Africa Talks Climate

Research Report

UGANDA

BBC WORLD SERVICE TRUST

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ALLAN ONIBA ALANA/BBCWST

Uganda 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 Uganda for their support throughout this project, particularly Anne Babinaga, Julian Baker and Lilian Nyacheng. Thanks also go to Kit Vaughan and Susanne Moser, and our Uganda advisory group – Savio Carvalho, Nick Hepworth, Richard Kimbowa, Alex Muhweezi and Christine Nantongo – for their guidance prior to fieldwork and their feedback on reporting. Fieldwork was conducted by Synovate and the BBC WST. Many thanks to Jeff Isingoma, Leslie Kachope, Pamela Kenyangi, Shruti Malhota, Elizabeth Namaganda, Mary Ojilong and Ezekiel Olai. 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 the latest policy briefings, reports and publications from the *Africa Talks Climate* project, 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

In May 2009, the BBC World Service Trust's Research and Learning Group, on behalf of the British Council, conducted research in Uganda to gauge public understanding of climate change. The research consisted of 12 focus group discussions with Ugandan citizens, as well as 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 Uganda's response to climate change.

Key findings

- Whilst most Ugandans[i] do not understand the science of climate change, they have noticed changes in the weather and seasons, and accept the idea that these changes are linked to human activity. They tell of excessive heat, increasing seasonal variability and reduced rainfall. Most people, however, do not connect these with global climate change.
- Changes in climate are not noticed by Ugandans in isolation from broader environmental changes. People in Uganda are keenly aware of environmental degradation and natural resource depletion. They often make little distinction between environmental degradation and climate change. Drought and food scarcity are causing frustration and despair across Kenya. Farmers, fishermen and pastoralists do not know how they would cope if these problems became worse.
- Crop failure and death of livestock are causing frustration and despair. Farmers and pastoralists do not have a sense of how they would cope if the problems became worse. Other issues that people are worried about include bush fires, deforestation, flooding, soil erosion, poor sanitation and air pollution. Opinion leaders are particularly concerned for rural communities and the urban poor.
- There is a strong tendency for Ugandans to hold themselves individually and collectively responsible for local changes in the environment and the weather. They believe their own activities, such as deforestation and draining swampland, have brought about these changes. There is little awareness that climatic problems – now or in the future – are likely to have causes that extend beyond Uganda.
- Opinion leaders recognise that climate change is a global problem, and that industrialised countries are most responsible for causing it. As such, they feel far more needs to be done by industrialised countries to help Uganda adapt to the potentially devastating effects of climate change on its people.
- Among the Ugandan public, there is limited awareness of the concepts of climate change and global warming. Many understand climate change to mean changes in the weather or seasons.
- Climate change terminology is poorly understood and does not have standard translations in Luganda, Rutooro and Ateso. The language of climate change is not accessible to most Ugandans, and this prevents people from having a voice on the issue. Opinion leaders agree that climate change terminology is a barrier that prevents public engagement.
- The media in Uganda, together with schools, are people's main source of information on climate change; and opinion leaders agree that the media has an important role to play is raising public awareness around the issue. However, journalists feel that it is difficult to get editorial buy-in for stories on climate change.
- Ugandans draw on existing knowledge and beliefs to explain the effects of climate change. For example, many think that deforestation in their area reduces local rainfall, and some incorrectly believe that smoke from cars and factories damages the ozone layer, which makes it hotter. Many Ugandans link their country's growing population to climate change; both in terms of the strain it places on natural resources and the creation of ambient heat through higher population density. Some also believe that changes in the weather are the will of God. This view is particularly prevalent among women and rural populations.
- The existing knowledge that people draw on when they are making sense of climate change – in relation to trees, ozone depletion, smoke, overpopulation and God – can function as a barrier or as a facilitator to effective climate change communication.
- People need more information about the causes of climate change and how its long-term impacts and expected increases in extreme weather will affect their lives.
- Opinion leaders agree on the need to raise awareness of climate change, and they emphasise the need to prioritise the provision of information that will enable the most vulnerable people to adapt. However, they stress that Ugandans have a variety of other socioeconomic issues to contend with, and that it may take some time before the public recognises the severity of the issue.
- Ugandans are keen to emphasise that preservation of the environment is often hampered by poverty. Many people rely on the exploitation of Uganda's natural resources to make a living.
- Many people criticise government at all levels for a lack of visible action on climate change and the environment. Those government representatives interviewed say that more will need to be done to tackle the impacts of climate change on Uganda's rural poor; to regulate carbon dioxide emissions; and to reduce bush fires and deforestation. They suggest that the major challenge is one of financial resources.
- Local leaders are well positioned to take action on climate change adaptation in their communities, both because of their proximity to the local populations and their commitment to environmental issues.
- There appears to be little cross-sector co-ordination and communication on climate change. There is a clear need for a more unified approach towards climate change from the NGO sector, and better communication between national government and NGOs, the private sector and the media on these issues.

RECOMMENDATIONS

The information and communication needs of Ugandan citizens need to be at the heart of any national response to climate change; the ability of Ugandans to respond effectively to climate change will be determined by the accessibility and quality of the information available to them. Increased public understanding of climate change will enable citizens and communities to discuss the issue, adapt to its effects and make more informed long-term choices about their future.

Opinion leaders also need access to information on climate change. Leaders from the government, local communities and religious institutions have unrivalled access to communities, and are in a position to communicate climate change and inspire citizens to respond, and to implement local adaptation strategies.

Accessible and relevant public debate will also be critical to increasing public understanding of climate change. It will provide a

i A note about language: while this report refers to the views of "Ugandans", it only represents those Ugandans who participated in the research. Research participants have sometimes been referred to as "Ugandans" for ease of reading.

forum for sharing experiences, bridge the gap between science and society, and enable people to exert political pressure, both internationally and on their own governments.

The media clearly have an important role to play in responding to climate change, and supporting others to communicate about climate change, including governments, national and international NGOs, scientists, faith-based leaders and community leaders. 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.
- Confirm people's observations that weather patterns are changing and that extreme weather events are more likely to occur
- Provide people with access to correct information about the causes of climate change.
- Build simple, correct mental models of how climate change works. In doing so, be mindful of people's existing frames of reference (eg in relation to trees, God, ozone depletion, air pollution and heat) which can function as barriers or facilitators to effective climate change communication.
- Invest in efforts to develop and test appropriate climate change terminology in local languages.
- Clarify how climate change does and does not relate to environmental degradation.
- Provide people and communities with access to information on practical ways to adapt to climate change and prepare for extreme weather events.
- Pay particular attention to the needs of information-poor rural communities. For them, climate change represents a tipping point, and they need targeted information and resources that will enable them to cope with the impacts.
- Help people to make links between the current socio-economic issues they face and the impacts of climate change.
- Educate those who depend on Uganda's natural resources for their survival about alternative livelihoods and more effective ways of managing and replenishing these resources.
- Communicate in ways that are locally relevant to people, using a variety of news and non-news platforms (such as public service announcements, radio dramas.)
- Provide local leaders with access to information on climate change, bearing in mind that local adaptation strategies need to take into account local leaders' understanding of the issue.
- Use schools and the media to better provide information about climate change to the Ugandan public.

Facilitate policy and public debate

- Build the capacity of news and non-news media to support more effective public debate on climate change in Uganda.
- Provide "public spaces", for example through TV talk shows, radio call-ins and other interactive media platforms, to exchange ideas and information, foster understanding and plan for action. Such spaces could also facilitate better cross-sector communication between government, NGOs, the private sector, the media, and local leaders, as well as with international actors.
- Draw on a range of Ugandan voices and experiences in discussions and debates: engage citizens, local interest groups, civil society actors, religious leaders and policy makers from all levels of government.
- Build a sense of immediacy and encourage the sharing of current examples of adaptation to climate change. Harness Ugandans' understanding and experience of their changing weather and environment to create a relevant discourse that promotes citizen engagement in Uganda's response to climate change.

Encourage accountability

- Develop mechanisms which enable Ugandan 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 Ugandan 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
CDM	Clean Development Mechanism
CFC	Chlorofluorocarbon
GDP	Gross Domestic Product
IPCC	Intergovernmental Panel on Climate Change
NAPA	National Adaptation Programme of Action
NARO	National Agricultural Research Organisation
NEMA	National Environment Management Authority
NFA	National Forestry Authority
NGO	Non-governmental organisation
NTV	National Television
REDD	Reduce Carbon Emissions from Deforestation and Forest Degradation
R&L	BBC World Service Trust Research and Learning Group
SCOUL	Sugar Corporation of Uganda Ltd
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
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 Uganda

A recent report by the Global Humanitarian Forum, led by Kofi Annan, labels Uganda as one of the most vulnerable countries in the world to climate change. The projected consequences include increased rain variability, more extreme weather, and longer droughts, with stark effects on agriculture and therefore food security.[10]

The interrelation of climate change with other factors is complex and knowledge of it is still evolving. Nevertheless in the past decades, the climate in Uganda has become wetter and more variable. Whilst this may not seem unduly negative, the erratic nature of rainfall in the rainy season from March to June has brought drought and reductions in crop yields and plant varieties. Rains towards the end of the year are reported as coming in more intense and destructive downpours, bringing floods, landslides, and soil erosion.[11] Although the country as a whole is becoming wetter, government meteorologists note that droughts are also becoming more frequent in the north and northeast of the country. While Uganda's climate offers a great potential for food production, these prolonged and frequent droughts have led to almost perpetual dependency on food aid in certain regions.[12]

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?

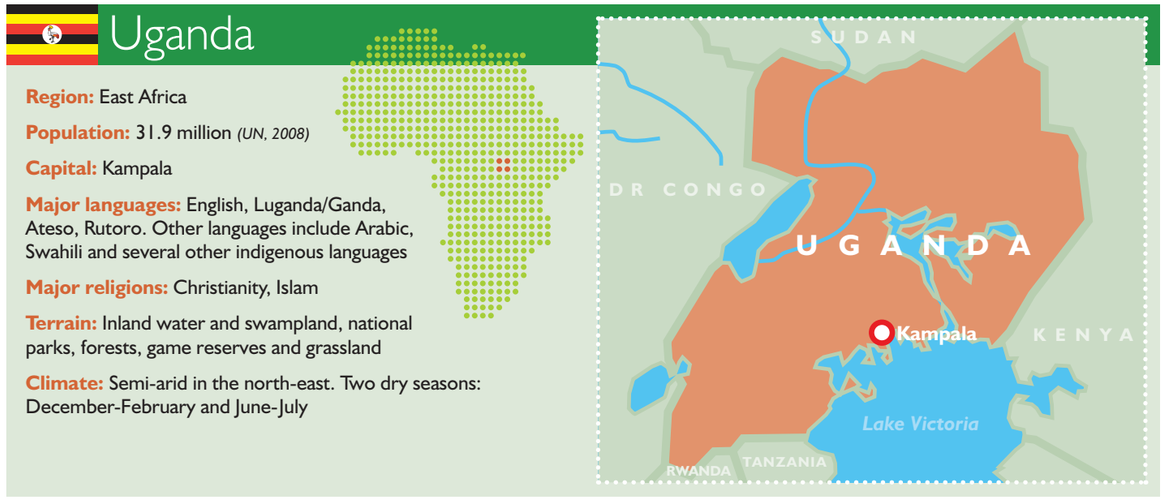
To communicate effectively about climate change, it is critical to know how people understand it. While this review is not exhaustive, it is clear that here is a dearth of research on perceptions of climate change in Africa, and it will be essential to address this problem if communication is to improve. 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.[13, 14] 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,[15, 16] 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.[17, 18, 19] Lack of information regarding climate change is seen by some as a critical barrier in dealing with its effects.[20, 21] 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.[22]

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"*.[23] Similarly, research in the United States has shown that people often have basic misconceptions about climate change.[24, 25] 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.[26, 27] 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,[28] 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.[29] 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.



Agriculture is the most important sector of the Ugandan economy, employing over 80% of the work force and contributing around 43%[i] to the Gross Domestic Product (GDP), with coffee accounting for the bulk (60%) of export revenues. A 2C temperature rise would probably wipe out most of Uganda's coffee production,[30] upon which some 5 million people rely directly or indirectly, and which earns the country several hundred million dollars a year.

Malaria is on the rise and is increasingly reported in parts of the country where it was once rare, and hence where people have not developed immunity to the disease.[31] Whilst there is debate about how important rising temperatures might be in spreading malaria, most researchers agree that they have a role to play.[32] Additionally, in semi-arid areas, tick-borne diseases have increased because of higher temperatures. The tsetse fly belt has expanded, while meningitis and eye infections have risen. The main health effect of increased rain is more diarrhoea.

Dwindling resources have also led to a heightened possibility of ethnic violence.[33] The growing scarcity of water in Karamoja has caused Karimojong cattle herders to move over longer distances and further into the neighbouring districts of Teso and Acholi. This has increased the potential for conflict. Armed cattle raids, which in the past have been a survival response when disease and famine struck a community, have become increasingly common.[34] In a bid to contain tensions, the government has previously deployed the army, and clamped down on the free movement of pastoralists with livestock to and from Karamoja. But this restricted movement has led to a severe loss of livestock and consequent hardship.[35]

Because it is party to the United Nations Framework Convention on Climate Change (UNFCCC), the government of Uganda recognises and supports the need to address climate change. It also signed and ratified the United Nations Convention to Combat Desertification (CCD) in 1994 and 1997 respectively. A National Action Programme for Drylands has been established and aims to develop dry areas sustainably by focusing on poverty alleviation, food security and sustainable environmental management.[36] The government is planning how the country can adapt to climate change and how these measures can be aligned to poverty reduction strategies. For a start, Uganda is beginning to look for nearly US$40 million to implement immediate and urgent adaptation measures – its National Adaptation Programme of Action (NAPA). The country is currently uncertain how much it will receive from the international community.

However, there is doubt about the effectiveness of NAPA. The executive director of the Environmental Management for Livelihood Improvement, an environmental NGO, thinks the government's plans are inadequate: "*Looking at the current status in Uganda, there is no weather and climate policy, low levels of awareness of weather and climate among [the] population, and inadequate determination of adaptation and mitigation options to control greenhouse gas emissions.*"[37] A report[38] from DFID Uganda suggests that action by government to date falls well short of what is needed to climate-proof Uganda's development. Alongside explicit capacity constraints in terms of resources and personnel, there are less obvious constraints to effective action such as confused mandates, dysfunctional arrangements for inter-agency working, and weak institutional and professional incentives for pro-active action. Another report states: "*On paper, strategies towards adaptation are stipulated and linked to relevant national policies despite the fact that implementation still remains a fairy tale.*"[39]

Local governments are constrained by limited financial resources and therefore unable to invest in addressing long-term environmental concerns such as desertification or climate change because they are forced to prioritise immediate and urgent concerns such as health and education.[40]

i Monetary and non-monetary.

2 Research methodology

Research objectives

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

The research focuses on four key questions:

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

The research[i] consisted of 12 focus-group discussions with citizens and 18 in-depth interviews with opinion leaders across three locations in Uganda in May 2009 (see Appendix 1). The locations were Kampala, Fort Portal and Soroti (see Figure 1 on page 11). 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.

- Kampala, as Uganda's capital and largest city, continues to experience a high level of migration and urbanisation, placing a strain on infrastructure and resources.
- Fort Portal, in the west of the country, has been affected by environmental issues. Loss of soil fertility has led to an increase in land pressures. The reduced rainy season is hitting yields of basic food crops such as beans. Increased deforestation has forced farmers to higher levels.[41] Additionally, the Rwenzori Mountain ice caps have receded by 40% in the last 50 years, affecting the year-round water flows in the Semliki River.[42]
- In Soroti, droughts have increased food insecurity and caused animal losses that have led to increased starvation.

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.

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. In Uganda, given the implications of climate change for certain livelihoods, pastoralists (Soroti) and individuals working in farming (Fort Portal and Soroti) were also purposefully targeted.

Moderators for each group were matched to participants in terms of gender and language. In Kampala, focus groups were conducted in Luganda and English, with participants in these groups often using the two languages interchangeably. In Fort Portal, focus groups were conducted in Rutooro, and in Soroti they were conducted in Ateso.

In-depth interviews

To understand the wider context of climate change in Uganda, 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. Interviewees were selected based on desk research and in consultation with the local advisory group and local researchers. For further information on the research methodology used and guiding principles, see Appendix 3.

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 Uganda. All experts were Ugandan, or had worked and conducted research in Uganda.

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 Uganda and climate change. At the same time, experts were invited to join the advisory group.

The group offered informal guidance in three areas: firstly, regarding specific climate change issues facing Uganda; secondly, 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

There are different ways to know about climate change. One 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 although most Ugandans do not know about climate change in the scientific sense, they have certainly experienced it. Observable changes in the weather and the seasons constitute most Ugandans' knowledge of climate change; they live with the impacts of the changing climate in their day-to-day lives.

The research also shows that changes in climate are not noticed by Ugandans in isolation from broader environmental changes. People in Uganda are keenly aware of environmental degradation and depletion of natural resources. They mention, for example, deforestation, pollution and human reclamation of swampland. Indeed, the research reveals that many Ugandans appear to make little distinction between environmental degradation and climate change; changes in the weather and seasons form part of the broader changes people have observed over the course of their lifetimes.

Given that climate change is viewed in the wider context of environmental changes, it is important to understand how Ugandans 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 Ugandan 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 Ugandan opinion leaders know and think about climate change, and concludes with recommendations.

> **"There were always places on the shores of Lake Victoria that were known for being like deserts, but these days the desert-like environment is almost all over"**
>
> **MAN FROM KAMPALA**

> **"When it does rain now it rains too much. It destroys crops and they do not grow properly"**
>
> **WOMAN FROM SOROTI**

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

Ugandans are very aware that their environment is changing, although the word "climate" is rarely used. As well as excessive heat and seasonal variability, they have noticed reduced agricultural productivity and corresponding changes in the availability and quality of food, a loss of forests and wetlands and an increase in human and crop diseases. Ugandans universally view these changes as negative, and are concerned for the future of their country if the pace of change continues unabated.

Ugandans relate nearly all the changes they have experienced to rising temperatures and erratic rainfall. They describe a large increase in "sunshine" over the years. This leads to excessive heat which dries up rivers and leads to drought and desertification.

"*There were always places on the shores of Lake Victoria that were known for being like deserts,*" explains a man from Kampala, "*but these days the desert-like environment is almost all over.*"

Ugandans also note that weather and seasons have become increasingly unpredictable over the years; notably, the rainy seasons no longer come as and when expected. Additionally, when the rains do come, they are stronger and more intense than they used to be, destroying crops and washing away fertile soil. "*When it does rain now, it rains too much,*" says a woman from Soroti. "*It destroys crops and they do not grow properly and so hunger comes up.*"

Primarily as a result of these changes in heat and rainfall, Ugandans note a marked reduction in agricultural productivity. "*Crops that I used to grow in the 1990s, when I grow them these days they don't give enough yield,*" states a farmer from Fort Portal. Low agricultural yields have led to hunger and poverty and a corresponding decline in the availability and quality of food. Many urban Ugandans note that they now rely heavily on tinned food instead of produce from their gardens, or from neighbouring rural areas. As well as not tasting good, they feel this change in diet has had negative impacts on their health. "*The food we eat [has changed],*" explains a young woman[ii] from Kampala. "*These days we have artificial* matooke *[steamed plantain], juice, even chicken. I [now] eat tinned fish and it brings me constipation… they put chemicals in it to preserve it, and these chemicals are not natural.*" Ugandans have also observed an increase in the spread of human diseases such as malaria, hypertension, and ulcers, as well as high levels of crop and livestock diseases. "*These days human beings are so weak compared to the olden days,*" says a man from Fort Portal. "*Diseases have increased.*"

Finally, over the years, Ugandans have observed an increase in human reclamation of wetlands and destruction of forests for agriculture, industry, and housing. They note the corresponding effects this has had on their surroundings. "*You find that swamps that used to attract low temperatures and store water no longer exist,*" says an older woman from Fort Portal. "*People lack water because most swamps have been turned into farms.*" Urban Ugandans have also

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.

ii 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

Figure 1

observed increases in pollution and industrialisation, by which they mean the building up of urban areas. "*Toxins [affect the environment],*" says a young man from the capital. "*In Kampala we have cars and industries, so the air… is not fresh. The vegetation is not natural.*"

How do Ugandans explain and respond to changes they are experiencing?

Many of the changes that Ugandans observe are potentially linked to climate change, and could be exacerbated by climate change in the future. To understand whether people connect local problems to climate change, and to find out how they 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 were interpreting the images – for example, different images prompted discussion of drought – and subsequent discussions sought to understand attitudes towards these issues and the perceived causes, effects and responses.

Across the three locations, a total of five issues were identified:

1. Deforestation and bush burning
2. Drought, crop failure and livestock loss
3. Soil erosion
4. Flooding
5. Pollution and poor sanitation

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 face in their daily lives. Many Ugandans talk about deforestation and the effect it has had on weather and soil fertility. Farmers talk about drought, crop failure, soil erosion and bush fires. Flooding is an issue of interest to urban dwellers, and discussion largely focuses on drains that have been blocked by rubbish. In fact, the issue of congestion and pollution – visible air pollution from cars and factories as well as rubbish – is a prevalent theme within urban groups, and closely tied to sanitation concerns. 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.

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

> **"Poverty is the thing that pushes a person to go and cut trees for charcoal... [they] sell it to get some help"**
> **WOMAN FROM SOROTI**

Deforestation and bush burning

Although Ugandans recognise that bush fires and deforestation are undesirable for environmental reasons, these practices are seen to be necessary for livelihoods and survival, especially in the light of rapid population growth.

In Fort Portal and Soroti, Ugandans identified deforestation and bush burning as a central issue affecting their lives. They feel that the problems of deforestation and bush burning are caused by poverty and hunger, which lead people to cut down trees to make charcoal for income generation. "*Poverty is the thing that pushes a person to go and cut trees for charcoal,*" explains an older woman from Soroti, "*[then they] sell it to get some help.*" Often these people have no other source of income. "*When you sell [charcoal] you get money directly,*" continues another woman from Soroti, "*unlike [money] from the NGOs, which may never reach you.*"

Others feel that the problem is exacerbated because people are "*ignorant of the importance of trees*" and so do not bother to replant what they have cut down. Additionally, Uganda's growing population means people are more likely to clear land to build and farm on.

Ugandans say that local deforestation and bush burning can lead to drought and poor soil quality in the region, which in turn can lead to famine and poverty. "*When all the trees are cut down, the rain does not fall the way it is supposed to and so the crops do not grow, and then hunger sets in,*" states a woman from Soroti. "*Also, when there are no trees and it does rain, the topsoil is washed away and when one then decides to plant on that soil the yields are not good, because the nutrients and fertile soils have gone.*"

Loss of trees also means that winds are able to do more structural damage to houses because there is nothing to moderate their force. Additionally, Ugandans are aware that deforestation leads to the destruction of the habitats of a number of wild animals, leading to their "extinction". "*We used to get fruit from these trees,*" explains an older woman from Soroti, "*and they provided a habitat for animals.*" "*When you cut down the trees, the creatures [that live there] have nowhere to go,*" adds a man from Fort Portal. "*Snakes may then attack people living near.*"

Ugandans see tree-planting as the solution to the problem. They also feel the government needs to play a much more prominent role in educating people about the importance of trees and vegetation, and policing deforestation. However, they see the endemic corruption that exists in certain areas of government as a major impediment to this. "*The forest officers are here in Soroti, and they wait at the roadside to catch the vehicles that carry charcoal,*" explains a woman from Soroti, "*but when they are bribed, they give up.*" Several people also feel that Ugandans should regulate the sizes of their families, in order to place less strain on natural resources.

Drought, crop failure and livestock loss

Most Ugandans feel that drought, crop failure and livestock loss come about as a result of deforestation. A few believe that the weather is entirely controlled by God. Most Ugandans' responses appear to be reactive; they lack options and resources to respond to the problem.

Many Ugandans think that crop failure and the death of animals, which were discussed in Soroti and Fort Portal, are caused by "*the dryness of the land*", which comes about as a result of "*lack of rainfall*" and "*too much sunshine*". Many attribute this to deforestation and the reclamation of the wetlands. "*There are no trees [any more]; it's just bare land and so when [the sun] shines the rivers dry very fast and the animals die because there is no water or swamp,*" says an older woman from Soroti. "*When people continue to reclaim the swamp, which assists the rains to fall, it becomes very hot because evaporation is increased and the land dries, so the animals die.*" People often make an explicit link between deforestation, changes in weather patterns and crop failure: "*Cutting down trees leads to changes in the seasons, and when the seasons change we receive too much sunshine, leading to crop failure,*" explains a woman from Fort Portal.

Ugandans also feel that land has been strained by rapid population growth. "*Land which used to be for one man is now for 50 people,*" explains an older woman from Soroti. She goes on to explain that the land has been "*over-tampered with*", making it barren.

Finally, some believe that weather is the domain of God and do not feel that human actions can influence it. "*Some problems are God-made because he is the one who gives [rain]… man cannot do anything about it,*" states a woman from Soroti.

Ugandans point out that crop failure and animal deaths lead to a shortage of food, causing hunger and disease. "*Diseases come up because there is no food and a lot of starvation… children get sick with kwashiorkor [an acute form of childhood protein-energy malnutrition]… [you get] ulcers, headaches,*" says a woman from Soroti. It also leads to a reduction in income because people have no produce to sell, and this increases poverty. "*As farmers, [too much] sunshine reduces our income,*" explains a man from Fort Portal. An older woman from Soroti agrees: "*Animals assist us in milk, meat, skin, ploughing, we even get money by selling them… [their death] brings poverty because they help in ploughing, and so when they die there is no way you can do the work [on the farm].*"

In addition, people point out that in times of drought, not only do their harvests fail, but the price of food goes up in the markets, leaving Ugandans broke and affecting the country's export market. "*It has really damaged our economy,*" says a man from Soroti. "*As you know, our economy depends on agriculture, so low yields are bad news.*" Several people also mention the wider social effects of these problems. "*School-going children are affected, because they cannot think properly because they are weak,*" explains a woman from Soroti. Another adds that "*there is [more] theft because of poverty and hunger*". Additionally, people say that the failure of harvests and lack of grazing for animals has led to internal migration within Uganda. "*Our neighbours, the Karimojong, have been displaced; they were here recently looking for food,*" says an older woman from Soroti. "*You then find that there is [more] food scarcity, because there is little to cater for… until the next harvest, because there are so many consumers.*" A woman from Fort Portal points out how this has led to conflict: "*Climate changes bring conflicts. This is common with pastoralists who keep moving from place to place, looking for grass.*"

Ugandans deem that they have contributed to the problems of crop failure and drought by reclaiming swamps and cutting down trees. They believe that if they curb these activities they can minimise the problem. However, several people mention that it is difficult to stop cutting trees if you rely on charcoal for your income. A number of Ugandans also state that they are not personally responsible for wide-scale deforestation. "*At the district, a rich man comes here, buys land and clears all the forests,*" explains a man from Fort Portal. "*No-one can stop him because he has bribed them [the authorities].*" People feel that the government needs to take stronger action to prevent deforestation and swamp reclamation, although as individuals they also feel that they have the power to "*gang up and stop these investors that destroy our environment*".

In some communities in rural Uganda, people feel that lack of rain is in the hands of God and that the best solution to drought, crop failure and livestock death is to "*pray to God for mercy and to provide some water*". Likewise, some wait for "*organisations who give aid, like the UN and TASO… to give out food to the people*". Others feel that the only permanent solution is to migrate to places where they can find water sources and pasture for their animals.

Soil erosion

Ugandans feel that the growing population of Uganda is placing too much strain on resources and is permanently damaging the fertility and stability of the soil, leading to landslides and widespread erosion.

Soil erosion is a prominent problem in parts of western Uganda. The people who live in rural areas around Fort Portal are particularly concerned, stating that it destroys farmers' crops and gardens. Ugandans believe that soil erosion is brought about by heavy rains that result from "*a change of seasons*". They feel the problem is exacerbated by deforestation, human settlement on slopes, and overgrazing, which makes the land vulnerable to soil erosion when it rains. As with other issues, they claim that one of the primary causes is overpopulation. "*It's because of limited land,*" explains a younger man from Fort Portal. "*Our grandparents had enough land; that's why they did not face such problems.*" An older woman from the same area agrees: "*I have a small piece of land that I use for both crop growing and cattle keeping. If cows overgraze on this land and it rains heavily, it will take the topsoil away, rendering it infertile and causing soil erosion.*"

Soil erosion is said to lead to dangerous landslides that can kill people. A man from Fort Portal explains, "*This problem left many people in Mugusu homeless. Many people died in those houses… I found a woman crying that mud had killed her child.*" Rural Ugandans also point out the threat that landslides pose to crop production. "*Such disasters happen and then whenever it rains*

heavily the water carries away plantations," says a man from Fort Portal. "*This problem leads to famine. Many districts of Uganda depend on Mugusu for food.*"

Rural Ugandans see the best response to soil erosion to be one of damage limitation – by building terraces and planting trees to avoid the worst effects of erosion. To do this they feel there is a need for the government to make trees freely available. However, there is a concern that this will still not tackle what they see as the primary cause of the problem: overpopulation. "*This problem is so serious and there is no solution,*" says a man from Fort Portal. "*Because people in our village have small pieces of land, they see it as economical to plant only crops for food – not trees.*"

Flooding

Ugandans feel that the government needs to take much stronger action to prevent people from building on wetlands, which they believe causes widespread flooding. People appear to lack proactive strategies to deal with floods, in terms of disaster preparedness and prevention.

Flooding is a concern to people in the urban centre of Kampala and its suburbs. Urban dwellers in Fort Portal also discussed this issue. As well as acknowledging an increase in heavy rain and storms, urban inhabitants tend to blame floods on poor town planning, blocked drains and a lack of infrastructure. They stress the impact that building on wetlands has had on floods: "*Eventually water has nowhere else to go,*" explains a woman from Kampala. Many blame the level of wetland development on inefficiency and corruption in organisations such as the National Environment Management Authority (NEMA). "*NEMA is inefficient,*" states a young woman from Kampala. "*Some people are stopped [from building on wetlands], others are left to build, there is so much corruption.*"

As well as leading to direct loss of life, flooding destroys infrastructure such as buildings and roads. Loss of income is mentioned by a number of people from regions affected by floods. "*[Floods affect] transport,*" explains a young woman from Kampala. "*Sometimes we can't make it to the office in time, and we end up being laid off.*" Additionally, people are aware that flooding leads to increasing incidences of diseases, such as worms.

Ugandans generally feel that the government needs to take action by improving and maintaining drainage systems. They feel there is little they personally can do to prevent storms from causing floods, or prepare for the subsequent damage floods cause. Many Ugandans simply react to the situation by finding temporary shelter in flood-free areas until the floods subside. "*When it happens here in Fort Portal, people move,*" says a woman from Fort Portal. "*I would also move from the area, because if my children played in that water they would fall sick.*"

Some Ugandans are more proactive. They mobilise themselves to construct drainage channels in an effort to reduce the problem of flooding; however, they still feel national and local leaders need to play a larger role in educating people about how to prepare for and deal with floods.

Pollution and poor sanitation

Ugandans make little distinction between pollution from emissions and inadequate waste disposal. They tend to feel that only government action can address these problems.

Slums, poor sanitation, and pollution from industry and traffic are a problem for Ugandans, especially in the urban areas of Kampala and its suburbs. Ugandans tend to view all these problems under the umbrella term of "pollution" and often talk about them interchangeably, stressing their combined health impacts. Many Ugandans, especially those in urban areas, think pollution comes about as a result of poor garbage disposal. Others attribute it to emissions from old vehicles and smoke from industry. They are aware that cars and factories release carbon dioxide, and that this gas has a negative effect on the atmosphere and air quality, although they are unable to explain the process clearly. "*There are too many old vehicles,*" says an older woman from Kampala. "*This is a small city and these cars produce too much carbon dioxide which pollutes the air.*"

In terms of waste disposal, urban Ugandans feel that the government and municipalities do not do enough in terms of providing bins and dumps to safely dispose of rubbish. They also feel that overcrowding has exacerbated the problem, both in terms of litter and of emissions. "*People get congested in one area and the resources available to cater for the number of people in that area are inadequate,*" states a man from Kampala. Several people mention a link between polythene bags and changes in the environment, but again cannot explain what the link is.

Rural–urban migration and urbanisation

The study 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, says the IPCC.

While it is impossible to attribute increases in urban population exclusively to climate change, many people in Uganda speak of leaving rural areas to escape drought as agriculture becomes less viable. "*Someone's harvest may fail three seasons in a row, and this may force them to move to an urban area,*" says a man from rural Fort Portal. There is a general consensus that lack of rain is pushing people into towns and cities. "*As people in the village are farmers, on seeing that the rains have not come they decide to go to town looking for money,*" says a farmer from rural Soroti.

Life in the city is not without its problems, however. People speak of pollution, sanitation, health, crime, housing, and the high cost of living. Many also miss the sense of community they experienced living in rural villages. "*In urban areas people believe in survival of the fittest, whilst in the villages it is a communal thing,*" says a young woman from Kampala. "*They do not have as many problems with starvation and crime.*"

Pollution, be it from poor garbage disposal or from emissions, is seen as having a major impact on health. "*We have so many diseases lately,*" says an older woman from Kampala, "*and we believe they have come as a result of rubbish, and the pollution that is brought about by rubbish and stoves and cars. The sewage as well.*" Others say that inhaling fumes gives them headaches and that poor sanitation and waste disposal leads to diarrhoea, cholera, dysentery, typhoid, and malaria (as it provides a breeding ground for mosquitoes). "*It puts people's lives in danger,*" says a young man from Fort Portal. "*The dirt contaminates the water system and is also a breeding place for mosquitoes and a lot of flies which bring a lot of diseases.*"

There is also a perception that pollution causes "*limited rainfall*", although again the mechanisms behind this process are not fully understood.

Many Ugandans feel there is little they can do when faced with issues of pollution. Instead they learn to "*adapt to it – we live with it because [there is] nothing we can do*", as a woman from Kampala explains. They feel the government should be more proactive in dealing with issues of pollution and sanitation. "*These issues can't be solved without government intervention,*" states a man from Kampala. For example, people feel the government should prevent old cars from being imported into the country, as well as introducing "*environmentally friendly cars and [more] railways*".

However, while they feel that the government needs to take the lead on acting on this issue, people accept that citizens have a role to play in "agitating" government bodies to take action. They also accept that people need to take "more responsibility" for cleaning up their immediate environment and not "just dumping" rubbish. A woman from Kampala argues: "*We don't care about ourselves, this is what brings such an environment. We can't really blame it all on government.*" In the meantime, many feel the best solution to this problem is to "*move away – find another place where it is less congested and a bit airier*".

Awareness of responses to environmental issues

Ugandans lack information on how the government, religious organisations, NGOs, communities or individuals are responding to environmental and climate change challenges. They also doubt the effectiveness of their own actions as individuals. It is only through group responses that they feel they can have an impact on the environmental problems they face. Ugandans feel the government is unlikely to deal with environmental issues.

In urban areas, Ugandans feel there isn't a great deal they can do to deal with climate change, instead they feel there is a need for a response at a national/community level. "*I don't think these things can be solved by one person,*" says a woman from Kampala. "*There is a need for community mobilisation, because so many people [are involved].*"

In rural areas, citizens are more ready to offer ways they personally can address the challenges presented by climate change, such as planting more trees and using new farming methods. However, these changes are largely short term and reactive. All Ugandans agree that in the long term the government needs to take a bigger role in educating people about climate change and enforcing environmental protection laws. Many note that the government has already attempted to sensitise people about the importance of trees and swamps in maintaining a healthy climate system. "*They [government officials] are telling us to stop farming in the wetlands, and the forestry officials are also telling us to stop cutting down trees, and then plant more trees,*" says a woman from Soroti.

However, in general people are not aware of government or NGO responses to environmental issues. Many people criticise government at all levels for a lack of visible action on the environment, and regard government officials as "corrupt", stating that they will not prosecute people for deforestation or illegal development if they stand to profit from doing so. Additionally, there is a belief that national and local government frequently siphons funds that are meant to be spent on environmental issues. A young woman from Kampala explains that "corruption" is a barrier to the government taking action on climate change: "*When officials are given money to sort out these [environmental] issues, they divert the money.*" Ugandans feel that without government and international aid helping them to care for the environment, there is little they can do. "*People want to plant trees and if you listen to the media they say [the] World Bank has put [aside] money for people to plant trees,*" says an older man from Soroti. "*However, we do not get this money, and [we all] agree [that buying] seedlings [yourself] is very expensive.*"

There is also a perception that the government as whole is reluctant to take strong action on climate change. "*The government is so reluctant; they come up with laws and then fail to implement them,*" says a young man from Kampala.

What do Ugandans know and understand about global climate change?

Despite articulating local challenges and recognising differences in nature, weather, and the surrounding environment, people rarely link such changes to the global phenomenon of climate change. Not only does climate change terminology not resonate with people, they also generally do not have a clear and accurate understanding of climate change concepts.

In this context, *Uganda Talks Climate* explores how people make sense of climate change terminology and react to information about climate change. It emerges that five key themes are shaping people's understanding of climate change, and affecting the way in which they explain its effects.

Terminology

Despite recognising the impact of their changing weather, people have a low awareness of climate change, as both a term and a concept. Most people tend to understand the term to refer to seasonal changes or immediate changes in the weather. A man from Kampala is typical in describing climate change as "*a change from rainy to dry season*". Very few Ugandans understand climate change as a global phenomenon that has causes outside their own

continent. Those that do have such awareness often confuse climate change with stratospheric ozone depletion, as a woman from Kampala demonstrates: "*Let me explain the way I understand climate change. When too much pollution is released into the earth and the world as we know it, there is an ozone layer which is destroyed by pollution. It gets tampered with and climate change takes place.*"

Those who have heard the term have generally heard it in the media. Some people cite television or radio generally, while others list specific radio or television stations. A handful also say that they have heard the terms in school, but school is often mentioned in conjunction with media.

Recognition of the term "global warming" is generally much higher, although the science behind it is still very poorly understood. However, many Ugandans are able to explain it as a global increase in temperature. For example, a man from Kampala speaks about how "*temperatures have increased worldwide*", and a woman from Kampala adds that "*rising temperatures are brought about by Western countries*".

As with climate change, people who have heard of global warming often cited local and national radio television and sometimes school, as the source of their information. Despite relatively low awareness of climate change and global warming, a number of Ugandans are aware of the role of carbon dioxide as a gas which can "*destroy the environment*". In both rural and urban areas residents speak of it by name as a gas which is produced by industry, and which affects the atmosphere. However, the exact role of carbon dioxide in climate change is poorly understood and seldom fully explained.

Reaction to the concepts

Low spontaneous awareness of climate-related terms was to some extent expected, based on previous research.[i] Discussions, therefore, also explored awareness and understanding of the *concepts* of climate change and global warming, using the following statements:[ii]

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.

Most people agree with the idea that human beings are causing both an increase in global temperatures and weather patterns over time to change around the world. However, in nearly all cases they see this link as being directly through man's involvement in deforestation. "*Man's activities, like cutting forests…which negatively affects the rain cycle, are to blame for global warming,*" explains a man from Kampala.

These changes are thus predominantly attributed to the local destruction and degradation of nature. As well as deforestation, draining of the swamps, Uganda's increasing population and localised pollution from factories and cars are spoken of as the primary causes. Whilst some living in Kampala mention the contribution of developed countries as emitters of greenhouse gases, this knowledge is limited, and does not extend beyond the capital.

Additionally, some of the Ugandans interviewed suggested other causes of climate change and global warming such as the will of God, the movement of the sun closer to the earth, the movement of the continent (Africa) towards the equator, and the erection of mobile phone masts. The last of these examples appears to stem from conflation of knowledge about the radiation given off by mobile phones with the solar radiation involved in global warming.

i The *Africa Talks Climate* pilot study was conducted in Nigeria. See Appendix 3.
ii These statements were explored before the terms "climate change" and "global warming" were introduced. See Appendix 3.

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:

1. Emphasis on trees
2. The will of God
3. Ozone confusion
4. Air pollution
5. Overpopulation and localised heat

Such pre-existing concepts are often referred to as "frames of reference".[43] These are critical, because they shape people's understanding of, and reactions to, new information. When 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 – or frames of reference – can function as barriers or as facilitators to effective communication on climate change. Understanding them can help communicators in Uganda 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.

Emphasis on trees

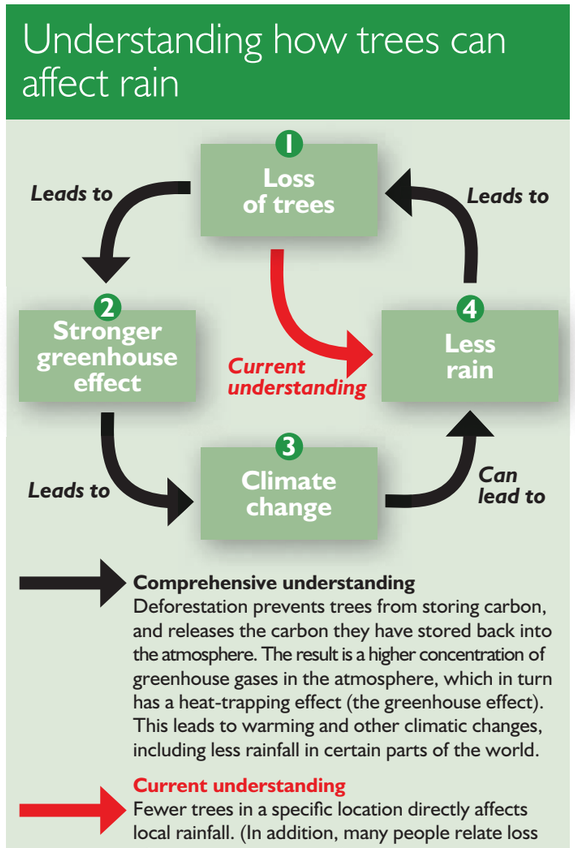
Ugandans' understanding of the concept of climate change is shaped by the importance they place on trees. Many people have a keen awareness of trees and their effect at a micro-climatic level, with all groups commenting that trees "*attract rain*", "*provide oxygen*" and "*cool the atmosphere*". "*You find that these trees which would help bring the rain have been cut down,*" explains a woman from Soroti, "*and [that] reduces the air we breathe in and [means that] the sun gets too hot… Trees attract rainfall and bring in [the] oxygen that we breathe.*" A young man from Fort Portal agrees: "*Rain comes as result of trees – when trees are not there then the sunshine [causes] climate change.*"

Although scientists do not necessarily agree on whether trees create rain, they do agree that forests *recycle* rain through a process called evapotranspiration. This means that water vapour coming off the leaves of trees evaporates and falls again. Ugandans seem to be aware that trees can play a role in the rainfall cycle: "*Trees keep back some water, so when it shines, the water evaporates, makes clouds and falls back as rain,*" says a woman from Soroti.

Another thing Ugandans notice is that shade from trees has an impact on the temperature of the immediate surroundings, and that trees in general can cool the atmosphere. "*When they cut down trees the world temperature rises,*" says a young woman from Kampala.

Whilst there is almost no awareness that trees act as carbon sinks to reduce the greenhouse gas emissions that cause climate change, many Ugandans are aware that trees have a role to play in "cleaning up" the atmosphere. Similarly, although people are not always able to articulate the science behind this, acceptance that trees are providers of oxygen and absorbers of pollution is widespread. "*It is accepted that trees clean up the atmosphere,*" says a pastoralist from Soroti, "*so without trees we end up breathing bad air – trees are very important.*"

Figure 2



The implications of this are both positive and negative. On the one hand, people may be motivated to plant and preserve trees, which is good from a climate change perspective, and from an environmental perspective. On the other hand, their understanding could provide a false sense that climatic problems, such as drought, can be solved at a local level through tree planting.

Recommendations for communicators

Build on people's existing knowledge of trees to help create wider understanding of the role of deforestation in global climate change. Try to do so without removing people's sense that their local actions matter. Help people move beyond the idea that tree planting is a cure for all environmental and climate ills. Expose them to other mitigation and adaptation options.

The will of God

Uganda is a mainly Christian country and some people, particularly women living in rural areas, relate discussion of weather and climate to their faith. Some feel that the weather is entirely the will of God and that only he can influence weather events, particularly the occurrence of rain. "*God is the one who plans that this year it shall rain like this and shine like this,*" says a woman from Soroti. A previously mentioned comment from another Soroti woman backs up this view: "*Some problems are God-made because he is the one who gives [rain]… like there was a time we got floods due to too much rain and all the crops got destroyed – man cannot do anything about it.*"

Others feel that changes in the climate are brought about by a combination of human activities and God's will. In some cases this is because humans are perceived as having angered God; "*God is annoyed,*" says a man from Kampala in response to the picture of urban flooding. In most cases though, people feel extreme weather events can come about as a result of man's activities (deforestation) and God's control over the weather. "*We cut down trees and so the heat increases,*" explains a woman from Soroti, "*and God says, 'help me to help you'. [If we] preserved the trees then the rain would come more.*" Another woman adds, "*It is two-way traffic, in that there are [changes] that man causes and there are those that God decides.*"

Thus belief in God and his ultimate control over the weather does not necessarily preclude acceptance of the role that human beings play in climate change.

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.

Ozone confusion

Many Ugandans appear to confuse climate change and/or global warming with ozone depletion. People 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: "*Fumes that come from the industries, cars, and fridges tend to penetrate the ozone layer and in the process they create holes in it and thus the heat coming down to earth and creating the excess heat,*" explains a man from Kampala.

In fact, while ozone holes allow ultraviolet radiation to reach the earth's surface, which damages human skin; they do not themselves cause an increase in the earth's temperature.

Such confusion is also noted in perception studies conducted in developed countries. It may arise because climate change and ozone depletion are both caused by gases emitted as a result of human activity which is also what some Ugandans believe: "*For example, a place with industries or factories – that smoke goes up there [into the atmosphere] and there is that ozone layer which is destroyed,*" says a woman from Soroti. Knowledge of this perceived relationship between pollution and the ozone layer is often linked with an awareness of the global nature of pollution on the weather. As an older man from Soroti explains: "*The way I understand it… there is a blanket between the earth and sun and smoke from [the] factories of developed countries has eaten up this blanket, which shelters the earth from the sun, meaning the sun's rays come directly to us.*"

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 CFCs was effective in dealing with ozone depletion, but less effective in combating global warming, which is primarily caused by carbon dioxide emissions. Furthermore, ozone depletion was largely addressed by regulation in the late 1980s, while the human activities that cause climate change are ongoing.

Recommendations for communicators

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

Air pollution

Smoke and visible air pollution, as well as bad smells, influence how Ugandans understand climate change. Ugandans frequently speak about how smoke is degrading their natural environment, damaging their health, polluting the air and changing the weather. Many urban Ugandans directly associate visible smoke with changes in weather patterns: "*Smoke spoils the clouds which bring in the rain, that is why you find that the rains delay to come,*" says a woman from Kampala.

However, there is a tendency amongst Ugandans to associate all visible smoke with changes in weather and temperature. As well as cars and factories, people frequently cite people smoking cigarettes as a primary cause of global warming. "*When we smoke we send bad air in [to] the environment; this leads to global warming,*" states a young man from Kampala.

When asked to explain the link between smoke and climate change, many Ugandans speak of how smoke damages the ozone layer, increasing the sun's heat and bringing about changes in temperature and weather. "*Fumes that come from the industries, cars and fridges tend to penetrate the ozone layer and in the process they create holes in it, and thus [cause] heat to come down to earth, creating the excess heat,*" explains a man from Kampala.

As well as visual cues such as smoke, many Ugandans take the stench of pollution as a sign that their environment is being degraded. "*In the olden days we would wake up in the morning and smell the fresh air of the natural environment, but these days it's… sewage, bad fumes from passing vehicles,*" says an older woman from Kampala. "*That can't be good for you.*"

Recommendations for communicators

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

Overpopulation and localised heat

In all locations, Ugandans mention overpopulation as both a primary and secondary cause of global warming. Some Ugandans see the relationship between population growth and climate change as an indirect one, with many stating that as populations grow, they will exhaust available resources leading to famine, hunger and environmental degradation. "*Following the increase of the world's population, the earth is becoming smaller, so people are cutting down trees, and even mountains are being cleared to accommodate people. The end result of this is drought, which has brought [with it] other [things such as] diseases and fevers,*" says a man from Soroti

Others see the relationship between overpopulation and global warming more literally, with some people feeling that higher population density leads to greater ambient heat. "*Take an example of this house, can it accommodate 10 people? If it so happens it will result in too much heat,*" explains a man from Fort Portal.

Recommendations for communicators

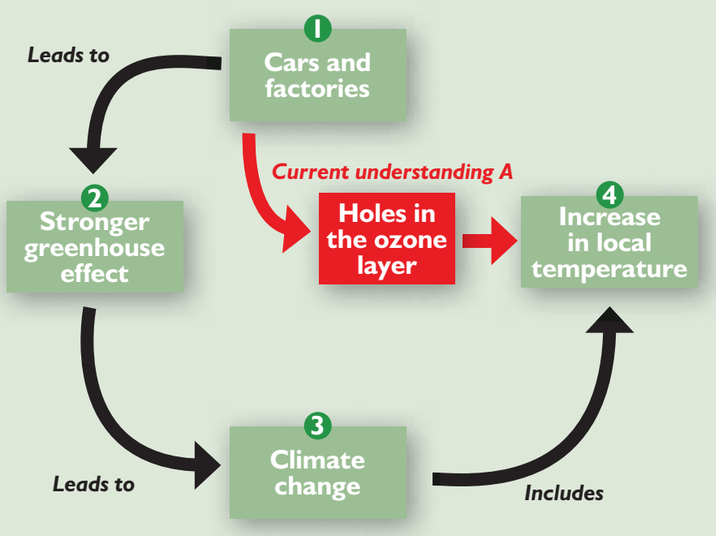
Draw on people's understanding of the immediate relationship between humans and the environment to explain climate change at a global level.

These five themes 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.

In addition, it should be noted that Ugandans are also very aware of the conflict between preservation of the environment and the fact that many people rely on the exploitation of Uganda's natural resources to make a living. Many state that even if people were more aware of the wider effects of actions such as deforestation, it is unlikely they would change their behaviour. "*The problem is as a result of poverty. If I don't have enough land [to survive] then I need to encroach on the wetlands,*" explains a man from Fort Portal. An older man from Soroti agrees: "*The problem is there are limited jobs for people. You can't tell a carpenter not to cut down trees – he needs the raw materials for his job.*"

Figure 3

Understanding how air pollution can affect temperature



Comprehensive understanding
Cars and factories emit carbon dioxide – an invisible gas – which increases the concentration of greenhouse gases in the atmosphere. These gases have a heat-trapping effect (the greenhouse effect), which leads to climate change. One aspect of climate change is higher temperatures in certain parts of the world.

Current understanding
People incorrectly believe that ozone holes caused by smoke from cars and factories allow more sun to reach the earth, which leads to warming.

4 Interviews with opinion leaders

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

Government

- Climate change focal point for Uganda (Ministry of Water and Environment)
- Ministry of Agriculture, Animal Industry and Fisheries
- National Agricultural Research Organisation
- Ministry of Health
- Local councillors from Fort Portal and Soroti

Media

- Print media
- Radio
- Television

Private sector

- Coffee processing company
- Sugar producing company
- National bank

NGO, religious, associations

- NGO with a climate change focus
- Uganda Joint Christian Council
- Local religious leader, Fort Portal
- Farming association, Soroti
- Tooro Botanical Gardens, Fort Portal
- United Nations Development Programme (UNDP) and United Nations Environment Programme (UNEP)

"[Climate change is] long-term changes in weather patterns, which are affecting Africa more than any other part of the world"
POVERTY AND ENVIRONMENT OFFICER, UNDP/UNEP

"We also have bad agricultural practices which remove forests… such that there is [no] natural absorption of carbon dioxide"
HEAD OF ENVIRONMENTAL HEALTH, MINISTRY OF HEALTH

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

Awareness of climate change

Opinion leaders in Uganda are aware that climate change is likely to have a severe impact on their country. While they may not always be well informed about the science of climate change, they are clear about its current and projected effects on Uganda.

Although this research relies on relatively few interviews with opinion leaders, those interviewed are fairly knowledgeable about climate change, although they tend to frame their definitions in terms of effects rather than causes, describing it as an "*alteration of the climate*" which means that "*seasons no longer fit exactly as they used to*" and leads to widespread crop failure and increasing poverty. Whilst opinion leaders are not always well-informed about climate change science, there is widespread awareness that Uganda is especially vulnerable to climate change.

> *"[Climate change is] long-term changes in weather patterns, which are affecting Africa more than any other part of the world."*
>
> Ms Rose Hogan, poverty and environment officer, UNDP and UNEP

Opinion leaders universally uphold that climate change is already having an impact on Uganda, which is likely to increase in the future; and that there is a growing need for the citizens of Uganda to adapt to these changes.

> *"[Climate change is] the change in climate factors from what is called 'normal' to what we are not used to, and which we have to cope with."*
>
> Mr Dennis Kyetere Tumwesigye, director general, National Agricultural Research Organisation (NARO)

Understanding climate change

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

While their definitions of climate change are often very impact orientated, most opinion leaders, especially those in government and the private sector, also have a clear understanding of the causes of climate change, discussing the role of greenhouse gas emissions and rapid deforestation.

> *"Climate change is probably due to greenhouse gases; we also have bad agricultural practices which remove forests. Deforestation, where forests have been cut down without planting [new trees], such that there is [no] natural absorption of carbon dioxide… [means] the environment gets distorted from the natural form. So greenhouse gases from factories, then failure to manage forests and other natural phenomena that are taking place, like manufacturing."*
>
> Mr Paul Luyima, head of environmental health, Ministry of Health

Not all interviewees are familiar with climate change "jargon", but they are often able to effectively explain climate change processes even if they do not use specific terms such as "the greenhouse effect" and "greenhouse gases". "*Emissions, especially of carbon dioxide, in the air cause some kind of layer,*" explains Mr Charles Aben

(district co-ordinator, Soroti, National Agricultural Advisory Services). "*It's like being in a closed room with the ceiling too low, so whatever temperature rises from the ground cannot easily escape because of the layer.*" Some people less directly associated with climate change work (religious organisations, local government and civil society organisations) confuse global warming with ozone depletion.

The stress that opinion leaders place on climate change impacts when discussing the meaning of climate change indicates that for the majority of them any scientific explanation of the phenomena is inextricably linked with its social and economic impacts on Ugandans.

> *"We look at climate change as a monster that is going to frustrate poverty reduction strategies [and] actually impact on the livelihoods and incomes of the people of Africa."*
>
> Mr Ben Twinomugisha, climate change programme manager, Oxfam

Perceived impacts of climate change

Opinion leaders in Uganda believe that the impacts of climate change will be severe for their country. They note the stresses that climate changes are already placing on Uganda's resources and infrastructure.

Opinion leaders in Uganda are well aware that climate change is having impacts on their country. As does the general public, they speak of the devastating effects recent floods and droughts have had on the Ugandan people.

> *"You find that the drought has become a very big problem in parts of [Uganda]… people lose animals which are a major source of income and wealth. This comes as a result of not having enough pasture and water… when the rains [do] come it is unfriendly rain, people tend to lose crops and even their houses. Such cases are increasing in number and now it is very rare to go a month without getting such [an event]."*
>
> Mr Gerald Tenywa, environmental reporter, *The New Vision*

As well as the loss of life and possessions that happen as a direct result of extreme weather events, interviewees are keen to stress the secondary impacts of climate change. Opinion leaders are very aware that unpredictable rain patterns and rising temperatures lead to increased incidences of a wide range of diseases, such as cholera, livestock diseases and malaria. The effects of such illnesses are exacerbated by the fact that people are often unprepared for them, and Uganda lacks the infrastructure to deal with widespread epidemics.

> *"People are badly affected [by rising temperatures] like these areas that were malaria-free zones, now people are affected by malaria. I have an example of Kabale district where I grew up. We didn't have malaria, but I remember in the year 2004 there was an epidemic which killed so many people and when they came to check, they found it was malaria and people were not prepared for that because it is not common."*
>
> Reverend Dr Sylvester Arinaitwe, executive director, Joint Christian Council

As well as the direct impact that failing harvests and devastation of crops has on the livelihoods of subsistence farmers, opinion leaders are also aware of the indirect affect it can have on consumers. "*When there is a shortage of food the prices go up,*" comments Bright Rwamirama (minister of state, Ministry of Agriculture, Animal Industry and Fisheries). "*If you go to our market now, food prices are up.*" Ben Twinomugisha (climate change programme manager, Oxfam) adds: "*There is also an impact on [the] marketing of products. If the bridges are broken down, people are disconnected from city centres [and cannot deliver food products].*" Several opinion leaders also mention the affect that falling water levels in Lake Victoria has had on Uganda's ability to generate power[44] and hence the cost and availability of electricity. The financial stresses that these factors have placed on ordinary Ugandans is massive, and have had corresponding social impacts. "*Some families are forced to marry off under-aged daughters so that they have fewer people to care for,*" comments Gerald Tenywa (environmental reporter, *The New Vision*).

Opinion leaders point out that these climate-change-induced difficulties lead to mass migration from rural areas to towns across Uganda. "*[People] migrate because they know in town there is another way of survival without having to dig,*" says Mr Mohamed Nasur (chairman, Soroti Provincial Government), adding that migration has intensified as farming conditions have got worse. However, rural–urban migration places huge strain on municipal infrastructure and exacerbates existing drainage and sanitation problems.

> *"People living in Kampala… experience floods; people who live in informal settlements, slum areas and outlying areas experience flooding. We already have traditional problems of lack of proper drainage, lack of proper sewage systems. Now, with people migrating to the cities… climate change adds on [to] the already existing problems and challenges".*
>
> Mr Paul Luyima, head of environmental health, Ministry of Health

Where does responsibility lie?

Most opinion leaders focus on mitigation as a goal that can be achieved through encouraging behavioural change. However, they also recognise that core responsibility for climate change lies with industrialised countries, and that without their involvement, mitigation is not possible.

Opinion leaders are unanimous in viewing the primary causes of climate change as a combination of emissions from industry, especially from developed countries, and a lack of conservation from within Uganda.

> *"I think there are two [causes of climate change]. One is of course industrial gases; their control is not up to the industry standard. But the main one is deforestation of the country. The rural population mainly relies on trees for their cooking. [Electricity] has not yet reached the villages, [and] where it has reached there are hardly any people that can afford the current rates, so you find that in one way or the other the person is relying on the forests. And those living near the forests are also encroaching on the forests, because that is where they are making their livelihood, so this causes deforestation and hence the climate being affected."*
>
> Mr Patrick M Dhikusooka, general manager (administration and personnel), Sugar Corporation of Uganda Ltd (SCOUL)

As are the general public, Ugandan opinion leaders are very aware of the importance of trees in climate change, at both the micro-climatic and global level. "*Trees attract rain,*" explains Mohamed Nasur, adding that their absence leads to droughts and desertification. Dennis Kyetere Tumwesigye of NARO agrees, stating that Uganda's main contribution to climate change is through deforestation, which "*affects the patterns of the rains*". There is a strong feeling among opinion leaders that citizens do not understand the value of trees and wetlands, and so cut wood and build on swamps indiscriminately.

> *"Deforestation is slowly but steadily driving us to desertification. People don't know the value of forests. People cut trees massively in this area; [don't replant] and they don't care about the effect – what comes after that."*
>
> Mr Godfrey Ruyonga, director, Tooro Botanical Gardens

However, Mr Wilfred Masaba, a journalist with Open Gate FM, points out that it is difficult to tell people not to cut down trees when they need to make charcoal for survival. As Uganda's population grows, more and more people need to exploit the country's natural resources in order to make a living.

> *"Also [the] high population [leads to climate change] – if you produce many people and they don't have [a] source of income they will eventually encroach on the environment."*
>
> Mr Daniel Nsibambi, communications manager, Stanbic Bank

A number of opinion leaders also view emissions from cars as a cause of climate change. "*People use old cars which give out a lot of gases like carbon dioxide,*" says Godfrey Ruyonga, "*Uganda [is] one of the biggest dumping grounds in East Africa for old cars, [and they] pollute [the] air like nothing [else].*"

However, whilst there is wide scale acceptance among interviewees that Uganda contributes to climate change via car emissions, this is "*minimal – it isn't to the level of China, [the] USA and the like*", according to Patrick Dhikusooka. "*Their impact is much higher than that of a small country like ours which, [while] still an industrialised country, is just starting.*" Rose Hogan agrees: "*The main causes of climate change [happen] in other parts of the world, in the rich industrialised countries mainly in the north. So Uganda has little to do with the cause of climate change.*" There is a strong feeling among opinion leaders that Uganda should therefore be seen as a victim, rather than a perpetrator, of climate change, and that industrialised countries should take most of the responsibility for the adverse weather conditions Ugandans are now experiencing.

> *"I do not think Uganda has a lot to play [in terms of causes of] climate change, I think it is the Western countries, which are widely industrialised nations, that are driving climate change. And Uganda suffers the side effects of the actions of others."*
>
> Mr Robert Whitman, chief finance officer, Kyagalanyi Coffee Ltd

Who is affected by climate change?

Opinion leaders are very concerned about the potential effects of climate change on their country's populace and economy. They are particularly concerned for those in rural areas and the urban poor.

Ugandan opinion leaders feel that everyone will be affected by climate change, but that the poorest Ugandans will endure the worst of its impacts, particularly those who rely directly or indirectly on the climate for a living. Bright Rwamirama estimates that "*70-80% of Ugandans are employed in agriculture*", and argues that the impacts of failing harvests and dying livestock will be felt across the country.

> *"[Climate change] is a big problem because it affects people socially and economically… Uganda is an agricultural country, most people are engaged in agriculture for their livelihood. These people are affected economically when there is a problem with the rain because subsistence farmers can't afford irrigation… so this affects the way they live, their income."*
>
> Mr Wilfred Masaba, journalist, Open Gate FM

Whilst there is a universal belief that people living in rural areas will be the most affected by climate change, opinion leaders are also aware that even urban dwellers are not immune to its secondary impacts, such as the rising costs of food and fuel. "*Climate change affects food production,*" comments Daniel Nsibambi. "*If there is less food in [the] market due to drought, the markets will be affected. This will lead to high prices… so the average man is affected in terms of food, charcoal, firewood, hence you find that these products will be expensive because climate change affects the forest cover, thus [there is] less timber on the market.*" However, the general feeling among interviewees is that these effects pale in comparison to the likely impacts on subsistence farmers. "*In [urban] areas there are a lot of [ways] of making money,*" says Charles Aben, "*but the rural person has no other source apart from crop production.*"

> **"It is the Western countries... that are driving climate change. Uganda suffers [from] the actions of others"**
>
> **CHIEF FINANCE OFFICER, KYAGALANYI COFFEE LTD**

Additionally, poor, rural Ugandans are regarded as particularly vulnerable to climate change because they lack the finances or resources to deal with its impacts. "*Urban people are more [protected] against physical issues, because they have better services; they are closer to the health, water and emergency services,*" explains Rose Hogan. "*By the time someone gets to Teso to give people food after the floods, they have already run out of patience.*" The general consensus amongst opinion leaders is that the Ugandans most vulnerable to climate change are not only those who have done the least to contribute to its causes, but also those who are the least equipped to deal with its impacts.

> *"Certainly the most vulnerable people are the poor people both here in Uganda and elsewhere, even in the USA. When New Orleans was hit by Katrina the people who suffered most were the poor. The rich just jumped into their vehicles and drove off for another two or three weeks. So [everyone] will be affected, but the impact will [be greater] for the poor fellow in Uganda or the USA."*
>
> Mr Philip Gwage, Department of Meteorology, Ministry of Water and Environment

Opinion leaders in Uganda are also acutely aware that African citizens will be disproportionately affected compared to the rest of the world, not only in terms of impacts but also because the continent as whole is less resilient to the economic and social implications of extreme weather events.

> *"[Climate change] is a global phenomenon, you have heard about the food crisis, you have heard about the floods in India, the Tsunami… it is really global… it is just that African people get affected more because governments are not capable of handling some of the shocks. Everyone is getting a battering, how people recover is the difference."*
>
> Mr Andrew Mugyema, environmental journalist, National Television (NTV)

The irony of this situation is not lost on opinion leaders. "*The most affected people are the people in the tropical zones,*" comments Rose Hogan, "*and ironically, it is [these] people who have done the least damage to the atmosphere.*"

Do the worst affected understand climate change?

Opinion leaders think that people have personally experienced the changing climate, but that the term "climate change" means little to most Ugandans. However, they note that some Ugandans may attribute these changes to something other than human activities. They also stress that Ugandans have a variety of other socio-economic issues to contend with.

The general consensus amongst opinion leaders in Uganda is that the public do not fully understand the phenomenon. "*Only 10% of Ugandans [would] understand climate change,*" says Godfrey Ruyonga of Tooro Botanical Gardens. However, although opinion leaders feel that most people do not fully understand the science and mechanisms of climate change, they think people are aware of its effects. "*If you asked a man on the street about climate change,*" says Patrick Dhikusooka, "*he would talk about changes in the rains.*" Wilfred Masaba agrees: "*I was talking with an old lady from the mountain slopes where I come from, and she said that these days we do not see the rains… She is aware of the problem.*" While Ugandans may know how climate change directly affects them, they lack "*a broader view of the problem,*" according to Paul Luyima.

> *"The symptoms are already there, that is what I think, but Africa may not have understood. The symptoms [are there, but we are] yet to interpret them and link them to climate change."*
>
> Mr Patrick M Dhikusooka, general manager (administration and personnel), SCOUL

According to Wilfred Masaba, one of the barriers to fully understanding the issue is that "*it is not easy for a lay person to differentiate between climate change and the environment.*" Many people therefore find the concept of climate change difficult and confusing.

There is also a strong feeling among opinion leaders that Ugandan citizens have so many other pressing concerns, such as food, health and employment, that even when they do understand climate change, it still is not "top of their agenda".

> *"I think it [climate change] is understood by some people, I think that the majority of Ugandans [are] probably not aware of the [full extent of the] impacts of climate change on their lives. Maybe they will say there are floods and droughts and the changing of the seasons and what have you… I guess they are probably aware of these changes, but I would not say that it is on the top of their agenda. Their [biggest] concern is where they get their school fees and food to eat."*
>
> Mr Robert Whitman, chief finance officer, Kyagalanyi Coffee Ltd

A number of opinion leaders are also aware that some Ugandans attribute changes in the weather to the will of God or other supernatural causes. Godfrey Ruyonga explains: "*People are attached to their culture, they pray to the gods on mountains… so they believe that the rains can increase again on the mountains [and] the climate [can] go back to how it was, [if they try to] appease the gods.*" Opinion leaders point out that the danger is that Ugandans may then assume that human activities have little or nothing to do with the changes in climate they are witnessing. However, opinion leaders do not feel that spiritual beliefs and knowledge of climate change are mutually exclusive.

> *"In Karamoja I interacted with a group of people who were planting trees and they said their gods live under trees and because they have cut down many trees God has now shifted to Teso land. So these guys are now planting trees hoping to make peace with God so that he can come back to their land. But if you were to explain this scientifically, it comes back to the issue of cutting trees and realising the importance of planting more."*
>
> Mr Gerald Tenywa, environmental reporter, *The New Vision*

Translation and terminology

Opinion leaders think that climate change terminology is a barrier that prevents public engagement with the problem. There is a need to find meaningful ways of communicating climate change to people with little scientific knowledge and deep understanding of their natural environment.

Opinion leaders are united in feeling there is a need to provide more information to people affected by climate change, and note that the most vulnerable people are also often the least informed. "*The most vulnerable [people in Uganda] are the poor people,*" says Rose Hogan, "*and they live in the rural [areas], are mainly women, and have the least access to information about climate change.*" Interviewees stress that there is a real need for these people affected by climate change to be educated about its causes, and about how they can respond to the changes they are experiencing. "*There needs to be a concerted effort to explain the term [to people] and for them to know it is their actions that bring it about,*" explains Charles Aben. "*Currently people think climate change is beyond their reach.*"

Several opinion leaders point out that a way to do this is to tap into peoples' existing knowledge about what they have witnessed and already had to adapt to.

> *"They [Ugandans] may not say the way they understand climate change, but the challenges they face can actually tell [us] that there is climate change. So it is actually a matter of looking at indigenous knowledge, people's understanding of the way they live, and trying to connect their experience of weather changes and climate change. Because climate change is a new term, of course you have to interpret this word 'climate change' into the local reality or people's understanding of seasonal changes."*
>
> Mr Ben Twinomugisha, climate change programme manager, Oxfam

Several interviewees also talk about the language of climate change. They emphasise the importance of framing the issue in terms which are easily accessible to people. "*People should be approached from the ground [level],*" says Rose Hogan, "*It is like HIV, people here have their words like* silimu. *So I think climate change too must have a word among the people.*" Reverend Dr Sylvester Arinaitwe agrees, stating that Ugandan's understanding of climate change will remain limited if it is only ever explained to them in English: "*English is not our mother tongue,*" he says. "*If it was in our local language, it would be more comfortable. With this imported language, we are limited in one way or another.*"

> **"The symptoms are already there, this is what I think, but Africa may not have understood"**
>
> **GENERAL MANAGER (ADMINISTRATION AND PERSONNEL), SCOUL**

> **"Many developed countries think that financing or funding climate change activities is donation. It is not donation, it is paying for pollution... That is what we are asking our friends the Americans to do... We are asking the developed countries to pay for the cost to clean up"**
>
> **NATIONAL FOCAL POINT ON CLIMATE CHANGE, MINISTRY OF WATER AND ENVIRONMENT**

By way of a solution, it is suggested that climate change be explained to people using a range of points of reference, mostly to do with elements of weather such as rain and temperature. The linguistic and conceptual challenges of climate change identified by opinion leaders are consistent with the findings from the general public, and indeed with the researchers' own challenges in designing the research.

Opinion leaders also caution against going down the path that has been taken in other countries facing climate change impacts. "*People should not be terrified into emergency thinking and fear,*" warns Rose Hogan. "*I think that if climate change is interpreted in terms of what is happening to the environment and how humans [can] face it by protecting their environment, then that is better.*"

What response is required?

Opinion leaders feel that whilst steps have been taken to address climate change, much more needs to be done. However, to do this industrialised countries needs to do far more to help Uganda adapt to the potentially devastating impact of climate change on its people.

Opinion leaders are united in feeling that, while the Ugandan government and civil society have taken steps to address climate change, much more needs to be done. However, the overwhelming feeling is that this action needs to come from outside Uganda. "*Uganda alone cannot do much as far as averting climate change,*" says Wilfred Masaba, "*but as a country it is doing [its best].*" Opinion leaders are very clear that industrialised countries need to do more to help Uganda adapt to the potentially devastating impact of climate change. They also warn against viewing this support as "aid" – it should instead be viewed as a debt that needs to be paid.

> *"Many developed countries think that financing or funding climate change activities is donation. It is not donation, it is paying for pollution. They have polluted… Suppose you went to visit one of your close friends and [you have] a three-year-old daughter and this poor kid [defecates] on this beautiful carpet, what would you do?' [You] would mop it up… and that is what we are asking our friends the Americans to do. They have 'pooped' in the air and we are asking them to mop the air. Therefore we are asking the developed countries to pay for the cost to clean up."*
>
> Mr Philip Gwage, Department of Meteorology, Ministry of Water and Environment

As well as giving money to help fund adaptation, opinion leaders are generally well informed about the importance of helping Uganda "*shift from dirty development to [a] cleaner development plan*". The emergence of a more industrialised Uganda is noted, and opinion leaders feel that industrialised countries have a responsibility to help Uganda avoid the pitfalls made by other developing nations. Rose Hogan points out that to do this funding and support mechanisms need to be simplified.

> *"Make it easy for developing countries to access money under the different climate change programmes, like the reduce carbon emissions from deforestation and forest degradation (REDD) and clean development mechanism (CDD). They need to make it far easier and not give the developing countries so many bureaucratic hoops to jump through in order to get money."*
>
> Rose Hogan, poverty and environment officer, UNDP and UNEP

Many opinion leaders therefore feel that Uganda is extremely limited in what it can do to both mitigate and adapt to climate change. "*Climate change is relevant and it is them [industrialised countries] who are holding the key,*" says Godfrey Ruyonga. "*They either kill this generation or save it now.*"

Government response

The Ugandan government has been making attempts to mitigate climate change and adapt to its effects. However, it is perceived as being hampered by corruption, lack of cohesion and resources and inadequate finances.

Government representatives in Uganda say that the government is beginning to address the causes of climate change and educate the public about adapting to its impacts, but is facing a number of challenges. Bright Rwamirama says his ministry has been focusing on messages of environmental conservation. "*Among other programmes in our poverty alleviation [strategy] we are telling our farmers to make sure that they invest in water reservoirs [and] plant trees. [We] speak [to them] about environment degradation.*" The Ministry of Water and Environment is developing national adaptation programmes "*intended to address immediate and urgent activities that if delayed could lead to more severe impacts on the rural poor*". However, initiatives such as these are often limited by funding, as well as a need to devote time and resources to other pressing socio-economic issues.

> *"As with other developing countries, [Uganda] already has traditional challenges like lack of water, lack of sanitation, failure to collect municipal wastes; and now there is also an immerging problem of failure to manage health care. With all these traditional problems, climate change is also now adding [an] additional [burden]".*
>
> Mr Paul Luyima, head of environmental health, Ministry of Health

Opinion leaders from outside the national government agree that the government of Uganda is "*making some efforts*" to deal with and respond to climate change, "*although they have not yet fully*

appreciated [it]." They note the recent creation of a climate change focal point within the Ministry of Environment, and the development of a climate change adaptation unit. However, more action is needed. The government response to climate change is seen to be reactive (giving aid to people after landslides) rather than proactive ("*educating them on what to do [to avoid this happening]*"), and not enough has been done to raise awareness of climate change among the population.

> *"When Uganda had a problem with HIV and Aids, the government came up with a big plan where there were people on radio stations, talk shows and the president moving around mobilising people against HIV and Aids. Climate change is [an] even bigger threat [yet] we have not seen a similar approach. Without [more] political will these issues just remain news briefs really to the media."*
>
> Mr Andrew Mugyema, environmental journalist, NTV

Those outside government do agree, however, that financial constraints mean that it is difficult for those in power to tackle climate change as effectively as they would like. "*[The] government… [created a] climate change co-ordination unit,*" says Ben Twinomugisha of Oxfam, "*but it is facing challenges… poor countries are not easily [able] to adapt to climate change because we do not have [the] resources – finance, human resources and knowledge, among other problems.*" Gerald Tenywa agrees: "*The resources of this country are so small. It is like a blanket; if you have to cover children with a small piece of blanket each child is going to pull in an opposite direction. So at the end of the day you find that there are some sectors that are going to be left out in resource allocation – like climate change.*"

In terms of mitigation, there is general agreement that the government, through the National Environment Management Authority (NEMA) and the National Forestry Authority (NFA), is trying to address the problem of climate change through policy on deforestation and wetlands, but sometimes has trouble enforcing the laws.

> *"Politically these laws are there but [they] are not initiated… the [government's] work is to make policies and they have their agents like NFA and many others concerned with the environment. Despite this, implementation is the problem. The government should implement its policies and not just make them and [then] just watch things go wrong. Then after a long time [when things have reached a] peak, maybe after ten years, [that] is when [the] government comes in. [But] it is better to avoid something now – as the saying goes, prevention is better than cure."*
>
> Mr Mohamed Nasur, chairman, Soroti Provincial Government

There is also a feeling among opinion leaders that the government often does not enforce strict environmental laws if it stands to benefit financially from turning a blind eye, a sentiment mirrored by the general public. "*[The] government is not strict [and] instead connives with people cutting forests, people encroaching on wetlands,*" says Daniel Nsibambi. Mohamed Nasur agrees: "*The big people in government, the law does not get to them, but you, a small person, when you cut down the trees, they get you.*"

Several opinion leaders mention the furore surrounding the cabinet's decision to clear a third of the Mabira Forest (about 70 sq km) for sugar-cane plantations. "*When it comes to deforestation, the government has been in reverse,*" says Godfrey Ruyonga (Tooro Botanical Gardens). "*It was determined to have the Mabira Forest destroyed.*" Additionally, those knowledgeable about the Ugandan ecosystem point out that government action on forestation is flawed as they often plant "*the wrong species of trees, such as eucalyptus, which are actually a drain on limited water resources*".

However, despite misgivings about the government's ability or intention to enforce environmental laws, several opinion leaders maintain that the situation is improving:

> *"NEMA, the department that is charged with the environment, they are more aggressive now in ensuring that regulations and being followed…the government [is more prepared] to [tackle] climate change head on."*
>
> Mr Patrick M. Dhikusooka, general manager (administration and personnel), SCOUL

NGO response

NGOs have been active in campaigning to raise awareness of climate change in Uganda. However, there is some doubt as to how effective NGOs can be without the support of national and local government.

There is awareness amongst opinion leaders that NGOs have been active in campaigning to raise awareness of climate change in Uganda, as well as spearheading numerous forestation and adaptation programmes and strengthening Uganda's international position in securing funding for adaptation. However, there is some doubt as to how effective NGOs can be without the support of national and local government. "*NGOs are doing a great job, especially in the conservation of wetlands,*" says Mohamed Nasur. However, he feels that it is difficult for NGOs to "*mobilise*" people and help them have their voices heard, as the government views civilian demonstrations with suspicion. "*Like the time NGOs demonstrated on Mabira and the government came in and intervened. So there is no way in which NGOs can come and gang up with people to try and maybe demonstrate peacefully on the issue.*" There is therefore a call for better communication between NGOs and government institutions working on climate change.

> **"When Uganda had a problem with HIV and Aids, the government came up with a big plan where there were people on radio stations, talk shows and the president moving around mobilising people against HIV and Aids. Climate change is [an] even bigger threat [yet] we have not seen a similar approach"**
>
> **ENVIRONMENTAL JOURNALIST, NTV**

There is also a feeling, both inside and outside the NGO community, that both governments and civilians often prioritise other development needs, such as poverty and health, above climate change, without seeing that these issues are intrinsically linked.

> *"The challenging thing is that climate change is a fashionable issue at the moment but actually environment isn't. So the challenge we have is [how] to interpret the environment and poverty issues, and [therefore work out] who is the most vulnerable to climate change."*
>
> Rose Hogan, poverty and environment officer, UNDP and UNEP

NGOs have also conducted some local research on peoples' understanding of climate change impacts. "*Oxfam did a study on climate change and poverty, especially looking at adaptation, looking at [how] climate change impacts Uganda,*" says Ben Twinomugisha of that organisation. "*[Without this] research [we wouldn't have been aware of] the intensity of [the] climate change problem.*"

Private-sector response

The private sector in Uganda is aware that climate change could have a severe impact on their businesses. However, they also feel there is a need to balance environmental concerns with economic growth.

All three representatives from the Ugandan private sector express concern about the impacts of climate change on their businesses. Patrick Dhikusooka explains how his company, SCOUL, will be affected by climate change: "*95% of our cane depends on rainfall, so if rainfall goes down because of [climate change], it means we will have to irrigate, so that means additional costs.*" Even companies not directly involved in agribusiness fear that, if unchecked, climate change could have serious impacts on their profits.

> *"Our business is affected by liquidity, liquidity in the pockets of our customers. So if strong measures are not put in place to mitigate the negative effects of climate change, then maybe in the long run it will affect the liquidity of our customers, and maybe [then] our business will be affected."*
>
> Mr Daniel Nsibambi, communications manager, Stanbic Bank

As a result of these projected impacts, people from within the private sector claim that the majority of businesses within Uganda now run "*environmentally friendly*" operations, using their resources responsibly and keeping waste to a minimum. However, as Robert Whitman points out, both finances and finding staff who understand the issue make taking definite action on climate change difficult. There is also a strong sense that any climate change initiatives should not adversely affect Uganda's economic growth. According to Patrick Dhikusooka, "*proper planning and investment*" is needed in order to reconcile economic growth with environmental concerns. However, there is awareness that an increasing demand for sustainable products from the export market means that businesses are in a position to invest in improving the sustainability of their industrial processes.

> *"[Addressing climate change and promoting economic growth at the same time is possible] because the Western world are the consumers of coffee and they want to be seen promoting better environmental practices and therefore decreasing the impacts on [the] environment. So if you are seen to be involved in these practices, there is a lot of growth in that segment. And people are willing to pay a premium to buy this sustainability and willing to pay the farmers premiums and a bonus as well. So yes, there is a possibility of development."*
>
> Mr Robert Whitman, chief finance officer, Kyagalanyi Coffee Ltd.

> **"You have to understand the scientific jargon and... package it in a way that is easy for the public to understand"**
>
> **ENVIRONMENTAL REPORTER, THE NEW VISION**

There is also a feeling that developed countries should help Uganda shoulder the cost of adapting its industries, as they a vested interest in helping Africa cope with climate change challenges.

> *"Uganda depends on agriculture, and once the climate is affected, in whatever way… that will have a big impact on our economy. And that will make us more dependent on [developed countries], which we don't like to [be] because we would like to be economically independent, [yet] we shall be suffering because of their actions."*
>
> Mr Patrick M Dhikusooka, general manager (administration and personnel), SCOUL

Media response

Media coverage of climate change tends to be reactive, often only occurring in response to extreme weather events. Journalists feel that it is difficult to get editorial buy-in for stories on climate change, but believe the media have an important role to play in raising public awareness around the issue.

Amongst opinion leaders from both inside and outside the Ugandan media sector, there was agreement that the media does report on climate change, but "*not enough*". Coverage tends to occur in response to disasters or crises – floods, droughts, chemical leaks from factories; and is rarely aimed at actually raising awareness amongst readers, listeners or viewers. Additionally, all three media representatives agree that climate change can be difficult to report on, because of the level of technical knowledge required to make sense of it as a phenomena. "*[Climate change] is not easy to cover because you have to understand the scientific jargon and then to package it in a way that is easy for the public to understand without distorting the information,*" explains Gerald Tenywa. The way the media cover climate change "*tends to be complicated and a little abstract,*" explains Charles Aben. "*These things need to be translated to the ground level.*"

Several media representatives point out that it can also be difficult to get editorial buy-in for climate related stories. Such stories can be expensive to cover, and are not always regarded as being particularly critical.

> *"[Climate change stories] are also expensive to cover. For example, in Karamoja real stories are coming out on climate change, but because it is kind of a deserted area, it is not every day that you get resources to travel there and pick [up] the story so all these factors combine and make it very difficult. Now once you have packaged a story, you have tried your best, you have gone to [the area], they have facilitated you, then the editors find it hard to get you good space."*
>
> Mr Gerald Tenywa, environmental reporter, *The New Vision*

"Not many editors understand science and… most people prefer to go to parliament where there are [politicians] abusing each other and all that. Such stories take precedence whilst people could be starving up country, in the villages, because they have no food. These are good stories, but sometimes [they] are hidden. It demoralises [you] when you know exactly what you are talking about but sometimes editors do not want to give these issues priority."

Mr Andrew Mugyema,
environmental journalist, NTV

All media interviewees were keen to emphasise the important role they feel media can play in educating people about the causes of climate change, and how to adapt to its impacts.

"Even our members of parliament…do not understand science. I have been to the committee of natural resources and environment and these people clearly just sign whatever comes their way. So the ignorance is [apparent] top to bottom and bottom to top. There is a lot that the people can learn from the media and this will increase their understanding of climate change and the way they live or adapt to it."

Mr Andrew Mugyema,
environmental journalist, NTV

It will be important for the media to develop their understanding of climate change, given that people cite media as a primary source of information on the topic.

Other responses

Religious leaders believe there is a role for religion to play in encouraging good stewardship of the environment. Associations, whilst addressing environmental and livelihoods issues, rarely frame their work around the issue of climate change.

The two Christian leaders interviewed are aware of climate change and say that religious belief offers a way of understanding and framing the issue for their congregations. Reverend Dr Sylvester Arinaitwe points out that there are plenty of passages in the Bible which encourage people to look after the environment: "*When you look back from the book of Genesis, after God had created Adam and Eve, he put them in the Garden of Eden. And he said; 'Take care of it, name the animals, make it better.' I think the foundation [for acting on climate change] is there.*"

> **"It demoralises [you] when you know exactly what you are talking about but... editors do not want to give these issues priority"**
>
> **ENVIRONMENTAL JOURNALIST, NTV**

The Church is also actively involved in encouraging people to take better care of nature. "*We actually have a campaign to plant trees,*" says Mr Robert Tusiime (Diocese of Rwenzori, Anglican Church). "*So far we have covered 80 hectares. And we are also encouraging Christians to plant trees.*"

The farming association and the botanical gardens say that their organisations are involved in local livelihoods programmes, such as educating farmers in better farming practices and reforestation, but rarely link these actions explicitly to climate change.

The three main elements that opinion leaders feel are lacking from Uganda's response to climate change are: firstly, clear and comprehensive education campaigns directed at the general public; secondly, support from industrialised countries; and thirdly, better communication between government and non-government agents acting on climate change.

Charles Aben points out that there is a need to capitalise on the current interest in climate change issues to engage the Ugandan public: "*This climate change issue is becoming more real than it was and it is important to take advantage of this current awareness to put programmes [out on the] ground.*" There is a worry that if this does not happen, climate change will simply become another stress factor that Ugandans accommodate into their often already difficult lives.

5 Conclusion

This research has shown that public awareness and understanding of global climate change is low in Uganda. Climate change terminology is poorly understood and its translation in local languages does not convey its global causes or context. More Ugandans recognise that their climate is changing than are aware of the term "climate change". Climate change is often literally interpreted to mean "changes in weather".

In this context, many Ugandans have their own ways of explaining why their weather patterns and environment have changed. They draw on existing knowledge and beliefs, both to explain the changes they have witnessed and to process new information on climate change. While most Ugandans see a link between human activity and changes in climate, this is very localised. Many link individual human activities, such as tree-felling and pollution, to degradation of the local environment and changes in weather patterns, yet most are not aware that pollution from outside their locality increases levels of greenhouse gases and has contributed to the changes they have experienced.

Ugandan opinion leaders are very aware that climate change presents a significant challenge to their country. However, there is little communication on the topic between government bodies and between the government and NGOs, the private sector and the media. Although the media and schools, are the main source of information on climate change for the general public, there is evidence to suggest that people working in the media lack the resources and leadership to effectively inform audiences about climate change and facilitate public discussion.

It is clear that communication and information provision are going to be central to Uganda's response to these challenges. Many opinion leaders spontaneously mention the need for better communication on climate change, and all agree that the general public needs more information. Although this research sets out to present the perceptions of the Ugandan public on climate change, and not to detail a climate change communication strategy, various communication implications can be drawn from it:

Provide information

Firstly, the media have 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. Ugandan citizens have a fundamental right to access information on an issue that affects their lives. Increased awareness and understanding of global climate change will enable and equip citizens and communities to discuss the problem, adapt to the effects of climate change and make informed long-term choices about their future.

Efforts to improve climate change communication need to confirm to people that weather patterns are changing and that extreme weather events are more likely to occur. They also need to raise awareness of global climate change and the ways in which it relates to people's lives and livelihoods. People need information on ways to adapt to climate change and prepare for extreme weather events.

Communication efforts should also help people to build simple, correct mental models of how climate change works, being mindful of people's existing understanding. In order to do this, appropriate climate change terminology should be developed and tested in local languages. Evidence and facts need to be communicated in a way that is locally relevant using a variety of news and non-news platforms.

Facilitate policy and public debate

Secondly, the media need to facilitate accessible public debate. Uganda is being affected by climate change. Internally driven, relevant debate on the issue is essential. The news and non-news media will shape and mediate that debate to a very substantial extent. For that reason, building the capacity of the media and providing support for "public spaces" which enable discussion on climate change that draws on Ugandan voices and experiences, engaging citizens, local interest groups, civil society actors, religious leaders and policymakers from all levels of government, 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 and plans for action. They can also serve to facilitate better cross-sector communication between government, NGOs, the private sector, the media, and local and community leaders.

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 Ugandan citizens are fully informed about, and able to debate, climate change, will 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
Hon Bright Rwamirama *Minister of state*	Ministry of Agriculture, Animal Industry and Fisheries	National government
Mr Dennis Kyetere Tumwesigye *Director general*	National Agricultural Research Organisation (NARO)	National government
Mr Paul Luyima *Head of environmental health*	Ministry of Health	National government
Mr Philip Gwage *National focal point on climate change*	Department of Meteorology, Ministry of Water and Environment	National government
Mr Christopher Kasaija *Parish councillor*	Kaikbiiha Parish, Fort Portal	Local government
Mr Mohamed Nasur *Chairman*	Soroti Provincial Government	Local government
Mr Andrew Mugyema *Environmental journalist*	National Television (NTV)	Media
Mr Gerald Tenywa *Environmental reporter*	The *New Vision*	Media
Mr Wilfred Masaba *Journalist*	Open Gate FM Radio	Media
Mr Daniel Nsibambi *Communications manager*	Stanbic Bank	Private sector
Mr Patrick M Dhikusooka *General manager (administration and personnel)*	Sugar Corporation of Uganda Ltd (SCOUL)	Private sector
Mr Robert Whitman *Chief finance officer*	Kyagalanyi Coffee Ltd	Private sector
Mr Robert Tusiime *Diocese of Rwenzori, Fort Portal*	Anglican Church	Religious institution
Reverend Dr Sylvester Arinaitwe *Executive director*	Joint Christian Council	Religious institution
Mr Charles Aben *District co-ordinator, Soroti*	National Agricultural Advisory Services (NAADS)	Association
Mr Godfrey Ruyonga *Director*	Tooro Botanical Gardens	Association
Mr Ben Twinomugisha *Climate change programme manager*	Oxfam	NGO
Ms Rose Hogan *Poverty and environment officer*	United Nations Development Programme (UNDP) and United Nations Environment Programme (UNEP)	Multilateral development agency

Appendix 2 Uganda advisory group

Name	Organisation
Mr Savio Carvalho	Oxfam
Mr Nick Hepworth	LTS International
Mr Richard Kimbowa	Uganda Coalition for Sustainable Development
Mr Alex Muhweezi	International Union for Conservation of Nature
Ms Christine Nantongo	Environmental Alert

Appendix 3 Methodology overview

Uganda 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, *Uganda Talks Climate* investigates the meaning that people attach to climate change, and explores how they experience climate-related issues and impacts.

A total of 12 focus groups with citizens and 18 in-depth interviews with opinion leaders were carried out across the three locations in Uganda in May 2009.

The three fieldwork locations were selected based on desk research and consultation calls with the Uganda 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: Kampala, Fort Portal and Soroti.

Focus group discussions

Focus groups were convened with farmers and pastoralists, market traders and business people, women and men, rich and poor, rural and urban. Given the implications of climate change for certain livelihoods in Uganda, individuals working in farming (Fort Portal, Soroti) and pastoralists (Soroti) were purposefully targeted.

Of the 12 focus groups, 4 were convened in each location: 2 in an urban area of town, and 2 in a rural area. The focus groups were single sex with approximately 8 participants 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 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 Kampala; however, it was not possible to determine socio-economic class outside of the capital due to limited data on socio-economic indicators. Profession was therefore used as basis to recruit participants in these areas.

Moderators for each group were matched to participants in terms of gender and language. In Kampala, focus groups were conducted in Luganda and English, with participants often using the two languages interchangeably. In Fort Portal, focus groups were conducted in Rutooro, and in Soroti they were conducted in Ateso.

Structure of the discussions

Moderators used a structured discussion guide to lead the focus groups. This was refined after the *Africa Talks Climate* pilot study in Nigeria during which several improvements were made.

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 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 represented a range of issues that can be linked to climate change. There were 15 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 local researchers and 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 on the issue of climate change. These opinion formers were individuals with a particular interest in climate change, or an informed opinion from a certain field, region or subject area within the country. 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.

Sector	Quota	Achieved in Uganda
National government (3 national, 2 local)	5	6*
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 Uganda, 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 Uganda, representatives were chosen from the Ministry of Water and Environment, the Ministry of Agriculture, Animal Industry and Fisheries, NARO and the Ministry of Health.

At the local government level, local council representatives from Fort Portal and Soroti were interviewed.

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, a coffee processing company, a sugar producing company and a national/regional bank were represented.

The two religious leaders who were consulted were a reverend from the Uganda Joint Christian Council and a local religious leader from Fort Portal.

The two associations/groups represented were a farming association in Soroti, and the director of Tooro Botanical Gardens in Fort Portal.

Finally, a representative from an NGO with a climate change focus was interviewed as well as a representative from UNDP/UNEP.

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. For focus groups held in Kampala, English, and Luganda[i] transcripts were produced by the moderators, while for Fort Portal and Soroti, Rutooro and Ateso transcripts were produced respectively. English transcripts were then generated from the Luganda, Rutooro and Ateso transcripts by a team of translators in Uganda. These translators first read through the vernacular transcripts for inconsistencies and anomalies which, if found, were raised with the researchers in Uganda. The researchers in Uganda 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.

In-depth interviews were conducted in English and transcripts produced in the same language.

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 0.92. 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.

* In Uganda, the quota was achieved for each sector, with an additional interview carried out at the national government level in order to include National Agricultural Research Organisation (NARO).

i English and Luganda were often used interchangeably by participants throughout the discussion.

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