrasted to older public spheres, (Mentes, 2019). Dey (2019) argues that "The most notable new public sphere websites for today's society are social media platforms. Online activism is what McCaughey and Ayers (2003) refer to as social activism that uses the Internet, particularly over the previous three decades" (Dey, 2019, as cited in Mentes, 2019).

The terms "public sphere" and "public space" as defined by Papacharissi (2002, 2010), are not interchangeable. Papacharissi (2002, 2010) says "While public space offers vastness that permits public sphere to call up, it does not ensure a healthful public sphere," in defining the link between "public sphere and public space". According to Papacharissi (2002), the Internet is just another venue for political discourse in terms of public space. The Internet, on the other hand, has the ability to foster dialogue internet forward a democratic interchange of opinions and ideas because it is a public arena (Papacharissi, 2002, 2010 as cited in Mentes 2019). Online activists are increasingly using social media sites like Twitter to publicize their causes (Carew, 2014). In order to understand environmental problems, the challenges that underlie them, the people and company involved, potential solutions, and, most significantly, the natural world itself, communication is essential, (Meisner, 2015). Environmental organizations are divisive and prominent players on the political scene today, (Dalton & Rohrschneider, 2003).

Research Methodology

Objectives

- To investigate & analyzed the Tweets of Environmental NGOs, and National environmental groups on tweeter.
- To find out the frequency of environmental tweets of environmental NGOs, and National environmental groups on tweeter.
- To check the popularity of Twitter with regard to environmental tweets in India.
- To study the Dimensions of environment tweets on Twitter.

Sample selection and categorization of tweets

The researcher had chosen the most popular Environmental Organization in India from the Google Search engine. Then purposively researcher selected 10 groups and 10 NGOs, out of these groups and NGOs researcher randomly select organizations in a ratio of 5: 5, national environmental groups, and NGOs. Then randomly picked one week out of the four weeks from the month of September. Under the same week falls International Day for the Preservation

of the Ozone Layer, world bamboo day, and International coastal cleanup day. Here researcher explores all the tweets for the week that lies in between 13 September - 19 September 2021 and conducted the content analysis of the tweets on various variables. "Content analysis is defined as the scientific study of communication content. It is the study of content in relation to the meanings, contexts, and intentions contained in messages.", (Prasad, 2008). The researcher used qualitative and quantitative approaches to analyze the tweets of the organizations. In terms of dimension, the researcher divides tweets into the following categories: (1. Climate change, which includes global warming, pollution, and ozone depletion), (2. Ecosystem, which includes flora and fauna), (3. Deforestation & soil degradation only), (4. Marine ecosystem) & (5. Any other). The tweets are then analyzed using the following parameters: concern, raises the question, relief, advertising, and opinion, and the data is generated using coding.

Below is an example of the type of tweets that researchers consider as a concern, advertising, question, Personal opinion, and relief. These are the parameters on which researchers categorize the tweets.

1. CONCERN: #ClimateChange is an impediment to future growth. For India, this will be an even bigger challenge because 22 out of the 30 most polluted cities in the world are here: Report #ClimateEmergency#AirPollution (Source- Twitter)

2. ADVERTISING: #HiringNow@CSE_Climate is looking to hire a Deputy Programme Manager. Learn more about the qualification and experience required for the position here. (Source- Twitter).

3. QUESTION: No offshore wind project has commenced in India: Are we on track for 30 GW by 2030? (Source- Twitter).

4. PERSONAL OPINION: Happy Birthday @narendramodiji! Here's to a plastic free #birthday party. 1. Bamboo plates instead of plastic ones. 2. Paper & cloth-based decoration. 3. Steel/paper cups & cutlery. Enjoy a #plasticfreebirthday! (Source- Twitter).

5. RELIEF: Eco-Restoration of the #GandhiRoadPond in Thazhambur! Once an abandoned pond in the South of Chennai, the Gandhi Road Pond has a new story to tell! We thank the DRDA for the admin support and @HexawareGlobal for the funding support. @MoJSDoWRRDGR#EFI#Hexaware (Source- Twitter).

The researcher randomly selects five environmental NGOs and five national environmental groups as follows:

Data Analysis

The total number of tweets on both the national environmental groups & NGOs was 240. Of the total, 29 were the re-tweets tweeted by the National environmental groups and NGO.

The Figure 1 shows the number of tweets that were tweeted by all selected groups and NGOs. The national environmental organization "MOEFCC" had posted 103 tweets out of 240 in a week, according to the total amount of tweets. Whereas, among environmental NGOs, the "Environmentalists Foundation of India" has tweeted the greatest number of tweets, which is likewise limited to only 29 each week. This implies that national environmental groups are more active on Twitter than non-governmental organizations.

The Figure 2 shows the total number of likes on the randomly selected national environmental groups and NGOs. The total number of likes on one of the environmental NGOs "India's Climate Air Tracker" in one week is 16080, which is significantly higher than the total number of likes on national environmental groups. In one week, MOEFCC has only 9509 likes. This indicates that people are more likely to support environmental non-governmental organizations.

The Figure 3 shows the total number of comments on the randomly selected national environmental groups and NGOs. India's Climate Air Tracker received 3577 comments, which is significantly more than the total number of comments received by all environmental organizations. Only one environmental group received 199 comments in a week, while the others received no more than ten.

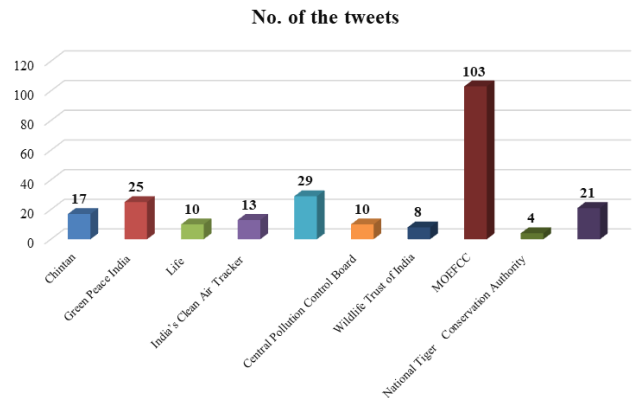


Figure 1: No of the tweets

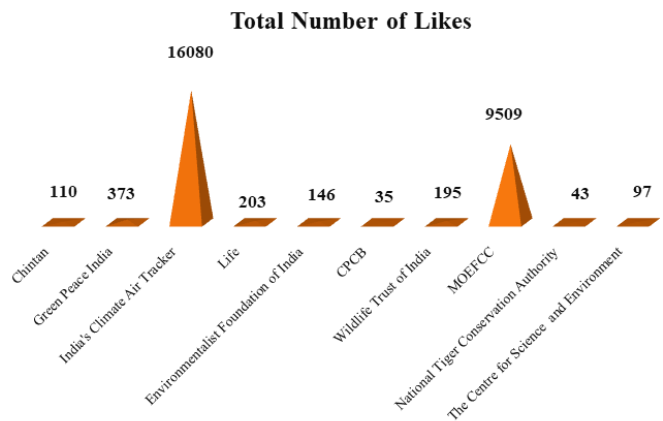


Figure 2: Total number of likes



Table 1: List of NGOs and National Environmental groups (First five are NGOs & latter are National environmental groups)

S. No	Account name	Verified	Followers	Location	Website
1.	Chintan @ChintanIndia	No	3461	New Delhi	Chintan-india.org
2.	Green Peace India @greenpeaceindia	Yes	29.4	India	Greenpeace.org/india
3.	Life @lifeindia2016	No	4047	New Delhi	-
4.	India's Clean Air Tracker @NCAPTracker	No	434	New Delhi	Ncaptracker.in
5.	Environmentalist Foundation of India @EFIVolunteer	No	3340	India	Indiaenvironment.org
6.	Central Pollution Control Board @CPCB_OFFICIAL	Yes	45.4K	New Delhi	Cpcb.in
7.	Wildlife Trust of India	Yes	31.5K	India	Donation.wti.org.in
8.	Ministry of Environment, Forest and Climate Change @moefcc	Yes	160K	New Delhi	Moef.gov.in
9.	National Tiger Conservation Authority @ntca_india	No	10.2K	New Delhi	Ntca.gov.in
10.	The Centre for Science and Environment @CSEINDIA	Yes	20K	India	Cseindia.org

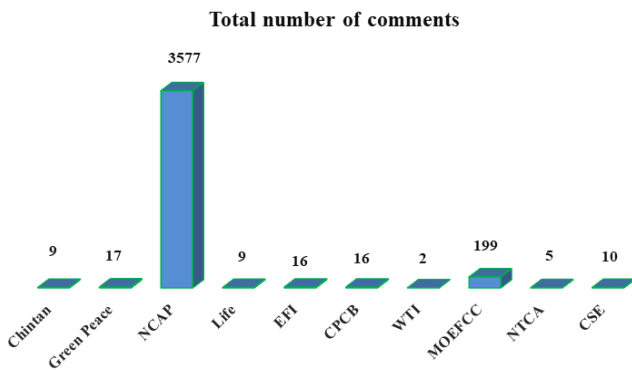


Figure 3: Total number of comments

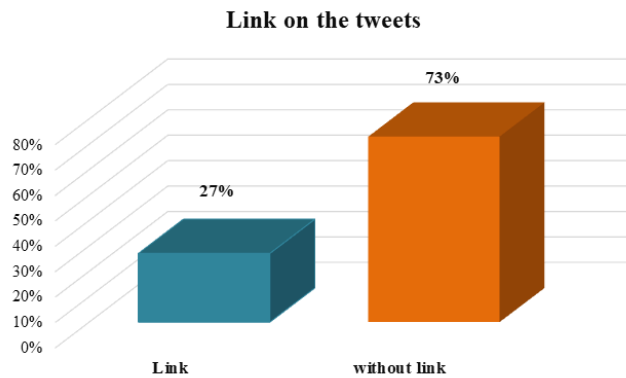


Figure 4: Link on the tweets

implies that people are more inclined to connect to non-profit organizations.

Link on the Tweets

The Figure 4 shows the total number of links on the tweets. In total, 27% of tweets contain different types of links with tweets.

The Figure 5 shows that in total 63.33% of tweets are related to Climate change, 11.66% of tweets related to the Ecosystem, 7.91% tweets related to deforestation and soil degradation, 2.91% tweets related to Marine issues, and 14.16% tweets related to the other different issues of the environmental problems. "All environmental issues in tweets are divided into five categories 1. Climate change that includes different types of pollution, Global warming, and ozone depletion, 2. The ecosystem includes flora and fauna, 3. Deforestation & soil degradation, 4. The Marine ecosystem & 5. any other (this includes any form of pollution that is not listed in all above)". The issue "Climate change" topped the chart out of all the issues.

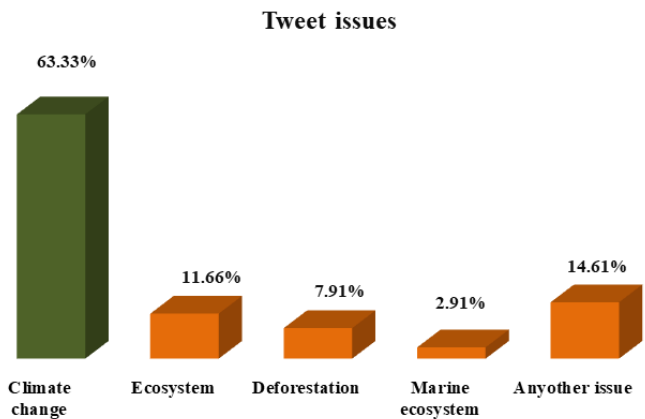


Figure 5: Tweet issues

The Figure 6 shows that a total of 36.66% of tweets are related to concern (towards environment), 15.41% of tweets related to personal opinion, 4.16% of tweets raised questions, 13.75% of tweets were related to relief,

Tweets Dimensions

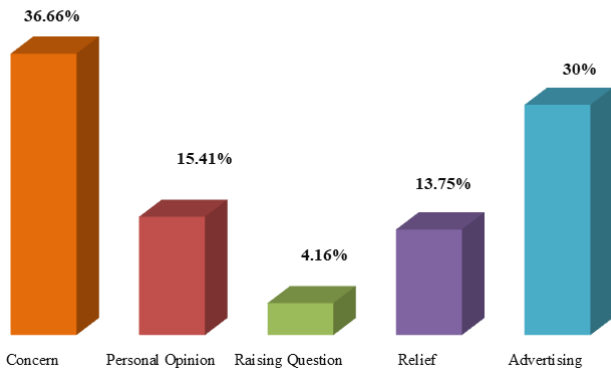


Figure 6: Tweets dimensions

Table 1: Hashtags on the tweets

Hashtags on the tweets	
Tweets with Hashtags	73.75%
Tweets without Hashtags	26.25%
Out of 73.37% Hashtags on tweets	
Tweet included city in the hashtags	10%
Tweets contain the issues in relation to the respective tweets	63.75%

and 30% of tweets related to the advertising. The graph of the dimension of tweets depicts NGOs and groups expressing their Concern towards the environment which reflects their utmost priority. The second-highest graph of advertising, on the other hand, reveals that NGOs and groups are being recruited for various types of posts on their Twitter accounts.

The Table 2 Hashtags on the Tweets

When one uses the # tag, it usually indicates that one wishes to join a broader, ongoing discussion. Involving a total, 73.755% of tweets included hashtags. Out of this 73.75% of tweets, 10% of tweets included the city in the hashtags and 63.75% of tweets contain the issues in relation to the respective tweets. Climate Change (which topped the list) is the most popular hashtag, followed by World Ozone Day.

The Table 3 Tag on the tweets: Tag on the Tweets

The @ symbol denotes a person or group in a conversation. In total, 37.91% of tweets tagged individuals and organizations. In all 37.91 tweets, 3.33% of tweets tagged political parties, 14.58% of tweets tagged Politicians, 15% of tweets tagged Government officials and 5% of tweets tagged some other people.

The Table 4 Photos, Video on the Tweets

Of the total tweets, 74.58% of tweets contain photos, videos, and graphics. Among the total 74.58% of tweets,

Table 2: Tagged on the tweets

Tagged on the tweets	
Tweets tagged individuals and Organization	37.91%
Tweets without tag	62.09%
Out of 37.91% tweets tagged	
Tweets tagged political parties	3.33%
Tweets tagged Politicians	14.58%
Tweets tagged Government official	15%
Tweets tagged some other peoples	5%

2.9% of tweets contain Political party’s pictures & videos, 22.5% of tweets contain Awareness related photos and videos, 9% of tweets include raising some other issues related to the environment and 41.25% of tweets Contain environment-related photos.

RESULT

- Over the entire, 63.33% of tweets related to Climate change, 11.66% of tweets related to the Ecosystem, 7.91% of tweets related to deforestation and soil degradation, 2.91% tweets related to Marine issues, and 14.16% of tweets related to the other different issues of the environmental problems.
- Among the total, 36.66% of tweets related to concern (towards environment), 15.41% of tweets related to personal opinion, 4.16% of tweets raising questions, 13.75% of tweets were related to relief, and 30% of tweets related to the advertising.
- Hashtags on the tweets: Out of the total tweets 73.755% of tweets included hashtags. Out of this 73.75% of tweets, 10% of tweets included the city in the hashtags and 63.75% of tweets contain the issues in relation to the respective tweets.
- Link on the tweets: Of the total tweets 27% of tweets contain different types of links with tweets.
- Tagged on the tweets: In all tweets, 37.91% of tweets tagged individuals and organizations. Out of 37.91 tweets, 3.33% of tweets tagged political parties, 14.58% of tweets tagged Politicians, 15% of tweets

Table 3: Photos &Video’s on the tweets

Photos &Video’s on the tweets	
Tweets contain photos, videos and graphics	74.58%
Tweets without photos, videos and graphics	25.42%
Out of 74.58% tweets	
Tweets contain Political parties" picture & video	2.9%
Tweets contain Awareness related photos and videos	22.50%
Tweets include raise some other issues related to environment	9%
Tweets Contain environment related photos.	41.25%



tagged Government officials, and 5% of tweets tagged some other people.

- Photos and Video on the tweets: Of the total tweets 74.58% of tweets contain photos, videos, and graphics. Out of 74.58% of tweets, 2.9% of tweets contain Political party" pictures & videos, 22.5% of tweets contain Awareness related photos and videos, 9% of tweets include raise some other issues related to the environment and 41.25% of tweets Contain environment-related photos.

FINDINGS

- The classification of tweets proclaims that the groups and NGOs are working on the tweeter to communicate about environmental issues as communication shapes how we see and value the world. "Environmental organizations have yet to fully leverage platforms like Twitter, Facebook, and YouTube", (Stoddart & MacDonald, 2011, p. 329). The network of topics revealed that climate change is the most discussed issue in all environmental discourse by environmental organizations.
- The tweets tweeted by the groups and NGOs consist of a diversification of hashtags which signifies that these groups and NGOs running campaigns on Twitter for Environmental issues. Online activism has numerous advantages, including the ability for activist organizations to communicate directly with their audiences (Mentes, 2019). According to Andrew Binder (2012), "Twitter served as a useful empirical indicator in understanding the social construction of risk in the aftermath of an environmental crisis." as cited in (Hutchnis, 2016).
- The researcher traces that Twitter in terms of environmental communication is not so popular amongst Indian NGOs & National environmental groups. In a week's duration, there are 240 total tweets that symbolize that they are not so active in this new public sphere. The frequency of tweets on an ordinary day is on average two tweets a day and the number of followers is in thousands only. That is too few compared to the population of Indian users on Twitter (The current number of Indian Twitter users is 24.45 million), (statista.com).
- Twitter is already popular in Indian politics & celebrities around the world used these platforms to reach directly to Twitter users. On the other hand, the number of tweets tweeted by environmental organizations on average is two tweets (Based on the observation method) in a day on the environmental issue on an ordinary day but the frequency of tweets increased on particular days (International Day for the Preservation of the Ozone Layer, world Bamboo day). Garcia et al. (2017) explore that "popularity grows with a reputation only for users who have previously

demonstrated some level of popularity," Garcia et al. (2017).

- If NGOs & groups handle this new medium carefully, Twitter will emerge as a new mode of activism for the purpose of environmental communication. "Well-established organizations with well-developed international networks benefit the most from the use of the Internet in activism." (Kurniawan & Rye, 2014). "Smaller organizations with more informal charters, on the other hand, appeared to have a better capacity to connect disconnected communities to the global flow of information" (Kurniawan & Rye, 2014).
- "With increased internet access, the number of social network users in the country is 518 million (2020) and expected to reach nearly 1.5 billion by 2040 " (Statista.com). It suggests that the number of Twitter users will continue to rise over time. In order to reach a large number of people, NGOs, and National environmental groups must work hard in this new public sphere to achieve their goals and improve society.
- The popularity of Twitter amongst Indian users on environmental issues is growing as the Twitter sphere blossoms with environmental conversation. In total 26,791 likes and 3,860 comments were received on 240 tweets. The number of likes and comments on the tweets is gratifying as users are interacting routinely with the tweets of environmental organizations. However, the likes and comments received on the NGOs are far greater than national environmental groups which implies that users are more inclined toward Environmental NGOs.
- The dimension of tweets portrays non-governmental organizations and groups expressing their concern for the environment, which indicates their top priority. Any NGO or group working for the development of society should have a concern as its primary goal. The second-highest graph, advertising, is particularly striking; it demonstrates that NGOs and groups are being recruited for various types of posts on their Twitter accounts. This symbolizes that Twitter is used for recruitment purposes as well.

DISCUSSION AND CONCLUSION

"Public awareness is the key to making a real difference in fighting environmental problems." (Pezzullo & Cox, 2018). Principle 10 of the Rio Declaration (1992) states that "Environmental issues are best handled with the participation of all concerned citizens and that individuals shall have appropriate access to environmental information held by public authorities... and the opportunity to participate in decision-making processes" (Pezzullo & Cox, 2018, p. 308). Twitter, as a new public sphere, has the power to change the scenario of environmental problems, just as it does in politics. This paper examined the tweets of environmental NGOs and

national environmental groups. According to McLuhan, “the medium is the message,” and “the content created by non-governmental organizations to manage their own discourse sheds light on media strategy at a time as unique as an environmental disaster and the impact it generates” (Bazago *et al.*, 2020). “McLuhan also stated some time ago that it is impossible to begin research in the area of digital communication without the distinct and inseparable perspectives of content and medium” (Bazago *et al.*, 2020). So, this content analysis helped in understanding the dimension of tweets. NGOs manage their own campaigns. Some of these activist groups were founded to address environmental issues, while others have integrated environmental concerns into broader societal development agendas (Jasanoff, 2010).

Environmental issues have grown in prominence around the world, and efforts to improve environmental practices have become vital to local, national, and global societies. Environmental non-governmental organizations (NGOs) play a significant role in addressing these issues, (Kurniawan & Rye, 2014). Some NGOs like India’s Clean Air Tracker run their campaign on air pollution and Legal Initiative for Forest and Environment (LIFE) promotes environmental democracy and justice through the creative use of law and evidence-based advocacy. Whereas Greenpeace India campaigns to protect the environment for clean air and promotes clean energy. On the other hand, the national environmental group MOEFCC is the official Twitter handle of the Ministry of #Environment, #Forest, and #Climate Change, Government of India. They are the government’s mouthpiece, informing and educating the public about current government policies, initiatives, upcoming campaigns, competitions, and celebrations. The central pollution control board is responsible to generate an air quality index on a daily basis. CSE India provides online training on water conservation. Wildlife Trust of India is working for endangered species & habitat recovery programs involve local people as well. Overall, we can say that both environmental organizations are working towards the betterment of the environment, aware, informing, and educating the citizens to make it a better planet to live in. The only difference lies in objective as NGOs looking for advocacy and pressurizes govt. Neither of the tweets of NGOs criticizes the government in point of fact they seek and get support from the state govt. and local authorities.

On the other hand, national environmental groups praise the NGO, local people, and other Stakeholders for their support in cleaning campaigns. They both are interdependent on each other to fulfill their objectives and mission. If these two organizations collaborate, they will achieve their goals to resolve the environmental issues to a greater extent. Collaboration can help to correct inequalities and give non-governmental organizations structured opportunities to incorporate their critical, but necessary, viewpoints into the emerging discourses

of international civil society (Jasanoff, 2010). Overall, we can say that both environmental organizations are working towards the betterment of the environment, aware, informing, and educating the citizens to make the earth a better planet to live in. The only difference lies in purpose as NGOs communicate in order to inform, educate, aware, persuade, and alert the people in order to raise awareness, advocate for a policy, influence public opinions, and change the behavior of an individual towards environmental issues whereas the national environmental groups promote, informing and aware the people about ongoing government initiatives, upcoming campaigns, competitions, and celebrations.

SIGNIFICANCE

The study emphasizes the value of digital media tactics, public involvement, and cooperation between governmental and non-governmental organizations in addressing environmental issues. Effective and inclusive environmental solutions can result from interorganizational collaboration, and social media—especially Twitter—offers a potent platform for environmental activism, education, and engagement. The future of tackling the world’s pressing environmental concerns will depend on promoting open environmental policy, encouraging NGO-government collaboration, and improving public engagement through digital tools.

LIMITATION

The researcher selects a small sample size due to the limitation of time. Only seven days of tweets were examined and analyzed by the researcher. As a result, much more investigation is needed to better comprehend the meaning of the tweets. Future researchers will need to use a large sample size.

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HOW TO CITE THIS ARTICLE: Sharma, S., Kumar, G., Pandey, B. (2024). Dimensions of Environmental Organization's Tweets: A Content Analysis. *Journal of Communication and Management*, 3(4), 373-373. DOI: 10.58966/JCM2024349