Africa Talks Climate

Research Report

SOUTH AFRICA

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GRAEME WILLIAMS / PANOS PICTURES

South Africa Talks Climate

The public understanding of climate change

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ACKNOWLEDGMENTS

The BBC World Service Trust (BBC WST) is grateful to the British Council South Africa for their support throughout this project, particularly Chris Griffiths, Shoba Ponnappa, Chris Brown, Wayne Harper and Fiona Sandler. Thanks also go to Kit Vaughan and Susanne Moser, and our South Africa advisory group: Dr Brian Mantlana, Brad Smith, Professor Coleen Vogel, Dr Debra Roberts, Dr Emma Archer, Gina Ziervogel, Helena McLeod, Khamarunga G. Bada and Peter Nielson for their guidance prior to fieldwork and their feedback on reporting. Fieldwork was conducted by Synovate and the BBC WST. Many thanks to Lindsay Vos, Joan Molelekeng, Lerato Pitso, Max Weldon, Natalie Campbell, Penny Clark and Vusi Nkabinde. Thanks also to Vivien Marles. Analysis and reporting was conducted by the BBC WST's Research and Learning Group. The research was funded by the British Council. We also gratefully acknowledge the support of the UK Department for International Development (DFID) to the BBC WST's policy and research programmes.

CREDITS

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Registered charity number: 1076235

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About *Africa Talks Climate*

Climate change is one of the most important issues on the global political and economic agenda, yet it has taken at least 20 years to become an international priority. In many ways, this is because climate change was originally communicated as a scientific problem. Complex, confusing, and at times contested scientific information resulted in a slow public and political response to the climate crisis. The climate change debate has also taken place in industrialised nations, among a public largely safe from its worst effects. For many, climate change is an abstract concept.

In Africa, climate change is far from abstract - it is already determining the course of people's lives. Extreme weather events and greater unpredictability in weather patterns are having serious consequences for people who rely on land, lakes and seas to feed themselves and to earn a living. As a result, Africa's engagement with the issue is evolving rapidly, presenting an opportunity to leapfrog the slow evolution of western public opinion and political action.

African citizens' response to climate change is hampered by a fundamental shortage of relevant, useful information for African audiences. The intensive media coverage and public awareness campaigns prevalent in much of the industrialised world have been largely absent in Africa, particularly outside major urban centres. Too often, African voices are absent from the international climate debate.

Africa's response to climate change will be dictated by how well it is understood by its people. *Africa Talks Climate* is founded on the belief that those worst affected by the issue have the right to be better informed, in order to understand and respond effectively to their changing climate. Providing people with the information they need will therefore be crucial. Unfortunately, little is known about how climate change is currently perceived and understood by Africans; *Africa Talks Climate* seeks to address this. It is the most extensive research ever conducted on the public understanding of climate change in Africa. The research teams held discussions with more than 1,000 citizens from the Democratic Republic of Congo, Ethiopia, Ghana, Kenya, Nigeria, Senegal, South Africa, Sudan, Tanzania and Uganda[i]. They also carried out interviews with nearly 200 opinion leaders, including policymakers, religious and community leaders, business people, and media and NGO representatives.

The overall objective of *Africa Talks Climate* is to assess public understanding of climate change and identify how communication and media could best support Africans' response to climate change. The research asked four main questions:

1. What changes have African citizens experienced in their climate and environment over time?
2. How do African citizens explain and respond to these changes?
3. What do African citizens know and understand about global climate change?
4. What do African opinion leaders know and understand about climate change and what are their views on their country's responses to climate change?

Only when governments, NGOs and the media are comfortable talking about climate change can they communicate it effectively to citizens. Only when citizens are clear about climate change and its implications for their lives can they respond effectively to it. Equipped with the knowledge that weather patterns are changing and that extreme weather events are more likely to occur, people will be able to debate the issues with their families, communities and governments, and discuss the risks and possible courses of action. This will enable them to prepare more effectively for the future.

Africa Talks Climate is the first step in developing long-term strategies for sharing information about climate change. It aims to support all those charged with communicating on climate change, whether they be international organisations, governments, the media, NGOs or community leaders.

Providing people with relevant information so that they can effectively address the issues that affect them most is at the heart of the work of the BBC World Service Trust. This is why, with its network of researchers across Africa, the Trust is uniquely positioned to support Africa's response to climate change by sharing its expertise in understanding and communicating with audiences.

For further information including a policy briefing and executive summary report from *Africa Talks Climate*, visit **www.africatalksclimate.com**.

i Country selection was informed by: consultation with organisations working across Africa on climate change, the presence of a British Council or BBC World Service Trust office, and local research capacity. However, consideration was also given to the country's climate, demographics, geographical situation within Africa and a number of economic, media, and governance indicators.

Executive summary

Between August and October 2009, the BBC World Service Trust's Research and Learning Group, funded by the British Council, conducted research in South Africa to gauge public understanding of climate change. The research consisted of 16 focus group discussions with South African citizens, and 18 in-depth interviews with opinion leaders from government, religious institutions, the private sector, the media, and civil society. The overall objective was to find out what people think about climate change and to determine how to tailor communication and media strategies to support South Africa's response to climate change.

Key findings

- Most South Africans[i] are aware of the phenomenon of global climate change, but their understanding of the science is patchy. Although they associate the terms 'climate change' and 'global warming' with carbon emissions, many also conflate them with ozone depletion. They tend to use 'climate change', 'global warming', and 'ozone depletion' interchangeably.
- The term 'climate change' often triggers associations with some of the global impacts of climate change, such as melting ice caps, rising sea levels, hurricanes, and the possible inundation of low lying countries like the Maldives and Bangladesh.
- Many South Africans do not see climate change as having any special relevance to South Africa or the rest of the African continent. However, when prompted to think about the impacts of climate change locally, they link it to national issues which they are already concerned about, such as the loss of wildlife and increased flooding.
- Many South Africans use climate change as an umbrella term to refer to the destruction occurring in their natural surroundings, with changes in the weather and seasons forming part of the broader environmental changes people have observed over the course of their lifetimes.
- Most South Africans tend to view climate change as a 'green' issue that only the wealthy can afford to worry about. They are less aware of the potentially far-reaching social and economic consequences of climate change on South Africa, in terms of migration, food export revenues, and tourism.
- There is awareness that South Africa as a country, and South Africans as individuals, have contributed to climate change through their reliance on fossil fuels.
- Despite recognising South Africa's contribution to climate change, citizens express reluctance to moderate their lifestyles to reduce carbon emissions, especially as they see little government or private sector leadership on the issue. South Africans say that they do not want to sacrifice things important to them (cars or electricity, for example) unless the government reassures them that their actions can have a real impact.
- South Africans tend to view the destruction of the environment as an inevitable consequence of their country's development.
- Opinion leaders believe that, while many South Africans are aware of climate change, they see it as a remote threat and are yet to realise the dramatic impact it could have on their livelihoods in the future.
- There is a feeling amongst the public that, politically and individually, South Africa lacks the will to tackle climate change in a cohesive and committed manner. South Africans believe that issues like HIV and AIDS dominate both government and non-government organisation (NGO) agendas, to the detriment of environmental issues.
- South Africans frequently mention recycling as a viable way to tackle climate change and environmental degradation. However, many are unclear how recycling links to climate change and often cite personal and systemic barriers to recycling (lack of time or lack of recycling facilities, for example).
- Opinion leaders recognise that climate change is likely to have a severe impact on South Africa, but feel there is not sufficient communication with the public on what climate change is or how people can adapt to its effects. They feel that so far there has been a tendency to focus exclusively on addressing the *causes* of climate change.
- The media and schools are people's main sources of information on climate change. Yet the media struggle to engage audiences with the issue.
- People note the lack of climate change terminology in local languages. Although English terms are widely recognised, there are no standard translations in Zulu or Sepedi. These terminologies are thus not accessible to many South Africans. Opinion leaders agree that the lack of appropriate words prevents engagement among certain publics and increases the perception that climate change is not immediately relevant to people's lives.
- South Africans often draw on existing knowledge and beliefs to explain the effects of climate change. For example, many incorrectly believe that smoke from cars and factories damages the ozone layer, making it hotter. They also link the concept of global warming to overpopulation. Some recognise that an increasing population places greater strain on natural resources and produces more greenhouse gas emissions, while others think overpopulation directly contributes to increased ambient heat. Some also see changes in the weather as the will of God, a view particularly prevalent among rural populations.

i A note about language: While this report refers to the views of 'South Africans,' it only represents those South Africans who participated in the research. Research participants have sometimes been referred to as 'South Africans' to facilitate ease of reading.

RECOMMENDATIONS

There is a need to increase public understanding of climate change in South Africa, building on peoples' existing awareness of terms and concepts. Efforts need to focus on making climate change *locally* relevant and strengthening associations between global climate change and the social and economic consequences of climate change in South Africa; in particular, the impacts which are of most concern to South Africans such as rising food prices, extreme weather and the loss of the country's wildlife. Future communication will need to assuage people's fears that tackling climate change will impede economic development. Any calls for individuals to take action to address climate change will be better received if the government and private sector lead by example.

Three specific recommendations for all those charged with communicating on climate change follow:

Provide information

- Raise awareness of global climate change and the ways in which it relates to people's lives and livelihoods at a local level. It is important that South Africans view climate change as a *local* issue with local effects, as well as an international phenomenon.

- Provide people with access to correct information about the mechanisms of climate change.
- Provide clear and authoritative information that establishes links between specific behaviours by individuals (such as driving and using electricity) and climate change. This can both combat widespread factual uncertainty and limit the extent to which individuals can deny (subconsciously or otherwise) the impacts of their behaviours on the global environment.
- Target urban poor and rural populations to build simple, correct mental models of how climate change works (being mindful of people's existing frames of reference) and provide information on how to adapt to climate change and prepare for extreme weather events. Develop and test appropriate climate change terminology in local languages.

Facilitate policy and public debate

- Provide public spaces, for example through television talk shows, radio call-ins and other interactive media platforms, to exchange ideas and information, foster understanding and encourage action.
- Draw on a range of South African voices and experiences in discussions and debates. Encourage discussion across all levels of society about the relative roles of the government, businesses and individuals in tackling climate change.
- Build a sense of immediacy and encourage the sharing of current examples of mitigation of, and adaptation to, climate change. Harness South African understanding and concern about their changing weather and environment, to create a relevant discourse that promotes citizen engagement in South Africa's response to climate change.

Encourage accountability

- Develop mechanisms which enable South African citizens and their representatives to move climate change on to the political agenda; and to exert pressure on their own governments with respect to climate change policies, adaptation funding, technology transfer, emissions reduction and other response strategies. Such mechanisms will also help South African citizens and their representatives to communicate their own perspectives and demands to the rest of the world.

Acronyms used in this report

BBC WST	BBC World Service Trust
CFC	Chlorofluorocarbons
EPA	Environmental Protection Agency
GDP	Gross Domestic Product
IPCC	Intergovernmental Panel on Climate Change
KZN	KwaZulu-Natal
NGO	Non-government organisation
R&L	BBC World Service Trust Research and Learning Group
UNFCCC	United Nations Framework Convention on Climate Change

1 Background

Climate change in Africa

As climate change threatens Africans' health and homes, and the natural resources upon which many depend to survive, Africa's population faces an urgent crisis.[1] It is predicted that Africa will be one of the regions worst affected by climate change.[i] For people struggling with the challenges posed by climate variability, environmental degradation and poverty, climate change represents a tipping point.

Rainfall patterns across Africa have already changed markedly, and yields from rain-fed agriculture could halve in the next decade.[2] A decline in yields is predicted to lead to a greater risk of malnutrition for people who rely on the land to eat, and increased food insecurity for those who rely on buying food in the marketplace.[3] Indeed, there have been recent food crises in Kenya, Uganda, Somalia and Ethiopia.[4] Imports may also be affected, and food aid is threatened by climate change in the midwest of the United States.

Climate change is likely to alter the transmission patterns of diseases such as malaria.[5] Increased incidences of cholera and meningitis are also thought to be linked to variations in climate. Health threats such as diarrhoea, asthma and stroke affect more people when temperatures rise.[6]

The stark impacts of changing rainfall patterns on Africa are manifest. A more powerful hydrological cycle will bring other challenges, including flooding. The Intergovernmental Panel on Climate Change (IPCC) says that "*by the 2080s, many millions more people than today are projected to experience floods every year due to sea-level rise… [largely] in the densely populated and low-lying mega-deltas of Asia and Africa… small islands are especially vulnerable*".[7]

The links between environmental degradation, political tension and conflict have been highlighted for many years.[8] Environmental degradation reduces the supply of food and fresh water, and resources such as land. Climate change is predicted to exacerbate conflict in Africa, and in some cases is already doing so.[9]

Climate change in South Africa

South Africa is in a unique position within sub-Saharan Africa. It is both a significant contributor to global climate change – estimates suggest that it is the thirteenth largest emitter of carbon dioxide in the world[10] – and a victim of its effects. Climate change presents an additional stress for South Africans already struggling with the challenges posed by climate variability and environmental degradation. The interrelation of climate change with other factors is complex and still evolving. Yet the changing climate is likely to have a profound effect on South Africa's water resources and wildlife[11].

South Africa lies within a drought belt and a subtropical region of high pressure, meaning that rainfall tends to be highly erratic and variable. With average annual rainfall a little over half the world average, South Africa is largely arid and is at great risk of experiencing droughts and floods in any given year.[12]

According to South Africa's Ministry of the Environment, climate change is predicted to result in increased average temperatures across South Africa of between 1C and 3C by 2050.[13] It is expected

i Of the 20 countries in the world most vulnerable to climate change (in socio-economic terms), 15 are African. See *The Anatomy of a Silent Crisis*, ref 1.

Perceptions and coverage of climate change: what do we already know?

To communicate effectively about climate change, it is critical to know how people understand it. While this review is not exhaustive, it is clear that there is a dearth of research on perceptions of climate change in Africa, and it will be essential to address this problem if communication is to improve. Opinion polls to date have largely focused on Nigeria, Kenya and South Africa. They reveal that many people are unfamiliar with "climate change", "global warming" and related terms.[14, 15] This makes it difficult to interpret further opinion-poll results about climate change in Africa; most polls suggest that Africans view climate change less seriously than do non-Africans,[16, 17] which may point to a lack of information concerning the relevance and implications for Africa, but could also reflect a lack of understanding of the questions asked.

Some small-scale perception studies hint at the impact climate change is having on African lives.[18, 19, 20] Lack of information regarding climate change is seen by some as a critical barrier in dealing with its effects.[21, 22] Indeed, research in the United States has shown that a limited understanding of climate change can restrict people's ability to distinguish between effective and ineffective response strategies.[23]

A lack of public understanding of climate change is not exclusive to Africa.[i] A review of research on the perceptions of climate change in the UK reveals public understanding as *"patchy, but generally poor"*.[24] Similarly, research in the United States has shown that people often have basic misconceptions about climate change.[25, 26] Although high levels of media coverage of climate change in the United States and the United Kingdom have not always translated into high levels of concern among the public, some research suggests this is because climate change is seen as a remote and non-urgent issue.[27, 28] This is less likely to be the case in Africa, where most people are already experiencing the effects in their daily lives.

Although the media are seen to have a critical role to play in raising awareness and information provision on climate change, and disaster preparedness,[29] little research exists on the media coverage of climate change in African countries. However, a recent publication suggests that journalists covering climate change in many developing countries lack training, support from editors and access to information or people to interview.[30] It concludes that while news coverage of climate change in non-industrialised countries is increasing, the quantity and quality of reporting does not match the scale of the problem. It goes on to point out that a reliance on reports from Western news agencies, rather than locally relevant news, as well as sparse coverage of adaptation measures, means that audiences, particularly the world's poor, are being underserved.Finally, it hints at the potentially important role that non-news media (such as talk shows, dramas and public service announcements) can play in providing information to audiences on climate change.

i In the absence of extensive research on the public understanding of climate change in Africa, *Africa Talks Climate* also draws on existing research from outside Africa, whilst acknowledging that in many cases this research was conducted in a Western context, and therefore must be applied carefully to the African context.

South Africa

Region: South Africa

Population: 49.1 million

Capital: Pretoria

Major languages: Zulu, Xhosa, Afrikaans, Sepedi, Tswana, English, Sesotho, Tsonga, Swazi, Venda and Southern Ndebele

Major religions: Christianity

Terrain: Vast interior plateau rimmed by rugged hills and narrow coastal plain

Climate: Mostly semi-arid and mild; sub-tropical along the eastern coast. Due to varied topography and oceanic influence, a variety of climatic zones exist

that the country's most arid areas will experience the highest increases over the next few decades. Changes in rainfall patterns are also predicted.[31] Eastern parts of South Africa are likely to have more intense rainfall in the summer, whilst drier winters are projected for the southern parts of the Western Cape. As dry spells become longer and are interspersed with intense storms, the occurrence of droughts and floods will become more frequent.[32]

Despite being Africa's largest and most developed economy, South Africa is not immune to the impacts of climate change. South Africa's National Climate Change Committee has identified four areas which need support in coping with the adverse consequences of a changing climate: health, water resources, agriculture (maize production in particular) and forestry, rangelands, and biodiversity.[33]

Higher temperatures are not only likely to have general health impacts such as strokes, skin rashes, and dehydration,[34] they are also likely to lead to a surge in vector and water-borne diseases such as malaria[35] and cholera.[36]

The availability of water in South Africa will be disturbed by the altered climate, especially in the arid and semi-arid regions, which cover nearly half of the country. Surface and ground water resources are limited[37] and South Africa's industrial, domestic, and agricultural users are dependent on water supplied via a network of large storage dams and lakes, which are already under stress from unreliable rainfall. Higher evaporation owing to elevated temperatures, accompanied by decreased rainfall, will have adverse effects on water availability throughout the country.[38] Whilst inland South Africa is therefore likely to be effected by drought, coastal regions will be more and more affected by sea-level rise in the forthcoming years.[39]

Climate change will impact agriculture. Maize cultivation makes up 70% of total grain production and a hotter climate will decrease yields.[40] Desertification – already a problem in certain parts of the country – is predicted to intensify and rangelands are foreseen to become more and more arid.[41] The forestry sector will be affected as land availability and water supply become impacted by altered environmental conditions.[42] As less rain falls, aridity will extend over the already dry rangelands that cover much of South Africa, and therefore there will be a reduction in fodder production.[43] Less food will be available to grazing livestock[44] and the menace to food production will increase. [45] Elevated temperatures will also likely lead to a higher frequency of fire outbreaks in grassland areas.[46]

Countless species currently found in South Africa are jeopardised by climate change.[47] Rapid warming and disrupted rainfall patterns will be especially detrimental to plants of the Cape floral kingdom,[48] with some species likely to become extinct. Further projections claim that marine animals will migrate because of rising sea temperatures.[49] The ecosystem will be heavily disturbed by the disappearance of local flora and fauna; South African tourism, which relies heavily on wildlife, will also be severely affected.[50]

Recognising these challenges, the South African government has been working on climate change issues since the late 1990s. It signed the United Nations Framework Convention on Climate Change (UNFCCC) in 1994 and ratified it in 1997.[51] It presented its Initial National Communication – listing national producers of greenhouse gases, gauging the country's vulnerability to climate change and suggesting policy-based approaches to adaptation and mitigation – to the UNFCCC in 2000.[52] Additionally, South African citizens' right to an environment that is not harmful to their health and wellbeing, and is protected for the benefit of present and future generations, is enshrined in the constitution. This states that protection should be delivered through reasonable legislative acts and lays out measures to prevent pollution and ecological degradation, promote conservation, and encourage ecologically sustainable development while promoting economic and social development.[53]

2 Research methodology

Research objectives

The overall objective of *South Africa Talks Climate* is to assess the public understanding of climate change and identify how communication and media can best support South Africa's response to climate change.

The research focuses on four key questions:

5. What changes have South African citizens experienced in their climate and environment over time?
6. How do South African citizens explain and respond to these changes?
7. What do South African citizens know and understand about global climate change?
8. What do South African opinion leaders know and understand about climate change and what are their views on South Africa's response to climate change?

The research[i] consisted of 16 focus-group discussions with citizens and 18 in-depth interviews with opinion leaders across eight locations in South Africa between August and October 2009. The locations[ii] were Johannesburg and Soweto (Gauteng Province), Cape Town and the Cape Flats (the Western Cape), Durban and KwaDukuza (KwaZulu-Natal) and Groblersdal and Tafelkop (Limpopo).

The environmental challenges represented in these areas have already been linked to climate change, to some extent, or could be further exacerbated by climate change in the future.

- Johannesburg is South Africa's largest city and the provincial capital of Gauteng, the wealthiest province in South Africa with the largest economy of any metropolitan region in Sub-Saharan Africa. It continues to experience a high level of migration and urbanisation, which puts increasing pressure on water and power facilities.
- The coastal area of the Western Cape is susceptible to flooding, particularly the Cape Flats, a low-lying informal settlement. A sea level risk assessment study undertaken by the City of Cape Town in 2007 warned that the city, with its 307 kilometre coastline, is *"particularly vulnerable"* to the effects of climate change.[54]
- Durban and KwaDukuza in the KwaZulu-Natal region have experienced increases in temperatures and changes in the distribution of rainfall (long periods of no rainfall punctuated by short periods of intense rainfall) leading to droughts and floods. Additionally, Durban suffered considerable infrastructure damage as a result of high tides and waves in March 2007.
- Limpopo province has suffered frequent droughts with adverse affects on agricultural production. As the area is one of the poorest provinces in South Africa with a rural population of 89%, the people rely heavily on agriculture for household food security.

Focus group discussions

The research set out to gather a broad range of views. Discussions were held with women and men, rich and poor, rural and urban. Given the implications of climate change for certain livelihoods in South Africa, individuals working in fishing (KwaZulu-Natal), tourism and wine-making (the Western Cape) and farming (Limpopo) were also purposefully targeted.

In city centres (Johannesburg, Cape Town, and Durban), focus groups were generally conducted in English (with occasional words used in local dialects). Discussions held in townships and rural areas were conducted in the predominant language of the area and included Zulu, Xhosa, Sepedi, Afrikaans, and Mengels (a mixture of English, Afrikaans, and self-made words spoken in some areas of the Cape Flats).

In-depth interviews

To understand the wider context of climate change in South Africa, 18 in-depth interviews were conducted with opinion leaders with a particular interest in climate change, or an informed opinion from a certain field, region or subject area within the country. They included policymakers, religious leaders, business people, journalists, and civil society representatives.

For further informaiton on the research methodology used and guiding principles, see Appendix 3.

i *Africa Talks Climate* uses a qualitative research design. Qualitative approaches, which generate non-numeric data, are particularly useful for exploratory research on topics for which there is little previous research. Through focus groups and in-depth interviews, *Africa Talks Climate* investigates the meaning that people attach to climate change and explores how they experience climate-related issues and impacts.

ii Location selection sought to ensure suitable geographic, ethnic, linguistic, and urban/rural diversity.

The advisory group

The BBC World Service Trust and the British Council set up an informal advisory group of climate change and development experts to provide technical knowledge on climate change and insights into the local climate context in South Africa. All experts were South African, or had worked and conducted research in South Africa.

Advisory group members were recruited during the initial phase of the research, when consultation calls were held with a variety of individuals and organisations to gather background information on South Africa and climate change. At this time, experts were invited to join the advisory group.

The advisory group offered informal guidance in three areas. Firstly regarding, specific climate change issues facing South Africa; secondly, they provided advice on fieldwork and site selection; and thirdly, feedback on the research findings and reporting. See Appendix 2 for a full list of advisory group members.

3 Citizen focus group discussion findings

> **"I think the government should give these companies a levy to pay once a year and use that money to contribute to solving [the problem]. Levying these companies will give them a wakeup call to minimise pollution, and make them realise what they are doing to the environment"**
>
> **WOMAN FROM JOHANNESBURG**

There are different ways to know about climate change. One way is to understand the science: that human activities, such as the burning of fossil fuels for energy, are increasing the amount of heat-trapping gases in the atmosphere, which warms the earth and affects its climate system. Another is to experience it first hand: to witness over a lifetime changes in rainfall patterns that affect the harvest; to suffer from increased droughts, floods and other climatic disasters that can wipe out homes and crops; or to be at the receiving end of the spread of vector-borne diseases, such as malaria.

The findings from this research suggest that most South Africans are aware of the global 'climate change'. Yet the public understanding of the science behind it and its relevance to South Africa is limited. In urban areas, people largely associate climate change with global cues: melting ice caps, rising sea levels, hurricanes and tsunamis around the world and the possible inundation of low-lying countries like the Maldives and Bangladesh. In rural areas, where climate change terminology is less familiar, people are more likely to frame climate change in terms of observable changes in the weather and seasons; they live with the impacts of the changing climate in their day-to-day lives.

The research also shows that South Africans do not notice changes in climate in isolation from broader environmental changes. People in South Africa are keenly aware of environmental degradation and natural resource depletion. They mention, for example, deforestation and depletion of the veld, pollution and industrialisation, the environmental devastation caused by the mining industry and the loss of natural food and water sources. Indeed, the research reveals that most South Africans view climate change as an umbrella term for the destruction occurring in their natural surroundings; with changes in the weather and seasons forming part of the broader changes people have observed during their lives.

Given that climate change is viewed in the context of wider environmental changes, it is important to understand how South Africans perceive these changes. This report, while focusing on climate change, recognises the complexity of the relationship between climate change and environmental degradation.[i] It begins with an overview of the environmental changes that South African citizens have experienced and then focuses on five key issues which people say directly impact their lives. It moves on to examine people's understanding of climate terminology and concepts, and finally presents five key themes that shape people's understanding of the science of climate change. In subsequent sections, it explores what South African opinion leaders know and think about climate change and concludes with recommendations.

What changes have South African citizens experienced in their climate and environment over time?

South Africans are aware that their natural environment is changing and many note that a cause of these changes is likely to be global climate change. As well as changes in weather patterns and temperature, they have noticed changes in the availability and quality of food, a loss of biodiversity, deforestation, and desertification. Those living on coastal areas have noticed changes in sea levels and coastlines, as well as differences in the abundance and behaviours of marine wildlife. Additionally, urban South Africans are aware of increasing pollution and industrialisation and the effects this has had on their quality of life. Ultimately, the feeling expressed by many people is of a world that is, to quote a man from Johannesburg, *"out of balance"* in which *"nature is fighting back"*.

Most people feel that South Africa's weather is changing and many link these changes to global warming and climate change. People perceive the weather as becoming hotter, less predictable, and more erratic, with a marked reduction in rain. An older woman from the Cape Flats is typical in explaining, *"seasons have changed"*.

"We expected July to be windy and wet, because that is when we start our gardens, planting food," says an older woman from Durban, *"but it is like it is still winter! It gets hot then it gets cold, so you don't understand anymore whether it is winter or summer."* An older man from Grobersdal, Limpopo, agrees: *"The rain pattern has changed – you don't get rains that go on for days anymore... it is just a big mess."*

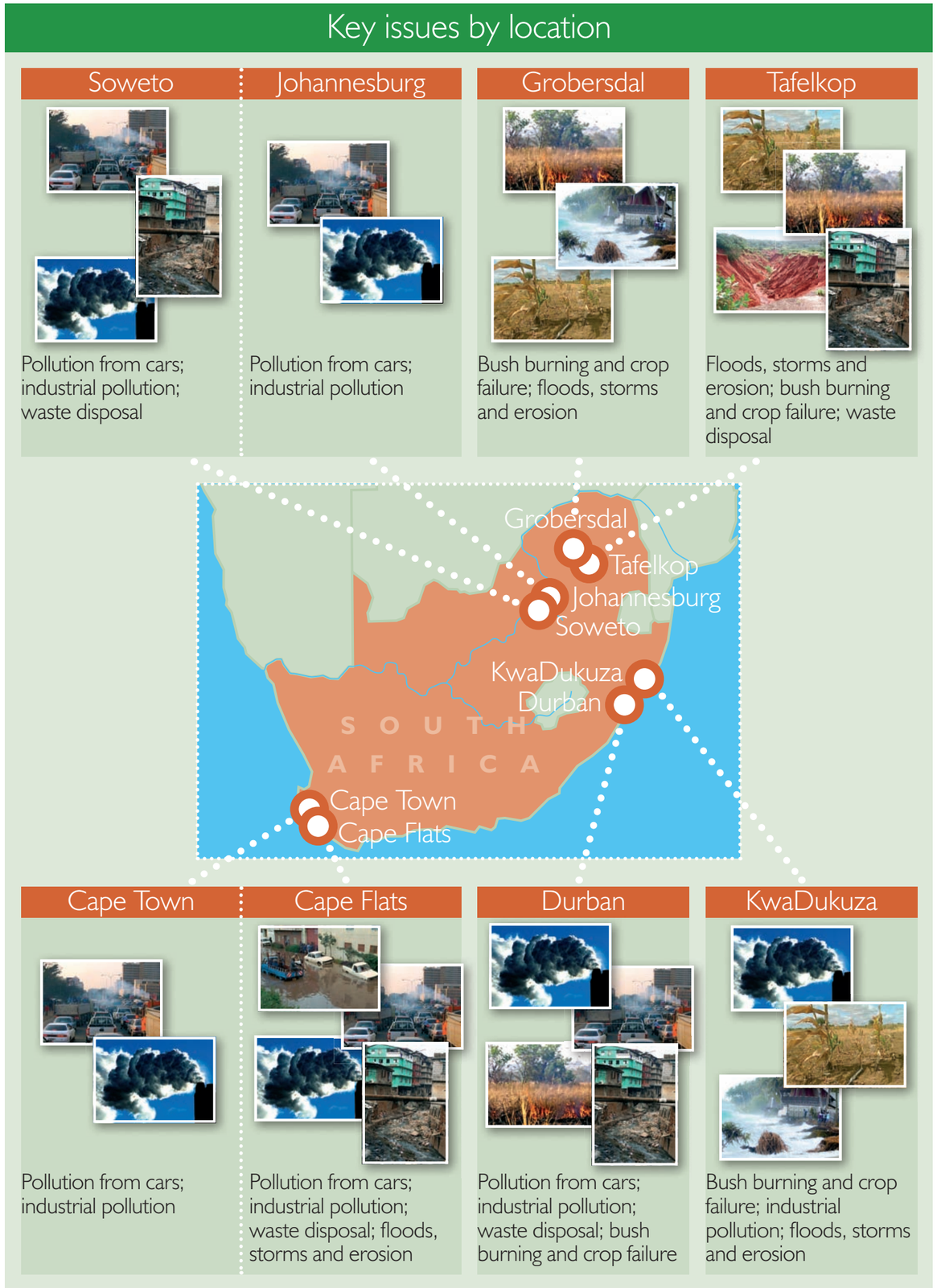
Many people, particularly those who rely on agriculture for a living, are very concerned about the knock-on effect of these changes on food production and food prices. *"In rural areas we can't plough anymore because of lack of rain and then when it comes it rains very hard and destroys whatever has started to grow,"* says an older woman from Durban. *"And when it rains too hard the potatoes rot in the ground. So it really affects us, we can't plant our vegetables anymore."*

Even South Africans in urban areas have noticed the effects of failing harvests. A young woman from Cape Town explains what many are noticing: *"we have had to import grain and it is the first time South Africa has had to import grain because there are so many people and because of the drought and because of the rain... so food prices have gone up."*

As well as linking the changes in weather patterns and the environment directly to lower crop yields, South Africans also link it to a decline in the quality of food produced in the country. They speak of a decline in the organic way of living that their parents and grandparents generations enjoyed. All 16 focus group discussed how a lot of their food now comes from tins and has been mass produced, and that the fertilisers used to grow food in such large quantities have their own detrimental effects on the environment.

i Climate change exacerbates environmental degradation and vice versa. For example, cutting down trees can cause soil erosion, which in turn can be exacerbated by the effects of climate change, such as heavy rains and winds. However, cutting down trees can also cause climate change, because trees act as carbon sinks, storing carbon dioxide that would otherwise enter the atmosphere.

Figure 2.0



"I remember in the old days my grandparents used to have a big hole at the back of the yard where my grandfather would put in fruit peels and so on," says a woman from Johannesburg. *"So in that generation, they used to give back to the land that provided for them, where[as] now we spray this land with all sorts of harmful products."*

Many also say that food no longer tastes the same. It is not as fresh or nutritious and does not contain the necessary vitamins and minerals for a healthy lifestyle. *"The food is different,"* explains an older woman from the Cape Flats. *"It used to come out of the ground... the fruit we used to eat in the summer – you would taste a plum and it would taste like a plum. Watermelon would be sweet and lovely and you would just feel refreshed when you had eaten it. Now everything is bitter and tastes the same."*

> **"In rural areas we can't plough anymore because of lack of rain, and then when it comes, it rains very hard and destroys whatever has started to grow. When it rains too hard the potatoes rot in the ground. So it really affects us, we can't plant our vegetables anymore"**
>
> **WOMAN FROM DURBAN**

Similarly, in the coastal regions of the Western Cape and KwaZulu-Natal, people are aware of a decline in the quality and quantity of fish. An older woman from the Cape Flats comments: *"Fish don't taste the same... because of the pollution and chemicals they pump into the sea... it's obviously because of global warming and the pollution in the ocean as well. Everybody is just dumping stuff in the sea."* Men in Durban also note that there had been *"no sardine run"* this year. As well as blaming this on pollution and sewerage in the ocean, coastal dwellers are aware that the seas are getting hotter and that this is also having an impact on marine life. *"Some fish are no longer available – the sea is now hot and these fish do not come out,"* explains a man from the Cape Flats.

The effects of the changes in climate on South Africa's rich and varied flora and fauna have also been noted, with an older man from Grobersdal commenting: *"Now we can't teach our children about the many wild fruits and different sorts of plants."* A number of people also talk about shifts in seasonal weather patterns upsetting the mating and migration behaviours of animals. *"The whales are coming earlier... their migration patterns are changing,"* notes a young woman I[i] from Cape Town. *"I was in Hermanus [in August] and I thought: 'Oh it would be so cool if we were here in October to see the whales'... and then up popped a whale."* Many South Africans are concerned that once plant and animals species are lost from their country they may never return.

In addition to the adverse effects that the changing climate has had on plants and wildlife, South Africans are aware that these changes have health implications for them. Groups in all regions comment that, in addition to the rise in temperatures, the intensity of the sun has increased, leading to a higher incidence of sunburn and skin rashes. *"I can't just go out during the day anymore without getting burnt by the sun, and then I have to apply an ointment before I go to bed,"* says a man from the Cape Flats. *"They used to say black people's pigmentation is stronger, but now I feel the heat as much as white people do."*

South Africans are aware of increased incidences of bad storms and extreme weather, which they often associate with global climate change. Rain, when it does come, tends to come with a violence and intensity that it did not have in previous years. *"Now we have bad storms... we get hectic rain and floods... it is torrential and ridiculous,"* says a young woman from Cape Town. People explain that more storms leads to more flooding and wider problems. *"If you think of Robertson last year, how it flooded – I have never seen it flood like that before,"* says a man from Cape Town. *"The vineyards were [under] water and people had never seen it like that. It has definitely changed... [there] was a house that had been standing there for 50 years... [and when] it flooded the side of the house was caving in because the river came down."*

Whilst all South Africans were aware of the increase in extreme weather events, those living in coastal areas (the Western Cape and KwaZulu-Natal) are also aware of changes to the beaches and coastlines due to erosion and rising sea levels. *"The sand on the beaches has disintegrated,"* says a young woman from Cape Town, *"we used to go to Clifton beach ten years ago and the sand went on forever. You go there now... and the beach has halved."* A man from Cape Flats notes the impact this has had on peoples' lives: *"At Sea Point the water [levels] are rising. I have a friend who lived at Sea Point and they had to evacuate because the water levels were getting higher."*

Rural and urban South Africans are acutely aware of deforestation and the destruction of the veld. An older woman from Durban comments, *"there are places when I first came [to Durban] that had trees and you could sit under them when it got too hot. But now you can't. The trees have been cut down... we can't use the trees as shade anymore."* Coupled with increasing wind intensity (a man from Tafelkop notes there is now *"too much wind"*), cutting down trees is seen to lead to desertification and the silting of rivers in rural areas. *"The soil is different,"* explains a man from KwaDukuza, *"because the soil on the top gets blown away... which affects people and even the trees which grow here."* An older man from Grobersdal notes that *"the rivers are being closed by soil... we have animals and now our animals [have to] go for distances to look for water because the dam is covered up by soil."*

Urban South Africans have also noticed changes in air quality, the increase in pollution and the encroachment of industry onto previously untouched areas outside the city. An older woman from Cape Flats gives a visual example: *"I was sitting with my cousin... and we had an overview of the Cape Flats and I promise you there was like a cloud [of smog] hanging over the area... since the late 90s it's really become worse."* A man from Durban is typical in saying, *"I have noticed that nature is being demolished [and] it's only going to get worse... we are getting more and more urbanised... we are losing more of nature."* Whilst seeing these changes in land use as an inevitable product of the country's development, South Africans are aware that rapid deforestation and increasing industrial pollution have contributed towards both global climate change and the changing weather and loss of wildlife they have noticed in their own country.

However, it should be noted that not all changes in the natural environment observed by South Africans are regarded as negative. The modernisation of poorer areas has had a positive impact for those living in rural areas and townships. A woman from Soweto comments: *"I didn't want to go to the rural areas at night, because it is very dark, but now there is electricity and clean running water. I don't have to go to the river anymore."*

While South Africans have noticed the above changes in their weather and environment, they are most concerned about how their changing climate is impacting wildlife and food. This is because they feel these changes are irreversible (wildlife) and very difficult to cope with (food) compared with the impact of storms, for example, which they say that they have been dealing with for a long time. Although most people can link a broad range of environmental impacts with climate change, many feel that these impacts would have happened anyway, or that other causes are equally important as climate change. Climate change is predominantly linked to changes in temperature and weather patterns. The impact that climate change is predicted to have on South Africa, beyond changes in the weather, are less prominent in people's minds.

How do South Africans explain and respond to changes they are experiencing?

Many of the changes that South Africans observe are potentially linked to climate change, or could be exacerbated by climate change in the future. To understand whether people connect local problems to climate change and to find out how people are currently coping and may cope if these problems become more severe or frequent, they were invited to discuss issues that prominently affected them.

A set of 15 images, representing a range of issues that can be linked to climate change, was used to help facilitate the discussion. Participants, as a group, chose images which had the greatest effect on their lives.[i] Efforts were made to understand how people interpreted the images. For example, two different images prompted discussions of drought, and in this way the most pertinent climate change and environmental degradation issues facing residents in each location emerged. Subsequent discussions explored attitudes towards these issues and the perceived causes, effects, and responses.

Across all the locations, five issues were identified:

1. Pollution from cars
2. Industrial pollution
3. Waste disposal
4. Bush fires and crop failure
5. Floods, storms and erosion

Figure 1 on page 11 shows the images selected in each location.

The issues that people selected tended to be immediately linked to the struggles they faced in their daily lives. Farmers talked about drought, crop failure, and bush fires. Coastal dwellers discussed flooding. South Africans who live in urban areas were most concerned with the issue of pollution, be it emissions from cars and factories, or poor drainage and waste disposal. The research did not seek to restrict conversation and, as a result, discussion sometimes moved into environmental degradation and broader social problems. In this way, the most pertinent climate change and environmental degradation issues facing residents in each location emerged.

Pollution from cars

People in South Africa are concerned about emissions from vehicles and their effect on the environment. Many people, particularly in urban areas, also link car emissions or pollution to climate change. However, they see driving as a 'way of life' and feel there is little they can do as individuals to reduce the amount of traffic on the roads.

People from Gauteng, the Western Cape and KwaZulu-Natal say that pollution is the central environmental issue affecting their daily lives. When discussing traffic problems, South Africans universally blame the government for inadequate road infrastructure, allowing cars *"in a bad condition"* (not fuel-efficient) on the roads and not providing a viable alternative to driving. Public transport is considered too dangerous in terms of muggings and violence.

Respondents also concede that part of the problem is that *"everybody wants to drive"* and no one is willing to share lifts. *"Everyone has got a car,"* says a man from Cape Town, *"you drive along the M3 and you only see one person in a car. It's a rarity to see two or three people in a car."* A woman from Johannesburg agrees: *"We are not tolerant, as we do not want to use the same car to go to work. We all want to go in our own cars even though we work at the same place and live in the same street."*

> **"Fish don't taste the same because of the pollution and chemicals they pump into the sea"**
>
> **WOMAN FROM CAPE FLATS**

South Africans are generally aware that traffic leads to *"emissions from vehicles"*, such as carbon dioxide, which are bad for the environment and can lead to climate change and global warming. They are also aware of the negative impact emissions can have on them as individuals, with a young woman from Cape Town commenting that when you are in a traffic jam you *"have to sit in the pollution"*. People often mention the health implications. *"When you come to Soweto there is traffic everywhere [and so] smoke is everywhere,"* explains a woman from Soweto. *"The smoke and gas fumes by the roads [give] you headaches that are unexplained... funny coughs... and blurred vision."*

i Focus group participants were divided into three age groups: 18-24, 25-34, and 35-50. In selecting participants, age and gender were taken into account to encourage easy conversation within groups (see Appendix 3). Participants described as "young" or "younger" are in an age range from 18 to 24 years, and those described as "older" are aged 35-50. Those without a qualifier are usually in the 25-34 age range.

i Participants also had the option to suggest other issues affecting them, that they felt were not covered by the 15 images.

Most South Africans cannot see a permanent solution to the problem of emissions from cars. They see driving as a way of life. However, they admit that they could be more proactive about sharing lifts and walking short distances instead of driving or taking a taxi, but seem reluctant to adopt these practices. They think that the government and industry could do more to respond to the problem by manufacturing and promoting 'cleaner' cars. There is also a feeling that the private sector is holding back green development in order to make money. *"The car and gas manufacturers will lose money if cars stop using petrol,"* says a man from the Cape Flats, *"electric cars have been around since the 1960s even in South Africa... but now these companies rule us, so you can't take their bread and butter [away] and tell them that they must produce only electric cars."*

South Africans feel that if life in urban areas becomes unbearable because of increasing congestion and pollution, they can always relocate to rural areas. *"[If the emissions[i] got worse] I would move into the country,"* says a man from Cape Town, *"break away from the cities."* However, respondents are also aware that even moving away would not solve the problem – rapid urbanisation of rural areas means that these issues are likely to *"follow you"*.

Industrial pollution

South Africans are aware that fumes from industry can have a detrimental effect on the environment and on personal health. They feel there is little they can do to improve the situation, instead maintaining that action has to come from the private sector and the government. However, they feel that the private sector is not willing to invest in cleaner energy solutions as this may mean a drop in profits. People are more inclined to link climate change to industrial pollution than to pollution from cars.

Urban citizens across Gauteng, the Western Cape, and KwaZulu-Natal are very aware of South Africa's reliance on coal and the environmental devastation caused by heavy industry; and they acknowledge the link between industrial processes and global climate change. They feel the private sector within South Africa is not currently addressing the detrimental affect it is having on the environment. *"The big factories have to deliver and they do not have the time to check how their business is affecting the environment,"* states a woman from Johannesburg. They also feel that businesses are careless in terms of monitoring and minimising their 'carbon footprint'. *"You go to [town] at night and there are empty buildings with lights burning... lit up like Christmas trees,"* says an older man from Johannesburg.

However, respondents are also aware that they are unwilling to compromise their standard of living and that this too causes pollution. *"We all demand a certain quality of lifestyle and standards [that cause] pollution,"* explains a man from Cape Town. *"For example, it gives us the means of having heated pools or houses – because electricity has to come from somewhere and it is going to cause pollution. So our lifestyle is to blame for it."*

i Many people use emissions interchangeably with pollution.

Industrial pollution is seen as the primary cause of a number of health problems, such as sinus issues, asthma, and other breathing difficulties. It is also linked with higher rates of cancer, with a man from Johannesburg commenting that breathing in fumes from factories *"shortens your life"*. Respondents are also aware that pollution can adversely affect food and water sources, and local flora and fauna. *"If you look at the harbour, it's polluted. I don't think there is a fish in there that can survive,"* says a man from Durban.

As with emissions from cars, South Africans feel that it would be difficult to put an end to pollution from industrial processes and the burning of fossil fuels. A woman from Johannesburg states that it would be impossible to ban people from having fires throughout the winter as *"people have to keep themselves warm"*. A man from Durban notes that there would be serious economic and social consequences to downsizing industry in South Africa: *"How can you go and tell a thousand people they mustn't work because they are polluting the air?"*

Additionally, there is a feeling that the private sector is not willing to invest in cleaner energy as this would mean a drop in profits. *"Big industries [are] greedy,"* says a young woman from Cape Town, *"they don't want to use alternative [greener] means of production, they don't want to shell out a few extra rand for that... they [just] want to make more money and we pay the price."*

Most think that the problem is simply too big to deal with, either as individuals or as a community and that instead the government should do more to address pollution. A woman from Johannesburg says: *"It is no longer in the public's hands, as it is something that you and I cannot deal with... I think the government should... give these companies a levy to pay once a year and use that money to contribute to solving [the problem]. Levying these companies will give them a wakeup call to minimise pollution and make them realise what they are doing to the environment."*

Waste disposal

People think that poor sanitation and inadequate waste disposal is caused by government negligence and overcrowding. They acknowledge that people need to be more proactive in keeping public areas clean and tidy, and recycling.

A number of South Africans, particularly those from lower socio-economic groups who live in townships or informal settlements, mention rubbish disposal and overcrowding as one of the key environmental issues that affects their daily lives. Again, respondents feel part of the problem is caused by a lack of government provided facilities and that the municipalities do not do enough with regards to litter collection and recycling. However, they are also aware that they as individuals are to blame through *"careless"* littering. *"[The problem] is caused by us not working together as a community,"* says a woman from Tafelkop, *"each and every one of us is just dumping things everywhere because we have told ourselves that no one can see us, without thinking about the damage [we are doing]."*

Respondents also feel that the problem is exacerbated by overpopulation, with poor, rural families who move to urban areas to *"seek a better life"* often having to stay with relatives in informal settlements with few facilities whilst they look for work. *"People move from the rural areas and come to urban areas to look for work and a place to stay,"* explains an older woman from Durban. *"Because I live in the town my neighbour from KwaNongoma wants to stay with me, they come with their children and now we are crowded, so you see... [the problem gets worse]"*.

South Africans are very aware of the health risks posed by living in unsanitary conditions, stating that waste build up encourages mosquitoes and maggots and can lead to malaria, cholera, and TB, as well as other diseases. Some respondents also mention the knock-on effect poor waste disposal can have on neighbouring farms. *"People dump refuse... [and] the dirt will be carried by the rains and the water will go to the farms where vegetables are grown,"* explains a woman from Tafelkop, *"and we then buy the vegetables and we get affected by diseases."*

Whilst there is a feeling that the government could do more to provide decent housing and to organise adequate litter collection and recycling facilities, people feel strongly that communities and individuals need to do more to tackle this issue. *"People are very lazy and [make] no effort to clean up their own mess,"* says an older woman from the Cape Flats. *"[They] always blame the government or someone else, but they never take ownership themselves."* Whilst people are aware that recycling can help to tackle climate change, they are vague about the links.

Bush fires and crop failure

Rural South Africans are deeply concerned about drought, which they feel has caused widespread crop failure and exacerbated incidences of bush fires. Farmers' responses to drought appear to be largely reactive. They lack options and resources to respond to the problem.

One of the primary environmental issues facing rural South Africans in both KwaZulu-Natal and Limpopo is a lack of rain and rising temperatures. This affects the frequency and intensity of bush fires and has serious impacts on harvests and food production. Whilst people acknowledge that bush fires are often lit by farmers to clear the land, they feel that they often now burn *"out of control"* because of dry conditions and intense heat. Similarly, they feel that crop production has been severely affected by increasing incidences of drought, high temperatures, and strong winds. Some blame the national and local governments for failing to provide a proper infrastructure for storing and transporting water, which could then be used both for irrigation purposes and to fight fires.

However, in terms of the causes of reduced rainfall and higher temperatures, most rural South Africans feel that this is beyond the remit of human control. *"It is just time for drought, it's nature and there's nothing we can do about it,"* says an older man from Grobersdal. A woman from Tafelkop agrees: *"The absence of rain... is the work of God and we have no control over it."*

People in Limpopo often say white farmers are to blame for reduced rainfall and hence crop failure. *"These days white people can stop the rain,"* says an older man from Grobersdal. *"They fly over us in their aeroplanes and spray chemicals in the air and stop the rain... they do this because they say the rain is going to ruin their wheat... they are concerned about their wheat whilst we are dying of hunger."*

Some respondents also acknowledge the role of human induced climate change in reducing rainfall, speaking of factories *"polluting the sky"*.

Everyone says that crop failure and bush burning lead to hunger. *"When drought sets in it becomes very difficult because it creates hunger, your spinach and cabbages die,"* says a woman from Tafelkop, *"not only can you not cook so the children can eat, you also have nothing to sell."* A pastoralist from Grobersdal agrees, *"Our cows need grass to graze on and if there is no grass then they will die of hunger... [then] we humans could die of hunger as well."* A number of rural people also mention the wider social implications of hunger, including conflict for remaining resources. *"Hunger is an enemy, we would kill each other because of hunger,"* says an older man from Grobersdal.

Additionally, people speak about the health impacts of bush burning, with an older woman from Durban saying, *"the smoke itself makes you sick"*. A woman from Tafelkop adds that the smoke produced when the bush is burnt causes pollution, which *"kills the air"* and then *"kills the animals, cows, donkeys"*. Smoke, she continues, *"causes dryness [so] we can't grow anything"* and *"ruins produce"*. A young man from Tafelkop notes that if the bush were entirely destroyed humans would *"also die [because of] lack of oxygen"*.

South Africans differ in how they respond to the lack of rainfall, with some being proactive, digging wells or harvesting earlier *"before the sun kills your plants"* and some being reactive, emigrating to urban areas, or praying to God. *"The only thing you can do is relocate to a place where there's rain so that you can plant crops,"* explains an older man from Grobersdal. A woman from Tafelkop adds that praying can be an effective way to respond to extended drought: *"My Grandma told me that in the old days it would not rain for, like, a month at a time when it was supposed to be raining. So they would take people to the mountains and pray and ask for rain and it would rain. This shows that we need to revisit the way things were done back in the days of our grandparents."*

People also feel that the government needs to raise awareness about the dangers of allowing bushfires to burn out of control.

Floods, storms, and erosion

Many South Africans are aware that emissions are altering weather patterns and increasing the likelihood of extreme weather events. They feel that poor town planning has made the situation worse.

A number of South Africans have noticed an increase in extreme weather, which, as well as causing widespread damage and flooding, has also led to soil erosion. *"Holes are made by too much water... the water runs from the mountain... and causes these holes,"* explains a young man from Tafelkop.

In rural areas, respondents often blame floods and bad weather on either nature, God, or the supernatural, although they are aware

that human industrial activity has a role to play in altering weather patterns over time. In urban areas people acknowledge that global climate change is likely to be the cause of recent extreme weather events. However they blame the extent and seriousness of floods experienced as a result of storms on poor town planning, blocked drains and lack of infrastructure. *"You can go through all the areas in the Cape, where they've built in low lying areas and also the way the houses have been built... if you don't watch out the water can go as far as your door,"* says an older woman from the Cape Flats. A man from Johannesburg agrees: *"Years ago, the open land, the farmland was a natural drain for floods. Now with development comes a road network, paving, tar. Now all of a sudden that storm water needs to be channelled. That's why you get houses being flooded. Because the infrastructure was developed to handle rainfall. [But it] can't anymore. Because the flow of water is on tarred and paved surfaces."*

South Africans frequently mention the damage floods and storms can do to their property and the loss of life it can cause. *"Our houses are ruined because of the wind, especially tin roofs and toilets,"* explains a young woman from Grobersdal. *"Young children as well get blown away by the wind, it is dangerous."* They can also destroy infrastructure, such as bridges, which an older man from KwaDukuza says can make an area *"come to a standstill"*. A young woman from Grobersdal agrees, stating that heavy rains *"ruin the roads"* and *"blocks people from getting out... going to work"*. People from regions affected by flooding mention loss of income. *"Obviously if you are flooded you can't get out of your house to go to work"*, says an older woman from Cape Flats *"[and] it affects your income because if you stay out of work you don't get paid"*. People are also aware that stagnant flood waters can lead to disease, such as malaria, cholera, and sores.

South Africans generally feel that the government needs to take action with regards to these problems by improving and maintaining drainage systems. They feel there is little they can do personally to prevent storms and floods from happening, or to mitigate the damage they cause, apart from complain to their local municipalities and campaign for better facilities. A man from KwaDukuza is typical in saying that the best response in extreme weather situations is to *"run away"*.

Responding to environmental issues

People lack information on how the government, religious organisations, NGOs, communities, and individuals are responding to environmental and climate change challenges. They feel that HIV and Aids dominate government and NGO agendas. The only possible action they feel they can take at the individual level is to recycle (see box).

South Africans recognise that the environmental issues effecting their local areas are linked to global climate change. They note that pollution from cars and factories and rapid deforestation has an effect on weather patterns and temperatures and is likely to be a contributing factor to some of the extreme weather events they have been experiencing. However, as many South Africans view climate change and environmental degradation as interchangeable, mitigation and control strategies suggested often focus on general pollution and waste disposal control as well as decreasing carbon dioxide emissions and energy use.

Many South Africans feel *"powerless"* when confronted with the scale of the problem presented by climate change. They think that leadership has to come from the government, NGOs and the private sector; as individuals they feel there is very little they can do (with the exception of recycling). There is a reluctance to alter behaviour unless there is more certainty that individual contributions can make a difference. Unless strong leadership on climate change emerges from the government and the private sector, people are unlikely to act.

> **"People are very lazy and [make] no effort to clean up their own mess. [They] always blame the government or someone else"**
>
> **WOMAN FROM CAPE FLATS**

Recycling in South Africa

South Africans, particularly those from urban areas, are well aware of the importance of recycling. They are clear that recycling can be used to combat climate change and general environmental degradation but cannot always explain the link. They rarely discuss the fact that recycling saves energy or reduces raw material extraction. Urban citizens tend to speak about municipality-run recycling schemes and the importance of disposing of glass, paper and plastic in the correct way, as well as reusing plastic bottles and bags. Rural inhabitants describe the importance of composting and using washable nappies instead of disposables.

Recycling is unanimously seen as the one action that South Africans as individuals can take against climate change. Whilst there is awareness of other individual mitigation strategies (such as reducing car and electricity use), people feel that such actions would have detrimental effects on their lifestyles and are ultimately futile unless everybody follows suit.

Whilst being very aware of the importance of recycling, there is a strong feeling that recycling is time consuming and inconvenient. *"We do not have the time to go to these different places to drop off what we have kept [for recycling],"* says a woman from Johannesburg, *"I feel guilty for having 50 plastic bags in the house but... I still get more when I go shopping because I do not have the time to fold them and take them out again the next time I go shopping."* A young woman from Cape Town agrees: *"People are way too lazy to recycle. It is such a mission to separate the plastic and the bottles... and I am not going to sit there for hours and rinse out my jam jars and mayonnaise... I don't have time for all that."*

There is a general feeling that local municipalities need to make recycling easier and educate people about its importance. An older woman from Cape Flats notes that people *"want everything to be convenient"*, and if recycling is inaccessible it will not happen widely. *"You must make it easier for people to recycle,"* states a man from Cape Town, *"so that they don't think they have to go out of their way and spend more money."*

Rural–urban migration and urbanisation

This research explored rural-urban migration in all groups. Africa's urban population is rapidly growing. Climate change has the potential to increase migration from rural to urban areas as people flee its effects.

While it is impossible to attribute increases in urban population exclusively to climate change, many in South Africa speak of leaving rural areas to escape drought as agriculture becomes less viable. *"People go to urban areas because of hunger in rural areas,"* explains a woman from Tafelkop. *"If they would improve the way of life in rural areas people would not move to the city."* A man from Cape Town agrees, adding *"a lot of the farmers have to give up their farms… they can't keep their farms because of climate change and drought."*

Life in the city is not without problems, however. People speak of pollution, housing, crime, and the high cost of living: *"We do get thieves here in the rural areas, but because we know one another it is not that bad,"* states an older man from Grobersdal. *"In big cities even when you call the police to come and assist, they take a long time before the come over."* Some long to stay in rural areas but feel they have to migrate in order to survive. *"No one wants to move to the city,"* says a young woman from Grobersdal, *"but sometimes you are forced to by your situation."*

South Africans feel this leadership is lacking. There is universal agreement that neither the national nor the local government is doing enough to help mitigate or adapt to the effects of climate change. A woman from Cape Town is typical in saying, *"the government show no initiative... they sleep."* Urban South Africans note that the government is *"paying lip-service"* to climate issues, but feel action is never implemented. They also note how *"constant government reshuffles"* mean there is no clear spokesperson on environmental issues, and comment on the endemic corruption they perceive within the government. *"Government is a bit of a joke when it comes to the environment,"* says a man from Cape Town. *"They implemented a tax on plastic bags... and that was meant to be used to fund recycling plants, but then you find that millions has gone missing out of this fund."*

Urban citizens are not alone in feeling that government corruption is a barrier to environmental action. When discussing deforestation and bush burning, a young woman from Limpopo comments that these activities are unlikely to be stopped or regulated due to corruption and fear within the ranks of people in charge. *"These are the King's lands, [and although we've got] counsellors, committees... even though some people are here, they don't care, they look down on people and don't listen to people, even if we voted for them, they are scared to speak up for us. The committee members, they get scared. [So] this land will carry on being destroyed, there is no understanding."*

People believe the government will lose money if they take steps to regulate emissions from industry, as investors who currently have factories in South Africa may take their business elsewhere. In general, the government stance on environmental degradation is often used as an excuse for personal inaction, as people perceive the government not to have led by example on serious issues.

Finally, there is a feeling that the government *"has too many other things on its plate"* to worry about climate change. *"I think they have got too many other things that they think are more of an issue, like housing and health and schooling and everything else,"* says a man from Cape Town, *"taking care of the environment is low on their list"*.

Many comment on how the big focus in South Africa, from both a government and an NGO perspective, is on HIV and Aids, with a woman from Soweto commenting, *"people think the only problem we have is HIV Aids."* People feel this overshadows all other issues and cannot see climate change overtaking it on the agenda. *"For NGOs to do something they need funding and that funding comes from the government,"* says a woman from Soweto. *"So as an NGO if you approach the government and say you are taking care of the environment, they tend not to take you seriously. But the moment you say that you feed kids, or it is HIV and Aids awareness, then they come and they fund you and people run away from other responsibilities... they want to do projects where they know they will definitely get funding."*

Whilst the majority of respondents have sympathy for the government's position, they feel that climate action needs to become more of a priority, as man from Cape Town states. *"When the government does not spend money on climate change issues it probably comes down to a decision of how many more houses can we build [instead], how many more hospitals, how many more lives can we save with anti-retrovirals at clinics. But at the same time you are damaging the environment, which will [also] kill a lot of people. And I think the damage you do to the environment is a lot harder to remedy."*

What do South Africans know and understand about global climate change?

When discussing their changing climate and local environmental challenges, many South Africans link these issues, to varying degrees, to global climate change. Yet, knowledge of terminology is not always high and confusion exists as to climate change mechanisms.

South Africa Talks Climate explores how people make sense of climate change terminology and how react to information about climate change. After exploring people's understanding of global climate change terminology and concepts, four important issues (ozone confusion, visible air pollution, overpopulation, the will of god) which appear to shape people's understanding of climate change are presented.

Terminology

Those living in urban areas and townships have heard of 'climate change' and 'global warming' (in English and occasionally in local languages). Although aware that these terms are associated with the

Words for "climate change" and "global warming"

The study explored three different terms for 'climate change' with the focus groups. What did they think about the English term climate change? What did Xhosa-speaking people think about the term *imo yezulu* a literal translation of 'climate change' suggested by the South African research team?

In the Afrikaans speaking groups, participants discussed the term *klimaatsverandering*, a literal translation of 'climate change' in Afrikaans. Similarly, groups explored three different terms for 'global warming': the English term, the Xhosa *ubushushu bomoya* and the Afrikaans *aardsverwarming*.

changes that they are experiencing in their climate, they are more likely to link them with global climate change-related issues such as melting ice caps and polar bears.

People in rural areas also say that they have heard the English terms 'climate change' and 'global warming'. Yet, they can rarely explain them. Occasionally their understanding of the term climate change is very literal; they link it to seasonal changes or immediate changes in the weather. *"When we talk about climate change,"* an older man from Grobersdal explains, *"we are referring to when the sun is out and it is hot and [then] a few minutes later it is cold – that is climate change."* However, rural respondents frequently discuss the *causes* of the changes they have noticed correctly even if they do not label the changes as 'climate change' or 'global warming'. For example, a woman from Tafelkop states that global warming is *"related to pollution"*, while another adds that pollution from factories leads to increasing global temperatures and changes in weather patterns over time.

Most people say that they have heard the terms in the media. Some people cite television or radio generally, while others list specific radio or television stations. Most, particularly those under 35, have heard the terms at school, or from their children who attend school. Many living in urban and township areas are aware of international campaigns aimed at raising climate change awareness. Numerous people mention Al Gore and his film, *An Inconvenient Truth*, as well as WWF's *Earth Hour* campaign. They explain that these campaigns have increased their knowledge and understanding of climate change.

However, whilst South Africans are generally familiar with both terms and can offer some explanation for the causes and processes of climate change and global warming, these explanations are not always correct. They often see weather and climate as interchangeable and tend to confuse ozone depletion with the greenhouse effect, incorrectly seeing ozone depletion as the primary cause of global warming. Despite this common confusion, most South Africans link changing global weather and temperatures with pollution, deforestation, modern farming techniques (such as use of fertilisers and methane emissions from livestock) and carbon dioxide emissions, although many people are not accurately able to clearly explain these interrelationships.

Everyone is aware that pollution from both cars and factories has an affect on the environment. They also recognise the importance of trees in climate change through the process of photosynthesis (whereby trees remove carbon dioxide from the atmosphere and produce oxygen). *"Trees are supposed to be our source of oxygen, which is what we are supposed to inhale, so when the soil and trees get affected [and] produce [less] oxygen, we also suffer"*, explains an older man from KwaDukuza. *"We are very dependent on trees. People chop them down not knowing what they do for us."* Many also link deforestation to global warming. *"The whole carbon cycle, trees get cut down, you can't process the carbon and so it gets warmer,"* explains a man from Cape Town. *"So when I see deforestation, I automatically see global warming."*

Many people also mention the greenhouse effect and the role it plays in global warming. Although knowledge of the exact mechanisms of the greenhouse effect is not always correct, and not all respondents refer to it explicitly, the concept of a blanket of gas around the earth causing temperatures to rise was mentioned in all 16 groups. Whilst urban residents often mention the greenhouse effect by name, rural groups talk about *"chemicals"* from smoke that *"go up and form a layer in the sky and that causes this heat"*. However, the notion of the greenhouse effect is often conflated with the concept of the ozone layer, with many South Africans believing them to be the same thing.

A number of people are also aware of acid rain, which is very closely linked with climate change inasmuch as the human-triggered changes in the atmosphere that produce acid rain are almost identical to those that cause climate change. *"The smoke [from factories] pollutes the air and causes acid rain which then causes soil erosion,"* states a young woman from Grobersdal.

Amongst a small number of urban professionals, knowledge of both climate change and global warming is sophisticated. They are familiar with terms such as 'carbon footprint', and can provide detailed explanations of what is causing the changes they have witnessed, in South Africa and around the world. They can also explain the terminology: *"I believe climate change is the new word for global warming, because some parts of the world are warming and some parts are actually cooling down, so it is not just about warming,"* says a man from Cape Town.

Reaction to the concepts

Discussions also explored awareness and understanding of the *concepts* of climate change and global warming, using the following statements.[i]

1. Scientists are saying that human beings are causing weather patterns over time to change around the world.
2. Scientists are saying that human beings are causing the temperature of the earth to increase.

In all locations these statements are almost universally accepted as true and are generally linked to climate change and global warming.

"This world has been here for ages and I don't know [exactly] how life was before [humans], but I have a pretty good idea that everything was perfect," says a woman from Soweto. *"It was a natural environment... it was green... it didn't suddenly change on its own, something had to make it change and it can only be human beings."* A man from Cape Town agrees: *"Humans have caused [these] things to go wrong. We could say it is erosion doing this, but why is there erosion? Humans. We could say it is changing sea levels, but why is there changing of the sea levels? Because of humans."* Whilst South Africans also feel that some of these changes are *"natural"*, they nearly always conclude, in the words of a man from Tafelkop, *"we are speeding up the process."*

Occasionally some people offer alternative reasons for the changes in weather patterns and temperatures around the world which *do not* relate directly to humans (and are often mistaken). These include: the will of God or the supernatural; the planets moving, causing the earth to get closer to the sun; the continents shifting, causing seasonal change; nuclear testing; heat from inside the earth being released by mining; and excessive cell phone use. In the last example, people seem to conflate knowledge about the radiation given off by mobile phones with the concept of solar radiation which they believe to be involved in global warming. Finally, across all Limpopo groups, respondents attribute changes in the weather (specifically the lack of rainfall), to *"scientists"* and *"white farmers"* who have *"a way of disturbing the rain"* in order to ensure good wheat harvests.

Frames of reference

In the absence of a solid scientific understanding of climate change, people reach for explanations that build on their existing knowledge. The discussions of the terms and concepts of climate change and global warming revealed five important themes that influence participants' understanding. These relate to:

1. Global consequences
2. Ozone confusion
3. Air pollution
4. Overpopulation
5. The will of God

> **"We used to go to Clifton beach ten years ago and the sand went on forever. You go there now... and the beach has halved"**
>
> **WOMAN FROM CAPE TOWN**

Such pre-existing concepts are often referred to as a 'frame of reference'.[55] These are critical, because they shape people's understanding of and reactions to new information. Exposed to new information, people often use existing beliefs, knowledge, and values to help them process it. The likelihood that people accept or reject new information depends heavily on what they already know and believe.

Crucially, people are more likely to reject new facts and information than they are to dismiss their own existing frames of reference. If new information contradicts a person's beliefs, it is likely to be rejected. However, if that information is delivered in a way that complements people's knowledge and values, people are more likely to accept it.

In this way, the five themes above – or frames of reference – can function as barriers or as facilitators to effective communication on climate change. Understanding these frames of reference can help communicators in South Africa make their content relevant to their audiences. It is essential, therefore, to understand how existing knowledge and concepts are triggered when communicating about climate change.

Global consequences

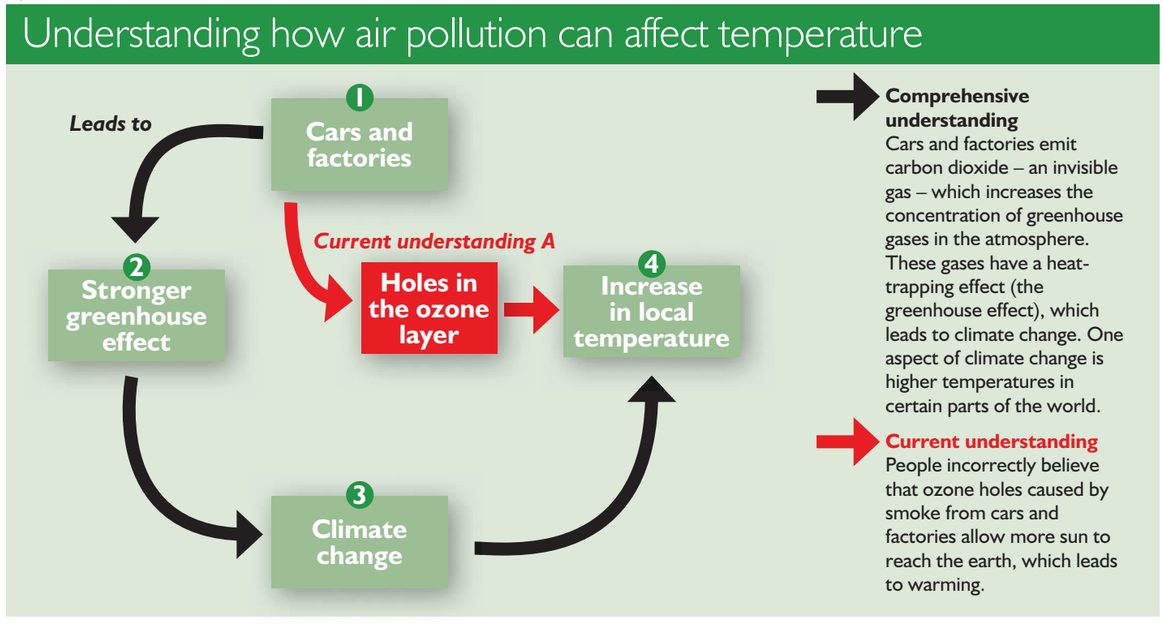
When discussing climate change and global warming, many people from urban and peri-urban areas in South Africa link the concepts very strongly to the global consequences of climate change, talking about melting ice caps, sea level rises and international extreme weather events. *"In the northern hemisphere, in the ice lands... the ice has started to melt,"* notes a woman from Soweto. Several people note the consequences of melting ice in the polar regions has for the rest of the world. *"Scientists in Antarctica have shown how a piece of ice melted away the size of Manhattan just in the last 3 years,"* explains a man from Cape Town, *"and that effects the water levels everywhere and shows how the Earth is heating up"*.

An older man from Johannesburg comments: *"Now let's say the North Pole halves in size... islands like Mauritius, those are gone, those are underwater."* Commenting on the slowdown of the Gulf Stream a man from Durban says, *"climate change is happening and in time it [may] create new sea channels [in] the Indian Ocean and once that happens, the whole world [will] be out of sync, once the major ocean currents go wild."*

Recommendations for communicators

Build on people's existing knowledge of the global consequences of climate change to help create wider awareness of the potentially devastating effects it could have on South Africans' own country. Help people to see climate change as more than just a phenomenon effecting the poles and small islands, but one that will have a very real impact on South Africa and its people.

Figure 3



i These statements were explored before the terms "climate change" and "global warming" were introduced. See Appendix 3.

"electric cars have been around since the 1960s... but now these companies rule us, you can't take their bread and butter [away] and tell them they must produce only electric cars"

MAN FROM CAPE FLATS

"the rivers are being closed by soil... our animals [have to] go for distances to look for water because the dam is covered up by soil"

MAN FROM GROBERSDAL

Ozone confusion

Many South Africans appear to confuse climate change, global warming, and the greenhouse effect with stratospheric ozone depletion. Awareness of the ozone layer, which a young man from Soweto describes as, *"like the earth's condom"*, is very high, particularly in urban and peri-urban areas. Residents are aware that human activities have created holes in the ozone layer and often believe that these holes directly cause rising temperatures by allowing *"more sun"* to reach the earth. *"The sun is shining through the big hole in the ozone layer... that is why it is so hot,"* explains a woman from Johannesburg.

In fact, whilst allowing harmful ultraviolet radiation to reach the earth's surface, ozone holes do not themselves cause an increase in the earth's temperature. However, they do increase the risk and incidence of both sunburn and skin cancer, which may explain why a lot of South Africans relate more frequent and severe sunburn to rising temperatures when discussing changes they have noticed in their natural environment. Temperature (an important variable in global warming) and sunburn are easily merged into one issue.

Some of the science behind ozone depletion is also widely known – South Africans are aware that chlorofluorocarbons (CFC) are contained within aerosol spray propellants – however, there is a tendency to confuse causes of ozone holes with the causes of climate change. *"What also causes the weather to change are the perfumes that we use... they affect our ozone layer,"* says a woman from Soweto. Indeed, a number of respondents conflate causes of ozone holes and causes of climate change, and describe both as being responsible for global warming:

"The ozone layer keeps out the heat, so that the sun does not shine directly onto us on earth", says an older woman from Durban, *"but when we spray our deodorants or [emit fumes] from used cars, it damages this ozone layer. That is why we feel more heat now than before, because [before] the ozone layer was thick. Now, with all these things damaging it, it is becoming thinner. So if it were to burst, then we are dead."*

Several respondents, despite having a relatively sophisticated knowledge of environmental issues, also fuse the greenhouse effect and ozone depletion into a single explanation for changes they have witnessed: *"There is a layer [around] Earth called the ozone layer. It is destroyed by emissions, like smoke from cars. When the ozone layer is damaged UV rays from the sun penetrate and cause the greenhouse effect, so the polar caps... [melt] and the seas rise,"* says a man living in the Cape Flats.

And a young woman from Cape Town says: *"The whole global warming thing, the greenhouse gases and the hole in the ozone is definitely affecting weather patterns. That is... why the icebergs are breaking up and causing water levels to change and changing all the weather patterns completely."*

A number of people feel that it is the ozone layer itself which causes the greenhouse effect: *"When they say greenhouse [effect] it means that the ozone layer starts to work as a greenhouse and traps heat and the earth starts to get warm,"* says a man from the Cape Flats.

The danger in confusing climate change with ozone depletion is that people seeking to address climate change may select the wrong activities. For example, reducing aerosols is effective in dealing with ozone depletion, which is caused by CFCs, but less effective in combatting climate change, which is primarily caused by carbon dioxide emissions. Further, ozone depletion was largely addressed by regulation in the late 1980s, while the human activities causing climate change are ongoing.

Recommendations for communicators

Make use of people's awareness of atmospheric ozone depletion to explain climate change, correcting misconceptions at the same time. Emphasise which human activities produce the greenhouse gases that cause climate change, and explain the science in a visual way that resonates with people, as ozone holes do.

Air pollution

People think visible pollution or smoke causes climate change. They speak about how smoke is degrading their natural environment, polluting the air, damaging their health and changing the weather. Many urban citizens associate visible smoke directly with global warming: *"There [are] a lot of factories... and whatever they manufacture... the smoke affects the atmosphere and that contributes to global warming,"* says a young man from Soweto.

However, there is a tendency to associate *all* visible air pollution with climate change and global warming. As well as mentioning cars and factories, people speak about how visible smoke from cigarettes and fireworks can *"eat up"* the ozone layer. *"Fireworks, when they are burning – the smoke affects some layers up there next to the sun,"* says a young woman from Grobersdal.

A few South Africans believe that smoke literally forms clouds in the skies, which are the source of heavy rains. *"Change [in weather patterns] is also caused by factories, when the smoke comes out and goes up to the sky,"* explains an older man from KwaDukuza: *"the polluted air comes out and mixes with the air in the sky and causes rain which in turn causes floods."*

Most people are also aware that smoke contains gases, such as carbon dioxide, which are harmful to the atmosphere. This emphasis placed on visible smoke may help to make the idea of greenhouse gas emissions more tangible. It has the disadvantage, however, of implying that cars producing little visible pollution emit less carbon dioxide, which is not necessarily true.

Recommendations for communicators

Build on people's undersanding of smoke to broaden their understanding of the global effect of greenhouse gases. Use health concerns connected with smoke to engage people and teach them about the causes of climate change.

Overpopulation

In all locations, people mention overpopulation as a primary and secondary cause of global warming. Some see the relationship between population growth and climate change as an indirect one, stating that as populations grow, they will exhaust available resources leading to famine, hunger and environmental degradation. *"The world is becoming so overpopulated,"* explains an older woman from the Cape Flats. *"You just have to look at the damage that one person can cause, so what about so many billion of them? They contribute to the increasing of the temperature."*

Others see the relationship between overpopulation and global warming more literally, with higher population density leading to greater ambient heat. *"We are overpopulated, squashed up and it gets way too hot!"* states a young woman from KwaDukuza, and a man from Durban adds, *"A million years ago there were less people so more people, more heat... I travelled in a bus not long ago and there were about 90 people on the bus. It was a cold day, but there was heat on the bus, because of all the people."*

Recommendations for communicators

Draw on understanding of the immediate relationship between humans and the environment to explain climate change at a global level.

The will of God

Many South Africans, particularly those from rural areas and townships and those who have lower levels of education, relate changes in the climate to God or the supernatural. For people living in the townships, God and science often feature simultaneously in their explanations for changes they have seen. An older woman from Durban comments, *"the ozone layer is created by God"* and now humans *"have destroyed it"*. Similarly, some believe that climate change is caused by humans, but feel it is a sign of the end of the world. *"God destroyed the Earth with water and He said He wouldn't do it again; this time around He'll bring fire,"* explains a man from the Cape Flats. *"When we read the Bible, as the ozone layer gets destroyed, we will see the fire that God spoke about."*

In rural areas, some South Africans feel that the weather is entirely the domain of God and that only he can influence weather events, particularly the occurrence of rain. *"Only God can answer [why these problems happen],"* says a woman from KwaDukuza, *"the change in seasons, the change in weather [is] not manmade. That is why we pray for rain if it is too dry and when it rains too hard we pray for it [to stop]."*

People often associate this change in seasons with a change in peoples' behaviours. *"Traditionally if it didn't rain, they would go ask for rains from the ancestors, singing and dancing and then it would rain,"* explains a woman from Tafelkop, *"but now they don't do that anymore, things have changed – no one does this now... There used to be strong rains that grew plants. Plants grew quickly. Now they [the rains] are different."*

There is also a belief amongst rural respondents that extreme weather events are a punishment for human sin. An older man from KwaDukuza states, *"people's lifestyles also affect God's earthly plans"*. He goes on to say that actions traditionally forbidden by Christian religious doctrine, such as abortion and homosexuality, are now being endorsed by modern society meaning that God will punish people with droughts and floods. An older man from Groblersdal agrees, *"I think the rain is stopped by all this fighting taking place. People are fighting each other, stabbing each other, shooting each other [and this makes] God angry with us."*

A number of rural residents feel that there are other causes of the storms and floods. A man from rural KwaZulu-Natal speaks of how the sea itself can cause floods if provoked by human behaviour: *"It was said that people who were fishing caught a 'lady of the sea' which then died. The sea got extremely upset and that is how the floods started."* Women from Limpopo tell of strong winds caused by *"a big snake, a mermaid (mamokiba)"* that destroy peoples' shacks, tearing off roofs: *"Sometimes when people are doing their laundry there by the dam, they pour soapy water in the dam and the mermaid gets angry and moves from one dam to another. When the mermaid is moving in the wind, it sees your rooftop and thinks it is water, then comes down trying to get into the water and when it discovers that it is not water, it gets angry and removes the whole roof when it flies back."*

Recommendations for communicators

Be sensitive to people's faith when communicating climate change. Involve faith leaders in climate change communication. Where possible, facilitate climate change discussions that complement ideas of environmental stewardship present in some religions.

The five themes that people talked about in the discussions on climate change and global warming were: global consequences, the ozone layer, air pollution, overpopulation, and the will of God. These can function as barriers or as facilitators to effective climate change communication, but it is essential for communicators to understand and take them into account when designing communication strategies.

Barriers and facilitators to engaging with climate change

South Africans also mention a number of barriers to engaging with climate change and protecting the environment, most notably that of convenience. People feel negative change in the world's weather patterns is an inevitable by-product of attempting to better their lives and make things easier for themselves. *"Human beings have a desire to change [their] lives,"* explains a woman from Soweto. *"You want life to be easy and better all the time, you don't want to be cooking over a coal fire. You just want to switch something on and there you have it. You want to have your hair done the easier way and you want to go to work the easier way."* This is particularly true of those living in townships, who feel that the resources they use are necessary for their day-to-day lives. *"There is nothing we can do to change it, we have to keep the lights on, we need to cook,"* says a young man from Soweto. *"If we had to compromise electricity we wouldn't be able to keep ourselves clean... [or] cook."*

Others feel, however, that humans use up resources over and above what is needed to survive. The idea that climate change is happening because of human *"greed, selfishness, laziness and consumption"* is apparent in urban areas. *"People want more and more,"* says an older man from Johannesburg, *"they want more fuel, they want more toys."* South Africans feel that they need to unite in order to act on climate issues. *"We're actually a lazy nation... people have become selfish and insular,"* states an older man from Johannesburg, *"we need more of a community spirit to take action on these issues. I think it's forgetting about me, me, me... we must think as a team."*

Urban South Africans also feel that money is a major issue to tackling the causes of climate change on an individual level, with a young woman from Cape Town commenting, *"environmentally-friendly products or organic veggies are too expensive to buy."* Many people are also aware that a number of South Africans *"do not believe"* in climate change, especially those from older generations. *"[Some] people will think you are talking nonsense,"* explains a man from the Cape Flats, *"even now there are still people that don't believe it [climate change] is happening."* Additionally, many people who are aware that climate change is happening are in denial about the seriousness of the problem. *"They just believe everything will always be OK,"* says an older woman from the Cape Flats, with a man from the same region adding: *"You tell yourself that you are not a climatologist and so you do not need to worry about these things."*

There is also a feeling that people in South Africa are too busy to take time to learn about climate change and to adapt their lives accordingly; and that it is a topic which is quickly forgotten about in the course of daily existence. *"You [see] global warming on TV and you think 'Oh! It affects me',"* says a woman from Soweto, *"but once you are out there and living your life, it is all forgotten."* Additionally, many South Africans, particularly those from lower socio-economic groups, note that they have more pressing concerns than climate change, such as employment, housing, and general survival. *"Global warming is not part of our daily problems,"* says an older woman from the Cape Flats, *"it will definitely not be part of our daily run-of-the-mill discussions."* Ultimately, many feel the problem is overwhelming. A woman from Johannesburg is typical in saying, *"there is just too much and there is very little that we can do."*

Despite this, the vast majority of respondents across all regions see the need to do something, at an individual, community and government level and agree that this need is growing increasingly urgent. *"We actually all neglect everything,"* says a man from Durban, *"[and] now the damage is double what it would have been. If we don't do something now it will be double again"*.

Finally, South Africans stress the need for information on climate change and related issues. They understand that the issue is complex and feel it needs to be explained to them in a simple and straightforward manner. *"They must bring the information in an understandable language, not keep it so academic,"* says an older woman from the Cape Flats, *"come down to the level of the man in the street."* A young woman from Cape Town agrees, explaining that the reason Al Gore's climate change documentary, *An Inconvenient Truth*, is popular in South Africa is because *"they explain it on our level, it's not like a scientific thing"*. A number of South Africans are confused by the terms themselves and are unsure what the distinction is between climate change and global warming. *"They try to confuse you... [by using] fancy words,"* says a woman from Soweto, *"like global warming and climate change – it is more or less the same thing, but you get confused by thinking 'What is global warming? What is climate change?'"*.

Similarly, interviewees for whom English is not their main language feel that efforts should be made to communicate climate change issues to them in their native tongue. *"They should change the language and make it area appropriate,"* explains an older woman from the Cape Flats. *"They should actually speak Mengels[i] so that people can become more aware of it... I will only be interested if I can understand the language and the vocabulary. It must be relevant to who I am here on the Cape Flats."*

i A mix of English and Afrikaans, the dialect of the Cape Coloured people.

4 Interviews with opinion leaders

This research draws on 18 interviews with opinion leaders across six sectors:

Government

- Department of energy
- Department of science and technology
- Department of environmental affairs and tourism
- Department of water and environmental affairs
- KwaZulu-Natal department of agriculture, environmental affairs and rural development
- Limpopo provincial government

Media

- Private newspaper
- Private television station
- Regional radio station

Private sector

- Electricity company
- Mining company
- Wine growing and exporting company

NGO, religious, associations

- Archbishop of Cape Town
- Zion Christian Church
- Association of mine workers
- Agricultural association
- Two local NGOs with a climate change focus

What do South African opinion leaders know and understand about climate change and what are their views on South Africa's response to climate change?

A need for more engagement

Opinion leaders in South Africa are aware that climate change is likely to have a severe impact on their country. However, they are universal in feeling that there needs to be better communication with the public on what climate change is, and how to adapt to it.

Although this research is based on relatively few interviews, there is evidence to suggest that opinion leaders in South Africa are generally very knowledgeable about climate change and are able to speak articulately about both its causes and its likely impacts within South Africa and beyond. However, despite recognising the gravity of the issue and the potentially devastating effects climate change could have on their continent, most South African opinion leaders feel that not enough is being done in their country, from either a mitigation or an adaptation perspective.

> *"[In South Africa], too much lip service is paid to climate change and not enough is being done to actually change behaviour."*
>
> Mr Patrick Conroy, head of news, eTV

Whilst all opinion leaders feel that their organisations – be they national government, the church or the private sector – are addressing climate change, there is also near universal agreement that more work needs to be done. They feel there needs to be better communication with the public on what climate change is and how to adapt to it, as well as relevant research on climate change within the country.

> *"[We need to make] information accessible ... for people in developing countries. International science is robust and we have all had to accept that, but there is very little research conducted here [in South Africa]. So it's hard for people to get a local context around the issues – they want scientific information that is relevant to their region."*
>
> Ms Belynda Petrie, chief executive officer, One World Sustainable Investments

Understanding climate change

Knowledge of climate change is high among opinion leaders, although those less directly involved with environmentally issues understand it less well. Opinion leaders feel the scientific meaning of climate change should not be divorced from its social implications.

Opinion leaders across South Africa are able to talk eloquently about climate change and most are very knowledgeable about its causes and effects, discussing the role of greenhouse gas emissions and deforestation.

> *"The climate is changing rapidly causing wide scale weather problems like droughts and floods, mainly because of rapid global warming ... caused by industry or human-induced fossil fuels and greenhouse gases such as carbon dioxide and methane and nitrogen oxides"*
>
> Mr Troy Govender, senior environmental advisor, Eskom

Several interviewees, in much the same way as the citizen focus groups, frame the issue of climate change in terms of overpopulation.

> *"It is simply the fact that there are too many people on earth, we are using too many of earth's resources. We cannot sustain life as we used to know it, as a result of human actions, our excessive consumption and mismanagement of the earth's resources."*
>
> Mr Tim du Plessis, Editor, Beeld Newspaper

Additionally, a few interviewees from fields less directly associated with climate change (the private sector, religious organisations and community organisations) also confuse global warming with stratospheric ozone depletion, showing how pervasive this model is in the minds of South Africans.

Interviewees are aware that a scientific explanation of climate change is insufficient and that a social explanation is also required. Ms Jessica Wilson, project manager, Environmental Monitoring Group, is typical in describing climate change as *"changes to the natural system that then has implications for how we organise ourselves as a society and the economy"*.

Many interviewees point out that the issue of climate change in South Africa is compounded by existing problems of environmental degradation and lack of infrastructure, as well as South Africa's continued exploitation of its natural resources.

> *"We are using more resources than we have, it is very simple, it is like a bank account: we are in our overdraft and yet we do not care."*
>
> Dr Antoaneta Lesoalo, manager of environmental research and planning, Limpopo Provincial Government

Perceived impacts of climate change

People understand climate change as global in scope whilst opinion leaders are concerned about the local implications for South Africa in the future, for rural communities and the urban poor in particular.

Opinion leaders in South Africa are well aware that the impacts of climate change may be severe: *"Climate change may threaten the very future of our existence and our quality of life on the planet,"* says Tim du Plessis. Whilst they are aware of the global impacts of climate change; talking about melting icecaps and worldwide sea level rises; opinion leaders are also very sensitive to the impacts climate change will have on South Africa in particular.

All opinion leaders feel that climate change will have a big impact on the country's access to clean, safe water. *"We're already a fairly water stressed country,"* points out Jessica Wilson, project manager with the Environmental Monitoring Group, *"so any changes to either the amount of water or the predictability of rainfall will have impacts on our ability to get water to people."* Another big impact will be on food, both in terms of direct affects on the livelihoods of subsistence farmers and indirect cost affects on consumers, as well as the blow to the economy that would occur if the deciduous fruit industry in South Africa were to disappear. Patrick Conroy, head of news at eTV, notes that South Africa has recently become a net importer of grain, adding, *"we're all in for a very tough ride if we cannot feed our own people, never mind feed the region [as we used to]"*.

Affects on health, biodiversity, energy, and transport are also mentioned by a number of interviewees, as is urban-to-rural migration, occurring as a result of the decline of arable land in rural areas. *"We have a process of rapid urbanisation happening in our country and our urban resources and infrastructure cannot deal with the number of people streaming into the cities,"* says Tim du Plessis. Several interviewees also mention the knock-on effects rapid rural to urban migration and loss of natural resources might have on internal and external security.

> *"As resources become scarce... [people] will migrate where those resources are in abundance and finally there will be war and strife and competition over those scarce resources."*
>
> Reverend Thabo Makgoba, Archbishop of Cape Town, Anglican Church

The general consensus amongst opinion leaders is that climate change will have far-reaching impacts on many different areas.

> *"Everyone is affected by climate change ... every sector, every individual, the transport sector, the energy sector, agriculture. I mean, it's not [just] an environmental issue, it's a social and economic issue."*
>
> Mr Imran Patel, director of science and technology for economic impact, Department of Science and Technology

Additionally, many opinion leaders are aware that the effects of climate change will be felt keenly in South Africa, because it is still a developing country with high levels of poverty. Mr Senzeni Zokwana, president of the National Union of Mineworkers, argues that South Africa is especially vulnerable to climate change because, *"we are still a third world country struggling to improve [and] response to catastrophes"* will be limited. Imran Patel agrees: *"the frightening thing"* is that it affects everyone and that *"the impacts are very variable... that's why a lot of work needs to be done to understand what happens locally and how [local communities] respond to the changes."*

Opinion leaders note that farmers have been trying to adapt to the changes they have being experiencing, but climate change makes their lives very difficult. *"Farmers might not necessarily keep calendars,"* says Belynda Petrie, *"but they know exactly what day to farm and the implications of not doing so. That level of control has been removed from them by climate change."*

However, whilst there is a feeling that farmers and *"people who have a direct relationship with the natural world"* will be the most affected, opinion leaders are also aware that even the urban rich are not immune to its tertiary impacts. Mr Johann von Wielligh, production executive with Koöperatieve Wijnbouwers Vereniging (a winemaking cooperative), points out that whilst rural people are directly affected, urban dwellers are affected indirectly via the *"rising cost of resources, cost of fuel, cost of electricity"*.

However, the general feeling is that these effects pale in comparison to the likely impacts on subsistence farmers. *"For the rural poor communities if their crops fail there is nothing they can produce... you can't even feed your livestock,"* says Mr David Mahuma, director general of clean energy at the Department of Energy, *"but for those in urban areas – to the extent that milk comes from Pick 'n' Pay, who cares?"*

There is also awareness that as well as depending on the land for a living, rural South Africans are also particularly vulnerable to climate change because they lack the finances or the resources to deal with its impacts. David Mahuma comments: *"In the urban areas you have the municipal infrastructure for water, but in rural areas people really depend on the benevolence of nature to provide rainfall for water... the rural poor are the most vulnerable."*

This lack of infrastructure and proper drainage systems also means that poorer areas are more likely to suffer because of extreme weather events. *"It is generally poor, rural communities that have to bear the brunt of flash floods and landslides,"* says Troy Govender, noting that *"heavy storms"* now often happen *"quick and fast"* without *"time for preparation"*. These often result in *"wide scale loss of land and life"*.

However, the majority of opinion leaders also feel that at the moment South Africa is not suffering hugely because of climate change and that *"it is a largely academic concept right now"*. Mr Andrew Parsons, environmental policy advisor to Anglo Gold Ashanti, states that *"there hasn't been that much of a change yet"* and that when changes have happened they have *"happened so gradually that people don't particularly notice them"*. However whilst for the time being, *"we can counteract the effects of climate change"* he notes, *"it will catch up with us eventually"*. Opinion leaders are united in their call for action to be taken before the worst of these impacts are felt by South African society.

Where does responsibility lie?

Opinion leaders are aware that, as a heavily industrialised nation with an economy largely dependent on coal-powered electricity, South Africa has contributed towards climate change. However, they also recognise that core responsibility for climate change lies with Europe, America, and China, and believe that without their support, successful mitigation is not possible.

Opinion leaders feel that South African industry needs to shoulder a lot of the blame for climate change. As well as noting that South Africa has *"never had stringent enough environmental laws"*, interviewees raise the issue of the country's reliance on coal, described as *"a killer on the atmosphere"*. Troy Govender explains: *"We produce a vast amount of greenhouse gases because of our rate of development... our energy is very much fossil fuel dependent."* There is also awareness that South Africa is now economically dependent on offering cheap electricity to pollutant producing multi-national companies.

> *"We have opened our arms to this... for a long time South Africa's policy was to encourage industry here [by having] cheap electricity."*
>
> Ms Jessica Wilson, project manager, Environmental Monitoring Group

> **"[We need to make] information accessible for people in developing countries. International science is robust and we have all had to accept that, but there is very little research conducted here. So it's hard for people to get a local context around the issues – they want scientific information that is relevant to their region"**
>
> **MS BELYNDA PETRIE, ONE WORLD SUSTAINABLE INVESTMENTS**

Opinion leaders also acknowledge that South Africa's status as a developing country means that it has perhaps been able to shirk some of the responsibility it should take for reducing carbon emissions.

> *"South Africa is the tenth biggest polluter in the world, depending on how you calculate it. We used to have the cheapest electricity in the world, producing the dirtiest waste from coal ... so if we want to compare South Africa to the rest of Africa, we are as big a culprit as America to the rest of the world."*
>
> Dr Antoaneta Lesoalo, manager of environmental research and planning, Limpopo Provincial Government

Additionally, opinion leaders agree with focus group interviewees when discussing other causes of climate change within South Africa. The contribution made by methane emissions from cattle is noted, with an opinion leader from Limpopo explaining: *"It is a cultural thing to measure wealth with cattle, so people are proud when they have more."* The amount of cars in the roads is also mentioned, as is the growing consumption of the public. However, there is also unanimous awareness that the core responsibility for the emission of greenhouse gases lies with the developed countries of the West.

> *"Historically the vast amounts of greenhouse emissions have been in the developed world, not here ... [but] developing countries are impacted disproportionately. The wealthy countries have emitted and continue to emit the gasses and it's the poor ironically who are impacted most."*
>
> Mr Andrew Parsons, environmental policy advisor, Anglo Gold Ashanti

There is also widespread criticism of carbon trading among policymakers, with few feeling that it is the right way to proceed, as Dr Antoaneta Lesoalo points out: *"The western world can buy themselves the right to pollute... it does not in any way contribute to the resolving of the problem."*

However, whilst there is a perception that *"the big countries like America and Britain"* are responsible for climate change, there is also awareness amongst opinion leaders that the *"culture of blame"* that exists in Africa is not necessarily helpful.

> *"It doesn't help much to point fingers and say that first world countries must do x, y, and z before developing counties even come to the table."*
>
> Mr Harrison Pienaar, chief director, resource directed measures, Department of water And Environmental Affairs

Interviewees also believe that the culture of blame has led to a laissez faire attitude towards mitigation from those amongst the public who are informed about climate change. *"[People think that] it's always those 'nasty Americans' who need to change, rather than [us], but unfortunately this problem requires everyone, including... you and me, to change,"* says Andrew Parsons.

The feeling is that climate change issues are global and require a unified, global response, before the poor and under-represented are adversely affected even further. *"Climate change issues are global issues and we cannot ascribe them to particular activities in South Africa... the causes of climate change are global and that is why we need global initiatives to try to address them,"* says David Mahuma.

Do South African citizens understand climate change?

Opinion leaders think that, whilst many South Africans are aware of climate change, they have yet to realise the dramatic impact it could have on their livelihoods. Opinion leaders also think that the term 'climate change' means little to rural South Africans despite the fact those from rural areas are likely to have experienced the changing climate. They also believe that climate change is not a priority for most people.

The consensus amongst opinion leaders in South Africa is that the public, particularly those living in the rural areas and townships likely to be worst affected by climate change, do not fully understand the phenomenon. Archbishop Thabo Makgoba is typical in saying that whilst some people in South Africa have a sophisticated knowledge of climate change and are able to link it to *"the results of our behaviour, [our] consumption of energy"*, many will only understand it in terms of *"seeing that where they grew up temperature patterns have changed. [Sometimes] there's more rain, [sometimes] places are dry."*

Belynda Petrie agrees, stating that people are aware of climate change insomuch as they have noticed that weather events like floods have *"become more frequent and more intense and they are feeling it because it is affecting their lives and homes."* She adds, whilst *"it is often not useful to talk about 'climate change'"* it is *"more useful to talk about what people know and [how they] understand the [weather] patterns and changes that they are experiencing"*.

Part of the reason that opinion leaders feel the public does not engage with climate change, even though they know it is happening, is that South Africa has so many *"political and socioeconomic problems that we haven't had time to be thinking that much about the environment."* Patrick Conroy argues that whilst South Africa has continuing economic, social and health issues climate change is *"just a voice in a big crowd shouting out its message. And it's not going to get heard."* This opinion was unanimous across all sectors, with Johann van Wielligh stating that whilst people are *"moderately interested"* in climate change, *"probably less than 50% actually understand the effects climate change will have on their lives... Aids and electricity costs and transport issues... [even] the 2010 soccer, are bigger issues than climate change."*

Few opinion leaders see this changing in the near future.

> *"People in the underdeveloped parts of the world, for them climate change is a very far off concept. For them everyday survival, getting enough to eat and drink and finding shelter is a far more pressing challenge than climate change. If you go to the proverbial man in the black overalls who works on a factory floor, who earns a weekly wage, lives in a township or informal settlement, doesn't own a car, has to pay high taxi fares and struggles to make ends meet to feed his family and ask him, 'do you know what climate change is', he will say no. And if you explain, he will say, 'No, it's not going to affect me, I just need enough food, I have four children to feed'."*
>
> Mr Tim du Plessis, Editor, Beeld Newspaper

Several opinion leaders therefore feel that those who are most concerned about climate change are *"those who can afford to be concerned about it... to put it bluntly that's mostly your upper class white families."* However, even for these people climate change is *"a bit too distant to worry about"*.

Many feel that the South African public are not that concerned about climate change because it has so far been communicated to them as a global issue rather than an issue of particular relevance to their own country. Andrew Parsons from Anglo Gold Ashanti argues that climate change is often perceived as *"hurting polar bears"* rather than *"coming down the line at us"*. Tim du Plessis agrees: *"The vast majority of South Africans, even if they have heard of climate change, they don't think of it as a threat."*

However, there is also a belief amongst opinion leaders that *"knowledge has improved dramatically in the last couple of years in South Africa"*, although Andrew Parsons correctly points out that *"there might be some confusion with [the] ozone layer and climate change"*.

Some opinion leaders are aware that South Africans see the weather as being influenced by forces beyond human control. Mr Selaelo Raphahlelo, station manager with Radio Sekgosese, which broadcasts across the Limpopo region states, *"as Africans we've got beliefs. People will say 'this year is going to be hot for the whole of seven months because the chief has died'"*. This leads to a number of misconceptions about climate change amongst his rural listenership: *"If it rains, we say we are blessed... if it doesn't rain we say it is because... God is punishing us for the bad things we are doing, and then others say, no, [it's because] it's the end of the world!"*

Mr Otto Mbangula, president of the National African Farmers Union agrees: *"the simplest interpretation"* for most people is saying *"the gods have now closed the taps where the rain normally comes from at this time and maybe we need to talk to the gods in order to open [it] up' and so forth."*

> *"People who have been in a drought for more than 4 or 5 years, the questions it raises when they see their stock dying in front of their eyes... they have to find a way in which they can explain what is happening to them in terms of forces that they themselves cannot understand or begin to interpret, which might [be to do with] myths... gods."*
>
> *Mr Otto Mbangula, president, National African Farmers Union*

However, opinion leaders do not feel that these spiritual beliefs and knowledge of climate change are mutually exclusive.

> *"For example, in the north of the country the Balobeki tribe have a rain queen... [who has] the ability to make rain... during heavy droughts people go up to the mountains to pray for rain. It's fine for [them] to believe that the rain queen brings the rain, but none the less there are other [things] that contribute to [whether] it rains."*
>
> Mr Selaelo Raphahlelo, station manager, Radio Sekgosese

Translation and terminology

Opinion leaders think that climate change terminology is a barrier preventing public engagement. Opinion leaders suggest there is a need to find meaningful ways of communicating climate change to people so that they are able to place it in the context of their everyday lives.

Opinion leaders agree that the public needs more information on climate change. Almost all agree that people would be more concerned about climate change if they understood its implications for the way they live their lives. They feel there is a need to educate people and raise awareness with regards to climate change.

> *"There's a need for more than information – for education, building understanding. People will innovate once they know how the system works, once it's not just 'climate change', but all of these relations between the natural world, the economy and what I ate for breakfast."*
>
> Ms Jessica Wilson, project manager, Environmental Monitoring Group

Several opinion leaders also point out that the messaging that is currently available in South Africa with regards to climate change is not very proactive and can lead to people feeling confused and afraid. Jessica Wilson adds, *"I don't think people necessarily know what to do about it, all those feelings of fear."* Other interviewees state that South Africans need to take ownership of their local environment to engage with the issue and stress the importance of safeguarding nature, especially in rural areas.

> *"If your community is being polluted, or your national parks are being polluted and you feel ownership towards them then yes, you would respond and try and limit the damage. Until people really feel ownership, not just over their communities, but their national assets, it will be hard to get them motivated."*
>
> Mr Patrick Conroy, head of news, eTV

"The environment is only seventh out of a list of eight priorities in the millennium development goals. When you say [to government] this is an environmental issue they say, go away with your environmental issue, we have to provide housing"

DR ANTOANETA LESOALO

Otto Mbangula sums up the general view on the need for education when he states that what is required is a *"very aggressive campaign from those who understand... that allows people to interpret what is happening to them in terms of climate change. People need to be educated, trained, empowered, assisted."*

Several talk about the language of climate change. They emphasise the importance of framing the issue in terms that are easily accessible to people and also point out the need to be precise when translating scientific and climate related terms into indigenous languages.

> *"There is a huge issue around translating the information into something people on the street understand."*
>
> Ms Belynda Petrie, chief executive officer, One World Sustainable Investments

A number of interviewees also argue that for the public the perception is *"the climate is not getting warmer, it's getting weirder."* They therefore feel that the term climate change is a more appropriate one to engage the public with than global warming.

What response is required?

Opinion leaders feel that whilst steps have been taken to address climate change, much more needs to be done. So far South Africa has focused on mitigating the causes of climate change. Opinion leaders stress that more effort needs to be spent on adapting to its effects.

International campaigns aimed at raising climate change awareness have made an impression in South Africa and a number of interviewees mention the success of WWF's *Earth Hour*. There is a general feeling that government action on climate change is moderated by financial constraints and the presence of other domestic issues requiring action. Dr Antoaneta Lesoalo points out that, *"the environment' is only seventh out of a list of eight priorities in the millennium development goals"*, hence *"when you say [to government] this is an environmental issue they say, go away with your environmental issue, we have to provide housing"*.

Nearly all policy level interviewees feel that more focus needs to be placed on adaptation rather than mitigation.

> *"The focus has been on the mitigation [aspects] of it – we are polluting the environment and that's causing climate changes. I think there's more and more acknowledgement now that we need to be talking climate impacts ... and how to adapt to them."*
>
> Mr Imran Patel, director of science and technology for economic impact, Department of Science and Technology

> *"It's about time we start teaching our communities to adapt to the changes because the changes are already in effect."*
>
> Ms Olga Chauke, director of clean development mechanism, Department of Energy

There is a high level of awareness of the importance of recycling in South Africa, as has been noted, although interviewees felt the government could do more to promote this (recycling so far has been led by the private sector and independent recycling companies). Recycling is seen as time consuming; with no bins provided and citizens having to carry waste to the nearest recycling site which takes precious time, effort, and money.

Opinion leaders are aware that many schools now include climate change in the curriculum, with the result that children are now more aware than their parents about climate change. *"Children are driving a lot of this awareness"* comments Belynda Petrie.

Government response

Government representatives explain that the government is addressing climate change, but that programme implementation is a problem due to lack of funds and resources. Opinion leaders from outside government are aware of action that the government is taking, but feel political and public will is not currently strong enough to see radical steps being taken.

Opinion leaders outside the national government agree that the government has taken action on climate change but *"not quickly enough, not significantly enough"*. Whilst strategies are in place and a number of departments have *"started engaging"*, they are still regarded as being at the implementation stage. There is an awareness that those in government are *"so burdened by their own pressing needs"* that they have little time to devote to this issue.

> *"Climate change is an additional stress factor. These are the people who have to deal with funding and resolving problems around HIV and Aids, poverty, slow economic growth, drops in foreign investments ... so getting political buy-in is tough."*
>
> Ms Jessica Wilson, project manager, Environmental Monitoring Group

There is also a feeling that South Africans would not want their government to prioritise environmental issues above other social concerns, such as employment and housing. *"I don't see any government anywhere in Africa coming to power on a green ticket,"* comments Mr Patrick Conroy, head of news, eTV.

Several opinion leaders, as did the focus group interviewees, comment that is a shame that Marthinus van Schalkwyk is no longer Minister for the Environment. *"He was really on top of the issue and well regarded,"* comments Tim du Plessis. Andrew Parsons from Anglo Gold Ashanti agrees, stating that van Schalkwyk, *"was very active on the international scene"* and played *"a big role in [international] negotiations"*. However, *"domestically [the government] have done much less. There has been very little effort, except for the last couple of years, to raise awareness. All they have done is make electricity more expensive."* This is a view reflected in the opinions of some of the policymakers themselves.

> *"[South Africa] has been very proactive in contributing to the debate at the global level... Marthinus van Schalkwyk was very active in terms of participating in forums on how the world can [deal with] the impacts of climate change... but we have not done much in terms of educating local people about adapting."*
>
> Mr Sindiswa Nhlumayo, deputy director general of tourism, Department of Environmental Affairs and Tourism

From within the government, the feeling is that a response is happening, but it is facing a number of challenges. Mr Harrison Pienaar, Department of water and Environmental Affairs, points out that climate change is *"a multi-faceted problem that needs relating to many different things"*. Despite this he feels that the overall response of the government has been *"very positive... the government has been highly committed to climate change"*. David Mahuma from the Department of Energy agrees, stating that the government is taking an active role in tackling climate change, *"not just at cabinet level, [but] in all political parties."*

However, there is awareness that the response is limited. Imran Patel director at the Department of Science and Technology feels that whilst the government has given *"very clear guidelines"* on the *"long-term"* plans for dealing with climate change, *"we do not yet have the full set of policies we should have to take us on that path, it's early days in South Africa."*

Another key challenge is to balance sustainability with South Africa's economic development:

> *"We are in a dilemma in terms of balancing the two [environment and development] ... The government has got a strong case on the environment side and also a strong case on the economic side, so somehow we need to balance the two and still promote economic growth – but not at the expense of our environment."*
>
> Mr Sindiswa Nhlumayo, deputy director general of tourism, Department of Environmental Affairs and Tourism

Imran Patel also notes that the government's response is limited by *"funding [which] is often the challenge; we always want to do more but we face resource constraints."* However, he agrees that the need to *"educate [and] explain [climate change] to the masses"* is paramount.

> *"At the end of the day it is civil society who pays the price [of climate change], nobody else and I think we need to be mindful of that."*
>
> Mr Harrison Pienaar, chief director, resource directed measures, Department of water And Environmental Affairs

Private sector response

The private sector expresses commitment to addressing climate change, but stress the need to balance environmental sustainability with South Africa's economic growth.

Whilst all three representatives from the South African private sector, as well as many other interviewees, express concern about the impacts of climate change on South African people and industry, they also feel it is very important that any climate change initiatives should not adversely affect the country's economic growth. Whilst the economy in South Africa has improved over the past ten years, growth has not resulted in job creation and quicker growth is still needed. The South African government estimates that growth rates should average 4.5% throughout 2010 and 6% thereafter in order to halve unemployment (estimated at 22.7%)[56] by 2014. Both politicians and the private sector are thus acutely aware of the need to balance sustainability with development.

> *"How do you develop, without contributing further [to climate change]? There must be some kind of balancing act on how Africa can be developed in a sustainable manner."*
>
> Mr Siddiq Adam, head, KwaZulu-Natal Department of Agriculture, Environmental Affairs, and Rural Development

> *"You can't just overnight close all those coal-powered power stations and leave those areas without employment opportunities ... but you can't justify the pollution of the environment purely on the basis that you are creating jobs."*
>
> Mr Senzeni Zokwana, president, National Union of Mineworkers

Whilst the awareness of the need for balance is widespread, the perception outside of the private sector is still very much that the business community is not doing enough. *"Our business community has enjoyed the fruit of the earth and has not ploughed much [back],"* says Archbishop Thabo Makgoba. Tim du Plessis agrees, observing that whilst the private sector has been *"try[ing] to rebrand – reposition themselves in the same way that BP has done"* as being environmentally aware, most of these changes are just *"window dressing"* and the business community will only *"accept change if it is forced upon them or when it affects their profits."*

> *"In terms of real sacrifices they are not prepared to do anything. Businesses always talk the talk, but when it comes to walking the walk..."*
>
> Mr Tim du Plessis, editor, Beeld Newspaper

Opinion leaders from across all sectors are in agreement that mitigation needs to become economically viable before business can engage in it. *"It's got to be good for business,"* says Patrick Conroy, *"whether it be recycling, or [becoming more] energy efficient – it's got to become good for business before it will take off in Africa."* Imran Patel from the Department of Science and Technology says that as changes have become financially necessary, businesses are becoming more environmentally aware: *"there have been lots of changes in the attitudes of businesses over the past 2-3 years. They can see it's an important issue and that for self-survival they're going to have to find a way to respond."*

Representatives from the business sector in South Africa feel their industries have reacted to try and reduce the damage they are causing to the environment. Johann von Wielligh, production executive with Koöperatieve Wijnbouwers Vereniging, feels there is increasing pressure on the private sector to *"lower their carbon footprint and momentum is starting to pick up and pressure will increase."* He goes on to explain that Tesco's and Waitrose are already putting pressure on wine suppliers to be more environmentally aware and this pressure is apparent *"right through the chain"*. However, he concedes that the primary motivation for most businesses to reduce their carbon footprint is rising fuel and power costs: *"The major driver at the moment to reduce your carbon footprint is cost, the cost of energy, the cost of coal, that is the driver and then you get the added advantage of preventing climate change."*

Andrew Parsons agrees, saying that Anglo Gold Ashanti have also made *"massive improvements"* in their energy efficiency, *"but to be honest those were driven by cost"* with the reduction of greenhouse emissions being a *"very nice and very welcome side effect."* Troy Govender of Eskom feels examples like this show that economic growth and the mitigation of climate change can be compatible, that *"a low carbon, green economy can work"*.

There is awareness that climate change initiatives need to be driven by the private sector. *"The people cannot do much about climate change, it is industry [which has to act],"* says Johann von Wielligh. However, there is also recognition that individual citizens need to play a role.

> *"If an individual uses electricity unwisely and wastefully, then the power station has to produce more. So if 20 million South Africans don't care about energy use and just waste it, then we are producing more at the power station, which releases more greenhouse gas into the atmosphere – so ultimately it comes [down] to individual usage."*
>
> Mr Troy Govender, senior environmental advisor, Eskom

Local responses

Opinion leaders are aware that local government in South Africa is educating civilians about the causes of climate change and how to adapt to its effects, but note they are hampered by a lack of finances and resources.

Both Limpopo and KwaZulu-Natal provincial governments have climate change initiatives in place, including education programmes in schools, conferences, and road shows. Local initiatives face many of the same problems as national ones: a lack of awareness amongst the public and the need to address other socio-economic issues.

> *"In the rural areas, sometimes it's not a deliberate act to destroy the environment, but it's because they don't have the necessary resources to do things differently."*
>
> Mr Sindiswa Nhlumayo, deputy director general of tourism, Department of Environmental Affairs and Tourism

> *"The reality of the challenges is so overwhelming that the activities they are doing in terms of climate change may seem minute, because there are these [other] huge problems they are faced with: squatter camps, sewerage systems – they take priority."*
>
> Mr Otto Mbangula, president, National African Farmers Union

Dr Antoaneta Lesoalo stresses the need for local government to present climate change to people in a *"simple way"*, letting them know *"what the impacts would be, practically speaking"*.

> *"The science of climate change ... is a little bit beyond their comprehension. But if you say 'your wetlands are going to get dry' to women who are now walking 5km to collect water, [if you tell them] they will now have to walk 10km to the next wetland, then that has an affect."*
>
> Dr Antoaneta Lesoalo, manager of environmental research and planning, Limpopo Provincial Government

Religious institution response

Religious leaders believe there is a role for religion to play in encouraging good stewardship of the environment in South Africa.

The Anglican and the Zion Christian Churches are aware of climate change and that religious belief offers a way of understanding and framing the issue for their congregations. They are keen to stress that South Africans should not use their beliefs as a way of absolving humankind of responsibility for dealing with both the causes and effects of climate change.

Mr Ngoepe, committee representative for the Zion Christian Church, notes that some people feel the rising temperatures and lack of rains *"signal the end of the world"* and that others feel that *"it can no longer rain as it used to because people are no longer observing some cultural rituals"*. In his opinion, *"we are the creation of God [and so] we are not just here by mistake and not being here by mistake we cannot just take these misfortunes [climate change] as they come... we need to do something."* Archbishop Thabo Makgoba agrees and points out that there are plenty of passages in the Bible which encourage people to look after the environment, *"we shouldn't act as if we own [the earth]... we've borrowed it from future generations and we need to be good stewards of that which we have borrowed."*

Media response

Whilst the media are knowledgeable about climate change, opinion leaders feel there is limited interest among the public for more information on environmental matters because they perceive climate change to be too 'technical' and 'boring'. They acknowledge that the media, particularly the local media, has an important role to play in raising public awareness around the issue and motivating South African audiences to engage with climate change.

Amongst interviewees from inside and outside the media sector, there was agreement that the media does report on climate change but *"probably not nearly enough"*. The national media tends to cover climate change issues more than local media, as a lot of climate news reported in South Africa is international and taken from news agencies. Selaelo Raphahlelo, station manager of Radio Sekgosese, says that local media does cover climate change, but *"not in a structured way"*. However, Patrick Conroy, thinks more local reporting is necessary in order for South Africans to feel more engaged with the issue and to see it as more relevant to their lives.

> *"You don't see enough local reporting on green issues. And it's not from a lack of editorial will, it's just not on anyone's agenda here ... It's just way down there, behind HIV and Aids, economic growth, transport, health ... the mindset here is still 'people first'. So to try and push a green agenda would be fairly difficult, because if you've got millions and millions of people living in shacks waiting for jobs, they don't really care [about environmental issues]. It's very difficult to sell a green agenda to people who are more worried about their own short term needs."*
>
> Mr Patrick Conroy, head of news, eTV

Jessica Wilson also feels there is an additional challenge in that people are *"bored of it... The difficulty with climate change is it's not [all] Hurricane Katrina, it is gradual small changes that add stress and it's not really newsworthy."* She also notes that too much media attention is given to 'deniers': *"there's still this weird thing that the news is about the debate between 'is it happening' or 'is it not happening' instead of about 'what are we going to do about it?'"*

However, opinion leaders from across sectors agree there has been a *"substantial increase"* in reporting on environmental issues over the past few years.

> *"When I started off in journalism 33 years ago climate change certainly wasn't the stuff we wrote stories about, although it was happening ... [now] climate change [is] one of the most pressing problems of our times. [I used to] spend most of my time reporting on political change. Now all of a sudden political change is passé, climate change is now and is new ... that's a very good thing."*
>
> Mr Tim du Plessis, editor, Beeld Newspaper

Tim du Plessis feels that this change in how journalists approach and cover climate change is reflected in how well the public respond to such stories.

> *"There was a time when people would see a story about the polar icecaps melting and they would say, 'Agh, that's not for me, it's too far away, there are no people [living] there anyway'. Nowadays, because we have deliberately altered the taste of our readers for those kinds of stories, they are read widely and readers respond to them ... the interest from readers on environmental affairs is 100% higher than it used to be."*
>
> Mr Tim du Plessis, editor, Beeld Newspaper

All media interviewees feel that climate change can be difficult to report on, because of the level of technical knowledge needed on the part of the consumer to understand the science behind it.

> *"Once you've got the broad brush principles, then the complexity of what's going to happen and what predictions are likely requires people to engage their brains. A lot of media now is just about these sound bites. I don't think climate change is a sound bite issue."*
>
> Ms Jessica Wilson, project manager, Environmental Monitoring Group

However, Tim du Plessis feels that *"once people understand the fundamentals of how it actually works, how our actions affect the climate and our quality of life, it all becomes very simple."* As such he is optimistic for the role of the media in educating South Africans about climate change's causes and consequences. Archbishop Thabo Makgoba summarises the thoughts of many interviewees when he points out that the media is uniquely placed to be able to *"challenge the government, challenge the churches, challenge the business people, to say: we are in it together"*.

5 Conclusion

This research has shown that whilst public awareness of global climate change is high in South Africa, it is often not well understood. Most South Africans are uncertain about the processes driving climate change or of the relationships between global warming, the greenhouse effect, the ozone layer, and so on. More South Africans associate climate change with global impacts than with national or local impacts. Many do not that see that climate change has any special relevance to South Africa or the rest of the African continent.

While people are concerned about the changes they have witnessed in their immediate environment, there is a tendency to view climate change as a 'green' topic that is the domain of environmentalists and the urban elite. Climate change terminology is also regarded as overly technical, further hampering people's engagement with the issues.

While nearly all South Africans see a link between human activities and climate change, they tend to view the destruction of the environment as an inevitable consequence of their own and their country's economic development. People fear that tackling climate change will impede this economic development. There is a perception that the South African public and South African industry are reluctant to adjust their behaviour in order to mitigate causes of climate change. People are looking to the national government to lead by example.

South African opinion leaders recognise that climate change is an issue that will affect their country severely in the future. However, they say that they lack clear strategies on how to effectively engage and inform the public. This research suggests that framing climate change as a national issue and highlighting the associations between climate change and issues that people are already concerned about, such as the loss of wildlife, increases in extreme weather events, and rising food prices, will promote greater engagement.

As well as addressing citizens' concerns about the economic impacts of tackling climate change, there is a need to frame future communication around the economic *benefits* of mitigation and the damage that climate change impacts could do to the South African economy.

Although this research set out to present the perceptions of the South African public on climate change, rather than a detailed communications strategy, some implications for future communications initiatives can be drawn.

Provide information

Firstly, the media has a critical role to play in providing information on climate change and supporting others to do so, including governments, national and international NGOs, scientists, religious leaders, and community leaders in order to help reframe the climate change debate in South Africa.

The media is in a position to provide information which builds on the public's current understanding of climate change and raises awareness of the ways in which climate change relates to people's lives and livelihoods. South Africans need to see climate change as a local issue with local effects, as well as an international phenomenon. Providing people with access to correct information about the mechanisms of climate change and giving clear and authoritative information that establishes links between specific behaviours by individuals (such as driving and using electricity) and climate change will be vital. This will combat factual uncertainty and limit the extent to which individuals can deny (subconsciously or otherwise) the impacts of their behaviours on the environment.

Communication efforts should also target people with less understanding of climate change, particularly urban poor and rural populations, to help build simple, correct mental models of how climate change works, being mindful of people's existing understanding. Providing information on how to adapt to climate change and prepare for extreme weather events will also be important. Finding and testing appropriate climate change terminology in all the main languages spoken in South Africa will be needed before any communications initiative is successful.

Encourage policy and public debate

Secondly, the media needs to facilitate accessible public debate. South Africa is affected by climate change; it is also contributing towards the causes of climate change. Internally driven, relevant debate on the issue is essential in order to build a sense of immediacy and encourage the sharing of current examples of mitigation of and adaptation to climate change.

As well as addressing citizens' concerns about the impacts of tackling climate change on South Africa's economic development, public debate can also provide a forum for airing the likely economic consequences of *not* tackling climate change. The news and non-news media can shape and mediate that debate to a substantial extent. Building the capacity of the media, particularly local media, and providing support for 'public spaces' to enable discussion that draws in South African voices and experiences and encourages debate about the roles of the government, businesses and individuals in tackling climate change will be crucial. These spaces, which can be created through talk shows, call-ins and other popular interactive platforms, can be forums to exchange information, create understanding, formulate plans for action, and promote citizen engagement in South Africa's response to climate change.

Encourage accountability

Thirdly, debate can increase accountability, enabling citizens to exert pressure on their own governments with respect to climate change policies: adaptation funding, technology transfer, emissions reduction and other response strategies. Only when South African citizens and their representatives are fully informed about, and able to debate climate change, can they begin to influence the national and international climate change policies and processes which affect their lives.

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Appendix 1 Opinion leaders interviewed

Name and title	Organisation	Sector
Mr David Mahuma *Director-General of Clean Energy*	Department of Energy	National government
Ms Olga Chauke *Director of Clean Development Mechanism in South Africa*	Department of Energy	National government
Mr Imran Patel *Director of science and technology for economic impact*	Department of Science and Technology	National government
Mr Sindiswa Nhlumayo *Deputy director general, tourism*	Department of Environmental Affairs and Tourism	National government
Mr Harrison Pienaar *Chief director, resource directed measures*	Department of Water and Environmental Affairs	National government
Mr Siddiq Adam *Head*	KwaZulu-Natal Department of Agriculture, Environmental Affairs and Rural Development	Local government
Dr Antoaneta Lesoalo *Manager of environmental research and planning*	Limpopo Provincial Government	Local government
Mr Tim du Plessis *Editor*	Beeld Newspaper	Media
Mr Patrick Conroy *Head of news*	eTV	Media
Selaelo Raphahlelo *Station manager*	Radio Sekgosese	Media
Mr Andrew Parsons *Environmental policy advisor*	Anglo Gold Ashanti	Private sector
Mr Troy Govender *Senior environmental advisor*	ESKOM	Private sector
Mr Johann von Wielligh *Production executive*	Koöperatieve Wijnbouwers Vereniging of South Africa (winemaking cooperative)	Private sector
The Reverend Thabo Makgoba *Archbishop of Cape Town*	Anglican Church	Religious institution
Mr Ngoepe *Committee representative*	Zion Christian Church	Religious institution
Mr Otto Mbangula *President*	National African Farmers Union	National association
Mr Senzeni Zokwana *President*	National Union of Mineworkers	National association
Ms Jessica Wilson *Project manager*	Environmental Monitoring Group	NGO
Ms Belynda Petrie *Chief executive officer*	One World Sustainable Investments	NGO

Appendix 2 South Africa advisory group

Name	Organisation
Dr Brian Mantlana	South African National Biodiversity Institute
Mr Brad Smith	Greenpeace Africa
Professor Coleen Vogel	University of Witwatersrand
Dr Debra Roberts	Development Planning Environment and Management Unit, eThekwini Municipality
Dr Emma Archer	Council for Industrial and Scientific Research
Gina Ziervogel	Climate Systems Analysis Group
Helena McLeod	Department for International Development, South Africa
Khamarunga G. Bada	National African Farmers Union of South Africa
Peter Nielson	Nelson Mandela Bay Municipality

Appendix 3 Methodology overview

South Africa Talks Climate employs a qualitative research design. Qualitative approaches – which generate non-numeric data – are particularly useful for exploratory research on topics for which there is little previous research. Through focus groups and in-depth interviews, *South Africa Talks Climate* investigates the meaning that people attach to climate change, and explores how they experience climate-related issues and impacts.

A total of 16 focus groups with citizens and 18 in-depth interviews with opinion leaders were carried out across the six locations in South Africa between August and October 2009.

The eight fieldwork locations were selected on the basis of desk research and consultation calls with the South Africa advisory group. The environmental challenges represented in these areas have already been linked to climate change, to some extent, or could be further exacerbated by climate change in the future. Selection also sought to ensure suitable geographic, ethnic, linguistic and urban/rural diversity. The locations selected for research were as follows: Johannesburg and Soweto (Gauteng Province), Cape Town and Cape Flats (Western Cape), Durban and KwaDukuza (KwaZulu-Natal) and Groblersdal and Tafelkop (Limpopo).

Focus-group discussions

Focus groups were held with farmers and fishermen, pastoralists and business people, women and men, rich and poor, rural and urban. Given the implications of climate change for certain livelihoods in South Africa, individuals working in individuals working in fishing (KwaZulu-Natal), tourism and wine making (Western Cape) and farming (Limpopo) were also purposefully targeted.

Two focus group discussions were held in each location. The focus groups were single sex with approximately eight participants in each who fell within a similar age range. The age ranges were 18-24 years, 25-34 years and 35-50 years. Age and gender were taken into consideration in order to facilitate easy conversation among participants.

Participants in each focus group occupied a similar socio-economic class or profession. Socio-economic class was determined by income in Johannesburg, Cape Town, and Durban; however, it was not possible to determine socio-economic class outside of the cities due to limited data on socio-economic indicators. Profession was therefore used as the basis to recruit participants in these areas.

Moderators for each group were matched to participants in terms of gender and language. In city centres (Johannesburg, Cape Town and Durban) focus groups were generally conducted in English (with occasional words used in local dialects). Groups conducted in townships and rural areas were conducted in the predominant language of the area, and included Zulu, Xhosa, Sepedi, Afrikaans, and 'Mengels' (a mixture of English, Afrikaans and self-made words spoken in some areas of Cape Flats).

Structure of the discussions

To begin with, participants were shown eight images of nature, including trees, water and the sun, and asked if they had any words to describe the images all together. In this way the discussion guide sought in a spontaneous way to elicit words used to describe 'nature'. The participants were then asked if they had noticed any changes in nature over the course of their lifetimes, and invited to share stories about these changes.

The second set of images shown to participants depicted the effects of climate change. There were fifteen such images, showing issues such as drought, crop failure, erosion and flooding. Participants were asked if the pictures had anything in common, and then invited to choose the two images which had the greatest impact on their lives. A discussion of the chosen images followed.

The next section of the discussion guide introduced the concepts of climate change and global warming, without actually introducing the terms. Two statements were read out to participants.

Statement 1 Scientists are saying that human beings are causing weather patterns over time to change around the world.

Statement 2 Scientists are saying that human beings are causing the temperature of the earth to increase.

Participants' reactions to these statements were discussed. Finally, the terms 'climate change' and 'global warming' were explored. These terms were intentionally introduced relatively late in the discussion guide based on experience from the pilot study in Nigeria, which suggested that most participants would not be familiar with the terms.

The subsequent sections of the guide explored responses to climate change, barriers and facilitators to environmental stewardship, rural-urban migration and the potential role of media.

With the exception of Nigeria, the discussion guide was the same for all *Africa Talks Climate* countries. It was translated into local languages through a consultation process with the moderators who spoke those languages.

In-depth interviews

The research team conducted 18 in-depth interviews with opinion leaders to elicit the views of policymakers and opinion formers in on the issue of climate change. These opinion formers were individuals who have a particular interest in climate change, or an informed opinion from a certain field, region or subject area within that country. They included policymakers, religious leaders, business people, journalists, and civil society representatives.

Interviewees were selected based on desk research, and consultation with the local advisory group and local researchers.

Opinion leaders were selected from six different sectors, according to a quota. The sectors were: government, the media, the private sector, religious institutions, local and national associations (for example, farming associations) and NGOs and academic institutions. In South Africa, the quota was achieved for each sector, with an additional interview a the national government level due to the recent division of the former Department of the Environment.

Sector	Quota	Achieved in South Africa
National government (3 national; 2 local)	3	4
Media	3	3
Private sector	3	3
Religious leaders	2	2
Local associations (such as farming associations)	2	2
NGOs, academics	2	2
Total	17	18

In South Africa, as in all *Africa Talks Climate* countries, every effort was made to speak to the climate change focal point at the national government level. The remaining ministries were selected according to the ways in which climate change played out in the country. In South Africa, representatives from the Department of Water Affairs, the Department of Energy, the Department of Science & Technology and the Department of Tourism and Environmental Affairs were consulted.

In the media sector, representatives were sought from radio, television and print media. Both private and public media were represented, and both national and local media. In the private sector, an energy company, an extractive company and a wine making and marketing company were represented.

At the local government level, representatives from KwaZulu-Natal (KZN) and Limpopo were interviewed. The two religious leaders who were consulted were the Archbishop of Cape Town, and a council member from the Zion Christian Church, the largest African Initiated Church in southern Africa.

The two associations represented were an association of mine workers, and an agricultural association.

Finally, representatives from two NGOs with a climate change focus were interviewed.

All the opinion leaders interviewed gave permission for their reflections and opinions to be used in Africa Talks Climate *reports.*

Analysis and reporting

All focus group discussions and interviews were recorded and transcribed. Transcripts were produced in both the original language of discussion, and in English, by the focus group moderators. For focus groups held in Johannesburg, Cape Town and Durban, English transcripts were produced by the moderators[i], while for Soweto, Cape Flats, KwaDukuza, Groblersdal and Tafelkop Afrikaans/'Menglish', Zulu, Xhosa and Sepedi transcripts were produced as appropriate. English transcripts were then generated from the other language transcripts by a team of translators in South Africa.

These translators first read through the vernacular transcripts for inconsistencies and anomalies which, if found, were raised with the researchers in South Africa. The researchers in South Africa then returned to the original vernacular transcripts and, if necessary, the audio recordings, to clarify the issues raised. Most vernacular transcripts were refined several times before being translated into English, to ensure accuracy in the creation of the English transcripts.

A similar process was used to produce transcripts for the in-depth interviews; however, most of the interviews were conducted in English to begin with.

The focus group transcripts and interview transcripts were systematically coded by a team of researchers, using a common list of codes. This list was generated through a detailed consultation process that began with open coding. Inter-coder reliability ultimately averaged 0.96. Coding enabled the researchers to group the data according to emerging themes. Each code was then analysed to pull out the insights and findings.

Guiding principles

Africa Talks Climate endeavoured to adhere to the following guidelines:

- This research initiative will be led by BBC WST's Research and Learning Group (R&L) researchers working across Africa.
- R&L London will co-ordinate the research and provide support for research design, analysis and reporting.
- Informal advisory networks will be established at a strategic and country level to guide research approach, delivery and reporting.
- Thematic training will draw on local academic or other institutions with expertise and local knowledge such as the International Development Research Centre (IDRC).
- All moderators and interviewers undertaking fieldwork will receive intensive skills-based and thematic training on climate change.
- Any research agency employed to help deliver fieldwork will employ local researchers/moderators and their work will be quality controlled by R&L.

i Occasionally these transcripts would include sections in the original Afrikaans or Zulu, as well as the English translation, if respondents had briefly spoken one of these languages during the focus group

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