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CLIMATE CHANGE ATTITUDES IN SOUTH AFRICA: EVIDENCE FROM WARD 6 NOODSBURG, ILEMBE DISTRICT MUNICIPALITY

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ABSTRACT

Climate change is becoming a growing concern globally, and developing countries are feeling the burden of its impacts. To respond to this successfully and for South Africa to navigate these changes, it will require a nuanced understanding of public opinion and understanding, for policy processes to take into account of individual concerns, and the lived realities of its citizens. The objective of the study is to examine the attitudes of residents in Noodsburg toward climate change. The study employed a qualitative research design. Key findings emanating from this study suggest that there is a gap between 'awareness' and 'knowledge' on climate change and that community members in Noodsburg rely on local ecological knowledge to provide information on the changing climate. These findings highlight the necessity for harnessing local knowledge to enhance community resilience and promote ecosystem-based adaptation strategies in the face of a changing climate.

KEY WORDS Climate Change, public attitudes, governance.

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1. INTRODUCTION

Climate change is expected to significantly impact South Africa, with resulting consequences for people, the economy, and ecosystems. Water is the primary medium through which the impact of climate change will be felt in South Africa and affect the demand across all sectors in the country (Department of Forestry, Fisheries and the Environment [DFFE], 2021). Climate change refers to long-term changes in the climate experienced in a particular region (Intergovernmental Panel on Climate Change [IPCC], 2023). Kahinda, Kapangaziwiri, Hughes, and Khakhu (2022) explains how climate change in South Africa will result in the following: changing rainfall patterns, the intensity of storms and the extremes of droughts and floods, increasing evaporation, changes in soil moisture and runoff, and thus water availability; changing water quality conditions (including the temperature of aquatic systems) and lastly increasing climate variability.

In this study, the term climate change means rapid climate change, which is being experienced due to human activities and the amplified production of greenhouse gases. The study argues that an essential municipal service delivery, such as water, is imperative for realising human rights in South Africa and enhancing the quality of life for the local citizenry. Despite the current complexities in service delivery, municipalities must align their developmental plans with the new legislation of local government to make informed and considered decisions. Patrick and Ernest. (2020) links how climate change significantly affects water availability and quality in South Africa through the changing rainfall patterns, rising temperatures, and more frequent droughts that some parts of the country are experiencing and exacerbating the existing inequalities in water access and framing water as both a climate and social justice issue.

Acknowledging this link is essential because people's attitudes toward climate change are often shaped by their lived experiences of water insecurity.

Roberts (2016) points out, there is a need to acknowledge the role that local governments play in mitigating climate change, and therefore policy decisions made must consider the potential implications of climate change initiatives. Moreover, it should be noted that given the country's socioeconomic dynamics, the climate change investment agenda must consider the economic realities of undertaking such initiatives. This is a point made by Khobai, Stungwa, Oliphant, Maphuto, and Mbua,(2024) that South Africa is trapped in the middle of the 'carbon divide, where on the one hand, they are a developed country with high carbon emissions and on the other hand, poverty, inequality, and unemployment continue to be rife which must be factored in when planning for climate change policy and that these cant be separated. The National Environmental Management Act (1998) states that the main umbrella objective of making environmental decisions lies in promoting sustainable development, that needs the incorporation of social, economic, and environmental factors in the planning and execution and assessment of decisions made.

2. CLIMATE CHANGE AND GOVERNANCE

The recently concluded COP 27 (Convention on Climate Change) meeting held in Egypt once again reemphasised the urgent desire to eliminate the pestilential threat that is carried by human-induced climate change. This threat in particular focuses on human-induced gas emissions (United Nations, 2022).

COP 27 was seen by many as a continuation of earlier initiatives such as the Kyoto Protocol of 1998, which resolved to encourage industrialised nations to reduce greenhouse gases (GHG) in line with agreed targets.

It is appropriate first to understand what the term climate change means to understand its impacts. As mentioned earlier, Climate change refers to the general increase in air temperatures worldwide (DFFE, 2021). Policymakers and scientists know for sure that climate change is the biggest threat to sustainable development everywhere; with that being said, unfortunately, the poorest and most vulnerable will feel the impacts significantly, especially those living in developing countries (UNFCC, 2016). The 2012 National Development Plan (NDP) emphasised that climate change is already impacting South Africa, with marked temperature and rainfall variations and rising sea levels (NPC, 2012). Climate change, therefore, poses a clear present threat to the stability of South Africa's economy and ecology.

Nhemachena et al. (2020) suggest that not all climate change impacts will be harmful to South Africa. However, it will be most likely that some areas in South Africa will benefit from the impacts, while others will experience detrimental effects like prolonged drought. It is, therefore, essential to look at both these scenarios when considering the future of water security in South Africa (Nhemachena et al., 2020). Stern (2016) has identified climate change as one of the two pressing issues facing humans, poverty. Stern (2016) points out that there is a considerable risk for a safe and thriving world in the future if these two issues are not addressed adequately and quickly.

In 2015, the 2030 Agenda for Sustainable Development was adopted by all United Nations member states. At the centre of the Agenda are 17 Sustainable Development Goals (SDGs), which set out the path to achieving a better and more sustainable future for all. One of the SDGs that are particularly relevant for this study Goal 13: *"Climate action-Take urgent action to combat climate change and its impacts."* This highlights the impact that climate change has globally on weather patterns, which are changing, sea levels are rising, weather events are becoming more extreme, and

greenhouse gas emissions are at their highest levels in history.

The South African government has recognised and is committed to providing water for South African citizens. In the constitution of the Republic of South Africa, section 152), it is noted that the core objectives of local government are "to ensure the provision of services sustainably," and section 27 (1) (b) states that the citizenry must have the "right of access to sufficient water." The local Government is the best place to start because it is the closest sphere to the communities. Local government is directly responsive to the needs of the different locals in different communities. The local government is responsible for providing such, which places a considerable challenge on ensuring that water is available to everyone (Muringa & Shava, 2025)

There is a need for multi-stakeholder processes for sustainability and governance when dealing with climate change. Scoones et al. (2018) assert that multistakeholder processes are crucial when dealing with governance within climate change. Public participation is an important end in a democratic society. Participation plays a key role in reflecting and creating citizenship, the public and public values, as mentioned above. Though public participation requires resources such as skill, time and money, it can create a number of advantages (Quick & Bryson, 2016: 3). The main element of public participation is the engagement of the public and making meaningful contributions to the decision-making process (Bester, 2020: 193). Public participation, therefore, provides the opportunity for communication between decision-makers and the public.

3. POLITICAL ECOLOGY

This paper utilises the political ecology approach because it questions the conceptual linkages between society and natural resources. Political ecology inhabits but one place of a broad field populated, in the main, by other social science disciplines. Environmental anthropology, environmental sociology, ecological economics, and environmental economics, among others, are, like political ecology, dedicated to understanding society's relations with the non-human world, and through the knowledge these disciplines create, they also seek to inform and give shape to environmental futures.

The arrival of political ecology as a critical framework happened during the 1960s. The anthropologist Eric Wolf is credited with formalizing the theory when he first coined the term political ecology in 1972 (Walker, 2005; Biersack, 2006). Most of the work that occurred during this period did not include political ecology. The analysis done took the form of the philosophy of political ecology. The term political ecology was made more famous by various authors in their work, such as Brookfield (1987) and Blaikie (1987), Bassett (1988), Bryant (1992), Escobar and Neumann (1992), during the 1980s.

The main concern of political ecology is understanding the relationship between social and environmental change. Political ecology draws on insights from a variety of environmentally related disciplines in the social and environmental sciences. Power plays a key role in the definitions of political ecology (Robbins, 2019). The outcomes of environmental change are often felt unevenly by different social groups. Robbins (2019) explains why and how this unevenness is generated, links political ecology to political economy and makes conflict and contestation over resources central to most analyses. Derman and Ferguson (2003) assert that power is a central focus of politics in political ecology. According to Derman and Ferguson (2003), one of the strengths of political ecology is its focus on the mutual constitution of social and environmental change.

The focus is on the relationship between people and their environment as a starting point and observations of environmental change. The central goal and dimension of political ecology, in theory, is to develop different modes of analysis that incorporate and relate to social and ecological variables. Another dimension of political ecology is to understand that environmental change results are often felt unevenly, and how this unevenness is generated links to political ecology. This means that contestation over natural resources and conflicts remains central to most analyses. This involves struggles at discursive levels, including local knowledge, environment, sustainability, and biodiversity (Derman and Ferguson, 2003). In conceptualising access to natural resources, they found that the various social relationships that constrain or enable such access are associated with "bundles of power" or complex and overlapping "webs of power."

4. THE CASE STUDY

Noodsburg, situated in the province of KwaZulu-Natal, falls within the iLembe District Municipality, which is located on the east coast of KwaZulu-Natal. This district is bordered by the eThekwini Metro to the south and the King Cetshwayo District to the north. The iLembe District Municipality shares borders with two other districts, namely uMgungundlovu and uMzinyathi. The district comprises four Local Municipalities: Mandeni, KwaDukuza, Ndwedwe, and Maphumulo. Ilembe District Municipality is strategically located along the Primary development corridor of the Province and between two strategic gateway points into the continent, namely Durban and Richards Bay harbours. To the South of the District is the King Shaka International Airport (KSIA) and the Dube Trade Port.

The commonly anticipated impacts associated with Climate Change, in general, include the warming temperatures and increases in the number, duration, and severity of heatwaves, which will lead to changes in the growth and distribution of plants, animals, and insects (IPCC, 2023). Some of these impacts have been experienced within the iLembe District in several areas, which then required the Municipality to make an effort to

avoid and adapt to possible climate change impacts. The municipality is battling to manage due to natural and human activities. It is the responsibility of the Environmental Management Unit, under the Planning and Integrated Development Plan, to encourage the management of these resources for the benefit of both current and future generations in line with the objectives of the National Environmental Management Act of 1998

The need assessment was conducted by the district and the DEA in previous years and it found that there is a lack of dedicated environmental management units in most municipalities, resulting in environmental functions placed within varying units of the municipal organizational structure; availability of the budget to perform environmental functions within municipalities; lack of understanding between environmental health and environmental management (Department of Environmental Affairs, 2019). This leads to dependence on environmental health practitioners to perform environmental management functions within municipalities.

5. RESEARCH METHODOLOGY

The study aimed to examine the attitudes of residents in Noodsburg toward climate change, utilising the data in Noodsburg. The focus was on recording and understanding the local knowledge, attitudes, and aspirations of the communities within the area. To do this, a qualitative method approach was adopted to collect as wide a range of data as possible. An investigation of climate change attitudes of residents in Noodsburg, ILembe district municipality, served as a departure point from which to critically examine the governance around water. The study employed a qualitative research design. The study worked with a purposive non-probability sample technique because it sought to obtain insights into climate change attitudes that exist in the iLembe District. The research employed a non-probability sampling method for the focus group participants, specifically utilising a haphazard/convenience technique.

Given the constraints of the study, such as limited time and resources, the convenience sampling method allows for a convenient selection of participants. The selection of participants was based on convenience and accessibility. Convenience sampling allows the researcher to select participants who are easily accessible and have relevant knowledge or experiences related to the research topic. Practicality, accessibility, and the exploratory nature of the study were prioritised. To gather new data on the subject matter, focus groups were conducted, involving individuals aged 18 and above who were South African residents living in Ward 6, Noodsburg.

The research team, along with the primary investigator, organised three focus groups, each comprising five members who were community leaders and participants from Ward 6 in Noodsburg, located within the iLembe District. Ward 6 was deliberately chosen due to the active presence of an environmental forum in the area, with its members being part of the ward committee. A pre-designed focus group interview schedule was used. Face-to-face semi-structured interviews were conducted with ILembe District municipality officials in the environmental and planning units. These key stakeholders are knowledgeable about the iLembe District Municipality and work on the ground with the ward committee members in the local government sector, as well as environmental issues.

The data gathered has been analysed and reported on within the context of the focus group discussions. Secondary data and desktop analysis were conducted, and they included books, and journal articles that have been used to discuss the study's conceptual and theoretical framework. The participants were guided by a moderator, who introduced the topics for discussion and helped the group participate in a lively and natural discussion.

These focus groups intended to interrogate and explore a few topics in greater detail.

6. RESULTS & DISCUSSION

This section presents the results, provides an interpretation of the findings, and offers a critical discussion in relation to the research objectives and existing literature. This section of the study interprets the findings through the lens of Political Ecology Theory. Political ecology foregrounds the role of power relations, social inequalities, and historical context in shaping both environmental change and community responses to it. In the context of climate change, this theoretical lens helps illuminate how structural factors such as governance systems, access to resources, and socio-economic marginalisation shape community perceptions and adaptive capacity. The analysis below reflects these dynamics, demonstrating that climate change perceptions are not formed in isolation, but are embedded in broader systems of power and local experience.

7. CLIMATE CHANGE

This section will address the study's research objectives, which are to critically examine the attitudes and perceptions held by the community in Noodsberg towards climate change through qualitative analysis. Participants in the focus group discussions that were conducted were asked, *"What is climate change or what do they think climate change is?"* One of the participants from the focus group responded and said,

"I am not sure, but I think it is the change of weather. As the years pass, I have noticed that the temperature is increasing. For instance, before, we knew that it would rain a lot between October and December, but that has changed. I do not know what causes it, but I know that things are no longer the same". (Focus Group 1, 2021)

Participants indicated that climate change has affected seasonal rainfall patterns by reducing the length of the

rainy periods as well as the amount of rain, with consequences on crop and livestock production. In all three FGDs, it was indicated that there had been a change in the onset of the rainy season from October to mid-December, whilst the end of the rainy season has shifted from March to April. Local leadership noted that the community used to receive early rain. The majority of participants, based on the above discussion, indicated that they have observed the onset of the rain season has shifted and is now shorter and that the amount of rainfall has been decreasing. Findings from this discussion indicate that local communities perceive that rainfall is decreasing whilst temperatures are increasing.

Ambiguities regarding the definition of climate change ought to be addressed for those outside the scientific community, as this enables public understanding of policy and legal frameworks implemented to address climate-related challenges. In this case, the FGD participants' understanding is closely aligned with the scientific concept of climate change as revealed by their interpretations that climate change is linked with changes in weather conditions and patterns. While some participants were able to give a definition or explain what climate change is, the majority of responses to the question about their understanding of climate change centred on the causes of climate change. For instance, one of the participants from the focus groups said,

"I think it is mainly we, the community, by being reckless and not paying attention to our environment, which is now causing climate change. Firstly, there are huge factories that manufacture goods and release emissions, which then cause climate change and severe weather patterns. Secondly, I think the people themselves cause it by not taking care of their own environment. If you look at the recent flooding we have experienced, instead of water flowing properly and drainage systems working efficiently, wasteful toxins and plastic bags in our drainage, which then block the water from flowing. It also creates a situation whereby the drainage is working efficiently, and that causes major problems for the people who are going to be affected by the water". (Focus Group 1, 2021)

This shows that there's some basic understanding and observations being made by the public about climate change. This suggests that there's some level of awareness and knowledge about the physical environment that they live in. These discussions in the focus group indicated or suggested a general awareness among the community elders and other community leaders that climate change and variability have also been a reality in the area. Unfortunately, the African continent has been identified as one of the parts of the world most vulnerable to the impacts of climate change (IPCC 2014). There is an indication here that some community members rely on their local ecological knowledge of climate patterns and impacts. The above responses indicated that most people might not have access to the radio or television to receive information about climate change. Based upon the above responses of the participants and information from the iLembe IDP, it's clear that not only is there a fragmented understanding of environmental management in the local sphere, but it also shows within the citizen ground floor level.

8. CLIMATE CHANGE CONCERNS

Climate change experts see water, specifically, to be at the centre of this vulnerability as the potential impacts on water due to climate change are projected to increase in magnitude, severity, and diversity (IPCC, 2023). South Africa is a water-scarce country, and water resources have been distributed unevenly. Participants were also asked if they are concerned about Climate Change, and what the main issues they are concerned about are. The majority of participants across all focus groups talked about water access being the main concern that they have. Participant one in group two said,

"My biggest concern is definitely water access, and we are not getting water the way we should be. Another thing, our leaders should, at all times, reach out to the community to warn us about the extreme water conditions because when it rains, it rains hard, but when it is hot, it is hot for a very long time. There is no balance, and we do not have information, which makes it worse".

Goal six of the seventeen SDGs focuses explicitly on freshwater, including Sustainable Development (SDG 6): *"Ensure availability and sustainable management of water and sanitation for all"* Goal 6 calls for improving water quality as well as for protecting and restoring water-related ecosystems (Hering, Maag & Schnoor, 2016). According to Water-U.N.'s (2018) synthesis report, the 2030 Agenda lists rising inequalities, natural resource depletion, environmental degradation, and climate change among the most significant challenges of our time. It recognises that social development and economic prosperity depend on the sustainable management of freshwater resources and ecosystems, and it highlights the integrated nature of SDGs. From the responses, it is clear that water access is definitely a concern for the community members; additionally, they also mentioned that their community leaders don't reach out and are not involved or communicate with them with regard to environmental issues.

While the majority of the responses centred around not having enough excess water resources, some responses that came out from the focus group discussions were concerned about the impacts on their livelihood system, which is a disturbance in their agricultural activities since they live in a rural area, some of the community members are dependent on farming for their household needs and are dependent on their crops for their subsistence needs. The discussion below with one of the participants in the focus group indicated that frequent extreme events, such as drought and increasing temperatures, affect soil moisture and surface water

availability for both domestic use and agriculture. One of the participants shared their main issues concerning climate change and said, *"One of the main issues concerning climate change is the vegetation. Since in rural areas, most of the people depend on vegetation to feed on as well as selling, shortage or too much of rain it causes the crops to suffer". (Focus Group 1, 2022)*

These findings explain that community members agree, extreme events related to climate change, such as prolonged dry periods and excessive temperatures, have affected agricultural activities and the biophysical environment. Respondents were also asked if they have noticed any changes in the area or community during the time that they have lived there, which may suggest that the climate is changing. This indicates that local ecological knowledge can provide information on the changing climate. Such information can complement scientific data to inform policy on best practices to build the adaptive capacity of rural communities. Participants also had an opportunity to share where they get their climate change information. When asked the question**,** *"Where do you get most of your current information on climate change?"* one person shared,

"Sometimes information on climate change is accessed on radio and television; however, there are people who do not have TVs and radios, so they are unable to access this information. Like today, we were told we might have heavy rainfalls; there are people who do not know that. You see, so it depends mainly on the type of life that those people live, but generally, they do not have the resources to access this sort of information." (Focus Group 1, 2022)

From these responses, it's clear that the majority of the community residents do not receive any information about environmental issues or climate change besides from the media. Some of the other responses give an indication that some community members still associate climate change information with weather forecast predictions. For instance, one of the participants said,

"We get it on television, radio and cell phones, as my colleagues have indicated. However, if one does not have access to any of these mediums, because there are residents who do not have any of them available. You ask your neighbour what the weather looking like tomorrow is".

The results confirm that there is a need for an education and awareness plan associated with Climate Change. The needs assessment that was conducted by the District and the DEA in previous years found that there is a lack of dedicated environmental management units in most municipalities, resulting in Environmental functions placed within varying units of the municipal organisational structure; availability of the budget to perform environmental functions within municipalities.

One is the various scales of political decision-making that has involved, two is the fragmented and unclear roles of state and non-state actors and lastly, the complex nature of the processes that lead to emissions of greenhouse gases (GHG) in the everyday processes of production and consumption. Participants were also asked, *"Do you think enough is being done by the South African government to take action on climate change?"* one of the participants answered,

"No, the government is not doing enough. In most instances, most of what the government is supposed to be doing for us is not being done. The government is dragging its feet when it comes to ensuring that we are safe and able to access water, and I do not know how long it plans to continue dragging its feet on this matter. We plead with the government to take responsibility and communicate with our local community leaders and ourselves as local residents in order to work together and ensure that we get the help we need."

There is an indication based on the response that information regarding climate change is hard to come by and that not enough is being done by the local leaders within the communities and government officials to inform residents about the latest developments in relation to climate. The lack of awareness of government initiatives is an important issue that must be addressed in climate change learning. Most of the participants shared the same sentiments and feel that there would be a difference if consultation processes are being implemented and people are being equipped with more information about environmental issues. This discussion highlights the lack of political will and understanding of the critical relationship between climate change and biodiversity issues and awareness. Based on this, it's clear that the government isn't doing enough, especially in sharing information. There is a sense that if the government is sharing information and educating the people in the community, people might know how to take care of the environment and will be informed and empowered to do better in the physical environment.

The findings in this study indicate a gap in climate change knowledge that requires to be addressed in any climate change learning initiative. Clayton *et al.* (2015a) advocated that understanding the issues around climate change facilitates better engagement and action. The participant also mentioned that the government has financial challenges, which is an issue in trying to combat the fight against climate change impacts.

9. ATTRIBUTION OF RESPONSIBILITY FOR CLIMATE CHANGE

The uptake of the new Constitution of the Republic of South Africa of 1996 hurried up the transformation of sectors in public service and was guided by the different policies and legislative instruments. Section One of the Constitution of 1996 requires that all public services be transformed and democratised following the values of human dignity, the achievement of equality, and the advancement of human rights and freedom. However, local government is still faced with the challenge of poor service delivery, lack of infrastructure, and identification of appropriate vehicles

for effective and efficient service delivery.

Climate change action is required from all levels of society by individuals, groups and governments (Butler *et al.*, 2015). Additionally, climate change actions can be enhanced at all levels, from individuals to governments (Murphy *et al.*, 2016). In this study, participants were asked, **"**Who do you think should be responsible for making any changes to lessen the impacts of climate change" one of the participants said,

"The municipality should be primarily responsible for ensuring that we have access to water and have reliable services. It should be the municipality because they have to ensure that if we do not have water in the river, then they should make provisions through water tanks to ensure that we do get water, and they should not limit it just once a week. It should at least be three times a week to make sure that we all get water, and it should be up to us to then save the provided water." Another participant from a different focus group said,

"I definitely think it is the municipality that should look to provide us with water. In doing so, the municipality should, in consultation with the residents, communicate when the water will be made available and ensure that on the agreed dates, water is available for people to access."

Some people are of the view that industry, scientists and individuals are responsible for addressing climate change, while others, in a recent South African study, indicated that government environmental departments are responsible for dealing with climate change (Pasquini *et al.*, 2013). The responses from this study suggest that the government, especially the local municipality, should be responsible for addressing climate change.

These findings support Kettle and Dow (2016) and Newell *et al.* (2015), who were also of the view that governments have a high degree of responsibility for solving climate change problems. Local governments are increasingly recognised as critical to climate change, given their roles in scaling up the adaptation of communities, households and civil society and in managing risk information and financing (Porter *et al.*, 2015). Another participant put it this way,

"We need to work together. Some trees consume a lot of water, which people plant without knowing. Sometimes the government chooses places where people use to plant their crops for building roads or warehouses. Working together can significantly lessen the impacts of climate change, especially on water."

Few participants who felt personally responsible for making any changes to lessen the impacts of climate change reflect the views of Capstick et al. (2015), who indicate that people are not likely to adopt pro-climate change behaviour unless they feel empowered to do so and also feel that others in society are also undertaking similar actions. This lag in climate change responsibility is cause for great concern and must be addressed in any climate change learning intervention, as the literature has clearly demonstrated that individual actions on climate change are also important and sorely needed. Participants were asked the question, *"would you be prepared to change your behaviour to reduce your contribution to climate change in any way"*

Participant one in group three said,

"As the community members, we should make sure that we do litter and also use the toilets given to our community in order to avoid the water resources (rivers) from getting dirt (water pollution), and that will reduce the number of water diseases. The community must have a dumping site to avoid the littering and burning of rubbish anywhere because that contributes to air pollution."

Participants in the focus group mentioned that the community needs to work together, which suggests that individuals are willing to change their behaviour provided that everybody else is changing their behaviour that way, they will be able to change their behaviour. From the above responses, there is an indication that some community members know what to do and know their needs in order to be able to contribute towards the reduction of their contribution to climate change. Community members are willing to change their behaviours and are willing to work together towards combating climate change.

Participants in group two made suggestions on how they can change their behaviour. Participant one in group two stated,

"I think the leaders maybe, in their respective levels should organise meetings and imbizo to give us guidance on how these things work because a majority of us really do not have the knowledge for it."

Based on the above response, climate change communications from authority sources and information that continue to the instructor are forced upon people who are likely to be successful. Participant four in group two responded,

"I also think it is hard to access information, but it would be easier if the councillors were to provide a place where we all meet maybe we schedule meetings which teach us about climate change so that we can know how it works and what to do and what not to do. On our part as local communities, we too can play our part by trying to stop any of the bad habits we have, which clearly are a contributing factor to this problem. I spoke about irresponsible behaviour earlier. Farming in areas we have been warned against comes to mind."

Participants expressed a lack of trust in government-led climate initiatives and viewed them as ineffective. This distrust toward state-led climate initiatives can be understood through the lens of political ecology, which highlights how historical governance failures and unequal power relations between the state and rural communities undermine environmental governance. Participants' perceptions reflect a recognition of structural exclusion from decision-making processes, reinforcing political ecology's emphasis on marginalisation

and contested authority in climate adaptation.

In view of these findings, the need for climate change learning for community members is substantiated and necessary as participants consider themselves as most trustworthy in taking action on climate change and the public must be actively involved in deciding what should be done about climate change. Therefore, such learning will also support more climate change actions, enabling the public to provide meaningful input when consulted and actively involved.

One of the barriers that may prevent pro-climate change actions is the lack of reliable information about climate change (Shackleton *et al.*, 2015). People's willingness to adapt to climate change is determined by their knowledge and understanding (Brügger *et al.*, 2015; Shi *et al.*, 2015). The public also needs access to information on climate change to support global initiatives Klenk *et al.* (2015) recommend that to improve the climate change response, it is necessary to engage stakeholders and share scientific information.

Several participants mentioned that they rarely receive information about climate change from government officials or local authorities. Instead, they rely on word-of-mouth or local radio. The limited access to formal climate information reported by participants points to deeper patterns of marginalisation and uneven power dynamics in how climate responses are structured. Viewed through a political ecology lens, this gap is not simply due to poor communication but reflects longstanding inequalities in who is included or excluded from state-led planning. The voices of rural communities are often overlooked in formal decision-making spaces, which reinforces their marginal position and limits their ability to participate meaningfully in adaptation efforts. As a result, access to climate knowledge remains uneven and continues to be shaped by broader political and economic forces.

Stern (2016) points out that there is a considerable risk for a safe and thriving world in the future if these two issues are not addressed adequately and quickly. Participants shared that their crops are suffering, they are not able to conduct their businesses to receive an income for their households, and they aren't able to meet their subsistent needs. Findings show that there is a gap between 'awareness' and 'knowledge' because the widespread familiarity with climate change-related topics did not result in adequate knowledge. Findings from these responses highlight the necessity for harnessing local knowledge to enhance community resilience and

10. POLICY IMPLICATIONS

Policymakers should focus on messages that depict the seriousness of climate change, the human contribution to the threat and also possible actions that can be taken to mitigate impacts. Public perceptions are well established as a key factor in support for climate change mitigation policies, and they tend to vary both within and between countries. It is essential to formulate climate change awareness policies and programmes that can reach all sections of the population, providing them with the necessary information about climate change, as well as information about mitigation measures at the level relevant to them. Communication of climate change impacts is processed through local communication repertoires involving both formal and informal modes of communication. This clearly implies that public perception and communication of climate change is largely contextual and locally situated.

The findings of this research bear important implications for formulating climate change communication strategies – both for content development, and processes and structures of communication. Communicators and educators should consider what patterns of public perceptions people have in their minds, and what are the possible impacts of climate change in the region. Emphasis on local impacts of climate change is a potential way to bring people into the discourses of climate change and possibly towards intended behavioural changes. Media and climate change communicators have mainly focused on some occasional events of extreme weather (e.g., storms). Public concern about climate change recedes once they are not exposed to extreme weather events for a long time. This type of communication approach has failed to address climate change as a continuous and long-lasting risk, which could affect other aspects of people's livelihood.

Accordingly, the wide-ranging effects of climate change on agriculture, the environment, human health, biodiversity, and other socioeconomic and related issues are not included in the discourses of climate change. Food security and attempts to eradicate poverty might be challenged because of the adverse effects of climate change in developing countries. Therefore, communication content on climate change should integrate these potential effects.

Any policy initiative to tackle the adverse impacts of climate change, enhance the resiliency of vulnerable people, and communicate the risks effectively to address local or regional aspects and the way local people perceive the risks. Promoting engagement around climate change, at both a formal level (public forums with government and private sector stakeholders, etc), as well as at a more informal level (community level programmes) with the view of finding best-localised solution strategies should be at the forefront of policy regulations. This indicates the necessity of a bottom-up approach for formulating policy strategies with due consideration of the desires and perceived knowledge of vulnerable people.

11. RECOMMENDATIONS

Addressing human behaviour and climate change requires interdisciplinary and integrated approaches. To successfully address climate change, every tool that is available must be used, drawing on expertise from all relevant

disciplines. Some segments of the policy and research community have already recognised that human behaviour will be critical in the fight against climate change. Key factors that interventions should target are as follows;

Communication plays an equally important role in sensitising climate change issues in people's. There should be a joint effort to make the climate change communique simpler, using images as well as more balanced approaches. The source of climate change information must come from scientific reports, the Department of Forestry, Fisheries and Environment, the UN and NGOs or media, as these were identified as the most reliable sources of climate change information. Make climate change initiatives more practical and, according to Aune et al. (2016) and Fernandez et al. (2016), attractive, convincing, relevant, and part of the normal routine or habit of daily life. Sustaining climate change learning initiatives over a longer period, and not for a limited period. Climate change experts must be invited to address the public; the lack of expertise is one of the major barriers that hinder effective climate change action.

Community members are to be consulted and involved when internal climate change programmes are developed so that their views are incorporated in developing climate change learning interventions.

Given that South Africa is a developing country with large proportions of poor and marginalised people, concerns such as unemployment and food scarcity are often more immediate than environmental concerns. Environmental issues should also be prioritised as one of the pressing challenges, so that attitudes towards climate change will change. To enhance coordination between local government and citizens, this study recommends the use of diverse communication and engagement tools which include, stakeholder roundtable sessions, public open houses across the region, a dedicated project web page, an online "do it yourself" consultation process, a social media campaign; promotion through an online blogging community, media advertising, a summary and analysis of all the feedback that was received.

12. CONCLUSION

This study examined the attitudes and perceptions held by the community in Noodsburg towards climate change through qualitative analysis. This study highlighted that limited access to climate information among rural communities is not merely a communication issue but reflects deeper structural inequalities. Using Political Ecology as an analytical lens, the findings demonstrate how power relations and historical patterns of marginalisation shape both the distribution of climate knowledge and the capacity of communities to respond. The uneven access to information and exclusion from formal decision-making processes reinforce the peripheral status of vulnerable groups, ultimately affecting how climate change is understood and addressed at the local level. These insights underscore the importance of inclusive, equity-driven approaches in climate communication and policy design.

The study found that attitudes and the ability to adapt to climate change are key ingredients for pro-climate change actions. There's a gap between "awareness" and "knowledge" as identified among the participants when they attempted to give detailed descriptions of the causes of climate change. Findings highlight the necessity for harnessing local knowledge to enhance community resilience and promote ecosystem-based adaptation strategies in the face of a changing climate. A lack of clarity on roles and responsibilities was identified. The wide scope and variety of methods recommended may help with the engagement of many residents and community groups, as well as businesses. It may also include voluntary associations and organisations, faith-based organisations, and labour groups. But it must be ensured that participants' feedback is accurately documented for consideration and that suggestions for policy changes are incorporated into the final policies. While each of the initiatives recommended is viewed as an example of best practices in open engagement, the best initiatives go beyond simply implementing an online discussion forum or using social media to engage citizens in government decision-making. The best initiatives in open engagement are iterative in nature.

13. REFERENCES

Bassett, T.J. (1988). The political ecology of peasant-herder conflicts in the northern Ivory Coast. Annals of the association of American geographers, 78(3), pp.453-472.

Bester, J. (2020). The voice of the voiceless: Exploring factors that motivate public participation at the local government level in South Africa through a case study of Khayelitsha Township in Cape Town. *African Journal of Democracy and Governance*, *7*(3-4), 193-220.

Brookfield, S.D. (1987). Developing critical thinkers: Challenging adults to explore alternative ways of thinking and acting. Jossey-Bass.

Butler, J. R. A., Wise, R. M., Skewes, T. D., Bohensky, E. L., Peterson, N., Suadnya, W. & Rochester, W. (2015). Integrating top-down and bottom-up adaptation planning to build adaptive capacity: a structured learning approach. Coastal Management, 43(4), 346-364.

Clayton, S., Devine-Wright, P., Stern, P., Whitmarsch, L., Carrico, A., Steg, L., Swim, J., & Bonnes, M., (2015). Psychological research and global climate change. Nature climate change, 5, 640-646. https://doi.org/10.1038/nclimate2622

Department of Forestry, Fisheries and the Environment (DFFE). (2021). *South Africa's First Nationally Determined Contribution under the Paris Agreement*. Pretoria: DFFE.

Derman, B. and Ferguson, A., (2003). Value of water: political ecology and water reform in Southern Africa. Human organization, pp.277-288

Hering, J.G., Maag, S. and Schnoor, J.L., (2016). A call for synthesis of water research to achieve the sustainable development goals by 2030.

Hosea, Patrick, & Khalema, Ernest. (2020). Scoping the nexus between climate change and water-security realities in rural South Africa. *Town and Regional Planning*, *77*, 18-30. https://doi.org/10.18820/2415-0495/trp77i1.2

Intergovernmental Panel on Climate Change (IPCC). (2023). *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. IPCC.

IPCC., (2014). Summary for policymakers. In: Climate change (2014).: Impacts, adaptation, and vulnerability. Part A: Global and sectoral aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovermental Panel on Climate Change [Field CB, Barros VR, Dokken DJ, Mach KJ, Mastrandrea MD, Bilir TE, Chatterjee M, Ebi YL, Estrada YO, Genova RC, Girma B, Kissel ES, Levy AN, MacCracken S, Mastrandrea PR, White LL (eds)]. Cambridge University Press, Cambridge, UK and New York, USA. pp 1–32

Kahinda, J. M., Kapangaziwiri, E., Hughes, D., & Khakhu, K. (2022). A review of and scoping for water scarcity/security research in South Africa: towards a research strategy. *WRC and Institute for Water Research, Rhodes University, Pretoria/Makanda*.

Kettle, N. P., & Dow, K., (2016). The role of perceived risk, uncertainty, and trust on coastal climate change adaptation planning. Environment and Behavior, 48(4), 579-606.

Khobai, H., Stungwa, S., Oliphant, O., Maphuto, O., & Mbua, V. M. (2024). Symmetric impact of carbon emissions on poverty in South Africa: new evidence from ARDL bounds test. *International Journal of Energy Economics and Policy*, *14*(3), 179-187.

Kupika, O. L., Gandiwa, E., Nhamo, G., & Kativu, S., (2019). Local ecological knowledge on climate change and ecosystem-based adaptation strategies promote resilience in the Middle Zambezi Biosphere Reserve, Zimbabwe. Scientifica, 2019.

Muringa, T., & Shava, E. (2025). 'It's all talk but no action'–navigating political and administrative will in transforming local government. *Cogent Social Sciences*, *11*(1), 2516078.

Murphy, C., Tembo, M., Phiri, A., Yerokun, O., & Grummell, B., (2016). Adapting to climate change in shifting landscapes of belief. Climatic change, 134(1), 101-114.

National Planning Commission of South Africa (NPC)., (2012). National Development Plan 2030: Our Future–Make It Work. Pretoria, South Africa: National Planning Commission; 2012.

Neumann, R.P., (1992). Political ecology of wildlife conservation in the Mt. Meru area of Northeast Tanzania. Land Degradation & Development, 3(2), pp.85-98.

Nhemachena, C., Nhamo, L., Matchaya, G., Nhemachena, C. R., Muchara, B., Karuaihe, S. T., & Mpandeli, S. (2020). Climate change impacts on water and agriculture sectors in Southern Africa: Threats and opportunities for sustainable development. *Water*, *12*(10), 2673.

Porter, J. J., Demeritt, D., & Dessai, S., (2015). The right stuff? Informing adaptation to climate change in British local government. Global Environmental Change, 35, 411-422.

Quick, K. S., & Bryson, J., (2016). Theories of public participation in governance. Handbook in theories of governance, 158-169.

Quinn, T., Lorenzoni, I., Adger, W.N., Obrien, K. and Selboe, E., (2015). Place attachment, identity, and adaptation. The adaptive challenge of climate change, pp.160-170.

Roberts, D., (2016)., A global roadmap for climate change action: From COP17 in Durban to COP21 in Paris. South African Journal of Science, 112(5-6), 1-3.

Rodina, L., & Harris, L., (2016). Water services, lived citizenship, and notions of the state in marginalised urban spaces: The case of Khayelitsha, South Africa.

Shackleton, S., Ziervogel, G., Sallu, S., Gill, T. and Tschakert, P., (2015). Why is socially-just climate change adaptation

in sub-Saharan Africa so challenging? A review of barriers identified from empirical cases. Wiley Interdisciplinary Reviews: Climate Change, 6(3), pp.321-344.

Shackleton, S., Ziervogel, G., Sallu, S., Gill, T., & Tschakert, P., (2015). Why is socially-just climate change adaptation in sub-Saharan Africa so challenging? A review of barriers identified from empirical cases. Wiley Interdisciplinary Reviews: Climate Change, 6(3), 321-344.

Stern, P. C., (2016). Impacts on climate change views. Nature Climate Change, 6(4), 341-342.

Swim, J. K., & Becker, J. C., (2012). Country contexts and individuals' climate change mitigating behaviors: A comparison of US versus German individuals' efforts to reduce energy use. Journal of Social Issues, 68(3), 571-591.

Walker, P. A., (2005). Political ecology: where is the ecology? Progress in Human Geography 29: (1) 73–82.