Title of the study: Framing of climate change in South Africa: An analysis of content in *News24* and TikTok

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Declaration

I declare that this research report is my unaided work. It is being submitted as part of the requirements to complete a Master of Journalism and Media Studies degree at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University.

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Chapter 1: Introduction

This research sought to study and compare the framing of climate change in online news and social media, by analysing content in TikTok and *News24.*
The internet has opened up new avenues for public debates and has allowed the public to discuss important issues such as climate change (Bosch, 2012; Pierce et al., 2019). Social media has played a huge role in allowing activists, the media, and the public to frame climate change discourses and drive climate change awareness (Dahal et al., 2019; Sanford et al., 2023). This chapter of the study will present crucial background information regarding the historical context of climate change, shedding light on its global impact and specifically addressing its effects on South Africa.

Social media platforms have become popular spaces for individuals to interact, discuss, and share opinions about several issues (Anderson & Huntington, 2017; Chen et al., 2023), ultimately giving a "voice to the voiceless" (Gerbuado, 2018, p. 746), before social media people used to rely on the media to tell their stories, however, with the advent and rise of social media people are able to tell their own stories without relying on media networks (Anderson & Huntington, 2017; Chen et al., 2023). Researchers are now using the platforms to evaluate public opinion and gauge understanding of topics such as climate change (Dahal et al., 2019). In an online poll that covered three countries, namely, South Africa, Kenya, and Nigeria to determine how people consumed news, Newman et al. (2023) established that 57% of South African respondents share news via social media platforms, and 56% use Facebook as a source of news. Meanwhile, TikTok continues to show growth, with 22% of the respondents using the platform to share news in 2023 compared to 15% in 2022, and is increasingly being used by news organisations as a channel to convey news (Newman et al., 2023). *News24* is the most trusted news organisation with about 75,000 subscribers (Newman et al., 2023). Then again, research shows that climate change reporting in the Global South is not sufficient and the stories are largely linked to international events (Shimhanda & Vivian, 2022; Sithole, 2023). It should be considered that the media frames climate change in agreement with the framing used by its stakeholders, or sources, such as the scientific community, activists, government, and private sector (Sithole, 2023). On

the contrary, social media players present their views, which are at times different from the above-mentioned stakeholders (Nisbet & Newman, 2015).
Researchers such as Bosch (2010) studied blogs and tweets in South Africa about climate change and argued that although print and online media covered topics on climate change, online media had become the most frequently used to interact and reach audiences effectively and in real time. However, researchers such as King et al. (2022) argue that climate denial on the internet and social media continues to be a crisis that undermines climate change solutions. Transformation in the media industry has removed traditional media as the main distributor of information and ultimately empowered new kinds of actors who use different methods such as social media to reach large audiences.

This study takes the matter forward, comparing the framing of climate change in online publication *News24* and social media platform, TikTok, which has 11.83 million active users aged 18 and above in South Africa.

1.1Climate change background and context

Climate change is described as extensive changes in weather conditions such as melting glaciers, heavier rainstorms, and frequent drought (Kennedy & Lindsay, 2021). Drought days and heat waves are commonly related to oceanic atmospheric influences such as changes in sea surface temperatures and warm phases of the El Nino Southern Oscillation (ENSO) over Southern Africa (Ndlovu et al., 2021). However, Richard et al. (2001) relate South Africa's rainfall inconsistency to the ENSO, which is an indicator of climate unpredictability.
In addition, Richard et al. (2001) link intense and longer-lasting drought and consistent extreme weather occasions to such atmospheric oceanic interactions, particularly the ENSO. As a result of the influences of ENSO, a semi-arid climate, as well as climate change-induced climatic inconsistency and change, drought is becoming worrying in South Africa. Apart from the ENSO, since 1970 rising climate change-induced weather inconsistency has been witnessed in South Africa (Richard et al., 2001).
The natural extremes are increasing in frequency and intensity, aggravating water, and food insecurity challenges in the country. Over the years, the number of

consecutive dry days has been increasing together with the number of daily extreme rainfall events (Ndlovu et al., 2021). South Africa has also been experiencing early and late seasonal rainfall, which is magnified by the increased rainfall variability associated with climate change (MacKellar et al., 2014)

Climate change's main impacts include societal, economic, and health implications. Tol (2013) argues that due to extreme heat, drought, and cold weather, the labour force productivity declines, which ultimately causes diseases or death due to undernourishment. There are about 150,000 deaths annually around the world attributed to climate change (Hase et al. 2021). Human activities are also blamed as a contributing factor to the primary cause of climate change due to the use of non-renewable energy sources or fossil fuels such as gas, coal, and oil (Boykoff & Yulsman, 2013; Kennedy & Lindsay, 2015).

Climate change has also become a major risk to international peace and security, ultimately increasing competition for resources such as water, land, and food, and heightening socioeconomic tensions among and within countries (Nevitt, 2020). Climate change has therefore become a global crisis (Cottle, 2009, p. 506; Hase et al. 2021) that can only be tackled by a global society.

The initial international response to climate change dates back to 1979 when the first World Climate Conference (WCC) came about (UNFCCC, 2015). In 1994 the United Nations Framework Convention on Climate Change (UNFCCC) joined the forces and in 1995 the first Conference of the Parties (COP 1) took place in Berlin (UNFCCC, 2015). COP works on behalf of UNFCCC as the main decision body, and the conferences happen every year unless the parties decide otherwise. In 1997 the Kyoto Protocol was adopted where countries agreed and committed by giving targets on how they plan to reduce and limit greenhouse gas emissions (UNFCCC, 2015). To date, UNFCCC has formed a union with 198 countries of the United Nations (UNFCCC, 2015).

South Africa was one of the countries that signed the Kyoto Protocol under the UNFCCC in 2002 as a developing country. At the COP15 conference in Copenhagen in 2009, South Africa vowed to undertake mitigation actions to reduce 34% of emissions by 2020, and 42% by 2025 (UNFCCC, 2015). In 2011, when South Africa hosted COP 17, new negotiations were set up to deliver a greenhouse gas reduction protocol from 2015 to 2020. As part of addressing the climate crisis in South Africa, the government decided to move away from the fossil fuel regime to a

low-carbon and climate-resilient development country (National Treasury, 2010). South Africa is among the largest carbon dioxide (CO_2) emitters around the globe and is responsible for almost half the CO_2 emission in the continent of Africa (National Treasury, 2010; Kwakwa et al., 2023). Industries such as transport, mining, energy, manufacturing, and construction are responsible for a large share of emissions.

South Africa's devoted dependence on non-renewable energy sources such as coal for more than 80% of its energy consumption has major economic, environmental, and social impacts, and its consumption of coal has also extracted a heavy environmental toll, contributing to the death of 13,000 people annually from air pollution produced by fossil fuel (Bridle et al., 2022; Kwakwa et al., 2023). Due to coal mining and coal-fired power stations that cause pollution and use large amounts of water, South Africa's constant dependence on it has escalated water scarcity and exposure to drought which has also been worsened by climate change (National Treasury, 2010).

These effects of climate change are also visible in most countries in the Southern African sub-region, where communities encounter urban and rural hardships, such as lack of water, shortage of food and other essentials. Though nations in Southern Africa could have different progressive resolutions, they encounter similar dangers because of climate change and may face the same adaptation demands.

In an instance where there is a lack of operational adaptation responses, damages may ensue and threaten developmental progress. Thus, South Africa has strived to improve adaptation policies on climate change by working together with its neighbouring countries in reducing vulnerability and risks associated with climate change. South Africa also intends to bring together a Southern African regional response by sharing resources, information, and technology (Environmental Defence Fund, 2015). A review of the impact of climate change on the global economy has evaluated that damages caused by the effects of climate change may be between 5% and 20% of global Gross Domestic Product (GDP) per annum, by 2100 (Environmental Defence Fund, 2015).

In South Africa, research shows that extreme weather conditions are becoming prevalent as a result of climate change (Evans, 2019). Therefore, the South African government introduced and adopted the Just Transition Framework in August 2022, which will be used to direct the country's tactics to the transition to a low-carbon

economy. The concept has taken centre stage as South Africa hopes to smoothly switch over to a green economy by mid-century, and tackle the challenges faced by the country such as poverty, inequality, and unemployment (JET IP, 2022). Winkler and Black (2021) argue that just transitioning from coal to cleaner energy in South Africa's electricity sector is crucial for climate change mitigation. However, for it to be objective, the transition must include everyone and leave no one behind. Evans (2019) contends that it is the media's responsibility to teach the public about climate change to reduce the effects caused by human activities on the environment. However, there is a perception that the media reports poorly on climate change (Boykoff & Yulsman, 2013), and the communication on it is poorly studied by academics. In recent years, studies found that while in South Africa media reporting of climate change has increased, it is still not enough (Sithole, 2023), more could be done to deepen the general public understanding of the crisis (Ndong, 2020). Furthermore, research shows that with the decline of newspaper distribution in South Africa by 1.6% in the first quarter of 2024 compared to the previous quarter in 2023 (Breitenbach, 2024), online media has the potential to predominantly reach the audience efficiently and immediately in any other issue including climate change (Bosch, 2012; Chen et al., 2023). Social media is one platform where climate change and environmental issues are discussed. Although the study of climate change is still regarded as new compared to other research topics, recently there have been more studies focused on how to communicate climate change effectively, and the rise in the communication of climate change has become visible (Hase, 2021; Shimhanda & Vivian, 2022; Sithole, 2023). Nonetheless, Busch and Ayala Chavez (2022) suggest that there is still an apparent disconnect between how climate change is communicated and the public's perception. They argue that instead of a one-channel method of interaction, there should be open engagements and discussions with the public. The influence of expert-driven stories is substantial in shaping the narratives about climate change in both traditional and social media. While mainstream media tends to prioritize expert opinions, social media often incorporates viewpoints based on individuals' limited understanding. In order to bridge this gap, it is crucial for the media to integrate the perspectives of citizens into expert-driven stories to present a more balanced representation of the issue.

1.2 Context The climate change crisis in South Africa

In this section, we will explore the impact of climate change in the context of the KwaZulu Natal 2022 floods, delving into its potential causes and its association with climate change. The escalating occurrence of natural disasters in South Africa and around the world underscores the severity of the climate change crisis and its environmental ramifications (Mackellar et al., 2014; Ndlovu et al., 2021; Thinane et al., 2023). Over the past five decades, there has been a global average rise in mean annual temperatures by 0.65 degrees Celsius (Thinane et al., 2023). There is evidence of a link between rising global temperatures and the increasing frequency of natural disasters, particularly in Sub-Saharan Africa (Serdeczny et al., 2017; Sithole et al., 2024). Projections indicate that ongoing droughts and irregular floods resulting from above-average rainfall are anticipated consequences of climate change in this region (Grab & Nash, 2023).

In 2022, the province of KwaZulu-Natal in South Africa experienced irregular flooding (Grab & Nash, 2023). Despite Thinane et al.'s (2022) assertion that this was not entirely unprecedented, the frequency of such events has now decreased to an average estimate of 20 years, compared to the previous 40 years. This frequency shift can be attributed to climate change, as suggested by Grab and Nash (2023). The floods resulted in loss of life, destruction of homes, and unforeseen displacements. This event not only impacted South Africa but also garnered the attention of international communities and the media, sparking conversations across social platforms.

The catastrophic floods, occurring from April 11th to 12th, 2022, brought about extensive devastation to the eastern coast of the provinces of KwaZulu-Natal and the Eastern Cape, following heavy rainfall (Singh et al., 2022). In over 24 hours, KwaZulu-Natal received rainfall ranging between 200 and 400 mm (Thinane et al., 2023). The impact of the floods left more than 40,000 people affected, resulting in 443 deaths, 55 injured, and 54 people missing or unaccounted for (Thinane et al., 2023). The floods brought significant damage, with 13,500 houses in an informal settlement in the eThekwini Metropolitan Municipality of KwaZulu-Natal affected, and over 4,000 homes destroyed. As a result, at least 7,245 people sought shelter, while 6,278 found themselves homeless (Thinane et al., 2023). The floods also took a heavy toll on the education sector, impacting approximately 630 schools and causing

damage to 124, leaving around 270,000 students stranded and resulting in the tragic loss of several learners and one educator. Additionally, 66 public healthcare facilities suffered the impact, and the destruction of infrastructure led to power and water outages. The Port of Durban, one of the largest and busiest shipping terminals on the continent, was also damaged, affecting business operations. The total cost of the damage was estimated at approximately 17 billion rand (Thinane et al., 2023). Despite being declared a Provincial Disaster on April 13th, 2022, the decision was subsequently reviewed and elevated to a National Disaster by President Cyril Ramaphosa on April 17th, 2022. The floods were unprecedented (Grab &Nash, 2023).

In the same period, the people of Langa, in Cape Town, under the Western Cape Province were affected by a fire that destroyed close to 300 houses and displaced about 1,000 people. Consequently, the catastrophe that struck KwaZulu-Natal, Eastern Cape, and Western Cape led to a National Disaster by the Disaster Management Act of 2002 as there were indications and warnings from the South African Weather Service that the Free State and the Northern Cape were likely to be affected by the weather and emergency interventions had to be taken (Thinane et al., 2023)

In their research, Thinane et al. (2023) defined disaster as an (i) advanced or unexpected widespread or localised natural or human-caused occurrence which causes or threatens to cause death, injury, or disease; (ii) damage to property, infrastructure or the environment; or (iii) disruption of the life of a community.

The socioeconomic losses associated with the events were significant in terms of lives lost, casualties, and damage to infrastructure. In their research, Thinane et al. (2023) linked the floods that occurred in KwaZulu-Natal to climate change effects. Similarly, scientists from South Africa, France, the Netherlands, the USA, Germany, and the UK used published peer-reviewed methods to collaborate and evaluate whether, and to what degree human-caused climate change altered the likelihood and intensity of extremely high two days rainfall in the affected areas in KwaZulu-Natal and the Eastern Cape (Singh et al., 2022).

Singh et al. (2022) argue that the disaster was initiated by a cut-off low that deviated from the mid-latitude westerly wave and trailed across the east coast and interior of South Africa. Cut-off lows are synoptic-scale baroclinic systems that cause severe weather, floods, and heavy rainfall occasions and are common occurrences in April.

Further, the event was intensified by moisture-laden and low-level maritime winds from the southern Indian Ocean.

To determine the role of climate change and observe changes in the KwaZulu-Natal floods, Singh et al. (2022), combined observations with climate models and concluded that greenhouse gas and aerosol emissions are in part responsible for the observed increases. Furthermore, when taking models into account as well the changes indicate a clear increase in likelihood and intensity, and therefore conclude that the probability of an event such as the rainfall that resulted in this disaster has approximately doubled due to human-induced climate change. The intensity of the KwaZulu-Natal floods increased by 4-8% and is predicted to increase in frequency and magnitude in the future with additional global warming levels.

In the wake of social media, the world was exposed to the events almost live as people shared the footage of the events as they happened.

Therefore, this study will compare climate change framing in social media and online publications through, analysing content in *News24* and TikTok. The research will investigate i) posts mentioning climate change and related subjects on TikTok between April 2022 and October 2023 and conduct a content analysis to establish how they have framed climate change; ii) news articles on *News24* mentioning climate change and related subjects between April 2022 and April 2023.

The idea is to compare the framing of the climate crisis in *News24* and TikTok, given suggestions that the mainstream media frames climate change in line with its sources (Sithole, 2023), while social media users frame by the views of ordinary people. Establishing the difference between the two framing approaches is crucial to understanding how climate change is represented by the media and how it is conceived by ordinary individuals. The period was chosen because of the occurrence of the KwaZulu-Natal flood and the COP27 conference that took place in November 2022.

1.3 Rational and significance

Climate denial on the internet and social media is still a crisis that threatens climate change action (King et al., 2022). Therefore, this study is significant to establish if there is a difference between the framing of climate change in online media and social media. It should be noted that the media frames climate change in accordance

with the framing used by its sources, who are largely elites in government, the private sector, the scientific community, and activists (Sithole, 2023). On the other hand, social media actors present their views, which are sometimes distinct from those of the above-mentioned elites (Nisbet & Newman, 2015). Researchers such as Bosch (2009) studied blogs and tweets in South Africa about climate change and argued that although print and online media cover topics on climate change, online media has become the most frequently used to interact and reach audiences effectively and in real time. This study takes the matter forward, studying the framing of climate change in *News24* and TikTok for the aforementioned reasons. The findings of the study might help reshape the thinking and strategies of climate change communicators to focus their attention on educating ordinary people about climate change, taking into account the view that climate change denial remains prevalent in social media.

1.4 Aim of the study

This study aims to examine the framing of climate change in social media and online news, portrayed in TikTok and *News24* in South Africa.

1.5 Research Objectives

I. The main objective of the study is to contribute knowledge on the subject so that there can be a better understanding of the framing of climate change in the two media spheres, namely online news and social media.
II. Such knowledge can help in the construction of communication and educational interventions to address climate change.

1.6 Research questions

I. How is climate change in South Africa framed in TikTok and *News24*?
II. What are the similarities and differences in the framing of climate change in *News24* and TikTok in South Africa?

1.7 Outline of Chapters

The study seeks to investigate and compare how *News24* and TikTok framed climate change in South Africa. The study specifically selected to analyse articles in News24 as the most trusted online platform in South Africa and TikTok as the fastest-growing social media platform that South African use (Newman et al., 2023). In Chapter One, the study delivered the background information on the history of climate change both globally and in South Africa. Chapter two outlines the literature review of the study, which draws from different studies focusing on climate change discourse in social media, media reporting on climate change, and framing as a theoretical framework. Chapter three unpacks the methodology of the study. Chapter four, analysis the data collected, and the findings are presented and explained. The findings are then discussed in chapter five. Chapter six is the conclusion of the study.

This chapter of the study provided comprehensive background information about the historical aspects of climate change on a global scale as well as the specific impacts on South Africa.

Chapter 2: Literature review

Literature review is defined as a “systematic, explicit, and reproducible method for identifying, evaluating, and synthesising the existing body of completed and recorded work produced by researchers, scholars, and practitioners” (Booth et al, 2021)
In this study, the purpose of the following literature review is to collect, summarise, and discuss key points of the most relevant information necessary for this study. Three main bodies of literature will be relevant to this research and are identified as (i) climate change discourse on social media; (ii) media reporting of climate change; and (iii) framing as a theoretical framework. The chapter will showcase studies from different countries.

2.1 Climate change discourse on social media

The internet is fast taking over the role of traditional media as a platform for distributing information to the public. It has birthed platforms such as social media where anyone with access to the internet can share content and use the method to obtain a public following (Drieschova, 2021). As a result, social media has amplified voices that were previously marginalised (Gerbuado, 2018). Social media is considered a tool made possible by Web 3.0 technologies for content and information sharing, and engagement with the audience, which can be done through posting videos, pictures, and text messages, and in return building interaction (Ohei & Chukwuere, 2022). Messages on social media have the potential to spread widely if they get shared, liked, and retweeted frequently by users (Drieschova, 2021). Over the years, social media use has increased, and many actors including the media and the general public it to promote their interests (Benidict, 2021). Similarly, academics have been using social media to engage in experimental studies, building methodologies and techniques to investigate behaviour and interaction amongst social media users (Snelson, 2016; Ohei & Chukwuere, 2022). Crucially, social media has become a critical space to discuss the climate change phenomenon. Often, in occasions where bad weather occurs, such as floods, people take the discussion to social media platforms to share awareness, experiences, and opinions (Roxburgh et al., 2019). Social media has become a vital platform for the dissemination of information on climate change, allowing the public to engage in

discussions, view impactful actions, and contribute their perspectives (Leon et al., 2022). Anderson (2017) argues that social media has the remarkable ability to evoke strong emotional connections to climate change-related issues.

Over time, the internet's influence on climate change perception was progressively analysed (Good, 2006; Kahlor & Rosenthal, 2009; Gómez-Casillas & Gómez Márquez, 2023), although fewer studies are focusing on the effects of social media usage such as climate change discourse on TikTok (Tuitjer & Dirksmeier, 2021). The internet has become an arena for conflicting narratives on climate change (Bosch, 2010), sparking debate on whether social media engagement encourages slacktivism and amplifies environmental uncertainty (Dunlap, 2013), or if it fosters innovative responses and promotes environmentalism (Rotman et al., 2011; Anderson, 2017; Boykof, 2020). In this context, slacktivism refers to the effortless support of a social or political cause on social media, such as sharing or liking a post (Smith et al., 2019), while environmental uncertainty pertains to the challenges in predicting and responding to sudden natural disasters (Dunlap, 2013).

Drieschova (2021) examined the role of social media in shifting the climate change discourse in the North Atlantic region. The research discovered that climate strike movements led by climate activist, Greta Thunberg, successfully used social media to reach large audiences. Although, by contrast, climate sceptics were not successful. Furthermore, the internet was found to be not only used by tech-savvy individuals but also by anyone who wished to advocate for political change.

Social media sites such as Facebook, TikTok, Instagram, and X (Twitter) offer a convenient space to cultivate public debates and opinions on any topic. X (Twitter) has been found to be the platform that disseminates awareness of climate change and therefore draws the attention of most researchers (Bosch, 2010; Ghermandi & Sinclair, 2019; Pearce et al., 2019).

However, when analysing multi-platform social media platforms, Gómez-Casillas and Gómez Márquez (2023) found that YouTube had the strongest influence when it came to climate change education followed by Instagram, X (Twitter), and WhatsApp. Although Facebook is known to be one social media platform that disseminates information and has the most online influence, climate change discourse has not been entirely explored on the platform as a result of complexities when retrieving data. For instance, if a Facebook page exceeds 50 posts within a

year, the data collection process will prioritize relevant information from those posts. This approach introduces limitations in data collection (Weaver et al., 2022). Roxburgh et al. (2019) investigated climate change posts on X (Twitter) using Hurricane Irene, Hurricane Sandy, and Snowstorm Jonas as contextual factors to determine the frames that stood out. One of the results identified is that during Hurricane Irene, criticism of climate change denial dominated. It should also be noted that researchers have identified social media as a platform that can easily disseminate misinformation both easier and faster (Karlova & Fisher, 2012; Wu et al., 2016; Treen et al., 2020).

Climate change is another topic that has been affected by online misinformation, specifically on social media (Treen et al., 2020). In this instance, misinformation relates to information that is inaccurate, false, or misleading. Several researchers claim that misinformation on climate change delayed support and led to political inaction, rejection of mitigation policies, and confused the public(Cook et al., 2018; Ding et al., 2011; Treen et al., 2020). Furthermore, Guynn (2024) claims that social media platforms are not doing enough to eradicate misinformation on the existence and causes of climate change. On X (Twitter) the number of posts that are linked to climate change denial has tripled for the second year in a row in 2023. On Facebook, posts that dismiss climate change as a hoax or an exaggeration have increased (Guynn, 2024).

In addition, Guynn (2024) claims that climate change scientists have tried to convince social media platforms to identify and remove posts and videos denying climate change. Although TikTok adopted a policy banning climate misinformation in 2023, videos that undermine climate change have been viewed millions of times on the platform (Guynn, 2024).

2.2 Climate change discourse on TikTok

TikTok is fast becoming a platform where citizens discuss environmental issues. Basch et al. (2021) used content analysis to study 100 climate change videos on TikTok using the hashtag #climatechange. The study showed that only eight of 100 videos involved data from reliable informants, some 93 videos acknowledged that climate change existed, and 76 videos exhibited concerned populations, meanwhile 57 showed climate frustration and distress. This suggests that most

people on TikTok engaging and communicating about climate change are ordinary people who do not have adequate information to share on important issues such as climate change. Basch et al. (2021) argue that although platforms such as TikTok are good for gauging public opinion on issues such as climate change, the platform still lacks reputable sources.

Researching how climate change is communicated on TikTok, during the Glasgow in 2021 and Sharm el-Sheikh in 2022 climate summits, analysing 1,013 videos, Nieto-Sandoval et al. (2024) found that there was a decrease in the number of climate change-related videos. The results show that the voices that dominated communication on climate change on TikTok were influencers, the media, and journalists, mostly men. On the few occasions in which a source is mentioned, it is the media.

Sun et al. (2024) conducted a study on the portrayal of climate-related news and catastrophes on TikTok. The research analysed TikTok posts that focused on climate-related content to measure the influence employed by social influencers in disseminating messages. The outcome revealed that internet influencers use the most substantial influence on climate change news dissemination. Hautea et al. (2021), argued that climate activism on TikTok is predominantly led by young nonexpert users. The study found that the climate change messages being communicated often have a mix of earnestness and mockery, alternating between care and indifference. Many of these messages rely heavily on repetition and variation of existing music and visual memes, while also seeking to inform on climate and environmental issues. However, at times, the users simply "hijack" trending climate-related hashtags to gain attention for other purposes. The study also found that creators tend to mix environmental and climate-related issues, often displaying vague and imprecise knowledge about climate change. Additionally, the users feel helpless and pay strong attention to generational differences.

The format of TikTok videos typically involves storytelling and personal narratives with hashtags and viral sounds.

2.3 Media reporting of climate change

Climate change and climate science discourses are conveyed mostly in mainstream media and online, and in participatory areas such as reader comment sections online (Boykoff, 2007; Bosch, 2010). Topics on mass media and climate science were first discussed collectively in the 1930s while analysing climate change. Furthermore, media reporting of human involvement in climate change became visible in the 1950s (Boykoff & Roberts, 2007). However, climate change reporting started to gain momentum between 1990 and 2001 following international events on climate change discussions such as the publishing of the Intergovernmental Panel on Climate Change (IPCC) first assessment report in 1990, the UNFCCC in 1992, and the Kyoto Protocol in 1997 (Boykoff & Roberts, 2007; Sithole, 2023). This reinforces research findings that the media reporting on climate change has largely been influenced by the holding of international conferences and the release of scientific reports on the subject. Research shows that news media, which will be referred to as the media in this study, plays a critical part in educating citizens on global topics such as climate change and simplifying complicated issues (Ryghaug et al., 2011; Schmidt et al., 2013).

Wilson (2013) classified news media as the main basis of climate change awareness. Sithole (2023) found that the media was the main source of climate change communication in South Africa. The “public draws most of its knowledge” from media and uses the knowledge to form opinions and engage in dialogues (Anderson, 2011 p. 535). One study found that the public was likely to pay attention to climate change claims only if they had experienced something about the reality of the phenomenon (Budziszewska & Jonsson, 2022).

The news media and scientists agree that communicating scientific issues to the public in a manner that they can understand is of utmost importance (Cramer, 2008). Although science reporting usually highlights discoveries, what is missing in most instances in the stories is context. It was also established that climate change reporting in the media was driven by dramatic scenarios like disasters (McComas & Shanahan, 1999; Sithole, 2023). Furthermore, the media serves as a watchdog in environmental issues (Moore, 2001). It may also be through its reporting on climate change, that the media forces events “where it is conducive for governments to act,

or hard for them not to act in the face of perceived pressure to initiate a policy response" (Newell, 2000, p. 240).

In the last decade, not only have we seen growth in the way the media reports on climate change across the world, but we also have seen growth in academic literature on the examination of how the media tells stories on climate change (Schmidt et al., 2013; Hase, 2021; Shimhanda & Vivian, 2022; Sithole, 2023). Boykoff (2011) identified meteorological events such as hurricanes or droughts, political figures such as heads of the state featuring in climate change discussions, and scientific gatherings, international meteorological and climatological gatherings by international organisations such as the IPCC, where policies and mitigation and adaptation measures are discussed as the three main common climate change issues media report on.

Various studies have found the level of reporting on climate change varies around the world (Hase et al., 2021). Schmidt et al. (2013) conducted a comparative study on climate change coverage around the world examining newspaper coverage in 27 countries. Their findings indicated that reporting of climate change had risen in all countries although the amount of growth varied from country to country over time. They also discovered that media interest and reporting were high in countries mitigating carbon emissions and signatories of the Kyoto Protocol (Schmidt et al., 2013). In a similar study, Hase et al. (2021) examined the level of climate change reporting in the media by comparing 10 states from the Global South and Global North beginning from 2006 to 2018. They employed automated analysis to assess issue attention and themes. Hase et al. (2021) argue that countries from developed countries cover news on climate change often while developing countries focus on covering stories that demonstrate challenges and the effects of climate change. Evans (2017), Shimhanda and Vivian (2022), and Sithole (2023) examined media reporting of climate change in countries of Southern Africa. Their studies showed that the coverage of climate change was low and linked to international events, with fewer local narratives. Their studies established further that the reporters who covered climate change issues lacked specialised skills, in that, they were not knowledgeable of the subject and jargon used, and that training was needed to enable them to cover the topic adequately. Shimhanda and Vivian (2022) carried out a comparative content analysis of news articles on climate change in South Africa and Namibia. The study found that articles were commonly obtained from foreign

news agencies and that the discussions of climate change were framed around public opinion. Also, the causes and consequences of climate change were discussed with warning undertones, while mitigation measures were reported as small actions. Shimhanda and Vivian (2022) keenly propose a need for reporters to amplify local report sourcing. In his paper 'Climate change journalism in South Africa: noticeable improvements, less than adequate' Sithole (2023) examined climate change media reporting in South Africa. His findings were consistent with the findings by Schmidt et al., (2013) and Hase et al., (2021) on the increase of climate change reporting in South Africa between the years 2013 and 2023.
However, Sithole (2023) found that, generally, the reporting on climate change arises when there are catastrophes and meetings on climate change. The study revealed that treating climate coverage as a beat, created the impression that climate change was separate from subjects such as food security, politics, economy, etc. Sithole (2023) argued that all journalists in a newsroom that was serious about covering climate change should be trained and sensitised to see climate change angles in their stories in different beats. This would be so because climate change is not only about science or a scientific matter, but it impacts society, politics, economics, and culture. The entire discourse around climate change can thus be understood as a set of complex relations and networks between different institutions, including the scientific community, politics, activists, and news media (Anderson, 2014; Boykoff & Yulsman, 2013. The study also discovered that climate change was mostly reported in online media, focusing on stories from international news, which indicated that the impact of climate change was not prioritised in South Africa.

2.4 Theoretical framework

This study is founded on the framing theory as the theoretical framework. The framing theory is applied to probe media framing of climate change in *News24* and TikTok.
Simply defined, frames are acts of communication that display selected analysis in the world and therefore influence or change the way people think, define, and evaluate issues (Carnahan, et al., 2019). D'Angelo (2002, p. 1) defines framing as "structures and rules that contextualise human communication within specific social situations" and includes "attempts to influence one another through linguistic or

paralinguistic messages that define a situation, describe its attributes, and interpret its structures and rules". Meanwhile, Ben-Porath (2009) refers to framing as the selection of words, ideas, and themes used in communication, and the impact of this on public perception.

Ever since its emergence, the framing theory has dominated agenda setting and cultivation theory and established itself as the most frequently functional research approach in the sphere of communications science (Bryant & Miron, 2004; Carnahan et al., 2019). However, the framing model does not belong entirely to the toolset of communications scholars, its background lies in the fields of anthropology and rational psychology (D'Angelo, 2002). Subsequently, it was adopted by other fields, including sociology, economics, linguistics, policy research, communications science, political communications, public relations research, and health communication (Bryant & Miron, 2004).

According to Zhou (2008), Gaye Tuchman and Todd Gitlin were two of the earliest scholars to introduce framing to media studies in 1978 and 1980, respectively. They used the concept of framing as a tool to understand news as a social construction and social resource. According to Gitlin (2003, p. 7), media frames are persistent patterns of cognition, interpretation, and presentation, of selection, emphasis, and exclusion, by which symbol-handlers routinely organize discourse, whether verbal or visual. It is "the process by which a communication source constructs and defines a social or political issue for the audience" (Nelson et al, 1997, p. 221). Iyengar (1991) and Scheufele (2000) claim that framing defines a dynamic, bound process of opinion formation in which the prevailing modes of presentation in elite rhetoric and news media coverage shape public opinion. Tewksbury and Scheufele (2019) argued that media framing was based on the belief that the way an issue is portrayed in news stories can have an impact on how the audience decodes or translates the story.

Furthermore, Entman (1993, p. 52) said "framing essentially involves selection and salience. To frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and treatment recommendation for the item described". The term salience means "making a piece of information more noticeable, meaningful, or memorable to the audience" (Entman, 1993, p. 53). He further stated that "this is accomplished by placement and

repetition. In addition, frames can “direct attention from other aspects”. According to Entman (1993), the media highlights a certain piece of information about the main topic of a news story, which raises the salience of the issue. Increase in salience improves the probability that the audience will remember the information. Information can be added or taken out according to the message that the media wants to communicate to the public. Although there are different ways to be able to identify framing in the news, Entman (1991) identified five popular frames as being conflict, human interest, economic consequence, morality, and responsibility. Newman and Nisbet (2015, p. 364) highlighted general typology frames used throughout environmental debates:

1. Social progress – refers to finding solutions to problems or improving quality of life. Leaving in peace with nature, “sustainability”, “balance”, and “quality of life”.
2. Economic development/competitiveness - referring to economic growth and investment, market benefits or risks; protecting local, national, or global competitiveness.
3. Morality/ethics – a matter of right or wrong, respecting or crossing religious, ethical, or “natural” limits, thresholds, or boundaries.
4. Scientific/technical uncertainty - The issue or decision is a matter of expert understanding, what is known versus unknown
5. Pandora’s Box/runaway science/fatalism - Call for precaution in the face of possible impacts or catastrophe. Defines problem or technology as out-of-control.
6. Public accountability/governance - Is a decision or action in the public interest or serving private interests, emphasis on fairness, transparency, ownership, control including responsible use or abuse of expertise in decision-making, e.g. “politicization”;
7. Middle-way/alternative path - An issue or decision is about finding a possible compromise position, or a third way between conflicting /polarized views or options;
8. Conflict/strategy - At stake is a broader power game among elites; emphasizing who’s ahead or behind in winning debate, in public opinion polling, or political spending. Emphasis is on the battle of personalities; or groups; the tactics and strategies involved and how they will “play politically”. Research shows that news media plays a critical role in climate change framing (Bosch, 2009; Lakoff, 2010). Although there are sufficient studies in traditional media on climate change (Schafer & Schlichting, 2014), there has been an increase in scholars employing framing theories to study climate change discourses in social media platforms (Boulianne et al., 2020; Benedict, 2021 & Chen et al., 2021). This study joins this cohort to understand the issue in the South African context. Most importantly, the study compares framing in two distinct media platforms, opening the possibility of understanding the subject across diverse sections of media users in South Africa.

2.4.1 Climate change framing in the media and social media

Frame setting is how media frames influence the audience or public opinion, while individual consequences frame is about the "evaluations an individual attributes to a person or situation as a result of the frame" (Benedict, 2021, p.3). Frames, as they emerge in media coverage and public debate, relate to the reason why an issue or decision matters, and what or who could be accountable. Also, it points to the actions or political preferences that ought to be well thought out above others (Nisbet & Scheufele 2009). According to Comfort & Park (2018), frameworks are important to understand climate change communication. Scheufele (1999) claims that the public depends on frames to create a viewpoint of understanding in deliberating complicated environmental issues. Experts use frames to explain in simple ways complicated matters and make issues convincing. On the other hand, reporters employ frames to tell informative and engaging news stories. Meanwhile, policy decision-makers use frames to influence perception. Cappella & Jamieson (1997, p. 47 & 89) suggest four criteria that a frame must meet. "The news frame must have identifiable conceptual and linguistic characteristics, it should be commonly observed in journalistic practice, it must be able to distinguish the frame reliably from other frames and it must have representational validity" and not be the researcher's imagination. Moreover, Tankard (2001, p.101) suggests that the most comprehensive approach to measure and identify news frames is a list of 11 framing mechanism, namely, "headline, subheads, photos, photo captions, leads, source selection, quotes selection, pull quotes, logos, statistics and charts and concluding statements and paragraphs". Meanwhile, Hansen (2001) argues that research on framing in the field of environmental communication offers an important set of methodological approaches and theories for assessing different issues that influence disputes and social movements, also, factors that encourage progress from groups and political leaders. This also includes factors that form attention to patterns in news coverage, effectively, influencing public outlook and policy resolutions. Different research papers have explored how climate change is portrayed in media reports or social media determining the viewpoints that emphasis is put on. Researchers have investigated, for instance, the angle reporters select to write a story or how stakeholders, for example, non-government organisations (NGOs) articulate their standpoint on climate change (Schlichting, 2013; Schäfer, 2016;

Schäfer & O'Neill 2016). The frame elements in climate and environmental reporting can be combined into five journalist frames: (1) industrialized countries' economic policies, (2) sustainability, (3) technological optimism, (4) emerging economies' responsibility, and (5) global ecological discourse. Researchers such as Semetko and Valkenburg (2000) applied general frames that seem to appear multiple times across policy discussions which likely channelled the way the public thinks and converse on social consequences of the economy, politics, technology, and science, as they relate to environmental issues. Gamson and Modigliani (1989) initially identified cultural frames in a nuclear energy study conducted three decades earlier. The frames have since been mortified and used in studies of bio-technologies in parts of Europe and the United States (Durant, Bauer & Gaskell, 1998; Dahinden, 2002; Nisbet & Lewenstein, 2002). In further analysing debates and dialogues on climate change, former researchers investigated existing frames in the media using quantitative and qualitative analysis of text-based media portrayals of environmental concerns (Nisbet & Lewenstein, 2002). Some researchers identified and investigated issue-specific frames in climate reporting, such as human-interest frames, generic, morality, economic consequences and Pandora box frames, (Dirikx & Gelders, 2010; Billett, 2010; Engesser & Brüggemann, 2016; Schäfer & O'Neill 2016).

In the last two decades, researchers assessed how visual images of climate change were used in media reports, and how advocacy approaches chose to define risks and assign courses of action and responsibilities (Hansen & Machin, 2008; O'Neill, Boykoff, Niemeyer & Day, 2013; O'Neill, 2013; Meisner & Takahashi, 2013; O'Neill & Smith, 2014)

Nisbet and Newman (2015) identified morality and ethics, uncertainty or certainty of science and governance, and public accountability as frames applied to climate change or climate science. Some of these frames were identified within the American mainstream news media (Stecula & Merkley, 2019). In a meta-analysis of climate change communication in industry actors, Schlichting (2013) pointed out three frame segments over time in the period between 1990 and 2010. Each segment was categorised by a dominant frame, whereby scientific uncertainty of climate change in the early to mid-1990s was the dominant frame in the US coal and fossil fuel industry. From 1997 to early 2000 it shifted to socioeconomic consequences of mandatory emission reductions in Australia and the USA and by the mid-2000s the industrial leadership in the climate protection frame was dominant.

Nisbet and Newman (2015) refer to blog posts, online media, and social media where the public is exposed to news information and offered an opportunity to comment and share their views as ‘today’s social and participatory news system,’ and suggest that during the engagement the consumer is already exposed to several frames emphasised in that article. Furthermore, if a participant or a reader decides to read the comment section after reading the article, further frame influence may probably arise. Engesser and Brüggemann (2016), investigated reporters’ framing of climate change and five frames, namely, industrialised countries’ economic policies, sustainability, technological optimism, emerging economies' responsibility, and global discourse. Egan and Mullin (2017) identified three distinct characteristics of climate change as a public concern, where: (i) whether climate change exists, (ii) whether people are forced to rely on experts due to uncertainty and invisibility of climate change, and (iii) climate change labelled as a distant event or phenomenon. Few studies that defended the third characteristic discovered that people who consider climate change as a reality believed that it would not affect them directly. They also believed that the effects of climate change could only be experienced in the future impacting only remote countries (Nerlich & Koteyko, 2009). Sithole (2023) argued that such perceptions, in South Africa, at least, could be a result of the climate change reporting being dominated by stories from distant countries. He said this sort of reporting created a psychological distance where media consumers saw climate change as a distant phenomenon, both geographically and chronologically.

When influenced by experts, political links, location, and background, climate change framing from an ordinary user on social media was likely to be different (Jang & Hart, 2015). This is because when people do not know where to access accurate information on climate change and are yet to experience its effects directly, they can only rely on the obvious information swayed upon them with framing strategies. Vu et al. (2020) analysed data created by non-profit organisations from 18 different countries on Facebook about climate change. The study identified ‘action’ as the most commonly used frame. The study also revealed that non-profit organisations from developed parts of the world discuss more about climate action than those from developing countries. Furthermore, non-profit organisations were found to address concerns about climate impacts more than efficacy. Apart from researchers who

have examined the framing of climate change by reporters, social media, or stakeholders, the majority of framing analyses focused on media coverage.

2.4.2 Audience framing on social media

According to Pan and Kosicki (1993), audience framing can be defined as a schema of interpretations that enables individuals to perceive, organize, and make sense of incoming information. Research into audience frames (e.g., Iyengar, 1991; Neuman et al., 1992; Iyengar & Simon, 1993; Cappella & Jamieson, 1996, Price et al., 1997) investigated how and to what extent specific media frames influence readers' or viewers' perceptions on certain issues. They found that it attempted to reveal the extent to which certain audience frames are replications of media frames (Scheufele, 1999).

To give some context, "the audience is the ultimate consumer of the media product at the end of the news process" (Shoemaker & Reese, 2013, p. 177). Therefore, in understanding the construction of news, one cannot divorce journalism from its audience. The onset of online news is not only changing how users interact with the news, but it has also provided journalists with a new way of learning more about their audiences (Napoli, 2011). Through web analytics, news organizations can collect and analyse the footprints that news users leave behind, offering immediate access to an unprecedented wealth of information about audience behaviour. This information, in the form of audience metrics, guides subsequent editorial decisions (Napoli, 2011). Not only have mainstream Newspapers gone online they are also utilising social media to reach their audience. Bennett (2013) says social media has made it easier for organizations to communicate with the publics without lobbying traditional media outlets, in some ways it has also become easier for researchers to study framing on social media. Strategic messaging on social media is easy to access and is free of the influence of journalists, linking the message directly to the organization that developed it (Bennett, 2013).

While many researchers have examined the applicability of framing to social media, few have studied the effects of social media's interactivity on framing. South Africans are some of the heaviest users of social media and messaging in the world (Newman et al., 2023). Facebook, in particular, offers an interesting and unique platform for future framing research. While the layouts and structures of Facebook

are always changing, at the time of this study the layout of Facebook allows users to view a post while simultaneously viewing comments posted by their friends. One click enables the user to view all comments directed at that specific post. While elected officials and campaigning politicians will undoubtedly attempt to utilize strategic messaging, the comments and opinions of other readers have the potential to influence how the message is interpreted. According to Newman et al. (2023) in terms of general use, trust in the news remains high. About 57% of people share news via social media, TikTok has shown an increase in the number of people who use the platform to share news in South Africa (Newman et al., 2023).
In one framing study focused on social media interactivity, Gazzar (2013) performed a content analysis on the growing Islamist movement in Egypt, specifically on the discussion of the topic on social media. The study categorized how social media comments framed Islamist issues on two different dates, and measured how public opinion expressed through social media comments on the first date potentially influenced change in public opinion on the second. Results of the research suggested social media comments influenced future public opinion (Gazzar, 2013). Despite this correlation, a content analysis approach does not account for the individual user's interpretation of the discussion and allows outside factors to influence the relationship. Understanding how users internalize the information before they decide to respond to it is a crucial aspect of the interactive process (Krieger, 2015). Investigating the framing of climate change in both *News24* and TikTok will show whether media frames influence audience frames.

A few points the study can draw from the literature above is that although mainstream media and online news are the main communicators and distributors of climate change news and awareness, the discourse on social media has grown over the years. Social media has become a platform where people share information and engage in dialogues on climate change. In other instances, spewing opposing narratives that lead to environmental uncertainty or climate change denialism (Dunlap, 2019). Misinformation has also been linked to the climate change discourse in social media (Treen et al., 2020), even amid other platforms implementing guidelines to eradicate it. Schmidt et al. (2013) indicated that although climate change reporting has increased in most countries it still varies from country to

country. In South Africa, several studies found that the reporting of climate change was influenced by international narratives such as conferences and reports. It was also argued that journalists who reported on climate change lacked specialised skills and training that could equip them to cover the topic adequately (Shimhanda & Vivian, 2023; Sithole 2023). Scheufele and Tewksbury (2007) argued that in media framing, issues portrayed in news articles can have an impact on how the audience or public translates the news. Entman (1993, p.53) simply explained framing as making a piece of information more noticeable and memorable to the audience. By audience, meaning a person who consumes news stories. A study suggested that certain audience frames are replications of media frames Scheufele (1999). Different studies identified approaches to measure frames, such as headlines, subheads, source selection, quotes selection, etc.

Based on the literature above, the study will seek to investigate if South Africans engage in the climate change discourse on TikTok, and the tone used to communicate the topic. The study will also test the narratives of climate change uncertainty, misinformation, and denialism, it will seek to find out if TikTok frames are driven by misinformation or denialism. This study will also assist in finding out if climate change reporting in *News24* has been consistent between April 2022 and April 2023, and if the stories are still influenced by international narratives. Also, certain audience frames could be a replication of media frames.

Chapter 3: Methodology

The research methodology consists of a procedure to select a process to study information about a topic. This section discusses how data will be collected and how it will be analysed (Stecula & Merkley, 2019; Ohei & Chukwuere, 2022; Pointer & Matsiko 2023). This study will show how climate change TikTok users frame climate change compared to News24. It will employ framing as a theoretical framework and content analysis as a research method. Content analysis is an efficient means to investigate media content and identify meanings and themes (Holsti, 1969). Media analysis is a sub-theme of content analysis, it focuses on the media landscape (Larsen, 1991; Neall, 2012). Both can be used to study news articles, videos, opinion pieces, radio and television broadcasts as well as social media, such as TikTok (Larsen, 1991; Neal, 2012). The content analysis method can be either quantitative or qualitative. Furthermore, based on the researcher's objectives, it can be employed in a deductive or inductive manner (Elo & Kyngas, 2008). This study will apply the methods of qualitative content analysis as it has to do with the analysis of themes and meaning in the content (Berelson, 1952) and will use the inductive approach and analyse the content and identify media frames during the examination of the text (Marshall & Rossman, 1995; Matthes & kohring, 2008).

The methodology used:
TikTok: (i) The study selected and analysed posts and videos that mentioned 'climate change South Africa', 'climate action South Africa', and 'climate crisis South Africa' between April 2022 and April 2023 and conducted a content analysis to determine how climate change is framed; (ii) the videos were selected by entering, the keywords, 'climate change South Africa' on the search pad; (iii) all video posts that emerged with these keywords were included, regardless of their stance on climate change. This approach aimed to ensure an unbiased and transparent analysis of the content; (iv) only videos posted within the specified timeframe were considered for analysis.
News24: (i) The study selected and analysed news articles mentioning 'climate change South Africa', 'climate action South Africa', and 'climate crisis South Africa' between April 2022 and April 2023; (ii) All news articles containing these keywords were included in the analysis.

It was important to include the term South Africa on the search bar as this research was investigating the framing of climate change in News24 and TikTok in the context of South Africa.
The study took a manual approach to collect data, no software was used, and the data was subsequently, transferred and kept on a password-protected laptop in a password-protected folder. This approach was applied to both News24 and TikTok.

While TikTok is not currently the most popular platform for news sharing, it has demonstrated significant growth in this area, particularly in South Africa (Newman et al., 2023). This growth is the rationale behind selecting the platform for analysing the portrayal of climate change discussions.

3.1 *News24*

News24 was selected because it is South Africa's biggest and most trusted online news organisation, with more than 75,000 paid subscribers (Reuters, 2023), and interacts with 1.9 million unique browsers daily (Bruns, 2019). It has a dedicated sustainability reporter who compiles the Climate Future Weekly newsletter and breaks down matters of the climate crisis and what can be done to mitigate it (*News24,* 2022). News24 launched in 1998 and it has since become the biggest English-language online news organisation in South Africa.
For this study, online news articles will be gathered by making use of the search function on the *News24* website. A variety of terms referring to the phenomenon of climate change will be used to ensure that this search is rigorous. Keywords such as climate change South Africa, climate crisis South Africa, and climate action South Africa will be used to search the articles. These keywords have been chosen to identify articles that deal with aspects of climate change in South Africa. Articles that are false positives, in that they do not discuss climate change in South Africa, will not be used in the sample. Keyword 'climate change KZN floods' was also explored because, as mentioned in the introduction of the research report, the KZN floods have been linked to climate change by several scientists (Mackellar et al., 2014; Ndlovu et al. 2021; Thinane et al., 2023). The study is restricted to English news websites as content analysis requires a deep reading of the media and the

researcher is proficient in English only. The study will analyse articles between April 2022 and April 2023.

3.2 TikTok

The internet is constantly changing, introducing new communication styles and social media trends. This suggests that climate change communication is likely to develop fast. Moreover, the ideal social media platforms, such as Facebook and X, have changed in recent years. Social media platforms such as X and Facebook focused more on written text and occasional videos or pictures, while new platforms such as Snapchat, Instagram, and TikTok proved that visual communication has increased. In recent times TikTok as a social media platform has seen an increase in recognition and popularity amongst social media users. Users can upload videos up to three minutes long. Approximately 232 million TikTok applications were downloaded in 2023, worldwide (Iqbal, 2022). The platform is commonly used by young people with 60% of the users worldwide being under 30 (Iqbal, 2022). TikTok was initially launched in China in 2016 under the name Doyouin, and its international version was launched in 2017 after the platform gained popularity. Like other social media platforms such as Facebook, TikTok gives its users an option to follow other accounts and be followed by other accounts, in return.
However, users watch videos selected by TikTok algorithms based on interests and relevancy (Grosche, 2022). In South Africa, TikTok has 11.83 million active users aged 18 and above, 43.9 % of those are male and 56.1% are female.

3.3 TikTok ethical considerations

The study analysed public posts and videos that mentioned climate change and related subjects in TikTok between April 2022 and April 2023 and conducted a content analysis that determined how TikTok posts framed climate change. TikTok has been used as a data source to observe and analyse content that is already in the public on climate change and related subjects in South Africa. The researcher did not interact with or interview any participants. Therefore, the study has been conducted with ethical considerations and methods to protect the privacy of the participants. The participants were treated as anonymous, with no identifying

information or internet protocol addresses collected. Since it is not always possible to acquire individual consent on large social media platforms like TikTok, a post was created on the researcher's account, which made users aware of the research. The post included 1) letting participants know who the researcher is; 2) the research that will be conducted; 3) how the researcher plans to use the data; 4) what is required from the platform; and 5) that anyone may object. There have not been any objections.

3.4 Content analysis

Content analysis is an effective means to investigate media content. It can be defined as a research method developed for the specific purpose of investigating a problem in which the content of communication is the basis of inference (Holsti, 1969). Content analysis may be qualitative or quantitative and applied either in an inductive or a deductive way depending on the researcher's objective (Elo & Kyngas, 2008). It also determines the presence of certain words, themes, or concepts within some given qualitative data or text. Data can be collected from interviews, open-ended questions, field research notes, conversations, or any occurrence of communicative language (for example, books, essays, discussions, newspaper headlines, speeches, media, and historical documents). To analyse the text using content analysis, the text must be coded, or broken down, into manageable code categories for analysis (i.e."codes"). Qualitative content analysis is concerned with analysing themes and issues in media content (Berelson, 1952).
Therefore, qualitative content analysis is well suited for this research of analysing News24 articles on climate change and investigating media frames. The same method is appropriate to analyse TikTok content on the same subject matter, as content analysis may be used to investigate both content, videos, and features of text whether digital or in print (Elo & Kyngas, 2008).

3.5 Frame analysis

According to Kitzinger (2007), frame analysis is used to analyse how an issue is represented in the newspaper, on television, or on a website. Therefore, frame analysis will be the primary method of analysis utilised in this research. The study

will conduct a content analysis and investigate how News24 and TikTok framed climate change. The study will compare framing in social media and online media by analysing content in News24 and TikTok. Frame analysis is the primary method of analysis utilised in this research. This study also employs qualitative frame analysis because it seeks to demonstrate how themes and issues are presented in News24 and TikTok. Deductive and inductive are two broad approaches to frame analysis. Unlike the deductive approach where frames are known prior and suit the topic under investigation, the inductive approach refers to analysing media content and identifying media frames during the examination of the text. This approach is also suitable for small samples (De Vreese, 2005). In the inductive method, “frames are described in-depth, with detailed quotes, but without quantification” (Matthes, 2009, p. 351). Thus, an inductive approach was utilised in this research to study how the sample of articles derived from News24 and TikTok identified media frames and audience frames from April 2022 to April 2023.

3.6 Coding procedure and framing devices

The articles and videos were coded in a cohesive narrative and analysed against the media framing theory using available frames as manifested in News24 and TikTok. Inductive analysis was employed for this research, implying that the identification of frames emerged from the material during the conduction of analysing articles from both the New24 and TikTok.

To identify and measure frames, the study used Tankar’s (2001) suggestion of focal points namely, headlines, subheads, source selection and paragraphs. Photographs and photo captions were excluded. In detail, this study analysed articles and videos about the framing of climate change in South Africa and examined keywords, metaphors, sentences, catchphrases, depictions in headlines, and exemplars. A sample of 63 articles drawn from the News24 website and 79 TikTok videos were coded using the keywords ‘climate change South Africa’, ‘climate crisis South Africa’, ‘climate action South Africa’, ‘climate change KZN floods’, and ‘KZN Floods’. The researcher followed in the footsteps of Frank (2006) and used Tankard’s (2001) list of frames method to measure the usage of the frames, once the news frames were identified.

A list of frames using the following approach was developed:

1. Make the range of possible frames explicit
2. Put the various possible frames in a manifest list
3. Develop keywords, catchphrases, and symbols to help detect each frame
5. Code articles or other kinds of content into these categories

Additionally, the study follows suit with Frank (2016) and applies the “interpretive package” technique (Gamson & Modigliani, 1989) to further explain the frame and guide coding.

According to Frank (2016), text and video can have several frames varying on the level of perception. This study seeks to identify frames that have certain significance politically, economically, scientifically, and socially on climate change in South Africa and the way is presented in both News24 and TikTok.

Chapter 4: Data analysis and findings

This section will analyse and summarise data collected from both *News24* and TikTok to determine the frames identified. The number of articles sourced from *News24* is 61 and 47 videos from TikTok, as indicated in Table 1. Although the data collected from both *News24* and TikTok might not have exhausted all the data posted between April 2022 and April 2023 in *News24* and TikTok, the number of articles and videos is considered adequate for the research to make a comprehensive analysis in line with the objectives of the study. The study used the inductive approach, which refers to analysing media content and identifying media frames during the examination of the text. Findings are reflected in this chapter.

Table 1: Number of articles and videos

Platform	No. of articles/videos
News24	61
TikTok	47

4.1 *News24* analysis

Using the keywords climate change South Africa, climate crisis South Africa, and climate action South Africa, the research selected 61 *News24* articles. The articles were selected from the *News24* website, including articles that were behind the paywall, as a subscription was taken to access the articles. From the 61 articles that were sourced on the website, 26 of them discussed climate change, 29 articles linked climate change and KZN floods, six articles touched on the climate crisis, while climate action articles were not discovered in that period, see Table 2. Twenty-nine (29) articles incorporated the keywords climate change or climate in the headline. Also, six articles used the keywords climate change and KZN floods together in headlines. Fifteen (15) articles quoted either President Cyril Ramaphosa, Mineral Resources and Energy Minister Gwede Mantashe, Minister of Environmental Affairs, Barbara Creecy, and others.

Furthermore, the articles analysed contained news articles, opinion pieces, and letters. The data in Table 3 shows that reporting on climate change matters was low

throughout the year except for the months that were linked to a climate disaster or event. April 2022 has the highest number of articles as it is linked to the 2022 KZN floods, November 2022 also has a high number of articles as it correlates with the 2022 COP27 Conference that took place in Egypt.

Table 2: Number of articles per keyword – *News24*

Climate change South Africa	26
Climate change KZN floods	29
Climate crisis	6
Climate action	0

Table 3: Number of News24 articles in the period between April 2022 and April 2023

MONTHS	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC
2022				10	9	3	4	4	4	3	10	3
2023	2	2	6	1								

4.1.1 *News24* frames

After reviewing the data that was collected on the *News24* website, five (5) dominating frames were identified, namely: disaster, socio-economic, public accountability, scientific uncertainty, and global discourse. Below is a paraphrased summary of some of the articles that were randomly picked:

Article 1 - 4 April 2022

Headline:

"There is evidence that thunderstorms are increasing due to climate change"

Summary of the article

The article is about a climate expert reflecting on the lightning that struck and killed 26 people in KwaZulu-Natal. The expert says lightning conductors are needed in rural areas in order to prevent deaths caused by lightning. Cogta Mec Sipho Hlomuka says the lighting conductors have since been installed. In his quote he attributed the lightning incident to climate change. Engelbrect further explains that the South Africa experience above normal rainfall during summer of 2021/22 and it could be caused by a La Nina event in the Pacific Ocean. Lanina was briefly explained what it means. In their quote the expert says vulnerable people who leave in informal settlements exposed to extreme storms will continue to be affected, as climate change is already impacting South Africa. The article further referred to 2021 IPCC Assessment Report that said

Increase in the number of extreme weather events should be expected.
Identified frames:
Human impact frame
lightning strikes and kills 26 people in KwaZulu-Natal.
Scientific Frame
it could be caused by a La Nina event in the Pacific Ocean.
Global discourse frame
2021 IPCC Assessment Report that said
Increase in the number of extreme weather events should be expected
Public accountability frame
Cogta MEC Sipho Hlomuka says the department decided to install lightning conductors in the area.
Sources: Expert and Government

Article 2 - 5 April 2022
Headline:
"SA still heavily reliant on coal for electricity – report"
Summary of article
The articles refers to a report that was compiled by Independent non-profit think tank Ember stating that South Africa is still depending on coal for electricity, while most African countries are coal-free. The report showed that clean energy source accounted for 38% of electricity production, while coal I at 36%. Solar and Wind are solar are the fastest growing source of electricity production in 2021. Gas is also becoming a common source of energy across Africa. In South Africa there are plans to increase the reliance on gas to balance the electricity system. Although, civil society organisations and other environmental activists have objected to the proposal and legally challenged it. The minister of Mineral Resources and Energy Gwede Mantashe has lamented those objecting the gas plan and stated that it was for the benefit of the country as it will boost investment opportunities. The article concludes by referring back to the Ember report indicating that to limit global temperatures in line with the Paris Agreement on climate change, South Africa will have to transition out of coal.
Identified frames:
Sustainability frame
Solar and wind are cost effective and easy to use
Conflict
Environmental activists and Civil society organisations have opposed and legally challenged oil and gas exploration.
Gwede Mantashe, Mineral Resources and Energy objects those who are against the oil and gas industry, which he believes will boost investment in South Africa.
Economic development
….he believes will boost investment in
South Africa.
Sources: Activists, Government

Article 3 - 15 Apr 2022

Headline:

" ANALYSIS | With climate change causing severe weather, KZN floods may just be the beginning"

Summary of article

The article states that it is still not known if the KZN floods were attributed to human caused climate change. According to a climate scientist, the rainfall was consistent with a one in 50-year event. About 300 people died, 200 schools got damaged along with other infrastructure. Many people lost their homes. South Africa Weather Services (SAWA) said the level of rainfall reported was close to that of tropical cyclone. SAWA, however, did not attribute the floods to climate change. - President Cyril Ramaphosa said government could no longer postpone measures to deal with climate change. Ramaphosa. He said climate change was serious, and here to stay it can no longer be postponed… "It is here and our disaster management capabilities need to be at a higher level," Ramaphosa said.

Identified frames:

Disaster

"It is here and our disaster management capabilities need to be at a higher level," Ramaphosa said.

Human Impact

-Flooding and damage caused has killed more than 300 people. Infrastructure and more than 200 schools were da More than 200 schools have been damaged, along with other infrastructure and many more people have lost their homes

Public accountability

- President Cyril Ramaphosa said government could no longer postpone measures to deal with climate change. Ramaphosa said climate change is serious, and here to stay it can no longer be postponed….

Uncertainty

South Africa Weather Services (SAWA) said the level of rainfall reported was close to that of tropical cyclone. SAWA, however, did not attribute the floods to climate change.

Sources: Scientists, government

Article 4 – 15 April

Headline:

2019 floods should have been a clear warning to govt, says climate expert on KZN floods

Summary of the article

In this article an expert in climatology said the 2019 KwaZulu-Natal floods should have been a warning to government of the vulnerability of communities to heavy mudslides and flood. More than 340 people lost their lives ...the full scale of the human tragedy and damage to infrastructure remains to be revealed.

Identified frames:

Public accountability

2019 KwaZulu-Natal floods should have been a warning to government of the vulnerability of communities to heavy mudslides and flood

Human impact

More than 340 people lost their lives ..the full scale of the human tragedy and damage to infrastructure remains to be revealed.

Source

Scientist

Articles 5 - 17 April

Headline:

Headline: Editorial | WAKE UP! Climate crisis is a reality we must confront

Summary of the story

The article feature the words from Abahlali baseMjondolo, a movement representing shack dwellers stating that every disaster in Durban – from the hard lockdown to the riots, fires and floods – hits the poor the hardest. Natural disasters become entwined with political disasters, often resulting in devastation for the poor

Identified frames:

Science frame

By 2030, it is predicted that up to 116 million people will be affected by rising sea levels, increasing to 245 million by 2060. Heat waves will also become common.

Economic development / Solutions

So what must be done? It is no longer enough to stand on podiums and lament the arrival of the climate crisis. Action is needed! Governments must invest heavily in technological and institutional solutions.

Disaster frame

-. Natural disasters is connected to political disasters, often resulting in devastation for the poor

Sources: NGO

Article 6 - 17 April 2022

Headline:

KZN floods: Climate scientists explain how working with nature can prevent future disasters

Identified frames:

Socio-economic

- The flooding killed over 300 people and has caused damage to major infrastructure such as roads, electricity, water and ports, compromising he delivery of essential services.

- Developed countries last year agreed to provide $8.5 billion in climate finance to support South Africa's climate change mitigation efforts. But the reality is finance is also needed for adaptation - to respond to the climate change risks that are already hitting different regions of the world.

Sources: climate change experts

Article 7 - 19 April

Headline:

KZN floods: 'Climate change is here', warns Dlamini-Zuma

Identified frames:

Human impact

-. Last week's floods left more than 400 people dead and at least 63 missing. Thousands more were left homeless after about 4 000 houses were destroyed

Public accountability

-." Dlamini-Zuma added that the government was doing all it could to find missing people.

Article 8 - 1 May

Headline:

Floods prompt ANC to act on climate crisis

Identified frames:

Economic consequence

The floods destroyed homes and infrastructure like roads, disrupted services like water, electricity, communication, and economic activities in the KwaZulu- Natal…

Politics

-The floods hit parts of KwaZulu-Natal and the Eastern Cape have prompted the ANC to propose that a parliamentary ad hoc committee on building climate change resilience be established.

Article 9 - 1 May 2022

Headline:

Climate Crisis: SA must act with urgency – CITY PRESS

Identified frames:

Sustainability

Good and realistic reduction targets are essential to ensure adequate and effective climate change mitigation

Source: Government

Article 10 - 7 May

Headline:

Barbara Creecy | The just transition is not just about clean energy - it must right past wrongs

Identified frames:

Stainability

- The Transition is at the centre of all the work on addressing climate change in South Africa

solution, economic development

- the government claims that they can help to identify the opportunities presented by a net-zero economy – where we have an opportunity to grow the economy through new and better jobs.

-Sources: Report

Article 11 - 11 May 2022

Headline:

OPINION | Thandile Chinyavanhu: KZN floods - Climate change IS a gender issue

Identified frames:

Socio-economic, Health

-Extreme weather events have already disrupted education and vital health services and threaten to derail development outcomes for adolescent girls, particularly; gender equality, quality education and no poverty

-. The psychological distress of being displaced and experiencing food insecurity may drive more children to leave school early.

-Source: Expert

Article 12 - 13 April 2022

Headline:

OPINION | The world now looks to Africa for solutions to the climate catastrophe

Identified frames:

Human impact

Many lives have been lost to the floods in KwaZulu-Natal, infrastructure had been destroyed, and homes washed away.

Disaster

.. President Ramaphosa said – this is a "catastrophe of enormous proportion". Accelerated climate change and the destruction of our ecosystems have directly led to natural disasters and erratic and extreme weather patterns.

Economic development frame

-South Africa has proven that ambitious conservation creates jobs - SANBI recently found that there are more than 418 000 jobs related to biodiversity nationally

Sources: Government

Article 13 - 15 May 2022

Headline:

KZN floods: Ramaphosa admits govt was not 'as ready as it should be'

Identified frames:

Disaster

-The recent floods in KwaZulu-Natal proved to government that it is "not as ready as it should be", President Cyril Ramaphosa said. He said, lessons have been learnt from the disaster. "

Public accountable

-. Ramaphosa says government will prioritise the integration of climate change and its associated impacts into all government planning," he said.

- Source Ramaphosa

Article 14 - 19 May 2022

Headline:

SA Weather Service allocated R100m to ensure 'state of the art' forecasts

Summary of the article

In the article the Minister of Environment, Forestry and Fisheries Barbara Creecy says South African Weather Service (SAWA) has be given R100 million to develop infrastructure over 3 years. The funds re to improve the infrastructure with modern radar technology. Crecy's department is prioritising efforts to tackle climate change, improve environmental health, supporting conservation and clamping down on poaching. Creecy started her speech by highlighting the devastation of the floods in KwaZulu-Natal, which reflected the reality of climate change and its impacts on the vulnerable in society.

Identified frames:

Economic development, Technology

The South African Weather Service will be given R100 million over three years to improve its infrastructure with modern radar technology used in detecting severe storms, says Minister of Environment, Forestry and Fisheries Barbara Creecy.

Solution frame

Creecy's department is prioritising efforts to tackle climate change, improve environmental health, supporting conservation and clamping down on poaching.

Source: Government

Article 15 - 17 June 2022

Headline:

Alex Lenferna | Remove those in power who deny the urgency of the climate crisis

Identified frames:

Socio-economic, Disaster,

Wildfires in the Western Cape, drought in the Eastern Cape, and flooding in KwaZulu-Natal. These are just some of the 33 recorded extreme weather events that have ravaged our country over the last decade or so.

-the impacts of climate change have been devastating, making South Africa poorer and more unequal. However, if the country fails to act on the climate crisis, it could worsen, undoing our country's already fragile developmental progress.

Source: writer

Article 16 - 17 June 2022

Headline:

Ahmed Areff | Who cares if coastal cities drown - as long as we make a profit, right?

Identified frames:

Socio-economic

- I do know that climate change is projected to result in millions of deaths, millions of -refugees and the wholesale destruction of some coastal towns.

Uncertainty

- What happened with the floods in KwaZulu-Natal – that was just the beginning?

Article 17 - 3 June 2022

Headline:

Mandy Rambharos | The inescapability of climate change and the opportunity for Eskom to transition

Identified frames:

Socio-economic

-Climate change is real. Through its impact on average temperature, precipitation, and sea levels, it will endanger the livelihood of hundreds of millions and impose high costs on our societies if nothing is done.

Global discourse

-the most recent Intergovernmental Panel on Climate Change (IPCC) report makes it clear that urgent action is required to decarbonise our planet if we are to avoid the catastrophic impacts of anthropogenic climate change.

Scientific

-South Africa is vulnerable to climate change, given that we warm at twice the global rate. Global climate modelling results for South Africa read like a script from an apocalyptic movie - the negative impacts of climate change on our already arid climate will render large parts of our agricultural land too hot and too dry to cultivate, and we can expect the frequency of extreme weather events to increase.

Article 18 – 2 July 2022

Headline:

OPINION | Yanga Malotana: Moral regeneration is necessary to protect women, democracy and the Earth

Identified frames**:**

Moral and ethics, socio-economic

Matters of morality extends to climate change, and South Africa is not immune to it. South Africa is a coal driven energy sector and positioned to have high level of CO2 emission. South Africa is also the largest greenhouse emitter in the continent of Africa and the 14th in the world. The moral, social and political issues in South Africa are connected and it is necessary to have a wide-ranging discourse and strategy on these. South Africa is faced with difficult problems of a socio-economic nature.

Article 19 - 7 July 2022

Headline:

Cape Town hit by record hot days in June

Identified frames:

Scientific

If people that resides in Cape Town think it was unseasonably warm in June, which is cold and rainy, they are not incorrect. Maximum temperatures during the month hit records. The city on 6 June experienced its hottest day when maximum temperatures hit 29.9 °C, the South African Weather Service's (SAWS) Cape Town office confirmed. ..attributed the intense rainfall to climate change.

Global discourse

The Intergovernmental Panel on Climate Change has warned that South Africa will experience high droughts, wildfires and flooding resulting from climate change as global temperatures continue to increase.. The effects of climate change are being felt worldwide. Spain and France have been experiencing extreme heat. According to The Guardian, heatwaves are occurring earlier than expected and more frequently

Article 20 - 9 July 2022

Headline:

New campaign wants to convince ad agencies to ditch fossil fuel companies

Identified frames**:**

Scientific

Clean Creatives South Africa, motivated by the US movement, is creating awareness among ad agencies and public relations companies about the climate breakdown caused by fossil fuel companies.

-The burning of fossil fuels like coal, gas and oil releases greenhouse gas emissions in the atmosphere, which causes high global temperatures – a driver of climate change. Already unfavourable weather events brought about by the climate crisis are being experienced.

Disaster

-Heavy rainfall in KwaZulu-Natal in April was made more because of climate change, research shows. Also, failing to resolve climate change means more natural disasters will affect the economy negatively.

- Clean Creatives is developing a database of South African companies that PR firms and ad agencies would not do business with if they signed the pledge.

Conflict

-Exclusions are based on the companies' inactions when it comes to responding to the climate crisis, such as not being aligned with the Paris Agreement to limit global temperatures rising beyond 1.5 degrees Celsius and for continuing exploration of fossil fuels. Based on this criteria, quite a few big companies would be excluded, added Horn.

- In South Africa, communities have started court processes against energy company Shell and geoscience data company Searcher Seismic to stop exploration off the South African coast.

Article 21 - 15 July 2022

Headline:

Are you prepared for Day Zero? Follow these preventative steps to protect your home

Identified frames**:**

Human impact

Water shortage is a serious threat that could bring countries and economies to a halt in the next decade. South Africans in the Western Cape faced life with insufficient water supply when the region experienced drought between 2016 and 2018.

South Africa and other countries on the continent are among those most vulnerable to food and water insecurity caused by climate change.

Economic consequence frame

-Farmers and commercial property owners should consult with their insurance providers about the impact of the drought and water outages, depending on their individual insurance requirements to avoid losses.

Article 22 - 1 Aug 2022

Headline:

SA will feel Europe's heatwaves in rising food prices

Frames: Economic Consequence

As Europe struggles with heatwaves, drought and even wildfires, other countries – including South Africa - will need to prepare for an increase in food prices.

Identified frames:

Socio-economic

It is predicted that South Africa could have similar experiences of extreme heat being a risk to human health and causing losses to crops and livestock. The World Health Organisation recently reported that 1 700 deaths in Portugal and Spain can be attributed to heatwaves.

These climate hazards can similarly have a negative impact on human health, food systems, and transport systems in South Africa.

Article 23 - 4 Aug 2022

Headline:

US investors head to SA to talk renewables

Identified frames:

Economic development, global discourse

US investors are in South Africa to search for investment opportunities. These investors have more than $1 trillion (nearly R17 trillion) of assets under management.

The world's richest countries COP26 in Glasgow in November pledged just $8.5 billion in climate grants and concessional loans to the nation.

"There's not enough public resources in donor budgets and in local budgets, for example, in South Africa to solve the climate crisis," Cameron Khosrowshahi, senior investment adviser for Prosper Africa, said in an interview on Thursday.

Article 24 - 27 Aug 2022

Headline:

On The Record | SA's response to climate change? Low political support, lack of funding, say experts

Identified frames:

Solutions

In South Africa they have started to address the effects of climate change, with President Cyril Ramaphosa establishing the Presidential Climate Commission.

Economic growth, sustainability

- Other Countries like France, Germany, the United Kingdom, the United States and the European Union have started a Just Energy Transition Partnership with South Africa, to mobilise $8.5 billion to support the country's decarbonisation efforts

Socio-economic

Expert says the main problem is that, with the majority being from the low income class and residing in rural areas, they have less adaptive capacity, which makes them particularly vulnerable to climate change impacts. The expert says climate change impacts could act as a multiplier for existing levels of poverty and inequalities, and drives people further into poverty and increases inequalities."

Article 25 - 14 Sep 2022

Headline

OPINION | Matshidiso Lencoasa: A human rights' centered response to the climate question

Identified frames:

Sustainability

In July 2022, the South African President, Cyril Ramaphosa, gave his approval to the Just Transition Framework proposed by the Presidential Climate Commission, marking a significant milestone in the country's efforts to decarbonize its economy. The Just Transition Framework is a comprehensive plan that provides a roadmap for the country's transition to a greener and cleaner economy. The plan outlines the actions that the government and its partners will take to achieve this transition, including the development of renewable energy sources, the implementation of sustainable transport systems, and the promotion of energy efficiency.

Socio-economic

The Just Transition Framework presents an opportunity for South Africa to respond, mitigate, and adapt to the climate crisis in a way that protects the human rights of those most vulnerable to its impacts. This is particularly important given that South Africa is often described as a climate change "hotspot." The Intergovernmental Panel on Climate Change (IPCC) has warned that the country is already experiencing reduced precipitation, while droughts, heatwaves, and flooding are projected to occur more frequently in the future.

Disaster

These extreme weather events have already devastated the country, including the catastrophic April floods in KwaZulu-Natal (KZN), which claimed the lives of over four hundred people. Moreover, climate change is predicted to push up to 130 million people globally into poverty over the next 10 years, which is a grave concern for South Africa, where one in five people live in extreme poverty as of 2020. Therefore, transitioning from coal to a low-carbon economy has been regarded as a vital step in fighting climate change and protecting vulnerable communities. In summary, the approval of the Just Transition Framework by President Ramaphosa is a significant step towards achieving a cleaner and greener economy in South Africa. The framework provides a comprehensive plan that outlines the actions needed to transition to a low-carbon economy while protecting the rights of the most vulnerable. With the country already experiencing the devastating effects of climate change, including extreme weather events, transitioning to a low-carbon economy is crucial to mitigating the impacts of climate change and protecting the most vulnerable

Article 26 - 7 Nov 2022

Headline Cyril Ramaphosa | We all have a clear stake in the outcomes of COP27

Identified frames**:**

Global discourse

The article is about President Cyril Ramaphosa's weekly letter where he writes on South Africa's role in defining its agenda in the global climate change effort. In the letter the presidents stated that South Africa will be making a call for developed economy countries to meet their commitments.

Disaster

Parts of the country experience deadly natural disaster, seven months ago, that proved the vulnerability of South Africa to the effect of climate change. The floods that flogged parts of KwaZulu-Natal, Eastern Cape and North West in April 2022 were intense that they destroyed infrastructure. Homes were swept away by the rising waters and landslides. Businesses and properties were damaged.

Economic consequence

Key infrastructure like ports, rail lines and roads were damaged or destroyed, resulting in substantial losses to the economy.

Article 27 - 8 Nov 2022

Headline COP27: SA asked rich countries for more grants instead of loans for climate plan – Ramaphosa

Identified frames**:**

Global discourse and economic development

In this article Presidents Cyril Ramaphosa has requested the UK, US, Germany, EU and France to consider funding for South Africa's climate goals to opt for grants and not loans. Ramaphosa was speaking at the

press briefing of COP27 in Sharm El-Sheikh, Egypt, on Tuesday. The president had delivered an address earlier that morning. In the address, the president reiterated calls for developed nations to honour their commitments of financial support to developing economies to respond to the climate crisis.
Ahead of COP27, South Africa publicly released its R1.5 trillion just energy transition investment plan for the next five years. The plan was formally handed over to the International Partners Group on Monday – the group includes the US, UK, France, Germany and the EU. The investment plan builds on their $8.5 billion pledge at COP26 in Glasgow last year.

Article 28- 16 Oct 2022
Headline
OPINION | The switch to solar can be a lot more sustainable
Identified frames**:**
Technology and sustainability
Solar photovoltaic technology is changing the way we live across the globe. It is increasingly popular as a renewable energy source and has been supplying a growing percentage of the electricity demand over the last decade in a number of countries. The World Economic Forum's 2021 Energy Transition Index stressed the potential of solar technology to better the lives of people in Sub-Saharan Africa, where it says 44% of the population have no access to electricity. Many believe it is a good part of the answer to the climate-and-energy crisis in South Africa, as South Africa has plenty of radiative energy to harness, receiving, on average, approximately 2 500 hours of sunlight per year. With tax incentives about to be introduced here in SA for going solar, the market for solar panels is bound to soar and the high costs of purchase and installation are likely to drop in the near future. But, with solar technology becoming more widespread in the country, it's time both business and consumers start to ask some more questions about the ways in which solar panels are produced.

All 61 articles were analysed to determine the frames, headlines have been altered see Table 1.

Table 4: Articles collected, per keywords and frames identified.

DATE	CLIMATE CRISIS SA	CLIMATE CHANGE KZN FLOODS	CLIMATE CHANGE SA	QOUTES	FRAMES
1. 04/04/2022			There is evidence that thunderstorms are increasing due to climate change - expert	Expert Government (Gov)	-Science -Human impact -Public accountability -Global discourse

2.	05/04/2022			SA still heavily reliant on coal for electricity – report	News24 Gwede	-Sustainability -conflict -Global discourse -Economy
3.	15 Apr 2022			ANALYSIS | With climate change causing severe weather, KZN floods may just be the beginning	Scientist	-public accountability -Uncertainty -socioeconomic consequences -politics -economy
4.	15 Apr 2022			2019 floods should have been a clear warning to govt, says climate expert on KZN floods2019 floods should have been a clear warning to govt, says climate expert on KZN floods	Scientist	-Human interest -science -socioeconomic Consequences
5.	17/4/2022			Editorial | WAKE UP! Climate crisis is a reality we must confront	NGO	-science Human interest -economy -socioeconomic consequences -politics
6.	17/4/2022			KZN floods: Climate scientists explain how working with nature can prevent future disasters	Scientist	-science -economy -human interest -science and governance -global discourse
7.	19/4/2022			KZN floods: 'Climate change is here', warns Dlamini-Zuma	Scientist	-science and governance -human interest -science -Morality
8.	22 Apr 2022			Mikhail Moosa | Cyril Ramaphosa's 'new dawn' feels like a false dawn to many	Opinion	-socioeconomic consequences -conflict -economic Development
9.	22 Apr 2022			We lost 'a bright burning candle' - friends, family honour Ndoni Mcunu at memorial service		-Human interest
10.	01 May 2022			Floods prompt ANC to act on climate crisis	Gov	-politics -science and governance -public accountability

11. 01 May 2022	Climate Crisis: SA must act with urgency –			Gov	-science and governance -politic -public accountability
12. 07 May 2022			Barbara Creecy | The just transition is not just about clean energy - it must right past wrongs	Gov	-sustainability -science and governance -economy
13. 10 May 2022				Opinion	-politics -public accountability -socioeconomic
14. 11 May 2022		OPINION | Thandile Chinyavanhu : KZN floods - Climate change IS a gender issue		Opinion	-socioeconomic consequences -gender inequality -human interest
15. 13 May 2022		OPINION | The world now looks to Africa for solutions to the climate catastrophe		Opinion	Science and Governance
16. 15 May 2022		KZN floods: Ramaphosa admits govt was not 'as ready as it should be'		Gov	-public accountability -science
17. 19 May 2022		SA Weather Service allocated R100m to ensure 'state of the art' forecasts		Gov NGO	-science -sustainability -global discourse -Technology
18. 03 Jun 2022		Alex Lenferna | Remove those in power who deny the urgency of the climate crisis			-sustainability -science -global discourse -economy
19. 28 May 2022		Ebrahim Harvey | The R22m flag fiasco, Cuba and the ANC		Opinion	-socioeconomic -politics -corruption
20. 01 Jun 2022		Ahmed Areff | Who cares if coastal cities drown - as long as we		Opinion	Science -corruption Global discourse

		make a profit, right?			
21. 03 Jun 2022			Mandy Rambharos | The inescapability of climate change and the opportunity for Eskom to transition	Opinion	-global discourse -science -economy -technology -just transition -sustainability-
22. 02 Jul 2022			OPINION | Yanga Malotana: Moral regeneration is necessary to protect women, democracy and the Earth	Opinion	-science -socio economic -corruption Morality -government
23. 07 Jul 2022		Cape Town hit by record hot days in June		Scientist	-science -global discourse -generic
24. 09 Jul 2022		New campaign wants to convince ad agencies to ditch fossil fuel companies		NGO	-Sustainability -global discourse -donation -fossil fuel
25. 15 Jul 2022			Are you prepared for Day Zero? Follow these preventative steps to protect your home	Insurance expert	-human interest -general -global discourse -food and water insecurity
26. 01 Aug 2022			SA will feel Europe's heatwaves in rising food prices	Scientist	-global discourse -science-economy -food security
27. 04 Aug 2022	US investors head to SA to talk renewables			Experts	-global discourse -sustainability -economy -science and governance.
28. 27 Aug 2022		On The Record | SA's response to climate change? Low political support, lack of funding, say experts		Scientist	-global discourse -sustainability -economy -science and governance. -socioeconomic

29. 29 Aug 2022		OPINION | Towards women-centred climate change decision-making and budgeting		Gov	-global discourse -economy -science and governance. -socioeconomic -human interest -food security -public accountability
30. 01 Sep 2022			Rich nations to fund 80% of SA's climate plan with loans, some hard to unlock	Finance expert	-global discourse -economy -technology
31. 11 Sep 2022			Allegra Stratton | South Africa is key to global net zero	International voice	-economy -science and governance. -global discourse -technology -sustainability -public accountability
32. 14 Sep 2022		OPINION | Matshidiso Lencoasa: A human rights' centered response to the climate question		Opinion	-economy -science and governance. -global discourse -human interest -sustainability -public accountability
33. 14 Sep 2022		IN-DEPTH | Prepare for higher than normal temps in Gauteng this summer, wildfires in Western Cape – experts		Experts	-generic -science
34. 16 Oct 2022	OPINION | The switch to solar can be a lot more sustainable			Opinion	-technology -science -global discourse -sustainability
35. 17 Oct 2022		OPINION | Mapi Mhlangu: Climate change - SA's footnote that should be daily, flashing headline		Opinion	-science and governance. -global discourse -human interest -sustainability
36. 24 Oct 2022			EXPLAINER | South Africa's journey to net zero	Speaks from international voice + government	-science -global discourse
37. 07Nov 2022		Cyril Ramaphosa | We all have a clear stake in the outcomes of COP27		Gov	-economy -public accountability -global discourse -human interest -sustainability

38.	08 Nov 2022		#COP27: These KZN flood victims' fates were sealed years ago -		Gov	-global discourse -human interest -economy -socioeconomic -science
39.	11 Nov 2022	OPINION | Alex Lenferna and Mbali Baduza: Climate justice in our lifetime or never		OPINION | Alex Lenferna and Mbali Baduza: Climate justice in our lifetime or never	Opinion	-global discourse -human interest -economy -sustainability -science
40.	12 Nov 2022	Time is running out for rich nations to pay up for the climate crisis			Gov Expert	-global discourse -human interest -sustainability -socioeconomic -science
41.	14 Nov 2022	OPINION | The climate crisis is a human rights crisis			Opinion	-global discourse -human interest -morality -public accountability -socioeconomic
42.	18 Nov 2022			Climate change affects mosquito behaviour. This may make it harder to end malaria in South Africa	Scientist	-generic -Health -human interest -science
43.	21 Nov 2022			OPINION | Oliver Meth: Big oil drives gender-based violence and femicide in Wentworth	Activist Opinion	-cultural -socioeconomic -morality -human interest -policies
44.	26 Nov 2022			JP Landman | What COP27 means for SA and Eskom	Analyst	-global discourse -generic -technology -sustainability -science
45.	30 Nov 2022		OPINION | Climate-proof our schools: Treasury and Department of Basic Education must do more		Opinion	-human interest -morality -public accountability -socioeconomic -global discourse
46.	30 Nov 2022			William's 'Superbowl moment': Prince and Princess of Wales make major trip to US		-global discourse
47.	01 Dec 2022			Electric minibus taxis, recycled coal: 15 SA low-	Business voice	global discourse -economy -technology

			carbon projects get UK-funded technical support		
48. 22Dec 2022			OPINION | Climate change can be beaten - why some scientists are hopeful	Scientist	-science -uncertainty -global dialogue -sustainability
49. 31 Dec 2022		7 events in 2022 that highlighted climate change in SA		Gov International	-science and governance. -global discourse -economy -sustainability -public accountability
50. 11 Jan 2022			The indomitable spirit of South African wine		-Economy -generic
51. 30 Jan 2023		OPINION | Climate technology: it's about so much more than just saving the planet		Opinion	-global discourse -economy -technology -sustainability
52. 10 Feb 2022			SA climate activists ask Macron, EU Parliament to stop TotalEnergies oil and gas exploration	Activist	-Science -economy -sustainability -business -conflict
53. 23 Feb 2023			South African activists urge French Parliament to stop TotalEnergies' 'ocean grab'		-Science -economy -sustainability -business -conflict
54. 02 Mar 2023			Kouga Municipality takes steps towards energy security	Gov	-generic -energy -sustainability
55. 04 Mar 2023		OPINION | Underinvestment in healthcare infrastructure is a costly mistake		Opinion	Economy -sustainability -socioeconomic -healthcare
56. 5 March 2023			SA's climate policies not stringent enough	Report	Economy -conflict -sustainability -clobal discourse

			for proper transition		
57. 06 Mar 2023		OPINION | Travelling green: How climate change affects the tourism industry			-economy -socioeconomic
58. 21Mar 2023		Open Letter: PR and ad agencies must 'come clean' and cut ties with fossil fuel industry			-science -human interest -global discourse -science and governance
59. 21 Mar 2023			OPINION | Brenda Kubheka: Doctors as advocates of human rights in SA	Opinion	-morality -human interest -global discourse -cultural
60. 02 Apr 202			Mining in South Africa looks to solar, AI and chickens to go green		-Technology -human interest -economy -global discourse
61. 25 Apr 2023			ANALYSIS | Eskom's Oberholzer backs 'responsible' life extension of old plants	Gov	-Economic development -Conflict

To measure the usage of the frames, once the news frames were identified, the study adopted Frank's (2006) and Tankard's (2001) list of frames method. The next chapter will discuss the findings.

4.2 TikTok analysis

In total, as indicated in Table 5, the research analysed 47 video posts related to climate change on TikTok from a South African perspective. Keywords 'climate change South Africa', 'climate crisis South Africa' and 'climate action South Africa' were used to search the video posts. The keywords were chosen to assist in investigating how climate change is framed on TikTok. The video posts were

sourced manually using the keywords and analysed individually to pick up the frame. The videos were first sourced using the researcher's account, and to verify the reliability of the number of videos on the platform the researcher used the visitor's account to source the videos. The results were consistent. Furthermore, internet protocol addresses were not made available in the study, for ethics considerations. From the 47 videos analysed, 27 video posts had keywords climate change South Africa, four (5) video posts had both climate change South Africa and climate action South Africa, and 13 videos emerged with the keywords climate action South Africa. The keyword climate crisis South Africa produced one (1) video, an additional keyword climate emergency was included as the search was undergoing, and only one (1) video came up.

Five (6) video posts that emerged from the climate change South Africa keywords used reputable sources in their videos such as the COP27 conference and news organisations. One (1) story on climate change in South Africa was used in two different posts, the post focused on the human impact frame of climate change, meanwhile the other focused on the economic consequence frame. The story was about the Just Transition Energy project in Mpumalanga. Another video with climate change South Africa keywords discussed the conflict between the government and civil organisations. The video was about the Minister of Mineral Resources and Energy, Gwede Mantashe, being summoned to court by climate change civil organisations for including coal in the Integrated Resource Plan. In another video on climate change in South Africa, misinformation was picked up, in the video a news anchor announces a story about climate lockdown coming soon. In another video on climate change denial, the person can be heard saying they don't care about climate change.

Climate action keywords produced 13 misinformation videos, which were found to be inaccurate and intended to deceive. Although the keywords were correct, the videos did not represent climate change content. Many of these videos relied heavily on the repetition of viral music, and visual memes and using trending climate-related hashtags to gain attention.

Frames on disaster, socio-economic, conflict, and misinformation were identified from the TikTok videos, see Tables 5 and 6.

Table 7, shows the number of videos posted between April 2022 and April 2023, indicating that the climate change discourse on TikTok in South Africa is lacking,

people generally talk about the topic when it is linked to climate events. For instance, looking at Table 7, April 2022 had a high number of video posts that matched all the keywords, this was in the same month KZN floods happened. No video posts were found in June, July and August that matched the keywords. Video posts started to pick up in November during the COP27 conference in Egypt. However, videos posted in November were dominated by misinformation. Therefore, based on the analysis, climate change discourse on TikTok is driven by ordinary people who are non-experts. The users' posts are influenced by their personal experiences and narratives.

4.2.1 TikTok frames

Table 5: TikTok video posts analysis

NO	DATE	KEYWORDS IN THE VIDEOS	SUMMARY OF VIDEOS	FRAMES
1	2022-11-18	#unitednations #cop27 #egypt #durban #southafrica #climatechange	Video about an activist attending Climate Change Conference COP27.	-Global discourse
2	2022-12-11	#energy #JET #climatechange #southafrica	News organisation reporting about Just Energy Transition, fighting Energy poverty and climate change.	-Socio-economic -Science
3	2022-12-13	#energyplan #civilsocieties #climatechange #southafrica	Video is about an activist taking about a court battle between activists and the Minister of Mineral Resources, Gwede Mantashe. The activist also talks about fossil fuel and climate change.	-Conflict
4	2022-11-8	#COP27 #Witbank #coalmining #southafrica #greenenergy #climatechange	News organisation reporting on the effects of fossil fuels and climate change	-Disaster -Socio-economic -Science -Conflict
5	2022-5-22	#energypoverty #loadshedding #electricitycrisis #climatechange #transition #renewableenergy #southafrica	Climate justice organisation highlighting the effects of climate change in South Africa.	-Conflict -Socio-economic -Technology -Science
6	2023-3-11	#climatechange #weather #tropicalcyclone #tropicalcyclonefreddy #climate #education #southafrica	Man teaching on climate change and its effects.	-Socio-economic -Science -Disaster
7	2023-4-1	#geography #grade12 #climatechange #climate #viralvideo #southafrica #southafricatiktok	Video about Climate and Weather: Urban Climates/City Climates.	-Disaster -Science
8	2023-3-12	#geography #thunderstorm #climate #weather #climatechange #viralvideo viraltiktok #southafrica #southafricatiktok	A lesson on the climate change, the formation of moisture and thunderstorms.	-Science -Disaster
9	2023-4-22	#MissUniverseSouthAfrica #MissSouthAfrica #Climatechange #Environmentalism #tiktoksa #tiktoksouthafrica	Women participating in a beauty pageant and answering a question on climate change.	-Socio-economic

10	2022-11-3	#climateaction #Climatechange #recycling #solar #tiktoksouthafrica	Activist educating on climate change.	-Science -Technology -Disaster
11	2022-11-16	#greenscreenvideo #climatechange #climateawareness #tiktoksouthafrica	Video about an activist encouraging their followers to join the climate conversation.	-socio-economic -Global discourse
12	2023-1-6	#church #tiktoksouthafrica #climatechange #southafrica	Video about an announcement of a possible climate lockdown	-Misinformation -Conflict
13	2022-9-17	#cyrilramaphosa #southafrica #joebiden #unitedstatesofamerica #tiktok #climatechange	President Cyril Ramaphosa with President Joe Biden shaking hands and laughing. The video does not mention climate change as the keywords or hashtag suggests.	-Misinformation
14	2022-4-19	#climatejustice #climatechange #actnow #cop27 #southafrica #flooding #climatepolicy	Video about an alleged legal complaint that was filed against President Cyril Ramaphosa for ignoring climate change effects in KZN.	-Conflict
15	2022-10-24	#southafrica #climatechange #naturaldisasters	Video of women linking KZN floods to climate change.	-Disaster -Socio-economic
16	2022-10-24	#climatechange #southafrica	Video about a woman saying climate change must take a back sit. Climate change denialism.	-Misinformation -Conflict
17	2022-4-10	#climatesolution #climateaction #actionforclimate #climatechange #southafrica #sustainability #gardening	Video showing plants	-Sustainability
18	2022-4-18	#climateaction #tiktok #climatechange #capetown #southafrica	Video showing plants, encouraging sustainable farming	-Sustainability
19	2023-1-5	#climatechange #southafrica #flood	Video from news organisation linking KZN floods to climate change.	-Disaster -Conflict
20	2022-4-12	#kznfloods2022 #durbanfloods #naturaldisaster #climatechange	Video showing KZN floods	-Disaster
21	2022-4-29	#kznfloods2022 #climatechange #globalwarming #earthday	Video about a news organisation reporting on KZN floods and climate change.	-Disaster
22	2022-4-14	#viral #southafrica #global #climatechange	Video of KZN floods	-Disaster
23	2022-4-20	#southafrica #kzn #flooding #disaster #climatechange	News organisation interviewing an expert on KZN floods and climate change	-Disaster -Socio-economic
24	2022-4-12	#kznfloods #kwazulunatalfloods #climatechange #floods2022	Video in KZN floods	-Disaster
25	2022-4-26	#kznfloods #kzntiktok #kznprophecy climate change	Pastor preaching	-Misinformation
26	2022-4-26	#kznfloods #climatechange #floods2022	Video on floods	-Disaster
27	2022-4-13	#durbanfloods #kznflooding #climatechange #globalwarming #sa #southafrica #anc	Video on climate change Education	-Socio-economic -Disaster -Conflict

28	2023-4-26	#climatechange #southafrica #weather #floods	Video showing destroyed infrastructure due to floods.	-Disaster -Conflict
29	2022-4-13	#flooding #climatechange #plasticpollution #weather **#**south Africa	Video showing polluted beach.	-Health -Socio-economic -Disaster -Conflict
30	2022-4-25	#climatecrisis #southafrica #africa	Video about climate crisis.	-Socio-economic -Disaster -Conflict
31	2022-11-8	#climate #climatetech #climatechange #climateaction #southafrica	Video on solar energy solutions.	-Technology -Sustainability -Conflict
32	2022-11-16	#lowcostelectricity #climateaction #sa	Video on solar energy solutions.	-Technology -Sustainability
33	2022-11-17	#tiktoksouthafrica #climateaction	Video not relevant climate action. Hijacked hashtag.	-Misinformation
34	2022-11-18	#corruption #tiktoksouthafrica #climateaction	Video not relevant climate action – Viral meme.	-Misinformation
35	2022-11-19	#tiktoksouthafrica #climateaction #corruption #stop	Video not relevant climate action. Hijacked hashtag.	-Misinformation
36	2022-11-14	#climateaction #southafricatiktok #SAMA28 #cheating	Video not relevant to climate action, it is a viral meme.	-Misinformation
37	2022-11-12	#capetown #climateaction #southafricatiktok	Video not relevant to climate Action is a viral meme.	-Misinformation
38	2022-11-16	#senzo #tumelo #tiktoksouthafrica #climateaction #g20indonesia2022	Video not about climate action, it's a viral meme.	-Misinformation
39	2022-11-30	#eff #malema #tiktoksouthafrica #climateaction #tembisa	Video not about climate action. Hijacked hashtag	-Misinformation
40	2022-11-10	#bmwx62022 #qataworldcup2022 #climateaction #tiktoksouthafrica	Hijacked hashtag, video not related to climate change.	-Misinformation
41	2022-11-21	#tiktoksouthafrica #climateaction	Video has nothing to do with climate action. Hijacked hashtag	-Misinformation
42	2022-11-14	#g20indonesia2022 #southafricatiktok #climateaction #president	Viral meme	-Misinformation
43	2022-10-18	#cele #climateaction #tiktoksouthafrica #interview	Video about Beki Cele interviewing illegal foreigners. Hijacked hashtag.	-Misinformation
44	2023-2-22	#cyclonefreddy #climateemergency	Video showing a storm, with a caption about Cyclone Freddy approaching South Africa.	-Disaster
45	2022-11-13	#africa4Nuclear #COP21 #climatechange #development	Video about an activist attending COP27	-Global discourse
46	2022-11-14	#climateaction #tiktoksouthafrica #climatechange	Video not about climate change. Hijacked hashtag	-Misinformation

47	2022-11-11	#climateaction #tiktoksouthafrica #actnow	Video does not mention climate change. Hijacked hashtag	-Misinformation

Table 6: Frames identified on TikTok

Frames	Description	Source
Disaster	It focuses on catastrophes and the preparedness of government in dealing with a severe weather events	(Molder et al., 2022; O'Neill et al., 2015)
Socio-economic	Focuses on relations of social and economic elements.	(Sithole, 2023)
Conflict	When a news story reflect dispute between individuals, groups and parties.	(Semetko, 2000)
Misinformation	Misinformation relates to information that is inaccurate, false or misleading.	(Treen et al., 2020)

Table 7: Number of Videos posted on TikTok between the period of April 2022 and April 2023

YEAR	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC
2022				13	1	0	0	1	1	3	19	2
2023	2	1	2	2								

Chapter 5: Discussions

Having analysed *News24* articles, the study found that most articles were triggered by events such as conferences or climate disasters. For example, during the KZN floods in April 2022, *News24* published more articles on climate change compared to the aftermath articles written in May. Similarly, during the COP27 conference in Egypt in November, the number of articles on climate change increased. However, some critics argue that conferences tend to focus more on policy matters rather than addressing the everyday problems that communities face. The study also discovered that scientific, disaster, socio-economic, and global discourse frames were prevalent in the articles. Most articles contained stories about disaster and human impact incidents, as well as scientific explanations, such as the link between the KZN floods and climate change. The disaster, socio-economic, and scientific frames were more prominent in April 2022 because of the devastating effects of the floods, which left many people homeless and without jobs or food, exacerbating an already vulnerable group. The global discourse frame was frequently used, with many articles referring to reports or agreements made in conferences as guidelines to tackle the climate crisis.

According to the literature reviewed, social media, particularly TikTok, has become a platform for discussing environmental issues like climate change. However, there is a concern that TikTok does not have reputable sources that can share educational information on climate change. The platform is dominated by people who need to learn more about the topic. Researchers have noted that media frames can influence public opinion, and the public often continues the dialogue on social media. The study also identified four frames that dominated the climate change discourse in South Africa on TikTok, namely disaster, socio-economic, conflict, and uncertainty or misinformation. The KZN floods triggered the disaster frame, while the socio-economic frame was driven by the decision to shut down plants in Mpumalanga for fossil fuel mitigation, which will leave many people without jobs or means to support their families. The conflict frame was driven by videos discussing climate activists taking the government to court for including gas in the energy mix instead of moving away from it. The misinformation frame is driven by posts that use memes in their videos, causing confusion instead of awareness. Overall, the study highlights the

different frames and factors that shape the discourse around climate change in South Africa, both online and on social media, in this instance News24 and TikTok.

5.1 *News24* and TikTok frames similarities and difference

The discourse surrounding climate change can be seen as a complex web of relationships and interactions between various institutions, including the scientific community, politics, activists, and the news media. In the South African context, this study aims to understand the issue by comparing the framing of climate change in two distinct media platforms, allowing for a broader understanding of the subject across different sections of media users.

The study found that *News24* mostly covers climate change when it is linked to weather events or climate disasters, with a higher number of articles produced during such events. Additionally, the study discovered that climate change engagement on TikTok in South Africa is lacking and misleading, despite the platform's guidelines to delete accounts that spread climate misinformation. The study established that there are videos on TikTok that use climate change keywords but communicate something else in the video, which adds to the prevalent issue of misinformation on social media, as noted by Treen et al. (2020).

Moreover, the study found that the way climate change is framed in *News24* and TikTok differs based on their sources. *News24* relies on frames used by elites in government, the private sector, the scientific community, and activists. Furthermore, *News24* largely reports on international conferences and the release of scientific reports on the subject. On the other hand, TikTok players present their own views, which may be distinct from those of the above-mentioned stakeholders.

Social media platforms have become critical spaces for discussing climate change, and people often take to platforms such as TikTok to share their opinions, awareness, experiences, and thoughts, particularly during extreme weather events. Furthermore, the literature review has shown that the media plays a crucial role in educating citizens on global issues such as climate change and simplifying complicated issues. Additionally, in a study mentioned in the literature review, it was determined that climate activism on TikTok is predominantly led by young non-expert users who often mix environmental and climate-related issues, displaying vague and imprecise knowledge about climate change. They use a mix of earnestness and

mockery in their climate change messages, alternating between care and indifference. Many of these messages rely heavily on repetition and variation of existing music and visual memes while seeking to inform on climate and environmental issues. However, at times, the users simply "hijack" trending climate-related hashtags to gain attention for other purposes (Hauteu et al., 2021). This study concurs with Hauteu's et al. (2021) findings. This study also determined that trending climate change hashtags were used on unrelated matters.

The framing of climate change in news media and TikTok differs significantly. News24 frames climate change in terms of disaster, socio-economic issues, public accountability, scientific uncertainty, and global discourse. News media tend to rely on expert sources and present climate change as a complex issue that requires urgent action. In contrast, TikTok frames climate change in terms of disaster, socio-economic issues, conflict, and misinformation. The users' messages on TikTok are often influenced by their personal experiences and narratives, which can lead to a mix of accurate and inaccurate information. The format of TikTok videos typically involves storytelling and personal narratives with hashtags and viral sounds, which can be entertaining and engaging for young users but also misleading.

Table 8 *News24* frames vs TikTok frames

News24 news frames	TikTok frames
- Disaster	- Disaster
- Socio-economic	- Socio-economic
- Public accountability	- Conflict
- Scientific uncertainty	- Uncertainty/Misinformation
- Global discourse	

6. Conclusion

A recent study on climate change communication in South Africa revealed that while mainstream media and online news are the primary sources of information on climate change, there is still a need to intensify communication efforts. The study suggests that all journalists ought to be trained and sensitized to recognize the climate change angle in their stories, as it affects various aspects of society such as politics, economics, and culture. Climate change is a complex issue that involves various institutions such as the scientific community, politics, activists, and the news media. Therefore, the media's job is to communicate the topic in a rather simple and relatable manner. The framing of climate change in media and social media platforms is complex and multifaceted. The media's framing is influenced by various sources, whereas social media players present their own views, which can be distinct from those of the elites. While the media plays a crucial role in educating citizens on climate change, social media platforms offer a unique opportunity for young users to engage with the issue in a more personal and relatable way. However, this can also lead to the spread of inaccurate information and the hijacking of climate-related hashtags for other purposes, underlining the need for responsible communication and fact-checking on all platforms, and the potential risks if this is not done.

This study compared the framing of climate change in two distinct media platforms, *News24 and* TikTok, to understand the topic across diverse sections of media users in South Africa. News24's framing of climate change was mainly linked to weather events or climate disasters, while TikTok's engagement with the issue needed improvement. The study also found that misinformation was prevalent on TikTok. Furthermore, *News24* articles were influenced by international narratives, while TikTok's frames were based on rudimentary knowledge. The most prevalent frames in *News24* and TikTok were socio-economic and disaster-related, likely due to the recent KZN floods. The study also found that TikTok needs more reputable sources. As discussed above, the media's role in raising public awareness is critical in the fight against climate change. Unfortunately, this study's findings confirm several previous findings that point to poor media reporting on climate change and less-than-impressive discourses in social media. The results could mean that climate change

stakeholders have a lot of work to do in their communication and education about the crisis if society is to emerge victorious in the fight against climate change.

6.1 Limitations

The study faced a challenge finding literature on climate change discourse on TikTok in South Africa. However, the study will make a valuable contribution to the existing body of knowledge on climate change communication. By examining the framing of climate change in *News24* and TikTok, this study aims to advance the current understanding of the issue. Given the prevalence of climate change denial on social media platforms, the findings could help guide climate change communicators to focus on educating the general public about climate change.

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