

African Perspectives on Religion and Climate Change

This book interrogates the contributions that religious traditions have made to climate change discussions within Africa, whether positive or negative. Drawing on a range of African contexts and religious traditions, the book provides concrete suggestions on how individuals and communities of faith must act in order to address the challenge of climate change.

Despite the fact that Africa has contributed relatively little to historic carbon emissions, the continent will be affected disproportionately by the increasing impact of anthropogenic climate change. Contributors to this book provide a range of rich case studies to investigate how religious traditions, such as Christianity, Hinduism, Islam, and indigenous faiths influence the worldviews and actions of their adherents. The chapters also interrogate how the moral authority and leadership provided by religion can be used to respond and adapt to the challenges posed by climate change. Topics covered include risk reduction and resilience, youth movements, indigenous knowledge systems, environmental degradation, gender perspectives, ecological theories, and climate change financing.

This book will be of interest to scholars in diverse fields, including religious studies, sociology, political science, climate change, and environmental humanities. It may also benefit practitioners involved in solving community challenges related to climate change.

Ezra Chitando is Professor of History and Phenomenology of Religion at the University of Zimbabwe, Zimbabwe and Theology Consultant on HIV in Africa for the World Council of Churches.

Ernst M. Conradie is Senior Professor in the Department of Religion and Theology at the University of the Western Cape, South Africa. He is co-editor (with Hilda Koster) of the *T&T Clark Handbook of Christian Theology and Climate Change* (2019).

Susan M. Kilonzo is Associate Professor at the Department of Religion and Philosophy at Maseno University, Kenya. Her research and publication interests include religion and climate change, gender, development, peace-building, and method and theory.

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African Perspectives on Religion and Climate Change

**Ezra Chitando, Ernst M. Conradie and
Susan M. Kilonzo**

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Contributors

Ezra Chitando is Professor of History and Phenomenology of Religion at the University of Zimbabwe, Zimbabwe and Theology Consultant on HIV in Africa for the World Council of Churches.

Ernst M. Conradie is Senior Professor in the Department of Religion and Theology at the University of the Western Cape. He is Co-editor (with Hilda Koster) of the *T&T Clark Handbook of Christian Theology and Climate Change* (2019).

Veronica Nonhlanhla Gundu-Jakarasi is a Chartered Development Finance Expert with experience in environmental and climate diplomacy, resource mobilization, and climate programming.

She is a manager responsible for climate finance and sustainability with the Infrastructure Development Bank of Zimbabwe. Her research and publication interests include climate finance, climate policy, disaster risk management, religion, inclusion and gender, adaptation, and climate-compatible agriculture.

Susan M. Kilonzo is Associate Professor in the Department of Religion and Philosophy at Maseno University, Kenya. Her research and publication interests include religion and climate change, gender, development, peace-building, and method and theory.

King'asia Mamati is Doctoral Student in Social and Cultural Anthropology at the University of Cologne. His research interests include human-environment relationships, indigenous peoples, climate change, and religion.

Loreen Maseno (PhD) is Senior Lecturer, Department of Religion and Philosophy, Maseno University, Kenya and Research Fellow, Department of Biblical and Ancient Studies, University of South Africa. She has a solid research portfolio and has published extensively.

Damon Mkandawire serves as Hospital Administrator for Mbereshi Mission Hospital in Zambia. He is an ordained minister of word and sacraments in the United Church of Zambia. He is also an environmentalist, a young theologian, a GreenFaith Fellow, and a founding member of the GreenFaith International Network.

Stephen Nkansah Morgan (PhD) is currently Lecturer with the Department of Philosophy and Classics of the University of Ghana, where he teaches a wide range of philosophical courses at both graduate and undergraduate levels. His research interest is in environmental and animal ethics, social and political philosophy, and African philosophy broadly construed.

Elizabeth P. Motswapong (PhD) is Senior Lecturer in the Department of Theology and Religious Studies at the University of Botswana, Gaborone, Botswana. Her research fields are: Indian Religions with a Concentration in Hindu Studies, HIV and AIDS, Gender in Comparative Religions and Queer Studies.

George C. Nche is Lecturer and holds a PhD in religion and society in the Department of Religion and Cultural Studies at the University of Nigeria, Nsukka, Nigeria. He is currently a postdoctoral research fellow in the Department of Religion Studies at the University of Johannesburg, South Africa. His research foci are religion and ecology, security, and conflict.

Hassan Ndzovu is Associate Professor in the Department of Philosophy, Religion, and Theology at Moi University in Kenya. He has held post-doctoral positions in Europe and North America. His research and publication interests include Islam in Africa, as well as Islam and development in Africa.

Sonene Nyawo is Senior Lecturer in the Department of Theology and Religious Studies at the University of Eswatini, Kingdom of Eswatini. Her research interests include gender and religion, church history, new religious movements in Africa, and women and peace-building.

Beatrice Okyere-Manu (PhD) is Senior Lecturer in the School of Religion, Philosophy, and Classics at the University of KwaZulu-Natal. She is the Programme Director for Applied Ethics. Her research interest is in development ethics, which covers the following areas: family ethics, indigenous knowledge in African culture, African environmental ethics, and migration ethics and technology.

David Andrew Omona is Senior Lecturer in the Department of Public Administration and Governance and Dean of Faculty of Social Sciences at the Uganda Christian University – Mukono. He holds a Doctorate of Political Studies focusing on International Relations and Diplomacy from Kenyatta University. His research interests include Ethics, International Relations and Diplomatic Practice, Conflict and Peace Studies.

Damaris Parsitau is Associate Professor of Religion and Gender Studies at Egerton University in Kenya and the current President of the African Association for the Study of Religion (AASR). She is also formerly a Research Associate and Visiting Professor at Harvard's Divinity School (HDS) at the Women Studies in Religion Programme.

Tabona Shoko is Professor in the Department of Philosophy Religion and Ethics at the University of Zimbabwe. His research and publication interests include religion and climate change, gender and sexual diversity, human rights, environment, conflict resolution, and peace.

Lilian C. Siwila is Associate Professor in the School of Religion, Philosophy and Classics at the University of KwaZulu-Natal, South Africa. She is a Lecturer in Theology and Gender Studies. She is a member of the Circle of Concerned African Women Theologians. Her research interests include gender, culture, liturgy, indigenous knowledge on ecology, sexual and reproductive health rights, and its interface with feminist theology.

Joram Tarusarira is Assistant Professor of Religion, Conflict and Peacebuilding at the University of Groningen, The Netherlands. His research focuses on religion, conflict transformation, peace-building, reconciliation, and climate-induced conflicts.

Introduction

African perspectives on religion and climate change

Ezra Chitando

Introduction

Climate change, a global emergency, has become one of the most pressing issues of our time (see, for example, Religions for Peace 2016: 6; Satgar 2019; Gills and Morgan 2020; Cilliers 2021 (chapter 15); and IPCC 2021). Activists from diverse backgrounds have drawn attention to the urgency of addressing climate change, as it is an existential threat. The United Nations Sustainable Development Goal (SDG) Number 13 on climate action, itself closely connected to other SDGs (Nerini et al. 2019), expresses the emerging consensus on the need to address climate change as a matter of urgency. It refers to the need to “take urgent action to combat climate change and its impacts.” As I shall argue throughout this chapter, Africa’s vulnerability to the impact of climate change calls for climate justice, which in turn is tied to human rights and sustainable development. Thus, “Climate justice links human rights and sustainable development to safeguard the rights of those affected by climate change” (Puaschunder 2020: 29).

The African Union (AU) and member states have been actively involved in the quest for a climate-resilient and prosperous Africa (Songwe 2019). More reassuringly, young African women have been at the forefront of the call to world leaders to act decisively in the face of the climate emergency.¹ Climate change is a cross-cutting issue that requires global solidarity and investment of diverse resources. In this volume, we focus on African perspectives on religion and climate change. I shall elaborate on the religious dimension further below. However, there is a need to highlight why the focus on climate change is critical from the onset. Thus:

Climate change is a major global challenge. However, some geographical regions are more affected than others. One of these regions is the African continent. Due to a combination of unfavorable socioeconomic and meteorological conditions, African countries are particularly vulnerable to climate change and its impacts. The IPCC Special Report “Global Warming by 1.5 °C” outlines the fact that maintaining global warming by 1.5 °C is possible, but also points out that a 2 °C increase could lead to crises in

agriculture (rain-fed agriculture could decline by 50% in some African countries by 2020) and livestock, damage water supplies, and pose an additional threat to coastal areas.

(Oguge et al. 2021: v)

At the time that this volume was being finalized (September/October 2021), several global conferences that focused on climate change or addressed its impact had either just taken place, were underway, or were anticipated. The United Nations General Assembly, the Youth4Climate Summit, and the 2021 United Nations Climate Change Conference, COP26, were all lined up. Even in the middle of the devastating COVID-19 pandemic, it remained clear that climate change demanded urgent attention (see, for example, Hill 2021) and communities have had to invest in climate change adaptation and mitigation (see, for example, Nyikahadzoi and Mhlanga 2021). Diverse actors, including political and religious leaders, as well as activists, strove to ensure that climate change remained high on the global agenda.

The danger, as always, was that once the discourse assumed a global dimension, Africa would be marginalized. However, the continent refuses to be written off and continues to exercise agency (see, for example, Murithi 2014 and Chipaike and Matarutse 2018). It is important to focus on Africa since it has been affected by climate change in very profound ways, with the anticipated future impact being quite severe (Collier, Conway and Venables 2008; Niang et al. 2014). According to the Inter-Governmental Panel on Climate Change's (IPCC) Fourth Assessment Report (AR4), Africa is the continent most vulnerable to climate change and climate variability. Thus:

Africa is already being impacted by climate change in many ways, and is set to be further impacted unless sufficient effective international action is taken. Climate change in the first place involves increases in average temperatures, with consequent changes both to human societies and to natural ecosystems. Increased temperatures involve threats to human health and resilience, together with the expansion of deserts and increased difficulties for people living in the semi-arid margins of deserts, in their efforts to continue to support themselves. Climate change also causes an increase in both the intensity and the frequency of extreme weather events such as storms, hurricanes, floods, droughts and wildfires, and these derivative changes in their turn cause more than a few human communities to migrate to more hospitable regions, usually away from the equator and towards the poles, with many in Africa moving either north towards the Mediterranean or south towards the Cape of Good Hope.

(Attfield 2019:282)

Cognisant of the challenges posed by climate change, SDG 13 seeks to intensify resilience and adaptive capacity to climate-related threats and natural disasters in all countries; integrate climate change measures into national policies,

strategies, and planning; and improve education, awareness-raising, and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning. This SDG also strives to ensure that there is the implementation of the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible. The other target is to promote mechanisms for raising capacity for efficient climate change-related planning and management in the least developed countries, including focusing on women, youth, and local and marginalized communities.²

**“We Do Not Inherit the Earth from Our Ancestors,
We Borrow It from Our Children”:³ African
perspectives on religion and climate change**

As was the case with the early days of the HIV and AIDS epidemic in the mid-1990s when all the investment was in the medical sector, the danger has been real that the global response to the climate emergency would be exclusively from the perspective of science. However, as the effective response to HIV and AIDS has been prompted by the realization of the need for a multi-sectoral approach, so will an effective response to climate change need to embrace a multi-sectoral approach. In this scheme, different stakeholders have to come together and collaborate in responding to climate change, each bringing their specific comparative advantage to the task (Gannon et al. 2021). Thus, for example, scientists, policymakers, private sector investors, religious and traditional leaders, and others have to come together and implement strategies to counter the climate emergency. Operating from their specific places and bringing the resources from religion, religious actors have a critical role to play in responding to climate change (see, for example, Haberman 2021; Silvern and Davis 2021). As per Allison and Miller (2019), climate change is far too important to be left to science alone. The humanities, with their emphasis on values, are equally relevant to the discourse on climate change.

In this volume, we are focusing on African perspectives on religion and climate change. However, religion’s place in responding to the climate emergency is not obvious. This is an outworking of two positions, each approaching religion from specific standpoints. First, some would argue that the issue of climate change is either a non-issue (denialists) or that the matter is so complicated that only highly qualified scientists can do justice to it. In both instances, religion would not feature. Second, others would say that religion is so deeply implicated in climate change that any effective solution would have to come outside or beyond religion. On his part, Philip Jenkins (2021) has chosen to focus on how changes in climate have the capacity to precipitate religious upheaval.

For the critics of religion, theological formulations within some dominant religions, such as Christianity's dominion theology, in fact imply humanity has been mandated to dominate creation. This position, which was articulated forcefully by Lyn White Jr (1967) (see Tyson 2021), implies that religion is a barrier. In this understanding, religion is a negative force as it justifies human activities (primarily the burning of fossil fuels that cause climate change. Given the scientific consensus that climate change does not happen, but is caused by human activities, this critique of religion requires close scrutiny more than can be undertaken in the context of this introductory chapter (see, for example, Minteer 2005; Chuvieco, Burgui and Gallego-Álvarez 2016).

Whatever the limitations of the formulation regarding the negative role of religion in relation to climate change, the primary assumption of the theory is correct: we human beings have been responsible for climate change through our activities (IPCC 2021). To couch this in biblical parlance, God would declare, "Your (Our) ways and your doings have brought this upon you" (Jeremiah 4: 18). This is not to suggest that climate change is a form of punishment, but to draw attention to the impact of human activities in climate change discourses. This implies that behaviour change has the potential to turn the tide and provide better outcomes in the response to the climate emergency.

On the other hand, some scholars contend that more liberating approaches to religion/theology and climate change are possible. (See, for example, Veldman, Szasz and Haluza-DeLay 2014; contributors to Conradie and Koster 2019. The latter volume also highlights various other relevant stakeholders in the climate change discourse.) Here, there is the conviction that if religions (or their followers) have been responsible for the climate emergency through promoting negative actions, inaction, and differences, they possess immense potential and capacity to be mobilized for positive climate action. Contributors to this volume are to be located within this camp. They are convinced that religion can be deployed as a resource to respond to climate change in an effective way. Further, it can be argued that the close relationship between religion and climate change necessitates ongoing, deep analysis. Jenkins, Berry, and Kreider (2018: 86) rightly refer to the "entanglement" between religion and climate change. Thus:

Insofar as climate change is entangled with humans, from causes to consequences and from meanings to meliorations, it is also entangled with all the ways in which religion shapes, haunts, interprets, inspires, or otherwise attends human ways of being. Fully understanding climate change therefore requires understanding its religious aspects, especially the way religion is involved in human experiences of and human responses to climate change.

(Jenkins, Berry and Kreider 2018: 86)

We need to explain our decision to focus on African perspectives on religion and climate change. We unapologetically reveal or state that our decision to

reflect on African perspectives on religion and climate change is not from a neutral ideological standpoint. Far from it, we are inspired by the conviction that African scholars (and the religions we study) are not disinterested bystanders in the discourse on climate change, in general, and religion and climate change in particular. In fact, they are key stakeholders and have a direct and abiding interest in how religion in Africa responds to climate change. African scholars cannot subcontract or outsource the responsibility of generating knowledge on African phenomena (Hountondji 2009). Thus, this volume seeks to give voice and a platform to African scholars to express themselves on religion and climate change in Africa. This is a critical exercise since:

Biases in authorship make it likely that the existing bank of knowledge around climate change and its impacts is skewed towards the interests of male authors from the global north. This can create blind spots around the needs of some of the most vulnerable people to climate change, particularly women and communities in the global south.

(Tandon 2021)

The need for African scholars to be present in discourses relating to the continent is an urgent one. According to Musimbi Kanyoro and Mercy Oduyoye (2006: 1), “African women theologians have come to realize that as long as men and foreign researchers remain the authorities on culture, rituals, and religion, African women will continue to be spoken of as if they were dead.” The spectre facing African women theologians is the same that African scholars in general are facing in African studies. This is the challenge of ensuring that the African voice is audible in global discourses. Given Africa’s vulnerability to climate change, it is critical for African scholars to be on high alert regarding the continent’s rights (Addaney, Boshoff and Olusola 2017). Thus, how Africa’s resources should be managed in the context of climate change must remain a critical issue for African scholars. There must be permanent vigilance on the part of African scholars.

Ethical reflections and advocacy by African scholars need to be increased and deepened, given the continent’s historical struggles for justice. Thus, “Although it is the continent least responsible for climate change, Africa is home to some of the world’s harshest climates and most vulnerable populations” (Welborn 2018: 3). Consequently, it is critical for African scholars to be advancing Africa’s interests, including amplifying the continent’s voice and ensuring that Africa’s priorities (climate finance, technology transfer, and capacity-building) are attended to (Skah 2020). In this regard, African academics, policymakers, climate change activists, religious and traditional leaders, and others must invest in climate diplomacy. All these actors must be well informed about the notable progress that the AU has been making in responding to climate change. Thus:

Africa’s involvement to address climate change has been demonstrated through many on-going initiatives at the global, regional, sub-regional

and national levels. At the global level, such initiatives include the Intergovernmental Panel on Climate Change (IPCC), the UNFCCC, the Kyoto Protocol, the Nairobi Work Programme and the Bali Action Plan, among others. At the regional level, such initiatives include the African Ministerial Conference on the Environment (AMCEN), the Framework of Southern and Northern Africa Climate Change Programmes, and the East African Community Climate Change Policy. Another demand from the perspective of the Africans is the implementation of the Bali Action Plan, which is centred on adaptation, mitigation, technology and financing. The Action Plan presents a more comprehensive and long term cooperative framework for ensuring global emissions reduction. Through the engagement of Heads of State, the AU approach on climate matters has evolved from an aggressive and evasive to a more cooperative one.

(Lisinge-Fotabong et al. 2016: 2–3)

Our focus on African perspectives on religion and climate change must also be located in our endeavour to contribute towards ongoing reflections on the role of religion in attaining the United Nations' SDGs Agenda 2030 and the African Union's Agenda 2063. Climate change has an impact on these development initiatives. For example, a review of climate change measures highlights their impact on progress towards achieving the SDGs in various regions of the world (Dagnachew et al. 2021 and Soergel et al. 2021). In particular, contributors to this volume focused on SDG 13, namely, the role of religion in Africa in responding to the climate emergency.

Whereas there have been effective reflections on religion/theology and climate change in Africa (see, for example, Chitando 2020 and Werner 2020 for overviews), these have mostly been in diverse journals and chapters in edited volumes. We seek to bring together reflections and descriptions relating to the role of religion in Africa in the context of the climate emergency in one volume. In addition, we anticipate that the volume will also encourage researchers, policymakers, the private sector, and lecturers in Africa to invest more in research and teaching on religion and climate change in Africa.

We envisage that this publication will prompt other researchers to pursue other themes that we were not able to cover. These include religion and climate change in Africa with particular reference to, among others, children (see, for example, Godfrey and Tunhuma 2020), people with disability (see, for example, Gaskin et al. 2017), men and masculinities, food security, and others. We also could not cover the responses of African Pentecostals, African Indigenous Churches, Rastafari and members of younger religions on the continent. This will contribute towards getting a more rounded picture of the role of religion in Africa in the climate change response.

Overall, then, our volume makes a conscious effort to reposition Africa in discourses on climate change. We have sought to move from the dominant narrative of perpetual victimhood to highlight Africa's creativity and agency in the response to the climate emergency. Contributors to this volume focus on the various initiatives by diverse faith actors on the African continent to

address climate change. These faith actors are doing so in a context where nearly all African countries have signed and ratified the Paris Agreement and are undertaking initiatives to cut emissions. African governments have been quite proactive in responding to climate change, unlike some governments in the Global North that have not been willing to make the necessary financial commitments.

Ubuntu, indigenous knowledge systems, and climate change in Africa

African perspectives on religion and climate change are heavily shaped by Ubuntu and indigenous knowledge systems (IKS). Whereas the contemporary African religious landscape is characterized by radical religious pluralism, with multiple religious traditions competing for space (see, for example, Platvoet 1996), Ubuntu and IKS provide the foundation or underlying frame of reference for many Africans who embrace the new religions in Africa. Although there are grounds for discussing Ubuntu and IKS together, as they both proceed from an African indigenous approach to reality, it is strategic to separate them.

Ubuntu, an African concept that emphasizes solidarity, is a powerful resource in the climate change response. Whereas Ubuntu has been mostly associated with deepening social cohesion and reconciliation (see, for example, Villa-Vicencio 2009: 127), it is important to recognize that its value extends to protecting the environment and responding to climate change. Indeed, Ubuntu can serve as a reminder of the need for human beings to be in solidarity with creation (see, for example, Shumba 2011). As various African philosophers have sought to demonstrate (see, for example, Murove 2009; Etiyeibo 2017; Kelbessa 2018; Chinamakonam 2018; Chemhuru 2019 and Tosam 2019), African environmental ethics recognizes the integrity of creation. Ubuntu is as much about human relations as it is about humanity's interface with nature (Chibvongodze 2016).

Central to Ubuntu as a resource in climate discourses in Africa is its opposition to the wanton exploitation of nature by humans, as well as its call to human beings to accept that they (we) are in an intimate relationship with nature. Ubuntu is premised on the equality of all creation. It is a radical philosophy that challenges ecocide and the plundering of African resources (Terreblanche 2018). When deployed strategically, Ubuntu has the potential to mobilize the African (and global) community to invest in protecting creation and responding effectively to climate change.

Ubuntu is a dimension of IKS. Africans have been utilizing IKS to protect the environment and sustainability (Mawere and Awuah-Nyamekye 2015) since time immemorial. Through African spirituality, they have regarded all creation as sacred, and this has reverberated them to revere nature. Although Nisbert Taringa (2006) questioned this line of thinking, subsequent researchers have maintained that indigenous African spirituality contributes towards preserving the environment. These beliefs are an integral part of the IKS and are relevant

to Africa's response to climate change (see, for example, Mafongoya et al. 2016; Mafongoya and Ajayi 2017; Tarusarira 2017 and Brazier 2020). A recent systematic review of the literature shows that there is a growing appreciation of the role of IKS in supporting the development of effective climate change adaptation strategies in Africa (Nyadzi, Ajayi and Ludwig 2021). African spiritual beliefs contribute to the conservation of sacred spaces (Ogundayo and Adekunle 2019), while African indigenous spirituality remains significant in response to climate change (see, for example, Mwale 2014). Indigenous spirituality provides the interpretive frame when Africans respond to the impact of climate change (see, for example, Chirongoma and Chitando 2021). It is also critical for appreciating conflicts and security concerns that erupt between governments and citizens when development is conceptualized exclusively in technical terms (Tarusarira 2021).

African women play an important role in IKS and African spirituality (see, for example, Aluko 2018; Lukhele-Olorunji and Gwandure 2018; Matholeni, Boateng and Manyonganise 2020). Although colonialism and missionary religions have had a negative impact on the African women's indigenous spirituality, it is critical to note that they continue to be reservoirs of knowledge (see, for example, Mukonyora 1999). Their special relationship to creation, however, is constantly threatened by multiple forms of violence. They have demonstrated remarkable resilience, resisting patriarchal approaches that seek to conquer creation. They share this spirit of resistance with other indigenous women from different parts of the world who are facing extractivism and climate change. Thus:

In this context, women are the primary victims of an extractivism that is characterised by machismo and racism; in other words, the very essence of the prevailing anthropocentrism is expressed with equal force in androcentrism and colonialism (the congenital roots of capitalist civilisation). And yet it is women who are increasingly leading the resistance and building alternatives, for they very quickly come to understand the effects of such violence. Who better to have such an understanding than those who protect life in the broadest sense of the meaning?

(Acosta 2020: 17)

“For Tomorrow Belongs to the People Who Prepare for It Today” (an African proverb): religious leaders in Africa and climate change

Alongside the resources offered by Ubuntu and IKS, religious leaders in Africa can contribute towards the climate change response in diverse ways and by utilizing various strategies. One major contribution of religious actors in responding to the climate emergency is advocacy to pressurize political leaders. For example, continuing with the trend where religious leaders seek to challenge political leaders, on 4 October 2021, religious leaders from diverse faith communities and scientists met at the Vatican, Rome, to release the statement,

“Faith and Science: An Appeal for COP26.” Religious leaders, including representatives of the World Council of Churches, “various Christian denominations, Sunni and Shi’a Islam, Judaism, Hinduism, Sikhism, Buddhism, Confucianism, Taoism, Zoroastrianism and Jainism,” met and “called upon the world to achieve net-zero carbon emissions as soon as possible, and to limit the global temperature rise to 1.5 degrees above pre-industrial levels.”⁴

While the event described in the foregoing paragraph was strategic, however, the absence of representatives of African Indigenous/Traditional Religions (AT/IRs) from among the religious leaders who attended the meeting at the Vatican is noteworthy. It is a product of the systematic exclusion and minimization of AT/IRs (and Africans) in global processes. Scholarly critiques that highlight the invention of “world religions” (see, for example, Masuzawa 2005 and Chidester 2018) have exposed the racial and ideological factors that lie behind the hierarchical ordering of religions. As is clear from the list of representatives of religions who attended the meeting at the Vatican, leaders of AT/IRs continue to be marginalized. According to Mohan Marouan:

the global presence of African religions does not necessarily signify that Africans have succeeded in breaking racial and cultural barriers in the West, or that African religions have become a unifying factor beyond identity politics in places like Europe and North America ... African religions in the West still remain marginalized and are viewed with suspicion.
(Marouan 2015 :239)

Despite the marginalization of leaders of AT/IRs from climate change processes, including by African Christians (see, for example, Taringa 2014: 11), religious leaders in Africa have numerous other opportunities to contribute towards climate action (see also Chitando 2017 and Nche 2020). To begin with, they are strategically placed to initiate awareness of the threat of climate change and the need for accompanying action. Where global religious actors have issued many impressive statements on climate change, it is African religious leaders who are best placed to interpret these statements in the light of local realities. This conscientization role of religious leaders can be clearly seen in Pope Francis’ *Laudato Si’* (see Chapter in this volume). In this regard, religion can provide the language/idiom of talking about climate change. Thus:

Religion need not necessarily only serve as a moral imperative that transforms normative conclusions from climate science into mobilising behaviours for establishing what scientists would regard as more sustainable. Rather, religion can mobilise its own skills to interpret the God of the Here and Now and to explore the Spirit who gives life in manifold liberating patterns. The richness of religious language emphasising weather as a spiritual force would, for example, enrich the tools for interpreting change and for creatively adapting to it in a maximally constructive way.

(Bergmann 2021: 7)

Religious leaders in Africa are strategically placed to lead by example. For example, leaders of AT/IRs can continue to promote the protection of sacred natural sites. This is a critical undertaking that AT/IRs have been engaged in for centuries. While colonialism and missionary religions have sought to demythologize African sacred sites, leaders of AT/IRs have been consistent in protecting these sacred sites. On their part, African and other indigenous scholars have to be actively involved in reflecting on the importance of these sacred sites. Thus:

The relevance of Indigenous perspectives and Indigenous sacred sites can be demonstrated in several ways: 1) Indigenous perspectives on sacred sites are of unique value to the existing discourse, and 2) they help to redress the continuing marginalization of Indigenous voices tied to the lingering legacy of colonialism.

(Liljeblad 2019: 3)

On their part, church leaders can encourage their followers to live in accordance with the covenant with God and creation by supporting and practising small-scale life-giving agriculture, creating community gardens, and providing clean water. They can also invest in renewable energy and climate protection, promote just and sustainable consumption, promote economies of life, and increase their networking (Peralta and Tendis circa 2019) (see also, Peralta 2021). Here, religious leaders will be demonstrating commitment by adopting life styles that are consistent with stewardship in the face of climate emergency. By showing that it can no longer be “business as usual,” religious leaders will be demonstrating the necessity of behaviour change in their communities. They must become credible examples to others by “walking the talk” in the quest for climate justice.

Perhaps one of the most demanding roles that religious leaders in Africa can take up is the prophetic one. They have to remind world leaders of the commitments they have made to respond to climate change. In particular, world leaders must fulfil the pledges they made in the historic Paris Agreement. As Pope Francis has demonstrated, it is critical for religious leaders to sound the alarm in relation to the climate emergency. The world is running out of time, and it is important for religious leaders to remind the duty bearers of their responsibilities. Religious leaders at various levels (see, for example, Ostheimer and Blanc 2021) need to challenge politicians to ensure that the idea of sustainable development is upheld. They need to protest when citizens are rendered vulnerable by “development” that leaves them worse off, alongside threatening the health and well-being of future generations.

Africa, long exploited and marginalized in the global financial architecture, must be adequately covered in climate financing. This refers to climate-related financial flows within and between states which aim at supporting both mitigation and adaptation actions to climate change. With COVID-19 having

compromised climate finance for investment in green development (see, for example, Shipalanya and Chigwenya 2021), it is critical for religious leaders in Africa to call for more climate financing for Africa. They will need to engage in advocacy on multiple fronts, given the reality that “climate financing comes from various sources, multilateral and bilateral, public and private” (Mungai, Ndiruti and da Silva 2021: 2074). Africa will need to mobilize both internal and external resources to respond to climate change, and religious leaders are strategically placed to play a role in this engagement (see, for example, Gundu-Jakarasi, Chapter 13, this volume).

Further, religious leaders in Africa will be required to do more in terms of challenging the current global order which has led to the climate emergency. They will need to call the world to repentance and a radical transformation of economic policies, calling for pollution taxes, ecological reparations, and ensuring that fossil fuels are kept in the ground, as well as to promote dialogue with scientists. They will have to be visible in both National Adaptation Plans (NAP) and the Long-Term Strategy (LTS). In many instances, as was the case during the early days of HIV and AIDS, they will need to undergo training in order to deepen their awareness of climate change issues. Key to the engagement of religious leaders are the theological and ethical insights that they bring to the discourse on climate change. Thus:

What is needed for a massive transformational shift leading to alternative development patterns, is a narrative of hope and a vision of a better world, as provided by faith. It is the role of FBOs [faith-based organisations] to speak out with a prophetic voice and to announce what is not only necessary but also possible, if a transformative, empowering LTS [Long-Term Strategy] pathway is chosen. The provision of such a moral compass cannot be expected from economics, politics or science – but it can be a unique contribution from spiritual leaders and philosophers of high credibility.
(Act Alliance 2018: 52)

What does it mean to be growing up under the shadow of a climate emergency? How does one become positive about the future when the forecasts are that we are heading towards disaster? These and other questions continue to unsettle children and adolescents in Africa and globally. Impressively, however, children and youth have demonstrated greater resolve to take urgent action to respond to the climate emergency. Going forward, it will be strategic for religious leaders in Africa and globally to embrace the leadership of children and youth in the face of climate change. This will challenge the current patriarchal leadership and provide a new model of leadership within faith settings. For Africa, this will be quite consistent: after all, young people constitute the majority of the citizens (it is estimated that close to 60% of Africa’s population is under the age of 25) (Asiamah, Sambou and Bhoosedhur 2021: 1). Such engagement will lay the foundation for the realization of SDG 13 and lead to the actualization of the set targets.

Teaching theology and religious studies in Africa to respond to climate change: summarizing initial reflections

While the current religious leaders in Africa will be expected to redouble their efforts, including engaging in the activities described in the foregoing section, it will be vital for current and future religious leaders to benefit from being equipped with knowledge and skills during their training. A longer narrative is required to do justice to this theme, which is tied to whether African theology and religious studies can address the most pressing existential issues of our time (see, for example, Amanze 2014). Some of the emerging reflections (see, for example, Werner and Jeglitzka 2015) have not covered the African theology and religious studies context in a direct and more inclusive way (see, for example, Blasu 2020). Thus, this section will highlight some of the key issues to be addressed within African theology and religious studies in the context of climate change.

First, one of the most pressing roles for African religious leaders is to decolonize, contextualize, and localize the religion and climate change discourse (see, for example, Nhemachena and Mawere 2019). It is important for African experiences and realities to be prioritized in African theology and religious studies. The dominance of perspectives from the Global North must be challenged in African theology and religious studies. Thus, researchers within the field must invest in reflecting on African realities and utilize these to reflect on religion and climate change in Africa (see, for example, Chibuye and Buitendag 2020). While the dominance of Christian formulations is likely to continue in the near future due to the influence of Christianity on African theology and religious studies (see, for example, Ntrel, Aidoo and Arye 2019), there is a need to embrace a broader perspective.

Second, it is important for African theology and religious studies to equip students with knowledge relating to the basic science of climate change. This is crucial, as there is no contradiction between theology and science, for example. Such an approach will enable students to appreciate the basic science of climate change. This would cover topics relating to carbon-based fuels, components of the earth's atmosphere, the composition of the atmosphere, the greenhouse effect, weather and climate, and factors causing changes in climate.⁵ Lecturers must increase students' awareness of the Intergovernmental Panel on Climate Change (IPCC) comprehensive Assessment Reports on the scientific, technical, and socioeconomic knowledge impacts on climate change, its impacts, and future risks.

Third, it is strategic for the course to then explore the global perspectives on religion and climate change. This will entail examining the discourse on "world religions" and climate change, analyzing some of the major declarations and statements on climate change from diverse communities of faith. It is also quite helpful to expose students to the debates relating to religion and ecology within Western Christianity, as well as to whether religion is a positive factor in responding to climate change. As noted earlier, Lyn White Jr's formulation

requires further interrogation, alongside encouraging students to develop their own positions. It is also valuable to focus on ecumenical and interfaith initiatives to respond to climate change at the global level, as well as the emergence of critiques of development and the promotion of alternative lifestyles in the Global North (see, for example, Hall 2017).

Fourth, the course can focus more specifically on religion and climate change in Africa. In this regard, it is helpful to explore Africa's vulnerability to climate change, the status and role of AI/TRs, IKS, and Ubuntu, and climate justice. Perspectives from other religions in Africa (Christianity, Islam, Rastafari, etc.) will help the students to appreciate the complexity of the religion and climate change interface. Reflections on religion and food in the context of climate change in Africa will equip students to understand the existential implications of climate change. Highlighting some significant voices such as Ernst Conradie (2010), Jesse Mugambi, Musa Dube, Kapya Kaoma, and others (see, for example, Chitando 2020) will also facilitate awareness of the contribution of African scholars to the religion and climate change discourse.

This section can also reflect on the efforts by African biblical studies scholars to provide "green" interpretations of the creation narrative in the book of Genesis. The theme of God creating the world "good" has motivated some African biblical studies scholars to maintain that this is a sound platform for Christians and other people of goodwill to be actively involved in ecological conservation in the wake of climate change. For example, reflections by, among others, Kojo Okyere (2018) from Ghana, Chris O. Manus and Des Obioma (2015) from Nigeria, and Mmapula D. Kebaneilwe (2015) and Musa W. Dube (2021) from Botswana provide valuable insights into African biblical hermeneutics in the context of climate change. It is also helpful to include approaches adopted by scholars from other religions in Africa.

Fifth, the course can address the theme of religion, gender, and climate justice more directly. Due to their greater dependence on agriculture, African women are particularly vulnerable to the effects of climate change (see, for example, Chidhakwa et al. 2020). However, this does not imply that African women are hapless victims of climate change. For example, it is gratifying to note that young African women are at the forefront of climate change activism. This unit of the course needs to highlight the agency of African women in responding to climate change. It must also draw attention to emerging reflections on this theme from within African theology and religious/biblical studies (see, for example, Berman et al. 2021). In particular, the course must reflect on Filomena Chioma Steady (2014)'s probing and feminist/liberating analysis of the impact of climate change on African women, as well as their adaptation and mitigation activities. This is consistent with the emerging reflections on women, theology, and climate justice globally (see, for example, Kim and Koster 2017), as well as the revolutionary praxis by the outstanding activist, Wangari Maathai of Kenya (see, for example, Van Klinken 2021).

Sixth, the course on religion and climate change in Africa must adopt the perspective of liberation for the marginalized (humans and the earth) (see,

for example, Boff 1995; Martin 2003; Holden, Nadeau and Porio 2017). The aim of the course must be to generate a critical mass of actors devoted to personal and institutional transformation in order to act urgently in the wake of the climate emergency in Africa (Christian Aid 2014). By reflecting on IKS and Ubuntu, sacred texts, ethical and spiritual grounds for climate justice, it is anticipated that the course will lay the foundation for an ecologically sustainable and socially equitable society. Religious leaders and other activists who will emerge from this course will be transformed life-long learners who are socially engaged and willing to challenge the racial, gender, and other forms of exclusion that exacerbate vulnerability to climate change in Africa.

The curriculum summarized above needs to be available to all those who are passionate about religion and climate change who might not be enrolled in African theology and religious studies formally. Given the urgency of the matter at hand, having as many empowered activists coming on board as possible would be a welcome development. Utilizing online training methodologies (which became enhanced during the COVID-19 lockdown), as well as Theological Education by Extension (TEE), will enable more people to access the training. In particular, lecturers in African theology and religious studies must be more deliberate about reaching young people, who have demonstrated high levels of creativity and commitment in responding to the climate emergency. Young people in African (and global) communities of faith constitute a powerful resource in addressing climate change effectively (see, for example, Christian Aid 2021). This is a source of hope, a uniquely religious theme (Bomberg and Hogue 2018: 589), that brings a refreshing perspective to climate change discourses. Overall, there is a need to adopt effective communication strategies in order to counter the scepticism relating to climate change that is associated with the faith community (Bloomfield 2020).

Chapters in this volume

The chapters in this volume are organized thematically. The chapters in the first cluster address African Traditional/Indigenous Religions/Knowledge Systems, Gender, and Climate Change. In Chapter 1, Tabona Shoko examines this theme with special reference to Zimbabwe, while Sonene Nyawo does the same, but with a focus on Eswatini in Chapter 2. In Chapter 3, Loreen Maseno and King'asia Mamati reflect on the nexus between indigenous beliefs on the environment and climate change adaptation among the Sengwer in Embobut Forest, Kenya. Lilian C. Siwila provides an African ecofeminist appraisal of the value of indigenous knowledge systems to curbing environmental degradation and climate change in Chapter 4. Susan M. Kilonzo examines the theme of women, IKS, and climate change in Kenya in Chapter 5. All these chapters underscore the importance of AT/IRs and IKS to Africa's response to the climate emergency. The focus on gender also highlights the critical role of women in religion in addressing climate change in Africa.

The middle cluster has chapters that discuss the role of various missionary religions in Africa in responding to climate change. In Chapter 6, Beatrice Okyere-Manu and Stephen Nkansah Morgan draw attention to the difficulties faced by Ghanaian churches, save for the Evangelical Presbyterian (EP) Church, in offering effective responses to climate change. Mainline churches and climate church in Uganda is the focus of Chapter 7 by David Andrew Omona. George C. Nche reviews the African Catholic reaction to the encyclical, *Laudato Si*, in Chapter 8. Chapter 9 by Damon Mkandawire analyzes the potential of the United Church of Zambia (UCZ) to mobilize young people for climate action. In Chapter 10, Elizabeth Pulane Motswapong reflects on the less-studied theme of Hinduism and climate change in Africa. Chapter 11, by Hassan Juma Ndzovu, presents data on the contribution of the Islamic Relief Worldwide (IRW) to the climate change response in northeastern Kenya. These chapters confirm the positive role of religion, as well as the challenges religious actors face in addressing climate change in Africa.

The final section of the volume has chapters that focus on emerging themes in the study of religion and climate change in Africa. Joram Tarusarira and Damaris S. Parsitau explore the religio-spiritual and sacred dimensions of conflicts associated with climate change in Africa in Chapter 12. In Chapter 13, Veronica Nonhlanhla Gundu-Jakarasi offers perspectives on religious leaders and climate change financing in Africa. The concluding chapter (Chapter 14), by Ernst Conradie, reopens the discourse on religion and climate change by showing the complexity of the theme. These chapters confirm the richness and diversity associated with religion and climate change in Africa and beyond.

Conclusion

Our volume has the ambitious goal of initiating or setting the foundations for further, more detailed and ongoing engagements on religion and climate change in Africa. The motivation here is that the current generation of African scholars of religion and activists have an ethical obligation to bequeath a sustainable and flourishing environment to future generations. We recognize the value of African revolutionary thinkers such as Thomas Sankara, who spoke of “daring to invent the future,” where Africa takes responsibility for Africa’s own total liberation and emancipation from the exploitation of humans and the environment (see, for example, Murrey 2018). In line with this philosophy, the volume emerges from the insight from the proverb that “we do not inherit the earth from our ancestors, we borrow it from our children.” Thus, we engaged in this assignment out of our conviction that we have an academic and community responsibility to contribute towards the overall climate change response. This will facilitate the realization of SDG 13 on climate action.

Religion remains a significant part of life in Africa. Given the continent’s greater vulnerability to climate change, it is surprising that there is no avalanche of literature on religion and climate change. Contributors to this volume have offered reflections on this theme by exploring some strategic dimensions.

Clearly, there are various other dimensions that need to be covered in order to have a more holistic picture of the interface between religion and climate change in Africa. We anticipate that other researchers will complement our initial offering in this volume by addressing this pressing issue of our time. As one African proverb puts it, “[T]eeth that are together help each other in chewing food.”

Notes

- 1 See, for example, “Vanessa Nakate Wants Climate Justice for Africa,” available at: <https://time.com/6109452/vanessa-nakate-climate-justice/>, accessed 29 October 2021. Earlier, in 2020, Nakate’s image was cropped out of a photo with four young white women activists. See, for example, <https://www.theguardian.com/world/2020/jan/29/vanessa-nakate-interview-climate-activism-cropped-photo-davos>, accessed 05 November 2021.
- 2 <https://sdgs.un.org/goals/goal13>, accessed 15 October 2021
- 3 Native American proverb.
- 4 Global religious leaders and scientists join to release “Faith and Science: An Appeal for COP26” | World Council of Churches (oikoumene.org), accessed 5 October 2021.
- 5 See, for example, https://en.unesco.org/sites/default/files/1.11basic_science_of_climate_change.pdf

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1 African Traditional Religion and climate change

Perspectives from Zimbabwe

Tabona Shoko

Introduction

Climate change is the greatest challenge the world is facing today. Mainly due to increasing population and fossil fuel, it manifests in increasing global temperatures, rising sea levels, storm surges, recurrent floods, persistent droughts, heat waves, and infectious diseases. Such a problem calls for urgent attention. In Zimbabwe, climate change is real and the search for more sustainable mitigation strategies has become mandatory. The option of traditional religious practices and values has not been adequately explored. This chapter argues that African Traditional Religion (ATR) makes a valuable contribution towards mitigating effects of climate change in Zimbabwe. It does so by examining the Karanga, a subgroup of the Shona ethnic group's traditional worldview, and modes of preservation of nature such as indigenous knowledge system, taboos, rituals, and agricultural methods in mitigating climate change. It concludes that ATR is a vital cog in addressing the challenges of climate change, laying the foundation for achieving the Sustainable Development Goal (SDG) on climate action, namely, SDG 13.

Background and context

Climate change is one of the biggest crises facing humanity. Scholars define the phenomenon as a significant and long-lasting change in the earth's climate and weather patterns, especially, in current use: such *change* associated with global warming (Merriam-Webster Dictionary, 1828). It can also be explained as a shift in worldwide weather phenomena associated with an increase in global average temperatures (Wired 2018:1). The matter of climate change has been tackled at the global level, such as the United Nations Conference on Environment and Development (UNCED) in Rio-de Janeiro, 1992 (Haff and Lombardi 2009:129). UNCED gave birth to a number of international instruments that continue to provide the framework for sustainable development, including the groundbreaking Agenda 21, which offered a practical approach to applying sustainable development policies at the local and national level (see Stakeholder Forum for a Sustainable Future. 2016), and the Rio Declaration

on Environment and Development (Sustainable Development in the 21st century (SD21). The African Union (AU) developed a Draft Strategy on Climate Change, 2020-2030 (2017).

Keith Wade and Macus Jennings (2015) observed that many developing nations are situated in low-latitude countries, and it is estimated that 80% of the damage from climate change may be concentrated in these areas. Zimbabwe in Southern Africa has been gripped by the devastating effects of climate change. Chikuvire (2020:11) asserts that Zimbabwe is located in a semi-arid region having limited and unreliable rainfall patterns and variation in temperatures. He notes that extreme weather conditions like drought and cyclones have increased in frequency, such as those in 2002, 2008, 2015, and 2018. Some features of climate change include delay in the onset of the rainy season, prolonged dry spells, very cold winter seasons, and extreme hot spring and summers seasons. Also, the rapid rise in the world's population and ever-growing dependence on fossil fuel-based model of production have played a considerable role in climate change, a matter which calls for players to come together and try to solve these global challenges. African Traditional Religion is not an exception. For a long time, the African traditional religio-cultural mechanisms of curbing climate change have gone unrecognized.

In Zimbabwe, climate change is real and the search for more sustainable climate change mitigation strategies has become indispensable. The option of traditional religious practices and values in this regard has not been given adequate attention. This chapter explores how African Traditional Religion (ATR) has coped with climate change in the Mberengwa district in Zimbabwe. The district lies in the country's ecological Region 5 and experiences erratic rainfall and frequent drought (Zacchrison 1978:10). This chapter argues that ATR makes a valuable contribution towards mitigating the effects of climate change in Zimbabwe. In order to understand how the local people grapple with climate change, this chapter starts by explaining the Karanga traditional religious worldviews. Then it examines the indigenous knowledge systems, beliefs, and practices related to the land, preservation of nature, taboos, traditional rituals, hunting, and agricultural methods in mitigating climate change. However, it also examines negative traits against mitigating climate change. The chapter concludes that traditional beliefs and practices constitute a fundamental component in mitigating climate change in Zimbabwe.

Brief literature review, theoretical framework, and method

A number of scholars have addressed the subject of global warming. David Waugh et al. (2009) studied global warming and climate change. The studies concluded that globally the climate is changing and is accompanied by adverse climatic conditions such as droughts, floods, and other unprecedented climatic conditions. H.E. Harf and M.A. Lombardi (2009) grappled with the water crisis triggered by climate change. In the process, the study ventures into the effectiveness of Shona Indigenous Knowledge Systems in the preservation of water.

In Zimbabwe, some scholars published on ATR and climate change. M.L. Daneel (1998) contributed to the significance of the Shona indigenous trees, and N.T. Taringa (2006) dealt with African Traditional Ecology. Ecumenical perspectives are dominated by Chitando (2017), who examined the role of religious leaders in response to climate change; Tarusarira (2017) dealt with African religion, climate change, and knowledge systems; and Sibanda (2017) focused on Rastafarian perspectives on praying for rain. Notably, such studies offer important insights on this chapter on Karanga perspectives in Mberengwa district.

The chapter is grounded on theoretical frame by Onah Nkechi, Ali Alphonsus, and Eze Ekenedilichukwu (2016:299)'s reflection that some useful African traditional religious values and practices, such as respect for the land divinity and maintenance of sacred groves and forest, among others, offer good and alternative strategies for climate change mitigation. The chapter applies the theory amongst the Karanga of Mberengwa district in Zimbabwe in arguing for a case of mitigating climate change. It is based on empirical research that utilizes qualitative methods of data collection through interviews, focus group discussions (FGDs), and observations in Mberengwa district.

Traditional worldview

In the Karanga religion, like other African societies, the universe is created by Mwari (God), who is made up of two interacting worlds, namely the spiritual or invisible world and the physical world or visible world (Shoko 2007:33). A scholar of religion, Metuh (1987:54) posits that the spiritual world or invisible world is made up of ontological beings such as the Supreme Being, divinities, deities, spirits, and ancestors. The sun, moon, stars, and clouds are closely related to the sacred world. Rain is believed to be a manifestation of the supreme spirit. Mwari produces the rain that fertilizes the earth, and life begins. The physical world comprises the earth populated by human beings, animals, birds, reptiles, and other animate and inanimate things such as land, rivers, seas, forests, mountains, grass, among others. This shows the Karanga belief that God is transcendent as well as immanent. Mountains such as Buchwa and Imbahuru in Mberengwa are hierophanies frequented for sacrifices and fasting (Shoko 2008: 138). This dualistic view of the universe means that the tiers are intricately connected. The religious cosmology is seen as created by the Supreme Being, who continues to procreate. Communication is through prayer requests, blessings, petitions, and complaints. The universe is anthropocentric. As Mawewe (2020:10) states, human beings are supposed to live in harmony with each other but also with their environment because it is part of life. Chemhuru and Masaka (2010: 122) surmise, in order to achieve this harmony, African fashioned beliefs, practices, and taboos couched in religious tapestry to be adhered to by all members of the community. Hence, there are imitable laws, customs, and sanctions to guide human actions in relation to the environment. Such conservative and preservation mechanisms could be harnessed in mitigating

climate change and protecting the environment. As such, the Karanga perceive climate change through a religious prism which enables some interventions or strategies to provide effective responses to climate change.

Indigenous knowledge

Indigenous knowledge has been realized in the design and implementation of sustainable development projects, but little has been done to incorporate this into formal climate change adaptation strategies. D.M. Warren (1991:1) defines indigenous knowledge as institutionalized local knowledge that has been built upon and passed from one generation to the other by word of mouth. In its broad sense it includes a social, political, economic, and spiritual dimension of a local way of life (Emery 1996:165). It is the basis for local-level decision-making in many rural communities, including the Mberengwa district. The people integrate indigenous knowledge into climate change policies through some strategies that include the adoption of early maturing crops, drought-resistant crops, and selective keeping of livestock where rainfall has declined (Chikuvire 2020: 15). The Karanga cope with risks due to excessive or low rainfall, drought, and crop failure. They produce crop varieties with different susceptibility to drought and floods, supplementing these by hunting, fishing, and gathering wild fruits and plants. Further, indigenous knowledge complements modern scientific knowledge into climate change. As such, people in Mberengwa put significance on the local environment and how to manage local resources. Besides, there are natural phenomena such as water, mountains, rivers, forests, trees, and rituals which the people accord respect and help preserve the environment.

Respect for the environment

The Karanga beliefs and practices make indigenes place value on their environment since God cannot be removed from it. The understanding is that everything that belongs to the ecosystem and the environment is profoundly religious, and many things on earth are held in high esteem for religious reasons, especially when they are thought to be dwelling places of the spirits (Gelfand 1979:63). This resonates with John S. Mbiti's argument of religion as being a ubiquitous element of African culture, such that it "colours their [African peoples] understanding of the universe ... making life a profoundly religious experience" (1969: 4). As Mawewe (2020: 17) puts it, in Africa therefore, respect for the environment is believed to be divinely ordered, for humans in Africa cannot be disassociated from his/her creatures. Human being is supposed to live in harmony with things in his/her environment because the environment is part of life. Hence, there are imitable laws, customs, and sanctions to guide human actions in relation to the environment. The Karanga in the area under study observe Wednesdays as *chisi* (holiday), the day people should rest in honour of their ancestors. Failure to observe such a holiday can

cause drought, plague, pestilence, and misfortune. Any violation attracts penalty in the form of a goat payable to the chief, the guardians of the land. The fear is that violation of such taboos results in misfortune, sickness, and death (Shoko 2007: 35–36). ATR is very close to nature and has created eco-friendly structures, practices, and sanctions that are of enormous benefit in protecting the environment. Such conservative and preservation mechanisms, including adapted versions, could be harnessed in mitigating climate change and protecting the environment. This plays a major role in the context of seeking to achieve SDG 13 on climate action.

The importance of the land

In Zimbabwe, the relationship between religion, land, and the people has always been close. In the traditional past, the land has been intimately associated with the history of the chiefdom, with the ruling chief and with ancestral spirits who live in it. Such prominent chiefs like Mataruse, Negove, Nyamhondo, Mataka, Mpiravana, Mposi, Mazibofa, and Bangwe, amongst others, are respected in Mberengwa. As such, the land upon which they occupy is sacred. The village headman is the principal head of the family. He performs several duties in the community. He ensures the sustenance of people in the community. He allocates and distributes land amongst the people. The land is of paramount importance. It is never considered an individual property but a collective unity. The whole village has the right to use the land. The village headman is also responsible for conducting religious rituals that yield rain and good crops (Shoko 2007: 9). Such actions as incest, stealing, homicide, and adultery are avoided by the people because the earth can be desecrated. The ancestors inflict the people with punishment such as drought, famine, and pestilence (Arinze 1970:23). This is because it is believed that the action of an individual could affect members of the community. Mbiti (1969:338) underscores the importance of the community through his adage, “I am because we are.” Overall, the fundamental attitude to land is a religious one among the Karanga. This respect for land and taboos against errant people help curb land degradation and reinforces its preservation, which is crucial to mitigating climate change.

Totems

The totemic system exists and is functional amongst the Karanga. The totems are an object (such as an animal or a bird) serving as the emblem of a family or clan and often as a reminder of its ancestry. The Karanga term for totem is *mutupo*. Each Karanga subgroup has its own totem and taboos involving restrictions towards particular animals or birds such as *Shoko* (monkey), *Shiri* (bird), *Shumba* (lion), *Zhou* (elephant), *Dube* (zebra), *Muu* (hippo), *Hove* (fish), *Mheta* (water-python), *Garwe* (crocodile), *Hungwe* (fish-eagle), and *Njenje* (porcupine). Animal parts such as *Moyo* (heart) and *Gumbo* (Leg) are considered totems. The totems are believed to have links with the ancestral world. A

religious studies scholar, Nisbert T. Taringa (2015:209) posits that totemic animals are found mainly among wild animals with special qualities. Even though animals constitute food for humans, these totemic animals are not meant to be killed for any purpose, not even for food and sacrifice, because they are sacred for specific clans. The people recognize that spirits operate in the human world through animals, birds, and fish. The animals are related to aquatic life and are associated with the beginning of the Karanga progenitors of *Dzivaguru* (the great pool). As such, *Dziva* (the pool) is also a totem. As can be noted, these totemic aquatic animals are considered to be sacred by the Karanga subgroup of that totem. Much respect and value are also given to water bodies where these animals live. This explains their propensity to the preservation of these water bodies, a fact which goes a long way into mitigation of climate change.

Sacred water

The Karanga hold beliefs that some phenomena such as water are sacred. The people believe in sacred cosmogonic myths, such as the Guruuswa myth, which explains the origins of human beings under the creative hand of *Mwari*, the Supreme God. The deity is believed to have migrated from Lake Tanganyika to Great Zimbabwe but eventually settled at Matopo Hills in Matonjeni. *Mwari* is the personal name for God in Mberengwa. The term refers to a God of fertility who is associated with rain. God is described with other praise names such as *Musikavanhu* (Creator of Humans), *Nyadenga* (Owner of the sky), *Wedenga* (owner of the sky), *Muumbi* (Moulder), and *Dziva* (Pool), amongst others (Daneel 1970: 15). Matonjeni is significant in that when people in Mberengwa are faced with drought, they send emissaries (*nyusa*) to Zame or Matonjeni to petition for rain. But some chiefs in Mberengwa have established the *Mwari* cult at certain places in their areas. The Romwe people under chief Chingoma and the Pfumbi people established a cult at Imbahuru hill near Mataga. In times of drought, the neighbouring Karanga chiefs consult the local cult instead of Matonjeni. Both chiefs belong to the totem *Dziva* (pool). The Karanga use the totem *Dziva* (pool) or *Dzivaguru* (big pool) and also *chidzivachepo* (perennial pool) as the descriptive names for God (Shoko 2007: 35).

T.O. Ranger (1999: 23), a historian, asserts that Matonjeni was called the Stone of Pools (*Mabwe a Dziva*) from which rain comes. For Ranger, perennial pools were identified with the uterus amniotic fluid from women and thus life. When people prayed for fertility, the seed was sprinkled with water from the cave. It was water for life, since it came from the rock, and hence from God. It is interesting to note that rituals are performed at the religious cults to avert calamities, floods, pestilence, and epidemic diseases affecting people, animals, and plants. To date, the rituals are still functional although modernity has diluted the enthusiasm of some activities. The Karanga share some beliefs that water sources or bodies, particularly rivers such as Mundi, Chimwe, Ngezi, Mwero, and Mupwapwezi, are inhabited by *njuzu* (mermaid) and thus sacred and should not be trivialised. Bathing, urinating, and plucking grass around

these water sources is strictly prohibited. Though some prohibitions are coined in order to foster hygiene, however, preserving such water bodies will enhance environmental conservation.

Sacred forests and mountains

In Africa, sacred forests or groves have a special place and significance. In Mberengwa district, there is a strong belief that sacred forests and mountains are the homes of spirits and must be revered. Activities like farming and hunting are prohibited in such areas. So, people develop taboos around the cutting down and destruction of certain trees, shrubs, and forests. In these sacred groves is where they have the burial sites of their chiefs (Taringa 2015:214). A mis-ologist, Marthinus Daneel (2001) observed that sacred groves encompass large mountain ranges, and these places are said to be the habitats of ancestral spirits. The mountains Imbahuru Buchwa, Mt Belingwe (Mberengwa), Chivingwi, and Sikanajena are *marambatemwa* (sacred mountains) for those who belong to the Hove or Dziva clan. These are the burial sites for their ancestors and chiefs. Moreover, they are also religious shrines, where rainmaking ceremonies and other traditional religious activities are carried out. In the Buchwa Mountain, for instance, there are mysterious occurrences. The mountain experiences strange activities such as cocks crowing, invisible women pounding, and voices from *n'yin'inya* (invisible spirits). No one is allowed to go into the mountain even to pick loquats or fetch some firewood. People who violate such prohibitions risk disappearing. One native commissioner, Maparara (Perish), who risked ascending the mountain, disappeared without a trace. When modernization came, mining activities were affected when quarries were found with snakes inside or filled with water until people approached the Mataruse Hove clan to appease the ancestors (Shoko 2008: 138). As a result, such places remain sacred and free from deforestation. Such beliefs help in preserving both fauna and flora and other ecological values and thus contribute towards mitigating climate change.

Sacred trees

The Karanga believe that spirits have their abode on specific trees, apart from forests and mountains. According to Parrinder (1962:52), all trees are thought to have souls of their own, and some are regarded as the dwelling places of other powerful spirits, which take up a temporary abode there. As such, the Karanga hold beliefs or taboos in relation to cutting down or destroying certain trees because they belong to ancestral spirits (Daneel 2001:91). Emmnuel Mawewe (2020:14) posits that branches of certain trees, such as *muchakata* (*parinari curatellifolia*) and *mutowa* (*kirkiaa cuminata*), are used in bringing back home ancestral rituals (*kurova guva*). *Mumvee* and *Muzezeze* trees are sacred trees to be preserved. Fruit trees such as *mushavhi* and *muonde* are also used in rain-petition rituals, and cutting them down is prohibited. As Shoko said, other

trees, their leaves or roots, are used as herbs: *Chifumuro* exposes and neutralizes disease; *mubvamaropa* (Blood-letting) drains filth; *Munhundugwa* (shrub) cures disease; *gavakava* (aloe) curative as does *karibekantu* (Shoko 2007:90–93). In protecting these herbs for medical purposes, deforestation is avoided while maintaining green forestry.

Rain rituals

Indigenous knowledge, such as that informing traditional rain rituals, has the potential to offer valuable insights into environmental change and sustainable development. Shoko (2007: 37) observed that the Karanga conduct one of the most elaborate rituals called *mutoro* or *mukwerere*. The ritual is held at the beginning of the rainy season in early September or late February. The ritual is held when the land is threatened with drought, and it is conducted by the spirit medium (*svikiro*) with the permission of the chief. Both represent the spirits, who are the custodians of the land. The spirit medium observes certain practices such as keeping long hair. When it is cut, the rain stops until new hair emerges. He wears black and red clothes, which represent the ancestor and *shavi* (alien) spirits, respectively. The spirit medium is instrumental in inducing rain (Shoko 2007: 37).

In preparation for the *mukwerere* ritual occasion, the chief invites the community to collect millet and *rapoko* for brewing beer. Old women helped by young girls are instrumental in the brewery. When all is ready, the chief leads the people early in the morning to the shrine located outside the home. The spirit leads the procession. He/she sits on top of the blanket and the people break into singing and dance. He/she kneels down, sprinkles tobacco, and pours millet beer on the ground. Some beer is passed on to the people in a gourd, but beer for the spirits is reserved. The medium utters a prayer pleading for rain, “*Mvura ngainaye ... Tinokumbira Musiki*” (Rain must come, oh we beseech thee, Creator) (Kileff and Kileff 1970:68). Rain falls immediately and everyone celebrates. As can be noted, the Karanga’s dependence on rain determines major aspects of their religion. In the Mberengwa area with little erratic rainfall and frequent droughts, it is important to receive the right amount of rain at the right time. So, a cult is established in the Imbahuru Hills, which is responsible for rainmaking. But similar processes occur at other subregional cults led by the chiefs in their respective areas in the district. The overall purpose of the rituals is to induce rain and avert drought, pestilence, and misfortune. Therefore, the rain ritual goes a long way in mitigating disasters and promotes sustainable development.

Traditional leadership

The Karanga traditional leaders, such as the chiefs and the spirit mediums, lead ceremonies and functions such as rain rituals that deal with matters of the environment. These practitioners are critical in that they offer guidance on religious and spiritual matters inasmuch as they affect the community. They are the guardians of

local customs and traditions. This stems from the fact the action of an individual could affect members of the community. Ezra Chitando observed that climate change is caused by human action (Chitando 2017: 426). The Karanga believe that if one does not relate to sacred aspects of nature according to the prescribed taboos and restrictions, the ancestors would be angry and some misfortune, such as drought and epidemics, might befall the community. As such, the traditional leadership's role is to monitor the implementation of social and cultural rules and norms with regard to nature, animals, and human beings. Chitando highlights a UN conference on responding to climate change by African faith leaders at which they set strategies to combat the problem but also undertook to plant indigenous trees and promote ecological restoration (Chitando 2017: 427–428). In ATR, traditional leaders provide a guide to belief and action, and their proclamations are taken seriously by their followers. By so doing, the religious leaders have an effective role to play towards mitigating the effects of climate change. Mobilizing traditional leaders remains critical to the achievement of the SDGs, including SDG 13 on climate change.

Colonialism and foreign knowledge systems led to the minimization of the role of traditional leaders in the quest for development. Only religious leaders affiliated to missionary religions were regarded as change agents in the community. However, development actors need to realize that traditional leaders are strategically placed to champion development in their communities. In the specific case of traditional leaders, they have the role of upholding traditional beliefs and practices that promoted ecological conservation. This role is very critical in the wake of climate change. Although some young political activists are quick to challenge traditional leaders for being partisan (they often associate them with the government), there is a need to acknowledge and utilize their capacity to uphold ATR and promote activities that will mitigate the impact of climate change in Mberengwa and other parts of the country and the continent.

Negative effects of traditional religion

As noted above, for the Karanga, Westernization, together with its religion Christianity, has had a negative impact on the beliefs, practices, and the norms of the indigenous people. The people lament that the local culture and religion were still being perceived with a negative perception. This is attributed to the failure of coexistence of scientific and indigenous knowledge systems, which result in poor environmental management.

The Karanga use fishing as an important supplement of diet. Normal fishing is acceptable because it preserves young species (Shoko 2007:17). But some negative cultural practices related to fishing involve some people who use poisonous herbs called *ruredzo*, which kills both big and small fish. This is bad for the environment as it destroys young fish. For hunting, the Karanga use dogs and hunting tools to kill animals and birds but spare some species. Some hunting methods that are condemned include pit traps and *kupisira* (burning bush), which results in veld fires that destroy the environment indiscriminately.

Mining is an important subbranch of the Karanga economy. In the traditional past, the people extracted salt from the earth and engaged in *umhizha* (iron making). Today there is a lot of mining activity for *zvibwe* (emeralds), *goridhe* (gold), *koromu* (chrome), and iron ore. Mberengwa falls in the Mwezha range, the country's richest belt associated with precious minerals such as Sandawana for emeralds and Buchwa for iron ore (Shoko 2007:17). Of late, people indulge in informal mining in rivers like Ngezi, Mundi, Matedzi, and Machigwe. Informal mining has caused serious environmental degradation, and forests have been destroyed. Here, it is important for the Karanga to uphold the activist philosophy/maxim that all valuables must be kept in the ground. They need to resist the capitalist exploitation of the environment as the targets of SDG 13 on climate action are to be met.

Some of the hurdles to mitigating climate change arise from the Karanga practices of *kupfupira* (ritual defilement); ritual murder for rainmaking; witchcraft and sorcery through incest, *divisi*, (medicines for boosting wealth); manufacturing *mheni* (lightning to kill foes); and desecrating graves. Other ill practices include *nyiramativi* (defecating in wells), use of slay, and digging holes in search of mice and *makugwe* (insects). The Karanga condemn such practices as *makunakuna* (abomination), which desacralize the environment and invite spiritual wrath. Such beliefs and practices are averse to mitigating climate change. But despite the negative elements associated with the traditional and cultural factors, the Karanga deploy corrective measures to tame errant behaviour and thus play in favour of mitigating climate change.

Conclusion

In Zimbabwe, climate change is palpable and the search for more sustainable climate change mitigation strategies is imperative. This chapter concludes that the option of traditional religious practices and values is essential. Some useful African Traditional Religion (ATR) indigenous knowledge systems, values, and practices such as respect for land and environment, maintenance of sacred water bodies, trees, forests and mountains, observing taboos, rituals, totems, and hunting, offer good and alternative strategies for climate change. Although negative beliefs and practices prevail, the overarching role of traditional religion in mitigating climate change is uncontested. It is incumbent upon politicians, scientists, funders, and other actors to engage with ATR in order to overcome the climate emergency, in Zimbabwe and other African contexts. This will contribute towards the achievement of the SDGs in Zimbabwe, particularly SDG 13 on climate action.

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2 The climate crisis

Mitigation and control through Emaswati indigenous knowledge

Sonene Nyawo

Background

The secularization thesis sees religion as diminishing in power and importance in contemporary society, which grapples with complex issues, including climate change. More reliance on science and technology is being advocated so as to control and explain unique weather patterns in the cosmos. Such approaches to climate change have resulted in generational degradation and decline in the use of indigenous weather forecasting and other traditional knowledge (Gilberthorpe and Hilson 2014). Notwithstanding the arguments in favour of secularization, this chapter seeks to demonstrate, through indigenous knowledge embedded in traditional spirituality, that religion remains a significant force in Eswatini cosmological space. Eswatini, like many African and other global South countries, bears the brunt of the impact of climate change, but indigenous ecological knowledge enables Emaswati to mitigate and adapt to different life situations. Through weather rituals administered by religious personages, they are able to control, manage, and manipulate climate change-induced extreme weather conditions. Religion is thus, a core cultural system, which cannot be ignored as it provides human security in insecure communal environments through ritual performances. The Incwala national ritual celebrated annually by Emaswati is cited as a typical example that demonstrates this assertion. This chapter concludes by proposing an integration of both indigenous knowledge and Western scientific knowledge, which can result in creative multipronged climate change response adaptations in contemporary Africa.

Introduction

The 2030 Agenda for Sustainable Development, adopted by all UN Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future.¹ Core to this agenda is the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by both developed and developing nations to a global partnership. They recognize that ending poverty and other deprivations must go hand in hand

with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve oceans and forests.² The year 2015 was the year the global community endorsed three important agreements that are shaping socio-economic development today, namely, the Sendai Framework for Disaster Risk Reduction, the Paris Agreement on Climate Change, and the Sustainable Development Goals (Nhlengethwa-Masina 2019). The Kingdom of Eswatini subscribes to all three and is committed to fulfilling her obligations in this regard. As part of her obligations to the Paris Agreement, the country developed a Nationally Determined Contribution (NDC), which has commitments for both climate change adaptation and mitigation. The country has made strides towards creating an environment that enables the achievement of these goals by revising the national Development Strategy (Vision 2022) to incorporate emerging regional and global development issues.³ Of particular significance to this chapter is SDG 13, “Take urgent action to combat climate change and its impacts.” It is vital to ensure that the country strives to address the challenge of climate change, as no meaningful development can take place when the threat of climate change looms large.

Despite mitigation and adaptation to global strategies and initiatives, Eswatini, like many African countries, remains vulnerable to climate shocks, as the continent continues to experience severe and multifaceted consequences (Nyawo 2017). This scenario was predicted in the report of the Intergovernmental Panel on Climate Change (IPCC 2007), which states that Africa would be the most affected continent, as it would experience significant increases in temperature, particularly in the Sahel and part of Southern Africa; dramatic decreases in precipitation, declining by more than 20% compared to levels observed in earlier decades; and more frequent and intense tropical storms (Gumo 2017:386). Thus, climate change profoundly influences, affects, and determines the livelihoods of Africans through agricultural production and food security, energy and water resources, forests and ecosystems, hinterland and coastal zones, animal and human health, and migration patterns and onset of disaster events (Ombati 2017). However, Linehan and Sarmento (2011), amongst other scholars, in their exploration of climate change versus indigenous knowledge have made profound observations about African indigenous knowledge. They observe that it faces many challenges, which inhibit the complete utilization of its apparent potentials, strengths, and values. These scholars would argue that whilst most African communities have rich developed indigenous knowledge and practices for responding to climate change and variability, such knowledge cannot precisely be accounted for. This is partially because African indigenous knowledge, wisdom, and practices have, over the years, been accumulated, preserved, and transmitted inter-generationally by oral means without verifiable and authentic written records and accounts (Ombati 2017). Also, African indigenous knowledge has been suppressed through falsifying and distorting African history, culture, and to legitimize the destruction of African practices and thereby constructing a

distinctively Eurocentric understanding of Africa, its people, and way of life (Orlove *et al.* 2010).

However, understanding, predicting, and anticipating changes in weather and other variables is very important for traditional communities. As noted by Langill (1999), traditional weather and climate forecasting is used by many indigenous communities worldwide as a guide in making important decisions that enable them to cope and adapt to climate change-induced extreme weather variations. In many pastoral communities in Africa, traditional weather and climate forecasting remains the most accessible and affordable source of weather and climate information. The interactions with the natural environment become skills acquired by religious personages, which may not well be understood by most scientists, but are useful in traditional communities. These interactions range from the constellation of stars, animal behaviour, cloud cover and type, blossoming of certain indigenous trees, appearance and disappearance of reptiles to migration of bird species and many others (Ombati 2017).

This chapter presents the African science of ritualization as a prototype of indigenous knowledge on climate change response, adaptation and weather control in Eswatini traditional society. Smith (1982) describes indigenous knowledge in broad terms as the knowledge used by local people to make a living in a particular environment. In Africa, for instance, indigenous knowledge is embedded in localized systems, developed over long periods, and its patterns are based upon local understanding systems, and expressed in local languages. Langill (1999) emphasizes that the systems are essentially African in origin, and they have been influenced by innovations emerging from within themselves, from other indigenous systems and from national systems. This chapter therefore discusses a national sacred ceremony known as *Incwala* to illustrate how indigenous knowledge, in the form of rituals, is used by Emaswati to mitigate and control anticipated climate and weather conditions.

Locating the context

Emaswati are a highly religious people, with their religion integral to their culture and to their daily life. Side by side with their high levels of commitment to Christianity, a religion which came to Eswatini by royal invitation,⁴ many Emaswati still retain beliefs and rituals that are characteristic of indigenous spirituality. Their religion has remained active and vibrant as a source and resource for human security and protection. Jacobs (1978) echoes this observation and adds that when two religious orientations interact, the new orientation does not rescind the traditional one, but only enlarges it. If at all, through painstaking effort the new religion may stretch their categories; the shift in philosophical presuppositions occurs very slowly.

Harold Turner was among the first scholars to make sense of why traditional societies would cling on to religion for protection against threats of different kinds. He argues that, from a primal perspective, a human being is not alone in the universe, for there is a spiritual world of powers or beings more powerful

and ultimate than himself/herself, which belong to a transcendent dimension (1977:31). However, transcendent powers are ambivalent; they may be either malevolent or benevolent depending on the relationship of humans to them and their feelings of human activity. Hence, the assertion that not only is there the hierarchy of benevolent ancestors and of spirits, divinities, and high gods in the primal religious world, there is also the range of evil spirits, of demons and malevolent divinities, and occult powers of wizards and witches (Turner 1977; Thorpe 1992). To deal with these cosmic forces, Africans need to carry out a religious action in the form of a ritual, which is an agreed on and formalized pattern of ceremonial movements and verbal expressions carried out in a sacred context. Since there are no sacred books in African religions, religion to Africans becomes a living spirituality that is printed in their hearts, also expressed in visible demonstrations through rituals.

African traditional cosmology is further explained by Bediako (2000) by making reference to what Turner calls “the six-feature framework.” Of the six features, three that directly relate to the focus of this chapter are worth highlighting. The framework states that the African traditional cosmology is defined firstly by a sense of human weakness, of the finiteness, impurity, and sinfulness of humanity, and the need for a power beyond one’s own; secondly by a sense that human beings are not alone, that there is a world of spiritual powers of beings more powerful and ultimate. The universe is personalized, and there is a will behind events. These transcendent powers may be ambivalent - malevolent or benevolent - but the world of the gods provides an escape from the terrors of evil forces. Thirdly, by a belief that it is possible to enter into a relationship with the spirit world, to share its blessings and receive protection from evil forces. The body of indigenous knowledge, built up by Emaswati through generations of living in close contact with nature (Kuper 1947), draws on this framework about the African cosmology. Indigenous knowledge is, therefore, embedded in a dynamic system in which spirituality, kinship, local politics, and other factors are tied together and influence one another. Thus, Emaswati are able to interact with their environment through indigenous knowledge that provides appropriate interventions for the climate crisis through rituals. It must be noted that in Eswatini agriculture still remains the backbone of rural livelihoods, with over 70% of the population primarily reliant on it. This reliance, however, has in recent years been threatened by climate-induced hazards like floods, drought, and storms. Nonetheless, they have continued to rely on indigenous knowledge to mitigate and control their environments.

This chapter seeks to argue that despite predictions and expectations of some philosophers and sociologists of religion that religion is nearing extinction or that it will be reduced to the private sphere in the face of modernity (Giddens 2013), Liswati⁵ still finds meaning, stability, and security in the indigenous knowledge. As confirmed by Nyawo (2004), the belief of Emaswati in the impersonal or mystical power has remained dominant and pervasive in their traditional religious thought; hence they need indigenous knowledge to provide protection against the whole of creation, nature, and all its catastrophes.

Data for this chapter have been generated through the author's own deep familiarity with indigenous beliefs and practices, supplemented by desktop research. The findings are packaged in sections that discuss Eswatini traditional cosmology and ritualization, which builds up to an interplay between indigenous knowledge and climatic conditions, in the context of an Eswatini national ritual known as *Incwala*.

Eswatini traditional cosmology

What Turner, Thorpe, and Bediako have submitted about the African traditional cosmology also applies to how Emaswati perceive their world. Over the centuries and before the arrival and establishment of Christianity, Emaswati had mapped out their universe and intuited some divine knowledge that was expressed in myths, rituals, and sacred stories (Nyawo 2017). It is undoubtedly their primal worldview that enabled them to understand events that did not apparently conform to the natural laws, as well as to conceive the universe in an organized fashion (Nyawo 2004). They held that there was *Mvelinchanti* (the One Who Appeared First). He was viewed as remote such that he could not be reached directly by humans. The primal people could have access to him only through lesser divinities and ancestors, whom he delegated to handle the mundane affairs. Thus, "He seemed to have been content to place people on the earth and instruct them in the things they were permitted to do and those which they were not," argues Marwick (1960:68). Thus, the Swazi traditional cosmology is an expression of the ideas underlying humanity's interaction with the physical, social, and spiritual milieus to which they adapt. It comprises the entire worldview of the people, accounting for all the categories of phenomena of which they are conscious.

The Eswatini traditional cosmology goes beyond accounting in mythical form the origin of all things, but "accepts the existence and interaction between natural and supernatural forces in the universe; elucidates the nature and potential of human and spiritual beings, as well as the relationship that is ideally to be observed between them" (Malan 1985:4). A highly functional relationship, therefore, exists between the physical and the spiritual. There are also impersonal magical forces which can be harnessed to the advantage or detriment of people. Various groups of specialists are trained and they acquire knowledge about the technique needed to activate as well as control these forces. These are religious personages like diviners, medicine men/women, prophets, and priest-kings. They are set apart as sacred individuals, specifically selected for the task of mediation between the spiritual and the physical world. When the balance and well-being of the society is threatened, these human mediators, as visible representatives of the ancestors, would be consulted at special times and special places in an effort to ascertain the cause of the problem. They would also make prescriptions to address the problem, and people would feel secure in their personal and communal environments.

African spirituality perceives cosmic forces as being latent in the entire universe, and may be evoked through prescribed rituals in which different material ingredients with magical qualities are combined to produce the desired effect. According to Emaswati indigenous thought, the natural and supernatural worlds are closely integrated. Virtually all evitable and inevitable life crises, and human and natural calamities like accidents, sudden illnesses, deaths, and droughts are ascribed to the supernatural, thereby necessitating formalized systems of interaction with the supernatural world (Kuper 1947); hence the importance of ritual. Performing agricultural rituals like *Incwala* therefore helps Emaswati build resilience in the midst of fluctuating climatic conditions that threaten the country's ecosystems. Basically, there are four ecosystems; the mountainous Highveld consisting of rivers, waterfalls, and gorges; the tropical Middleveld, which has fertile valleys supporting plant species; the subtropical Lowveld made up of African bush that keeps a broad variety of indigenous animals and plant species; and the subtropical Lubombo, which has mountains and arable land that support a variety of indigenous wild life (Ndlovu 2011). Considering the vulnerability of these ecosystems to climate risks, Emaswati resort to indigenous knowledge to mitigate and control the climate crisis, through the *Incwala* ritual. Hence, the period shortly before the summer solstice, which begins on the new moon and ends on the first full moon following the solstice, becomes the turning point of every year (Kuper 1947), where protection, conservation, and enhancement of the environment and the sustainable management of the natural resources take place (Smith 1982).

Rituals in African cosmology

Rituals comprise symbolic, formalized, repeatable, and ceremonial actions often intended to express some fundamental truth or meaning (Nyawo 2004). African scholars in their definition of rituals all agree that rituals in traditional African environments represent a complex and invaluable phenomenon which enables communication and communion with the spiritual world that proposes tentative explanations about phenomena observed relevant to the cosmos and the natural world (Ogunleye 2014:209). Kyalo (2013:34) adds that rituals are a form of giving confidence in the face of dangers, and through them the cosmic world joins together; the sun and moon shine the four season's process in order and all things flourish. People's likes and dislikes are also regulated and their joys and hates are also made appropriate. Rituals therefore form a major part of the religious expression of traditional adherents whose cosmos is heavily populated with spirits that threaten people's lives. As noted by Eliade (1965), rituals are a source of human security in that they protect people from evil and expiate people for sins they have committed. Also, through them people show gratitude for blessings received, and they gain permission or license to avail themselves of certain national facilities such as farming and fishing (Ogunleye 2014:211). Kyalo, remarking on the sacredness of rituals, refers to them as sacraments, which are "an outward and visible sign of an inward and spiritual

grace” (2013:44). Like sacraments, rituals are performed to ensure security to communities, and also to fortify and restore people to genuine *communitas* (Douglas 1970). Their role also includes channelling spiritual forces into the world for the renewal of life and simultaneously engaging human culture in a forward motion (Some 1998). Whilst some see the value and efficacy of rituals and defend them, others refute their worth, claiming that rituals are not open to scientific hypothesis, and cannot be empirically proven.

The importance of rituals to traditional societies is confirmed by Gumo (2017), who discusses rainmaking rituals in Kenya. She asserts that rainmaking rituals are perceived as a form of magic or prayer, which enables the Kenyan communities to predict, cause, redirect, or dispel rainfall. Indigenous knowledge gives the farmers insights on meteorological phenomena that have guided seasonal and inter-annual activities of local communities (2017: 392). Thus, scientists and meteorologists are turning to traditional rain makers and weather forecasters to bolster the accuracy of weather predictions (Koigi 2016). Amsula and Wana (2013) echo these sentiments by stating that some scientists have now recognized that indigenous people have managed the environments in which they have lived for generations, often without significantly damaging local ecologies. They are of the view that indigenous knowledge can thus provide a powerful basis from which alternative ways of managing resources can be developed. IK technologies and know-how have an advantage over introduced forms in that they rely on locally available skills and materials and are thus often more cost-effective than introducing exotic technologies from outside sources (OECD 2008). In addition, local people are familiar with them and so do not need any specialized training (*ibid.*).

In terms of the classifications of rituals in African cosmology, scholars have not agreed on one typology, as rituals often overlap in form and meaning. However, Kyalo, amongst others, notes that rituals can be differentiated according to the cycle of nature and seasons, non-periodic life crisis and life cycles, and periodic festivals based on calendar-fixed seasons or historical events. Others can be corporate, domestic, and personal (2013:36). This typology is close to what the next section presents, as we demonstrate the interplay between indigenous knowledge and climatic conditions, in the context of Eswatini national ritual known as *Incwala*.

Mitigation and control through rituals in Eswatini

As alluded to earlier, the cosmology of the primal Eswatini society can be typified as integrated and religious. That is, in the words of Malan, it accepts the existence and interaction between natural and supernatural forces in the universe; it elucidates the nature and potential of human and spiritual beings, as well as the relationship that is ideally to be observed between them; and it also entails a functional view of the natural world with the various resources that may be exploited to sustain human life on earth (Malan 1985:8). Traditional societies, therefore, hold a strong belief that the unity and wholeness of the

universe, between the visible and invisible, can be sustained through ritualized actions. As Kasenene observed when discussing Emaswati, “it is ritual that expresses the togetherness of the people and their oneness with the departed members of their families or nations” (1993:17). Furthermore, through rituals Emaswati preserve their basic belief, values, and philosophies, given the fact that their religion is not codified in literacy forms. These rituals are performed in sacred places (cattle byre, grave yard, mountains, and granny’s hut) in which the family elders communicate with the ancestors, and that gives the rituals solemnity and importance. The rituals help Emaswati families uphold the “conservation ethic,” which considers land as sacred, humans as dependent on nature for survival, that all species are interconnected (Langill 1999). So, “climate rituals,” in particular, have developed as a human adaptation to climate change across Africa, and their value is a prototype for cultural response adaptations to climate change (Ombati 2017).

Before we focus on the *Incwala* national ritual, it is important to note that there is interconnectedness between ritual performances at family and national level. Put differently, mitigation and control over life threats done in families have a significant bearing on national ritual performances; hence the need to observe the life affirming rituals, protective rituals, and purification rituals at family level. Failure to perform these rituals would result to disasters like the climate change crisis, whilst their observance mitigates and controls all kinds of threats. Life affirming rituals, for example, denote the acceptance and socialization of the child as a full human being with all rights, privileges, and obligations of childhood (Ndlovu 1992). As noted by Kasenene (1993:18), life affirming rituals protect the child from evil forces and help him to grow properly, and if the ritual is not performed, then the child may grow to be a deviant that would destabilize the entire cosmos. Protective rituals are performed periodically to “immunize” potential victims against witchcraft or any malicious and evil spirits causing natural catastrophes. There are also purification rituals that cleanse family members who, wittingly or unwittingly, have transgressed or been defiled by breaking taboos that ensure cohesion in the society. Failure to perform these rituals at family level would automatically have serious implications on the security of the entire nation against life crisis.

All these are examples of family rituals performed to appease ancestors, thus ensuring their continued support, mitigation, and protection against different kinds of life threats, including changing weather patterns. At family and national levels there would be *kuphahla* (the feast in honour of the ancestors), whereby the officiant who is usually a male elder would address the ancestors loudly at the cattle byre and then present a beast to be slaughtered in their honour. They would then be given gifts of specific pieces of the sacrificial meat and beer. In a nutshell, as noted by Kuper (1975), virtually all life threats, including climate change, are ascribed to the supernatural, thereby necessitating formalized systems of interaction with the supernatural world. This would then restore the disturbed equilibrium in the social, natural, or spiritual milieu of Emaswati (Nyawo 2017:366). What follows in the next section is a

discussion on the *Incwala* ritual, which is a unique indigenous event where the nation comes together and celebrates the first fruit of harvest inside the national cattle byre, the most sacred place for Eswatini. This is where the nation thanks God and the national ancestors for all the blessings, including rains from which the nation gets food. They also ask for protection, resilience, and adaptation as they interact with the environment in the midst of natural and man-made climatic risks.

The *Incwala* national ritual

We have already established that traditional weather forecasting is controlled by religious personages who have acquired some skills in climate knowledge production. The knowledge is then expressed through customary rituals that bind the societies together whilst they communicate what is of religious significance to them. Thus, as African theologians have consistently maintained, indigenous religions remain a heritage to Africans, such that even when they get converted to other religions, they ensure that the two religions would coexist (Nyawo 2017). Eswatini are not different from other Africans; they still find meaning in their indigenous heritage of weather forecasting, despite encounters with foreign religions such as Christianity. Balehegn *et al.* (2019) give us an insight into what guides religious personages in their predictions of weather conditions. They study and understand the rainy calendar as they observe bio-physical entities like trees, plants, animals, winds, and celestial bodies. The behaviour changes of trees, plants, and animals at certain specific periods are believed to be naturally capable of predicting future weather. The direction, strength, force, and duration blowing at different seasons too provide clues on weather and climate. There is also observation of changes in the pattern and constellations of different bodies, including the sky, the sun, the moon, and different stars to extract information about the upcoming weather (Balehegn *et al.* 2019: 8). That said, it is important to note that some indigenous knowledge is regarded as secret and sacred such that it cannot be freely shared by the custodians unless the inquirer is a designated religious personage.

Eswatini religious personages possess a wealth of indigenous knowledge on weather and climate predictions, which inform national rituals that include rain rituals, rituals to protect the ripening crops, and festival of first fruits. Amongst these rituals is the most sacred of them all the *Incwala*, as mentioned above. *Incwala*, also known as the agricultural ceremony, is held annually in December or January on dates chosen by the traditional astrologers in conjunction with faces of the moon, stars, and sun, and bio-physical entities. This important ritual provides protection against natural disasters and evil spirits, whilst it also holds Eswatini together as a nation. Among other things, the ritual involves sacrificing to the ancestors, tasting the first fruits of the season, rainmaking, and general celebration (Kuper 1986). Also, the king as the chief priest would rededicate the nation to the national ancestors, who in turn blesses it, thus binding the nation together and renewing its collective

strength. It is believed that the national ancestors as intermediaries would facilitate communication in a more personal and direct way between the people and *Mvelinchanti* (God), and the latter would provide protection to any crisis, including instances of climate change. The culmination of the *Incwala* is when the king, who doubles as a priest during this ritual, eats the first fruits of the season, which symbolizes that the nation could now eat their first fruit harvest.

The priest-king as the *Incwala* main celebrant

Emaswati believe that the office of kingship is initiated and validated by divine call and therefore sacred. The kingly occupations regulated by hereditary descent patterns earn the kings and queens reverence and greater prestige amongst the people. Ndlovu (1992) notes that the reverence accorded to the kings and queens emanates from the sacredness of their official religious duties, where they are designated national priests. They perform a wide variety of rituals on behalf of the nation, which are not scheduled or calendrical, as well as those that are periodical and commemorative in nature (Kuper 1986). The main functions of the king-priests are twofold: they serve as a link between the people and the national ancestors. Also, they serve as a living symbol of security for the nation; the health of the king is identified with the general well-being of the nation (Kasenene 1993). The importance and sacredness of this office is best illustrated in the proceedings of the *Incwala* ritual. *Incwala* is an elaborate and the most sacred ritual in the Swati society that was first observed and practised by the primal people. It has survived all generations and has remained intact up to the present generation.

The main celebrant in the *Incwala* ritual is the king-priest accompanied by other religious personages like diviners and medicine men. His most significant function in this context is to serve as the chief priest of the Swazi nation. This sacred ritual performed involves several rites, and lasts for 18 days. The king as the chief priest sends off *Bemanti* (water priests) to fetch water believed to be medicated, from the sea in Mozambique, where all the country's tributaries meet. The water fetched from the tributaries symbolizes the filth of the whole nation that needs to be cleansed before it could venture into the New Year. The medicated holy water from the sea will cleanse the nation from all the sins Emaswati have committed during the course of the year, which could affect the natural environment (Gamedze 1990).

There are many other rituals that are performed in the honour of the national ancestors in the national cattle byre during the course of the *Incwala*. There is the sanctuary which is the most sacred place of the 180 feet wide national cattle byre. It is called *inhlambelo* (sacred enclosure). It is covered with branches of a sacred tree known as *lusekwane* (a species of acacia) right round, leaving only a small arched door way which is later closed with heavy logs to "hide the secrets of kingship" (Kuper 1986). This tree is fetched by "pure" youths at the full moon, from a sacred spot. The king as the chief priest performs some rituals in

this sacred enclosure, on behalf of the nation. Also, this is where it is assumed he is born again with new strength and vitality (Kuper 1947).

During the course of the ritual the designated religious personages sacrifice a number of pitch-black bulls and oxen at the sanctuary to the national ancestors. Each has religious significance. Notable amongst the ritual black oxen is a sacred ox known as *incwambo* (a term applied to a muscle near the testicles), which is driven into the sanctuary by the 'pure' youth. The *incwambo* is observed for a year; it holds a unique position in the royal herd. It must not be beaten, battered, or used for any mundane task until it is sacrificed (Kuper 1947). During the *Incwala*, the king-priest, embodying the sins of the nation, sits on this ox as he washes it with the sacred water from the sea. That symbolizes the cleansing of the entire nation from all sins committed as the year progressed. The *incwambo* is then released to the wilderness and the original belief is that the sins of the past year are removed from the entire nation (Gamedze 1990). Another outstanding large strong ox is *umdvutjulwa*, a name derived from *kudvubula* - to thump or pummel. It is first driven into the sacred enclosure, through the narrow doorway to be presented to the ancestors by the king as the chief priest. When it emerges out, the "pure" youth pounce on it and pummel it with their strong young hands until it dies; none of its bones must be broken, which basically symbolizes purity (Kuper 1947). It also has to be the same "pure" youth who delivered the sacred shrub that kills the semi-wild bull within a very short time frame of about three to four minutes (Ndlovu 2011). It is then taken to the sanctuary and special portions are seized and are used for the cleansing ritual. From the sacred enclosure the king walks to the sacred hut, sufficiently strong to bite the most powerful of the new season's crops, and thereafter his people can eat the first fruits. This is a symbolic event which is believed to, amongst other reasons, control ecosystems. That it has to be "pure youth" that participate is significant in that they represent fertility, which by mere participation in the event is transferred on the agricultural systems of the country.

Another ritual cow is offered during the final purification known as *kushisa lukhuni* (burning the wood); its gall bladder is taken to the sacred enclosure for ritual purposes. During this purification rite all the objects used throughout the *Incwala* ceremony are burnt in the fire, meaning that all the "filth of the king-priest and all his people lies here on the fire" (Kuper 1947: 220). Also, the king-priest bathes with the sacred water, and as the water drops down, rain that will quench the fire will fall, hence his title that he is the rainmaker. According to Malan, the people who witness the event speak of the fire as purification and an offering to the ancestors, who must acknowledge it with rain; that is also an assurance of good harvest in the new year (Malan 1985). As the people dance, they know that rain must fall to quench the flames, and no matter how heavy the storm, the people do not seek shelter till drenched to the bone, because that would be a sign of defiance against the national ancestors who bring down the rain (Siyinqaba 1984). The king then dresses in his normal, *Incwala* clothing and he joins his subjects as they sing and dance in

jubilation. That concludes his role as the chief priest who receives and transmits messages that assure the nation of protection, fertility, and wealth from the national ancestors. It is then taken for granted that the ancestors will relay all the messages to *Mvelinchanti* at an appropriate time. After this elaborate ritual the entire nation will feel refreshed, safe, and secure from all calamities, including natural and man-made climate threats, as this becomes a period of penitence and renewal (Kyalo 2013). It is not only the nation that enjoys the benefits of this ritual, but also the ecosystems are preserved. The earlier section has mentioned some items from the natural environment which are used during the symbolic performance of this elaborate ritual. Thus, *Incwala* fosters a culture of reverence for and high valuation of natural resources such as river water, sea water, shrubs, gourds, fuel wood, and black cows, without which there can be no *Incwala* (Ndlovu 2011). For participants of the *Incwala*, all these elements ought to be available in their pristine form, and harnessed in accordance with primordial ritual specification to ensure the success of the ritual as well as the future of the nation (Ndlovu 2011:95).

The account on *Incwala* has attempted to succinctly demonstrate the sacredness of the official religious duties of the king, ensuring the protection of the nation and the mitigation of climatic attacks and control of the ecosystems. Through the ritual, he ensures security and protection of the nation against hostile weather conditions and other life stressors. It also strengthens and binds the nation together, as well as links it with its ancestors, who are the main custodians of Emaswati indigenous knowledge. The *Incwala* ritual therefore provides evidence that for traditional societies there are important cultural dimensions on how these societies respond to climate-related risks, even though the rapid changing climate seems to be pervasive.

The *Incwala* provides a valuable platform for mobilizing national climate change action. As a strategic ritual that captures the national imagination, it is well placed to be the platform where information and effective responses to climate change can be provided. The sacred canopy under which it operates facilitates greater uptake of the teachings and injunctions relating to protecting the environment. The *Incwala* provides vital “teachable moments” for Emaswati to repent of their offences against creation and to yearn for new beginnings. It is a powerful statement of the role of IKS in acknowledging and responding to climate change. It is a resource in enabling Eswatini to meet the objectives of SDG 13.

Conclusion

Religion, on which indigenous knowledge is anchored, is one of the core cultural systems in indigenous societies as it provides human security through ritual performances. It enables people to feel safe in their personal and communal environments, and it provides people with comfort in insecure settings. It is a carrier of values deeply interwoven with human security and protection against threats, including climate change. Contrary to the contemporary sociological

and philosophical thinking that religions are becoming more and more marginal to the modern world, as people are now reliant on science and technology, this chapter has demonstrated that in Eswatini religion is still vibrant and it remains the source of people's security. The fact that some components of religion cannot be subjected to scientific verification does not necessarily mean that it does not exist; the people's unshaken confidence in ritual efficacy is evidence that they find meaning in religion.

The chapter has advanced that rituals can be performed to solicit protection and security from anticipated natural disasters. From the above discussion we can safely deduce that *Incwala* is a key national ritual that effectuates the annual revitalization of Swazi society and its polity and natural environment. Its 14 days of celebration becomes a period during which pestilence and poverty are swept away, while prosperity, fertility, and wealth are marshalled in (Lincoln 1985). Thus, whilst its celebration rejuvenates the King of Emaswati, it heralds a period of triumphal victory over evil, natural disasters, and all forces of opposition (Ebewo 2011). This discussion on rituals, therefore, underlines Gill's assertion that in African indigenous systems ritual is important because it

commonly accompanies the passage from one stage to another in the life cycle and in the annual cycles of nature; it accompanies moments of crisis, major moments of union and separation such as marriages; it embodies transcendence and immanence, of celebration and consecration

(Thorpe 1992:115)

hence the insight that indigenous knowledge remains a significant force in the spirituality of Emaswati, as people find security and fulfilment in it through rituals.

However, whilst climate rituals are significant in enabling traditional communities respond to climate changes, this chapter proposes the integration of indigenous knowledge and scientific interventions for the establishment of a creative multipronged climate change response adaptations in contemporary Africa. Indigenous knowledge cannot single-handedly build resilience in these communities. For instance, farmers still need to be informed of the risks in order to ward off, counteract, prepare, and cope with imminent threats affecting their crops and livestock (Nhlengetfwa-Masina 2019). For farmers, the largest challenges come from unreliable rains, changes in weather patterns, severe storms, and droughts. These changing weather patterns are testing the age-old farming wisdom, and making it harder for people, especially in rural areas, to make a living and feed their families from rain-fed agriculture. In most African countries, a larger percentage of the population is dependent on rain-fed agriculture, thus reliable weather advisories, weather forecasts, and other climate services for farmers are imperative.

Eswatini has got traditional leaders known as chiefs, who are also custodians of the indigenous knowledge on climate rituals. They can play a significant role in the implementation of the suggested integration of indigenous knowledge

and science, by showing support of the scientific interventions. Given the prospects of a good rainfall season, for example, climate and weather information can advise farmers to plough and plant early using available draught power, diversify their crops, and use recommended crop varieties. Chiefs can then reinforce this information by ensuring that livestock is removed from arable land as early as possible to enable early planting.

In conclusion, *Incwala* ritual best illustrates how indigenous wisdom can be used to solicit protection and security from anticipated climate change threats, as well as mitigate adverse effects of both natural and man-made disasters. However, an integration of both indigenous knowledge and scientific knowledge can result to creative multipronged climate change response adaptations in contemporary Africa. Given the rapidly changing climate, extreme events are expected to become more pervasive and worse in Africa, hence the need for traditional societies to also develop adaptation measures. Adapting to climate change means taking action to prepare for and adjust to both the current effects of climate change and the predicted impacts in the future.⁶ As climate change is underway, it will continue to bring with it all kinds of risks, and the impacts will affect everyone. Thus, integration between indigenous and scientific knowledge as an intervention measure is recommended. Crucial, however, is the recognition that the national *Incwala* ritual offers valuable insights into Eswatini's ecological sensitivity. It is a platform that can be appropriated by various other actors to propel the country to meet the objectives of SDG 13 and serve as a bulwark against climate change.

Notes

- 1 <https://sdgs.un.org/goals> (accessed 27 August 2021).
- 2 <https://sdgs.un.org/goals> (accessed 27 August 2021).
- 3 <https://eswatini.un.org/en/sdgs/13> (accessed 27 August 2021).
- 4 King Mswati II, the successor of King Somhlolo followed up on his father's vision of white men carrying two objects, a coin and a book. He sent emissaries to Grahamstown in South Africa in 1838 to invite the missionaries to come to Swaziland. They arrived in 1844.
- 5 The word Liswati is in the singular, to refer to a citizen of Eswatini, and Emaswati is in the plural.
- 6 European Commission https://ec.europa.eu/clima/policies/adaptation_en (accessed 27 August 2021).

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3 The nexus between indigenous beliefs on environment and climate change adaptation amongst the Sengwer in Embobut Forest, Kenya

Loreen Maseno and King'asia Mamati

Background

Climate change is one of the most serious challenges to humanity's survival, making environmental adaptation and conservation critical to mitigating its impacts. Cherangany Hills, in Kenya, is among the water towers currently facing environmental degradation, thereby exposing the country to the devastating effects of climate change such as disease outbreaks, drought, hunger, and flooding. The Sengwer is the indigenous community, but among other settlers in this region are other Kalenjin dialects and other minority groups. The Sengwer have historically identified parts of the Cherangany Hills as their ancestral land. Using literature-based research methodology, from published works, this chapter re-examines the Sengwer beliefs on natural environmental resources in connection with climate change adaptation and resilience. This chapter is set out to outline how the intricate relation amongst the Sengwer indigenous people and their environment contributed to climate adaptation. The chapter explores the Sengwer people's religious beliefs that divinely valorized the environment and acted as adaptive models to perturbations of climate change. It engages this in the context of the Sustainable Development Goal (SDG) 13, on climate action.

Introduction

The current Anthropocene epoch is marked and shaped by the environmental crisis that stems from human activities on the earth that have led to anthropogenic climate change (Malhi, 2017). Humanity has contributed significantly to the processes of change, which in turn has affected the environment, landscapes, and climate. This has led to unprecedented loss of biodiversity, environmental degradation, endangering plants, animals, birds, and insects, as well as others facing extinction (Johnson et al., 2017). Humanity has affected the earth with colossal appetite fuelled by colonialism and industrialization, jointly with its accompaniments of consumerism and modernity. It is imperative that

since human forces have played a critical role in the current crisis, we retrospectively re-examine the ecocentric belief system amongst the Sengwer indigenous people. Over the past decades, there has been considerable increase in the acknowledgement of indigenous knowledge and indigenous peoples' rights and land rights. Biodiversity that is found in indigenous landscapes is highly dependent on their knowledge's beliefs and practices on the environment that connect them to their land (Proulx et al., 2021).

The United Nations Climate Change Conference has recommendations for countries to ensure respect for the knowledge and rights of indigenous peoples and members of local communities; they also advocated for the full and effective participation of relevant stakeholders, in particular indigenous peoples and local communities (Davis, 2010; UNFCCC, 2010). World religions issued statements in regard to climate change and in support of the Paris Agreement, which is one of the most ambitious agreements to limit greenhouse gases in the atmosphere. They agreed that climate change is a global concern that needs to involve religious traditions to provide moral leadership and ethical values (World Council of Churches, 2016).

At the African Union, there is an ongoing focus on the environment and emphasis on the capacity support to Regional Economic Communities (RECs) and member states on the implementation of Multilateral Environmental Agreements (MEAs) to meet obligations. This entailed the creation of a specific unit that is devoted to the AU Commission in advancing efforts towards MEAs and environmental sustainability. Further, the African Union promotes research, including indigenous/traditional knowledge to support Africa during negotiations and implementation towards environmental sustainability.¹

Climate change in Kenya

African countries are no exception to the effects of climate change and environment degradation that has affected the entire globe. Africa has been identified as the most vulnerable to the impacts of climate change. Changes in extreme weather and climate conditions have come as a result of human actions that have continuously impacted the ecosystem negatively. The Intergovernmental Panel on Climate Change (IPCC) report on Africa indicates the impacts from recent climate-related extremes, such as heat waves, droughts, floods, cyclones, and wildfires; it reveals significant vulnerability and exposure of some ecosystems and many human systems to current climate variability (IPCC, 2018). The report notes that the Early Warning Systems Network (FEWS NET) indicates that there has been an increase in seasonal mean temperature in many areas of Kenya over the past 50 years. It also notes that regional climate model studies suggest drying over of most parts of Uganda and Kenya in August and September by the end of the 21st century. Additionally, the World Meteorological Organization (WMO) in its state of the climate in Africa report indicates the growing impact of climate change on health,

food, housing, and economy on the African continent (World Meteorological Organization (WMO), 2020).

The aim of the Paris Agreement adopted in 2015 was to combat climate change – accelerate and intensify actions and investment for a sustainable low-carbon future. Countries that are signatories to the Paris Agreement undertook to come up with Nationally Determined Contributions (UNFCCC, 2015). The Sustainable Development Goal 13 calls for an urgent action to combat climate change and its impacts. It is clear from the Sustainable Development Goal 13 that the global nature of climate change calls for solutions to be coordinated at the international level and requires international cooperation to help developing countries move towards a climate-resilient and low-carbon economy.

Many countries in Africa have come up with the National Adaptation Programmes of Action (NAPA), which are meant to provide immediate plans to cope with climate change. In Kenya, the National Climate Change Response Strategy (2010) (NCCRS) was the first national policy document to acknowledge the reality of climate change and proposed adaptation and mitigation strategies to curb the impacts of climate change on different socio-economic sectors in Kenya (Government of Kenya [GOK], 2010). Later, in 2016, the Kenya Parliament enacted the Climate Change Act (2016), which requires the government to develop five-year National Climate Change Action Plans (NCCAP) to guide the mainstreaming of adaptation and mitigation actions into sector functions of the national and county governments.

So far, two action plans have been developed: first, NCCAP 2013-2017, and second, NCCAP 2018-2022 (Government of the Republic of Kenya, 2018). The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), which was adopted in 2007, guarantees indigenous peoples' rights even though Kenya is not a signatory; nevertheless, the Constitution of Kenya recognizes the rights of minority people, and the hunters gather together for safeguarding their ancestral rights. Despite the legal and policy framework instituted to safeguard the rights of the indigenous people to conserve the environment and mitigate against climate change, dispossession of indigenous peoples' land as part of the modern conservation practices still persists (Domínguez & Luoma, 2020). It is becoming increasingly clear that techniques rooted in colonial ideologies and models that alienate indigenous people from their landscape cannot provide a remedy to the current crisis.

Cherangany Hills water catchment and conservation issues

Drawing from the previous works on “The Sengwer traditional religion and environment sustainability in Embobut Forest, Kenya” (Mamat 2020) and “The Ogiek indigenous people, land rights and the environment” (Maseno 2020), this section brings to sharp focus the main conservation issues surrounding the Cherangany Hills catchment. Cherangany Hills is witnessing the effects of climate change and environment degradation as more and more people are facing hunger and starvation. Moreover, there is an alarming and unprecedented rise

in water level in several lakes in Kenya due to climate change. Most notable are Lake Victoria, Lake Baringo, Lake Bogoria, Lake Turkana, and Lake Naivasha (Omondi, 2020). This is attributed to the changing rainfall patterns from the surrounding catchment areas, such as the Cherangany region.

There are five major montane forests in Kenya: Mau Forest Complex (covering 400,000 ha), Aberdare Range (covering 250,000 ha), Mt. Kenya (covering 220,000 ha), Cherangany Hills (covering 120,000 ha), and Mt. Elgon (covering 73,706 ha), and they constitute an important water catchment resource (Kipkore et al., 2014). The Cherangany Hills, one of Kenya's main forest and catchment areas, is located in the western highlands, which is divided by the Mau Escarpment rising from the border with Tanzania all the way to the Cherangany Hills. The Mau Escarpment brings together the plateau that rises to the slopes of Mount Elgon, making the Cherangany Hills span three counties, namely, Trans Nzoia, Elgeyo Marakwet, and West Pokot.

On Cherangany Hills are the Cherangany Forests, a collection of 13 forest reserve blocks in western Kenya, with an area of about 1,200 square kilometres, 956 square kilometres of which has been gazetted into forest reserves. The three western blocks, Kapkanyar, Kapolet, and Kiptaberr, are larger and more consolidated and constitute about 20% of the Cherangany Hills Forest. The rest of the forests are fragmented, cut by grasslands, bushlands, and croplands (GOK, 2019; Nadir et al., 2019). There has been a substantial land cover change in the Cherangany ecosystem as the forests have been converted to grasslands and farmlands. The drivers of these land changes have been attributed to deforestation and land degradation (Rotich & Ojwang, 2021).

Other common degradative activities facing Cherangany Hills include cattle grazing, infrastructural development, intensive logging, charcoal burning, landslides, and human encroachment for agricultural activities (Imo, 2012; Kagombe et al., 2015). The depletion of biodiversity and the destruction of the natural and cultural landscape of this area have had far-reaching effects not only on the surrounding communities but also on the whole country. The increasing deforestation has affected the hydrological cycle; hence the amount of rainfall is reducing. Furthermore, decreased water levels in rivers as a result of the decreasing indigenous forest cover have been observed (Nadir et al., 2019; Rotich & Ojwang, 2021).

The hydrological imbalance on the Cherangany Hills has led to the prolonged drought and flooding that Kenya has frequently experienced in the recent past. "Rainfalls have become irregular and unpredictable, and when it rains, downpour is more intense. Extreme and harsh weather is now a norm in Kenya" (GOK, 2010). If the forest is left to deplete and the environment is degraded, the surrounding areas which receive convectional rainfall may experience the effects of climate change such as desertification conditions due to drying up of rivers, soil erosion due to increased surface runoff, and flooding due to soil siltation in water bodies (Nadir et al., 2019). At the same time, the destruction of the natural resources may lead to the death of aquatic fauna and flora.

The approach to the conservation of the Cherangany water catchment areas has been flawed. The World Bank's natural resources management programme (NRMP), which is part of the UN's Reducing Emissions from Deforestation and Forest Degradation (REDD) programme, has repeatedly displaced indigenous communities from their ancestral lands, infringing on their basic human rights. More intense evictions are synonymous with a reduction of forest cover and degradation of the ecosystem. These programmes appear to have failed in recognizing the cultural and religious contribution of indigenous people to climate change mitigation and adaptation.

According to the Blackburn (1974), the Sengwer is a group of "Okiek," Kalenjin-speaking, forest-inhabiting foragers. They are clearly closely related to the Pokot and Marakwet, with intermarriage being common, and today most people engage in a mixture of agriculture and gathering, with a particular focus on honey collecting (Davies, 2006). The Sengwer (also known as Cherangany or Dorobo) is an ethnic minority of hunter-gatherer indigenous people living within the Cherangany Hills. They belong to the corpus of Ogiek, who are hunter-gatherers spread in the Kenya highland areas.

The Sengwer's cultural administrative organization is made up mainly of clans that identify with a particular totem. The Sengwer livelihood, health system, and culture depend on the natural resources found in the forests (Mamati 2020). Their traditional economies are based on herbal medicine, bee keeping, and hunting and gathering. The forests support their cultural practices and so provide spiritual anchorage (Kenrick, 2014). The colonial and postcolonial government policies on hunters and gatherers ensured that they assimilated into other bigger tribes. Their ancestral lands were gazetted by the colonial and the subsequent postcolonial governments (Kenrick, 2014). Despite the gazet-ting, which was meant to protect the forests, environmental degradation has continued unabated.

Agricultural expansion, introduction of exotic trees, and crops, logging, population growth, over grazing, and settlement of other communities has affected the ecocentric worldview and livelihoods of the Sengwer indigenous peoples. Furthermore, these measures by the government in the name of conservation have seen many acres of land allocated through corruption and other dubious means to political cronies and dominant neighbour-ing communities. In addition, the Sengwer have faced numerous evic-tions from their ancestral lands by the government disguised as measures to conserve the Cherangany ecosystem (Crook & Short, 2020; Mamati, 2018). The consequence of losing their land was not only losing a place to hunt, to collect honey, and to find their traditional medicines but also losing their social religion and cultural anchoring and sustenance (Mamati, 2018; Maseno, 2020, p. 260). This has led to systematic destruction of the water catchment, exposing the local area and the country at large to the devastating effects of climate change, as the Cherangany people who are the custodians of the water tower are no longer in charge of the protection of the water tower.

Religion and climate change adaptation

The 2015 Paris Agreement specifies that adaptation action should follow a country-driven, gender-responsive, participatory, and fully transparent approach, taking into consideration vulnerable groups, communities, and ecosystems and should be based on and guided by the best available science and, as appropriate, traditional knowledge, knowledge of indigenous peoples, and local knowledge systems. This recommendation includes the deep involvement of the local community.

Scholars have called for the involvement of religious communities in alleviating the environment crisis and climate change (Jenkins et al., 2018; Veldman, 2013). They acknowledge that whereas religion in itself cannot be sufficient in tackling the environment and climate change crisis, it can be a necessary partner together with other fields such as economics, policy, science, and education. Religion has been regarded as a chief driving force of humans and ideology around both the mitigation and adaptation to the environment and climatic change (Bergmann, 2016). Nevertheless, decision-makers underestimate the religious and sociocultural dimensions in environment conservation, climate change mitigation, and adaptation.

Religion plays an important and key role in influencing people's perceptions, attitudes, and actions towards a certain goal. Certain values and orientations may be derived from religion, which can be useful in fostering more ecologically appreciative worldviews and environment ethics that can promote the conservation of the environment and climate change adaptation (Hitzhusen & Tucker, 2013). Several religious communities have made commitments to environment crisis and climate change. For instance, meetings of World Council of Churches have called for the need for eco-justice concern of the planet (World Council of Churches, 2016). The widely acclaimed Pope Francis's encyclical *Laudato Si': On Care for Our Common Home* contends that the environmental crisis is not only a scientific, political, and economic problem, but also a moral and spiritual challenge. The Pope links the current environmental crisis to a crisis of values (Tilche & Nociti, 2015).

Ernst Conradie has aptly argued that there is a need for re-description of the term environment to reflect on the need for the sanctification of the whole earth. With the syncretic kind of religion being practised in African countries, where people subscribe to a fusion of their African religion and other foreign religions, Conradie challenges "African Christians to look for common goals and a common ethos and may on that basis offer the rest of the world something of traditional African wisdom" (Conradie, 2012). This will lead local churches to become sustainable communities that are well suited to be adaptive and resilient to climatic changes.

Chitando (2017) calls upon African religious leaders to be actively involved rather than sitting on the fence as they cry foul of not being involved in combating climate change. Religious leaders given their role in the society are better placed to communicate climate change and create awareness among the

congregation. Chitando calls upon church leaders to promote climate change education (CCE) in their schools. They would be working in collaboration with governmental ministries of education and other relevant ministries and play a leading role in promoting such education about climate change (Chitando, 2017). Given the fact that most schools in Kenya are sponsored by churches, these churches are better placed in spearheading climate change awareness and communication among the growing young populations at schools.

Mbiti contends that “Africans are notoriously religious” and that “religion permeates all the departments of life so fully that it is not easy or possible always to isolate” (Mbiti, 1975). Religion undoubtedly influences human behaviour. This in turn influences people’s behaviour in relation to the local environment and climate changes. The succeeding Sengwer religious permeation can be harnessed for effective adaptation and mitigation to climate change.

Indigenous beliefs and climate change adaptation

Veldman et al. postulate that religion may become a key agent in the fight against climate change and environment crisis. They assert that “the religions of the world have the ability to decisively impact how societies all over the world respond to climate change” (Veldman, 2013). The Sengwer indigenous people found within Cherangany water catchment areas ritually articulate their relationship with their environment through adaptive beliefs on the environment.

The Sengwer worldview on natural and environmental resources is “eco-centric,” and this perspective ensures stewardship of the environment by members of the community. Unwritten rules and regulations of the community, enshrined in the religious and cultural beliefs and practices of the Cherangany, have shaped the effective utilization and conservation of the natural resources found within their locality (Mamati, 2018; Mamati, 2020). This is clearly seen when the Sengwer find value in all life forms within the forests and tend the forests as their primary home. Their primary interaction with the forest habitat serves the good of the entire ecosystem, including their abiotic components.

Ecologically, it is clear that the endangering indigenous peoples and their livelihood practices also endanger species and habitats. What then are the Sengwer populace religious influences on the environment and climate change adaptation in a bid to create climate change resilience in the Cherangany water catchment area? It is important to understand how the Cherangany communities’ religious beliefs have been involved in environment conservation and how these beliefs are attributed to climate change adaptation. These beliefs are seen as helping in tackling climate change and concomitantly improving the overall well-being of the people in Cherangany at large. The succeeding discussions show how the community used its indigenous beliefs as adaptive models for resilience in face of climate change.

Like many Africans, the Sengwer believe in ancestors known as *Ooy*. The ancestors are buried in the forests; they are said to have transited to the world of the living dead. Africans, more often than not, including the Sengwer,

conceive time in a cyclical pattern. Life moves from birth to death and back to life by reincarnation. In this schema, land was of great significance. At the same time, the trees, caves, streams, and rivers were also imbued with spirits. Thus, all the realms of life were sacralized with no distinction between the sacred and the profane, thus providing an important eco-theology (Maseno, 2020). The Gikuyu had a close relation with trees, especially the Mugumo tree, as they believed that trees were the abode of ancestral spirits Goma and the abode of God (Karangi, 2008). The ancestors whose spirits inhabited the forests and the Sengwer landscapes were respected; this ensured a harmonious coexistence devoid of all the climate-related hazards.

Totems are a prominent feature in various African societies that illustrate the intricate relationships that different communities have with various animals, birds, or insects. The threatened polar bears and seals found in the arctic have gained iconic status and prominence in recent years, as they have been used as totems symbolic of the devastating effects of climate change (Tam et al., 2021: 5). The Isukha community in western Kenya have plants, animals, and birds that act as totems for each particular clan, and they are mandated to protect them (Omare, 2011: 4). Among the Ndau people in southeast of Zimbabwe, totemism maintained a sense of identity, belonging, and collective responsibility of members of the society towards nature (Rusinga & Maposa, 2010: 205). A close ethnographic study of the totems amongst the Sengwer shows a fascinating illustration of how the human-animal relationships, according to which clans take the name of various animals and are pledged to conserve them, are augmented by healing traditions and even oral traditions and songs (Mamati, 2020). Many of these animals inhabited the forests, and therefore destroying their habitats was unthinkable. Rather, the forests were conserved using indigenous knowledge to avoid invoking curses from Assis (God) and *Oay* (ancestors) among the Sengwer people. Totems also communicate the important aspects of the need to take care of the environment to avoid the wrath of the Supreme Being. The Supreme Being also used birds, which would become the community's clan to indicate of an impending climatic calamity.

There is an increased recognition of the role of taboos as informal and unwritten community's law guiding human interaction with the non-human. Taboos bound individuals and their communities towards a common goal, without the need for external enforcements (Alexander et al., 2017; Uyeda et al., 2016). The observance of taboos guides the relationship amongst the individuals, their community, and the environment. Sengwer religious beliefs on taboos play an integral role in determining the positive values and attitudes towards the environment. Their worldview is anthropocentric in nature and sees a healthy environment providing the community with all its needs and wants, for instance, the honey, medicine, and religious adorations that are found within the forest (Mamati, 2020). Agricultural communities, such as Akan in Ghana, utilize their indigenous beliefs on farming practice and the institution of sacred groves which has ensured the conservation of the environment, thus mitigating against climate change (Auwah-Nyamekye, 2019). Preservation

and conservation of the landscape and the environment is considered vital for the general well-being of many African communities. In this regard, the Sengwer use taboos as an ethical and moral tool to control human behaviours and actions towards the environment, which in turn promotes good relations between human beings and the natural environmental resources enabling the community to adapt to perturbations of climate change.

Hunting or killing a pregnant animal, breastfeeding animal, or a young animal is forbidden among the Sengwer, putting future generations of that animal species in jeopardy. If a gestating animal is injured, the Sengwer take care of that animal and treat it until it is healed. Failure to do so, in the local Sengwer belief, could lead to drought, hunger, famine, infertility, death, and loss of children (Mamati, 2020).

The place of myths and stories in relation to environmental conservation plays a critical role (Maseno 2011). It is important to note that African societies had myths and stories whose sole purpose was to ensure a harmonious relationship between human beings and non-human beings (Auwah-Nyamekye, 2019). The colonial systems were meant to discredit African myths and associate them with fiction and falsehood for them to entrench their knowledge and systems. Christianity was used as a tool for demonizing African myths and stories, yet they enabled communities to adapt to different environmental situations (Muasya, 2021).

Monbiot (2017), a British zoologist cum journalist, has rightly argued that stories help human beings to navigate, explain, and interpret the world. Stories play a critical role in moulding a community's reality. The Sengwer used stories to convincingly connect individuals as well as the whole community to their natural environment (Mamati 2020). Parents and elders narrated to children and the youth important ecological stories that nurtured the sensibility and consciousness of young people on environmental issues. Story telling is an important feature that happened during the seclusion period, initiates are told ancient stories of their environment and climate and how the community handled different climatic conditions. At the fireside in the evening, during hunting and gathering sessions, important Sengwer stories were passed on to members of the community (Mamati & Maseno 2021). Communicating the past adaptive and mitigation measures led to a more adaptive and resilient group of the society that became aware of the mitigation and adaptation measures to be put in place in case of climatic variability.

Herbalists are medicine men or women who act as native doctors in African societies prevalent among the Sengwer. Sengwer herbalists are experts in providing medicine in the community (Mamati, 2020). The forests found in the highlands of Cherangany and the shrubs in the lowlands of Kerio are the main sources of medicine for the community. The herbalists were sensitive to the changing climate and more often they could inform the community on climatic changes that had affected their trade. Nche (2014) noted that climate change affected the availability of traditional herbs, and also has led to the emergence of many new diseases and epidemics. It has challenged the capacity

of traditional herbalists to provide a cure. Hence, herbalists played a critical role in communicating the changing climatic conditions and informed the community of the need to protect the environment lest they be bedevilled by unforgiving Mother Nature.

Indiscriminate depletion of the forest and degradation of the environment due to anthropogenic activities is the greatest contributor to global warming. Thus, a variety of species, biodiversity, and trees influences forest carbon stocks that play an important role in carbon storage and sequestration (Aryal et al., 2018; Pragasan, 2020). The Sengwer community has various beliefs that guide the effective use of the flora. They hold that all trees are an abode of spirits; hence, it is regarded as taboo to cut down trees, because the spirits would be annoyed with the community. The elders had the sole responsibility of the usage of trees, and they are the ones who authorized the cutting of certain trees for religious or cultural functions, thus ensuring that the trees were efficiently used and managed. It is believed that any person who went against the elders and destroyed the forest or harvested trees without permission was punished by Illat (the thunder god), who would strike such people to death (Mamati, 2018; Mamati, 2020). Karangi (2008) has poignantly demonstrated how trees among the Kikuyu community were significant for Gikuyu well-being and identity. He extensively discusses the sacredness of the Mugumo tree, and how the Gikuyu mirrored their cosmology and political and social identifications. Amutabi (2012) has highlighted how various trees had both spiritual and physical significance among the Abaluyia people in western Kenya. Thus, in many African communities, impacts of climatic changes such as floods, droughts, and outbreaks of diseases were directly imputed to a broken relation between the physical world and the spiritual world. For it to be reinstated, members were required to restore their harmonious relationships with their surroundings.

Clearly, indigenous people's knowledge and practices on the environment had been traditionally sidelined in favour of contemporary ways of environment conservation by successive postcolonial governments. Yet, widespread evidence shows that indigenous people such as the Sengwer as well as other African communities' indigenous people have a religion that is intrinsically environment friendly (Awuah-Nyamekye, 2019; Mamati, 2020; Rusinga & Maposa, 2010). Since time immemorial the Sengwer indigenous people have held important conservation knowledge, which has helped them adapt to climatic changes that have always remained untapped. The above-mentioned religious beliefs, behaviours, and attitudes of the Cherangany on the environment have an impact on climate change adaptation within the Cherangany water catchment area.

In essence, these rituals infused with religious significance require the serene environment in which they are situated. The confluence of spirits, totems, living dead, and the initiates, all work together for the success of the attendant rituals. It follows that there are numerous religious beliefs associated with their sacred landscape, which help in ensuring that members of the Cherangany community do not interfere with the sacred places. These beliefs continue

to ensure that the natural resources within the sacred landscape were conserved. These religious beliefs were key in enhancing mutual social, economic, and ecological reciprocal relationship, which acted as succour during climate variability.

Conclusion

Although there have been growing research interests across the globe on religion, ecology, environment conservation, and climate change (Northcott, 1996), there has been scarce recognition of religion in environment governance, environment policy formulation, and climate change discourses. There has traditionally been a notable exclusion of indigenous religious beliefs in climate change discourses, as climate change has been framed as an exclusively scientific problem shaping efforts to curb climate change predominantly along natural sciences perspectives. Religion and culture have been conspicuously missing as a factor that can help in mitigating the effects of global warming. Tarusarira points out that the existing strategies and programmes have not taken into account the spiritual and cultural dimension to solving the environment crisis in Africa (Tarusarira, 2017). He further postulates that it is imperative for climate change approaches in Africa to take note of the influence of African religion.

Whereas the Sengwer community as well as many other traditional African communities exemplify different adaptations and coping strategies to the variabilities of climate change as mentioned above, they have gone unnoticed and unrecognized when decisions are being made that directly affect their livelihoods. A deeper analysis of their religious ways of life shows that their beliefs are in congruent with measures put in place to achieve the sustainable development goals of 2030 and the ambitious Paris Agreement. In view of an IPCC assessment report which notes that indigenous, local, and traditional knowledge systems and practices, including indigenous peoples' holistic view of community and environment. They are also a major resource for adapting to climate change. However, they have not been used consistently in existing adaptation efforts; there is much to be proactively done.

This chapter has shown that any adaptation and mitigation to the environment and climate change does not only require the engagement of scientists and political leaders but also religious beliefs of local people such as the Sengwer community as they also could contribute towards a moral awakening on climate change. It has pointed out religious beliefs with far-reaching consequences on environmental degradation of the Cherangany water catchment. These beliefs from the African religion when taken into account and encouraged have far-reaching consequences on climate change mitigation and adaptation. There is an understanding that Cherangany religion shapes human behaviour in relation to environmental changes. This chapter has shown that it is important to understand environment and climate change adaptation from an indigenous religious perspective in the specific context of Cherangany.

Although Sustainable Development Goal 13 calls for an integration of climate change measures into national policies, strategies, and planning, a challenge faced by indigenous peoples is that indigenous perspectives are underrepresented in national-level climate change programmes and initiatives. Indeed, indigenous involvement is lacking on many national climate change committees, working groups, and initiatives, leaving indigenous perspectives and concerns absent from this level of dialogue. This disadvantages the national climate change efforts because indigenous peoples have valuable knowledge crucial to the development of effective climate change solutions. It is notable that many reports rely on the publication of peer-reviewed literature but do not take into account the perspective of indigenous traditional knowledges and oral traditions. This means that many finished reports often further marginalize indigenous perspectives.

Note

- 1 The African Union Multilateral Environmental Agreements. <https://au.int/en/meas> visited on 2.9 2021.

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4 An African ecofeminist appraisal of the value of indigenous knowledge systems in responding to environmental degradation and climate change

Lilian C. Siwila

Introduction

Most of the scholarship that focuses on climate change has demonstrated how knowledge on the subject matter tends to be limited to a particular context within the broader global perspectives. For a long time, climate change was viewed as a problem of developing countries that needed to be solved by developed countries. This mindset has slowly transformed, although in recent years, Africa seems to be more vulnerable to the effects of climate change than most parts of the world. This vulnerability is made complex by high levels of poverty that are caused by economic disempowerment and environmental degradation. From a theological perspective, climate change has been and continues to be the main subject on the agenda of many ecumenical bodies. The church has created and continues to create awareness on climate change in many forums.

The aim of this chapter is to address the climate change awareness knowledge dissemination gap that tends to ignore indigenous knowledge systems drawn from local communities. This chapter is based on the epistemological claim that when it comes to issues of climate change, most African societies have rich indigenous knowledge that has not been fully utilized on the subject matter. The chapter also argues that there is a need to understand that there is no absolute knowledge on which the solution to climate change can be based. The concept of knowledge itself is “political.” Written sources have the power of becoming the voice of the powerful while undermining oral sources of knowledge. Therefore, every form of knowledge, be it oral or written, needs to be recognized as truth that can be used in response to climate change. This is because although climate change is a new phenomenon, indigenous people have always applied some methods for protecting nature from any form of environmental degradation that would lead to climate change. For example, the knowledge that changes in rain patterns which would either lead to floods or drought is not a new thing and yet African people have had means of preventing such calamities using indigenous knowledge. Second, in the world of

knowledge production, there is a need to acknowledge contextual epistemology. Speaking from an African feminist perspective, it can be argued that most of the Western ecofeminist scholars who focus on climate change have established and defended their epistemological standpoints on climate change using their own frameworks. African scholarship is still struggling to find its own indigenous methodology and theory for addressing climate change. Hence the need to interrogate these competing forms of knowledge. This chapter uses a multi-sectoral approach to address climate change because issues of climate change are intertwined.

An African framework on climate change and Sustainable Development Goal 13 (SDG13)

Most African countries have been involved in the fight against climate change using various forums. Maupin (2017:132), speaking about Sustainable Development Goal 13 (Climate Action) and African countries, argues that “far from being side lined during climate negotiations, the African continent has prompted climate-driven initiatives, ranging from national policies to regional initiatives.” Combined with the African Group of Negotiators (AGN) statements, Maupin further states that there has been a growing interest in shifting the climate change mindset, notably by anchoring responses to the climate change challenges in a realistic sustainable development perspective. Hwang et al. (2021) describe SDG13 (climate action) as a goal that aims at taking urgent action to combat climate change and its impacts. The detailed targets include (1) strengthening resilience and adaptive capacity to climate-related hazards and natural disasters in all countries; (2) integrating climate change measures into national policies, strategies, and planning; and (3) improving education, awareness-raising, and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning.

In agreement with the discussion by Maupin (2017), research in the field of climate change has in recent years become one of the emerging areas of study, especially in Africa, where climate change has threatened many aspects of life. Despite the fact that climate change is seen as a new concept in the global vocabulary, the effects of climate change have always been part of humanity in one way or the other. However, the situation is more pronounced now with the emergence of new technologies that have disturbed the ozone layers in many parts of the world. Sarfo-Mensah and Awuah-Nyamekye (2014) have stated that Africa is considered to have the highest vulnerability to the effects of climate change. Technological development means that old traditional ways of doing things are replaced by new technologically advanced methods that do not come innocent of chemicals that pose a danger to the environment. When this happens, factors such as food security and access to clean water become a challenge for local people. Droughts, which are a result of poor rain pattern, also lead to food insecurity coupled with other environmental hazards. From

an economic perspective, the destruction of forests and the pollution of rivers in the name of development are also contributing factors to climate change. As a result of all these factors, what is supposed to be seen as development for all becomes development for the privileged few who benefit from the outcome of these projects.

On the other hand, the poor, whose livelihood is dependent on the natural resources that are being destroyed, continue to suffer as victims of environmental destruction. Within this framework, women are the most affected by these changes. As household providers for basic needs, such as clean water, firewood, and food, most African women, especially those in rural areas, find themselves in situations where they are at the centre of environmental degradation. Hence, one may be right in saying that climate change, just like poverty and HIV and AIDS, can be feminized. This is the reason why ecofeminism becomes a relevant theory in addressing climate change. Hwang et al. (2021: 2) argue that:

Understanding the awareness and perception of climate change from various perspectives among diverse societies will play a crucial role in the successful implementation of climate policies and strategies. Climate action tends to be directly influenced by awareness and perception, not only at the individual levels but also at the level of scientists and governments. ... Although there are some studies on identifying awareness and perception with respect to climate change at the cross-national level, several limitations, such as restrictive measurement, time intensiveness, and geographical and cultural differences among countries, remain.... Furthermore, investigation of awareness and perception from a cross-societal perspective within a single country is also important.

It is against such arguments that this chapter calls for a need to consider contextual indigenous knowledge systems in the discussions of understanding, perception, and awareness of climate change. Speaking from a feminist perspective, scholars such as Phiri (2000) and Siwila (2015) agree that African women have also emerged as agents and positive contributors to knowledge on curbing contributing factors to climate change. This is done through their embedded environmental and religious indigenous knowledge systems. At the community level, African women are custodians of most of the values and knowledge systems on environmental care. They are agents of care for the land, crops, rivers, animal species, and many other environment-related matters. Phiri (2000) and Siwila (2015) further review that in most of the rain shrines in Southern Africa women act as religious leaders in charge of these shrines. These women become mediators between the spirit world and the community of the living in their role as implementers of positive ecological values. Despite all this, there is minimal recognition of this kind of epistemological approach to climate change.

Dealing with competing knowledge on environmental degradation caused by climate change

One of the key frameworks that this chapter is seeking to address is the dichotomy between Western and African indigenous ways of responding to climate change. The problem of climate change needs to be addressed through both Western and African lenses. This call cannot be more apparent now with the increased effects of climate change on the continent. Another reason for this call is that for many years, policymakers on climate change in Africa have mostly responded to the problem through the use of Western lens by focusing mainly on modern methods of addressing the problem while indigenous approaches have been sidelined and seen as backward and primitive. A closer look at the works of scholars such as Maupin (2017) when she discusses the SDG13 and the continent's response to climate change would prove this point.

This is also in line with the argument by Kaoma (2010) that, until recently, African indigenous knowledge on climate change was considered backward and primitive knowledge that could not be included in the Western scholarship. This has contributed to the kind of thinking that tends to elevate one form of knowledge at the expense of the other. This kind of thinking has resulted in the lack of interest in research on the response of indigenous knowledge to climate change. Sarfo-Mensah and Awuah-Nyamekye (2014) confirm this, saying that the role of indigenous knowledge in climate change is one area that has received little attention, yet stands out to be one of the key factors to curbing climate change. Tarusaria (2017) observes that all the proposed measures to address climate change in Africa, such as those proposed by The United Nations Millennium project's task force on environmental sustainability, indigenous knowledge, does not seem to be recognized among the factors that can help to mitigate climate change. A study by Gondo et al. (2018) notes the resistance to indigenous knowledge systems both in the academic and non-academic spaces, arguing that while indigenous knowledge systems have been significant for the management of natural resources in the past, its oral and rural nature has to a greater extent contributed to its invisibility and marginalization in contemporary times, thus threatening the knowledge system with extinction. Hence, Tarusaria (2017:93) further argues that if development is to benefit African people, it must reflect the cosmology and beliefs of local people. Existing strategies that address climate change should consider the essential cultural, spiritual, or social dimension of life that is fundamental to humanity.

This is confirmed by Sarfo-Mensah and Awuah-Nyamekye (2014), who argue that indigenous people have always had deep knowledge about climate change and have always derived measures that are attached to religious values because they believe that the earth embodies some kind of religion. That is why John Mbiti (1969) would argue that the well-being of human beings is associated with the well-being of nature; if a person abuses nature, then nature will also abuse them. Calamities such as floods, natural fires, drought, are all associated with the anger of God, who lives in nature. Although this kind of

indigenous thinking tends to be trivialized by some academics and scientists, it needs to be taken seriously. Mbiti's emphasis on the role of spirituality among indigenous Africans must be embraced if the response to climate change is to be more effective.

Therefore, in an attempt to address these calamities, indigenous people used particular moral codes that were communicated to ancestors or directly to God. These moral codes that were used by indigenous people to respond to calamities did not only help to ease the anger of ancestors or God but also acted as ways of protecting the environment from any further destruction. Sarfo-Mensah and Awuah-Nyamekye (2014) argue that through the use of these moral codes, African people observed weather patterns in such a way that they knew when to plant, how much rain would fall in the season, and when to harvest. They respected the forests in such a way that spontaneous cutting of trees was restricted; they observed hunting and fishing regulations that helped the species not to be extinguished. All of these were done within a religio-cultural framework.

***Gonde Malende* as a sacred ecological site for environmental management**

Throughout this chapter, I reflect on the value of indigenous knowledge in responding to the effects of climate change. As stated in most parts of this chapter, indigenous knowledge has a significant role to play in addressing environmental destruction and, as such, there is a need to develop indigenous frameworks for addressing climate change. In this section I draw attention to one key aspect of environmental care that is common among the Tonga people of Zambia called, *Gonde Malende*. *Gonde* are designated natural sites that are believed to be guarded by ancestors. Kanene (2015:155) states that:

The designation of a natural area as sacred has promoted the conservation of its associated biodiversity thus, contributing to the development of community-based protected areas. Such sites have fostered reduction of human environmental impact, thereby culminating in the protection of environmental endowments.

The Tonga people believe that their ancestors resided in *Malende*.¹ These sacred places include rivers, mountains, forests, etc. In her chapter analyzing the ecological sites of the Tonga people, Siwila (2015) discusses how practices such as the *lwiindi* ceremony as a sacred ritual also hold indigenous ecological knowledge and create social responsibility among the people and later help to curb factors that lead to climate change using indigenous methods. Siwila does this by demonstrating how in this ritual ceremony agriculture rules related to planting and harvesting of crops were implemented using religious rituals that instilled a sense of respect to the source of the produce beyond human energy. This is also visible in the *Gonde Malende* rituals among the Tonga of

the southern region of Zambia in their praying for rain. Kanene (2015) argues that territorial cults that are meant for rain rituals hold a central role in ecological care. For example, there are rain shrines in Monze district where a famous chief, Monze, made history as a rainmaker. This shrine is also the biggest and most well-known among the shrines in the region. The place is also a burial site for the chiefs.

The word *Gonde* simply means thick forest. There are many *Gonde malende* (shrines) among the Tonga people and can be found scattered in many areas within the territories of this ethnic group. It is believed that in the past each ethnic group had their own *malende*, where their ancestors resided. My own paternal ancestral land has *Gonde malende*, which had a fountain with a crab and a snake that were believed to be *mizimo* (ancestors) who protected that site. Although this place is no longer as effective as it was before, memories of its functionality and positive contribution to the community well-being are still being treasured by many who live around this area. As is reflected by a number of scholars, *Gonde malende* experienced a number of challenges which caused some of them to cease to be functional. Besides the role played by missionary and colonial influence in the dysfunctionality of these sacred sites, between 1880 and 1890 the Tonga people also suffered from raids by other ethnic groups such as the Ndebele, Chikunda, and Lozi. During these raids, some of the *Gonde malende* were destroyed by the raiders, and in some cases the forced removal of people from their traditional land meant that the people had to leave their sacred places unattended in pursuit of safety. It is in these kinds of dysfunctions that indigenous knowledge on *Gonde malende* also began to be undermined and lost. In the section that follows, I wish to discuss the functions of *Gonde malende* as they relate to the value of indigenous knowledge in combatting climate change.

Functions of Gonde malende

First, from a religious perspective, *Gonde malende* is a sacred space that holds both ecological and religious values. Tarusarira (2017:3) contends that in the African context religion and culture are the substructure foundation for understanding social, cultural and economic material. They are central to shaping health agriculture and environmental beliefs and practices. Related to the biblical narratives, Kaoma (2015:170) aligns such sacred spaces to the presence of God in the burning bush and the command to Moses to remove his sandals, revealing the sacredness of the site. Therefore, the destruction of these sites has not only contributed to environmental degradation but also undermined the religious knowledge and values of the people connected to these sites. This is in line with Kanene (2015:157), who argues that:

The Gonde is not only a vegetation conservation area but also famous for wildlife preservation as observed during the research. The community established a rule restricting hunting of wild animals from the forest.

Actually, if during hunting from the nearby bushes, an animal entered this area, hunters were not allowed to pursue it any further. Disobedience to this rule attracted a fine of black colored livestock accompanied by any suitable punishment which in some instances would mean expulsion from the chiefdom. Therefore, the area developed into an important sanctuary for wild animals such as rabbits, rats, impala and a few others.

In agreement with Kanene (2015), scholars such as Ngara and Mangizvo (2013) argue that hunting for animals that run in the shrines is a forbidden taboo which also angers ancestors. These two authors further argue that as a result of this, sacred spaces contain more game animals than non-sacred forests. This is as a result of the restrictions put across by the community. These forests also tend to be healthier and productive, with a variety of vegetation, some of which cannot be found in ordinary forests. Trees such as *Lwaanga* and *Musangu*, which are believed to be dwelling places for the ancestors, are highly preserved in these spaces. Taboos that were put in place, such as the prohibition of cutting trees and collecting firewood, acted as positive approaches to prevent deforestation that could lead to droughts. All these restrictions also hold a religious attachment that entails the presence of ancestors in the care of the environment. From a biblical perspective, the Genesis 3 story demonstrates a scenario similar to that of the *Gonde malende*. In this story, God instructs Adam and Eve on how to care for the Garden of Eden. The restriction orders what should and should not be done to the vegetation and animals, and created boundaries that helped to preserve the garden. Mary Grey (2000:487), responding to the Garden of Eden narrative and its relation to the value of indigenous knowledge, argues that:

Maybe it is no accident that the Tree of Knowledge of good and evil is also the Tree of Life. Right from the beginnings of life on earth poor people come to know the world amidst the multiple oppressions which frame their struggle for survival. For the poor Jewish farmer it was the climate, the arid land, the greed of rich landowners forcing them into bonded labour – this is actually the economic background of the Book of Genesis.

The recognition of African spirituality and stewardship to the land in the effort aimed at addressing climate change is significant to this chapter in that we cannot talk about indigenous knowledge climate change and sacred space without touching on African spirituality. This is because all sacred sites have some form of spirituality that governs them. In as much as African spirituality seems to be left out in addressing climate change, it still plays an integral part in determining how indigenous people respond to issues such as droughts, floods, etc. Some of the places where *Gonde malende* are situated in Zambia were once the food belt for the country. Yet, currently these are the sites that are experiencing droughts and food shortages, which have caused the country to depend on international food aid. Hence, as Muyambo et al. (2017) argue,

indigenous knowledge is still an integral part of agricultural practices that need to be compiled and documented in order for farmers to learn effective methods of farming that can be passed on from generation to generation. In response to a call for the incorporation of indigenous knowledge systems to address environmental degradation, Ngara and Mangizvo (2013) challenge African governments and policymakers who prefer to use strategies and techniques which work well in developed countries and yet these strategies are not suitable to African conditions. Therefore, there is a need to make use of Africa's wealth of experiential knowledge, norms, taboos, and a range of cultural practices that have sustained local ecosystems on the continent. It is also important to note that when it comes to issues of climate change, local people's indigenous knowledge is their social capital which they use in addressing food security in times of droughts and other environmental crises.

The second point to consider regarding *Gonde malende* relates to the unifying factors among the Tonga people. They are also considered as effective centres of community rituals and ceremonies, without which the community was vulnerable to disasters such as droughts, floods, pestilence, and epidemics. An ecojustice feminist theology would argue that the God of the oppressed and marginalized women whose livelihood depends on natural resources also resides in nature and unites men and women with nature through these rituals. This God is also found in forests where the women go to fend firewood, rivers where they fetch water, and fields where they grow their vegetables. Therefore, a critical theological appraisal of the role of *Gonde Malende* in curbing climate change should take into account the value of community life and the plight of women who are the ones suffering most from the effects of climate change.

In a study on the feminist perspective of rain rituals such as the *Lwiindi* ceremony of the Tonga people of Gwembe Valley, Siwila (2015) reviews women's resilience to the protection of the environment through the performance of rituals. This qualifies them to be the custodians of ecological knowledge.

Respect for ancestral land, learning from the story of Naboth

In this section I want to explore further the *Gonde malende* site as it relates to the value of the land. Most African societies see land as one of God's valuable gifts to humanity that has a strong value for human identity. Among the Tonga people, *Gonde malende* is not just any piece of land found anywhere in the community but a land attached to a particular clan. Therefore, even after one has moved out of the traditional land, he/she still belongs to this particular ancestral *Gonde* and has the right to be buried in the ancestral land, called *kumatongo* (the land left behind). Therefore, prohibitions on the abuse of land are taken very seriously, such that even *kumatongo*, rules on how to care for vegetation and animal species, still apply. Traditionally, in most African cultures land was not owned by the people, but they lived there with a deep sense of belonging. Instead of people owning the land, the land owned them; hence they were

accountable to the land in terms of ecological stewardship. Land was seen as a source of livelihood for the family; it was a bond that united the clan, just like the *Gonde malende*. A person's identity was associated with the homestead he/she belonged to. The umbilical cord was buried in one's ancestral land because it was believed to be the dwelling place of the ancestors. Even today Tonga people still believe in burying their family members at the homestead where their identity is found, no matter where the deceased resided. This act of connectedness creates a very strong bond between the deceased person and their ancestral land.

Hence the idea of selling land or land belonging to the government is a new phenomenon that most African societies have to grapple with. Even as Mother Earth is being privatized and sold to investors, some of the indigenous people are finding it hard to let go of these privatized spaces and allow the investor to take over. This is evident in the history of the construction of the Kariba Dam, as narrated by Siwila (2015), where local people were forced to relocate from their indigenous land in the name of development. This move is said to have stripped people not only of their land, but also identity, culture, and a separation from their ancestors' graves. Ultimately, it also contributed to the loss of indigenous knowledge, especially on agriculture. In providing a theological analysis of this concept I use the story of Naboth and his vineyard in (1Kings 21).

Naboth the Jezreelite's vineyard was as attractive to the king as many places that investors demand from local people such as the area around the Zambezi River, which was taken for the purpose of constructing the Kariba Dam, which was meant to provide electricity to the region around (Siwila 2015). Just like the land around the Kariba Dam, Naboth's land had the potential of being close to the palace; and because of its closeness and beauty, it attracted the sight of the king, who asked to buy the land from Naboth for his own pleasure. This kind of scenario is not new in our context where malls and factories have taken over the *Gonde* and shrines that defined indigenous peoples' identity. In relation to Naboth's story, Resane (2015:181) states that:

The Northern Kingdom with its Mosaic doctrine viewed land ownership with a great regard and esteem. Their consciences rang with commandments such as "The land must not be sold permanently, because the land is mine and you are but aliens and my tenants" (Lev. 25:23), and "No inheritance in Israel is to pass from tribe to tribe, for every Israelite shall keep the tribal land inherited from his forefathers" (Num. 36:7). Generally, the central theme of the theology of the land was "the divine ownership and divine gift." It was for this reason that, when Ahab offered an exchange of land for another, Naboth responded negatively. He viewed the sale of his ancestral land as the transgression of God's law. The statement: "The Lord forbid that I should give you the inheritance of my fathers."

Although Naboth's story can be associated with land entitlement, the king's reason for wanting to possess the land is among some of the reasons used by

developed nations and some of the rich people in our communities in their attempt to possess the land of the poor. In most cases, the poor have lost their ancestral land such as *Gonde malende* with all its rich indigenous cultural heritage and knowledge in the name of development. The theological statement raised by Naboth, “God forbid that I should sale you the inheritance of my fathers” has been ignored. And in many instances land is forcibly taken away from indigenous people even through blood shed, as was the case with Naboth and during the construction of Kariba Dam, where many Tonga people lost their lives (Siwila 2015). Kaoma (2015:168) argues that:

Aside from YHWH being the God of the land, the promise to Abraham is land based - it was a promise of occupying the land on earth as opposed to going to heaven. The entire history of Israel is land centred - thus Israel’s cult of ancestors was meant to secure their rights to the land of the promise. For this reason, the Hebrew Bible continuously references ancestors or forefathers as the basis of divine favour. It is within the cult of ancestors that Israel’s life, identity and destiny are realized.

Resane (2015) agrees with the above statement, stating that African socio-religious dogma about land is in line with the *makom kadosh* tradition – the Jewish traditionalists viewed the land as a holy and absolute space where God in glory (*shekinah*) dwells. Resane (2015) further observes that the so-called Western civilization and development, like in the days of Omri and Ahab, undermined the people’s property rights. The dispossessed opted for “The Lord forbid that I should give the inheritance of my fathers to you.” One of the reasons for trespassing ancestral land and ignoring the cry of Naboth in our current context is the rapid growth of the global market and demand for raw materials from Africa’s natural resources which are in more demand now than before. The restricted vegetation within the sacred spaces has been vandalized and found its way into developed countries for industrial purposes. This has led to serious degradation of vegetation, leading to droughts and causing the extinction of some trees and animal species. Thus, as Africans cry with Naboth saying: “*God forbid that I should sale the land of my forefathers.*” they are calling for justice to the superpowers’ attitude of stripping them of their ancestral identity and wish of their forefathers to keep the land and its indigenous knowledge that has helped the communities to survive some of the woes of climate change. Chimhanda states that “Land as a gift from God ... is a holy and catholic space from which all people and other created reality emerge ... it is spiritual, sacramental, healing and eschatological” (2014:37). Therefore, failure to heed the words of Naboth to the king, “*God forbid*” can be associated with disobedience to God, the ultimate owner of the land. In the words of Charles Avila, who quotes the fourth-century bishop, Ambrose:

Why do the injuries of nature delight you? The world has been created for all, while you rich are trying to keep it for yourself. Not merely the possessions of the earth, but the very sky, air and sea are claimed for the

use of the rich few. ... Not from your own do you bestow on the poor man, but you make return from what is his. For what has been given as common for the use of all, you appropriate for yourself alone. The earth belongs to all, not to the rich.

(Avila 1983: 66–67)

From a liberation theology standpoint, the discussions in this section suggest that we cannot talk about climate change without looking at the issue of respect for the land. This is because at the heart of climate change are issues of how land is used by the super powers in an effort to bring development. In the process, the reality of the injustice that poor people suffer when their own God-given land is taken away from them calls for theological reflection that is liberating to the poor. The systemic violence reflected in this chapter does not only kill the knowledge of indigenous people but also disobeys God's command on the stewardship of the land. If God resides in nature, one would argue that privatizing the land is also privatizing God, who lives in the land. The indigenous people respect the land because they believe that YHWH is part of this land, which, therefore, needs to be protected from any form of destruction.

Towards a feminist reflection on insider/outsider perception on indigenous knowledge and climate change

As I conclude this chapter, I would like to highlight some of the themes that have come out of this reflection; firstly, I argued that knowledge on climate change can be viewed from both insider and outsider perspectives. Secondly, inasmuch as indigenous knowledge on addressing climate change exists, policymakers and academics do not seem to have much interest in implementing and writing about this rich bank of knowledge. Therefore, there is a need to keep reviving this forgotten library, which is still relevant to indigenous peoples' understanding of climate change. Thirdly, there is a need to review knowledge on addressing climate change from a contextual perspective. This is because the context influences the way in which human beings interpret the world around them. What is happening to Africa as far as climate change is concerned should be viewed using an African lens. Lastly, according to Sietisho and Siwila (2017), the problem of knowledge, whether secular or religious, is central to critical feminist theorizing. At the time of writing this chapter, the world was going through the COVID-19 pandemic which shook the health and economic systems of the world. In the African context, the pandemic created a scenario where most of the people decided to revert to their indigenous medical worldview. Women play a critical role in this worldview. Curtin confirms this saying:

[W]omen's medical knowledge is a vast store house of expertise yet it goes unrecognised because of the biases of modern science against traditional indigenous forms of knowledge. The debate over whether Northern

science should gain its financial reward remains immune to the rights of indigenous women. Epistemic biases like this cannot be addressed simply by adding a new fact to the dominant paradigm of masculinised knowledge. (1997:86)

Reflecting on how suddenly we found ourselves using our indigenous knowledge to respond to COVID-19 makes one realize the value of indigenous knowledge to African people. Practices such as steaming did not only become the one remedy people could easily access but also became economically viable to ordinary people, especially women in poor communities where this was the only way of curbing the pandemic. Hence, coming back to the value of indigenous knowledge on climate change, this chapter equally argues that most of the proposed indigenous ways to curb climate change are economically viable. Curtin bemoans the fact that when it comes to issues of ecological sustainability, women's expert knowledge of soil, climate, seeds, and herbs is marginalized as anecdotal or mere wives' talks (1997:87). Hence, she questions how an epistemology that is faithful to the Third World women's knowledge can be constructed? To answer Curtin's question, I go back to the discussion on steaming done by many indigenous people during COVID-19 as a prevention measure and argue that in many cases it is very easy to dismiss such knowledge because it is regarded as knowledge from below. I wish to close this debate on the value of indigenous knowledge to addressing climate change by again using the words of Curtin (1997), where she argues on women's knowledge on ecology, saying knowledge varies in relation to different forms of practice. This is true as far as issues of climate change discussed above are concerned. For example, the kind of knowledge found in *Gonde malende* is likely to be interpreted differently by people who are outside this context. This is because there is a difference in knowledge perception and assimilation between insiders and outsiders. An outsider has the capacity to dismiss the knowledge based on their own biases, especially when the outsider is not able to comprehend some of the codes associated with the knowledge. This, however, does not mean that the knowledge lacks power; it simply means the outsider has the power to determine what they want to see, hear, and comprehend, and how they interpret that which they have seen.

Conclusion

This chapter has argued that although climate change is said to be a new thing in our discussion of environmental degradation, indigenous people have always embodied ways of addressing environmental destruction using their own indigenous knowledge systems. Songs, proverbs, myths, idioms, and rituals that have been transmitted from generation to generation within their cultural domains have in some ways acted as catalysts to this kind of knowledge. It is this untapped library which also has the potential to address climate change, and yet it has in many ways been sidelined by policymakers and Abrahamic

religions that this chapter was trying to pursue. We are in an era in life where any response to climate change is done either through Abrahamic religions or modern science as it is understood through the Western lens of scholarship. This kind of response to climate change seems to suggest that Africa is the victim and the Western world has the answer to issues of climate change. While the statement may be true, it is also important to note that Africa also holds solutions to the care for the environment using its (our) own frameworks. While weather patterns may suggest that climate change is at its peak in Africa with little hope for economic survival, just like all other continents, Africa should also be given the benefit of doubt in finding alternative solutions to address climate change, lest we perpetuate the mentality that sees knowledge production as being subjected to particular contexts. Hence, this chapter agrees with other scholars that indigenous knowledge systems (IKS), with its ecofeminist outlook, needs to be consulted and appreciated of its essence in response to climate change as an alternative to modern technology. Thus, Africa's prospects of achieving the goals of SDG 13 have greater prospects of success if women's contributions to IKS are acknowledged and embraced.

Note

- 1 This is a sacred space that is believed to be the dwelling place of the ancestors. The place is also used for rain rituals. *Malende* can be a place in the mountains, along the river, by the falls, or in the forest. In most cases, these places also hold certain types of animals that are believed to be representing the ancestors. Although these animals could be edible, they cannot be hunted for food because of their status in these spaces.

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5 Women, indigenous knowledge systems, and climate change in Kenya

Susan Mbula Kilonzo

Background

This chapter discusses women's use of indigenous knowledge systems in response to the effects of climate change in Kenya. The chapter shows that regardless of the structural and cultural challenges that women face on land and other property ownership, disadvantageous positions in access to human rights, and unequal opportunities in access to formal education, women have in certain instances applied their indigenous knowledge to respond to the effects of climate change in various parts of the country. Through literature review, case study analysis, and informal conversations, the chapter shows how gendered orientations, perspectives, and discourses have influenced the use of indigenous perspectives by women in Kenya in relation to other African contexts, to contribute towards mitigating the effects of climate change, especially on agriculture and food security.

Introduction

The lush green, serene and life-supporting ecosystem that was once evident in most parts of the African continent, and Kenya in particular, has been replaced by closely scattered cities and towns that are built without much thought of the effects on the fauna and flora. The once vast farmlands have been subjected to subdivisions as a result of the population increase. The effects of environmental destruction are now felt globally, and talks around the impact of climate change and recovery of the same have dominated global discussions. Important to this chapter is the need to contribute to the discourse of gendered effects of climate change, and mitigating strategies from women, as a disproportionately affected lot. As Gibb (2007) shows, loss of biodiversity as a result of the effects of climate change increases women's burden. Water scarcity and contamination and deforestation, for instance, have made many women's water- and fuel-gathering tasks more challenging and time-consuming.

Aluko (2018) also shows that one of the challenges facing women as a result of climate change is the need to seek alternative sources of livelihoods (see also Babugura, 2010), since both subsistence and commercial agriculture are not yielding much. According to FAO (2005), women contribute 80% of the

food in Africa, 60% of the food in Asia, and 40% of the food in Latin America. However, loss of biodiversity as a result of the effects of climate change increases women's burden as they perform their daily chores (Senanayake 2006), which adds to the challenges that they already have since, generally, they have far less access to and control over the resources they depend upon (Nellemann, Verma, and Hislop, 2011). This chapter therefore centres on how women have particularly harnessed from the indigenous knowledge discourse given their place in production and reproduction. Women and indigenous knowledge systems is an issue that has rarely been explored in relation to climate change in Kenya, and the continent in general, and subsequently there is a need to pay attention to the Kenyan context, while borrowing from the larger African continent. Addressing these dimensions will contribute towards the achievement of Sustainable Development Goal (SDG) 13, which focuses on climate action.

A number of bodies globally have recognized the disproportionate effects of climate change on women and girls, and they have established mechanisms that are meant to address this inequality. WEDO and GCCA (n.d.) show that the United Nations Framework Convention on Climate Change (UNFCCC) has included gender aspects across adaptation and capacity-building, which sends a signal that gender equality and women's participation are necessary for effective action on all aspects of climate change. Further, the Green Climate Fund took a gender-sensitive approach in 2011, which was enhanced with a Gender Action Plan in 2014, and draft gender-sensitive language going into the Twenty-First Conference of Parties (COP21). These global initiatives evidence the place of gender in climate change talks. In Africa, the African Union (AU) is committed to addressing climate change issues from a gender perspective. The heads of states agreed to develop a Women and Gender Programme on Climate Change (CWGPCC) to engage women and gender in climate change-related actions (AU, 2011; Aura, Nyasimi, Cramer and Thornton 2017).

Within the Eastern Africa region, Aura, Nyasimi, Cramer, and Thornton (2017) explain that the states have used development and sectoral plans to integrate gender perspectives in the climate change policies. Some of these include Kenya's National Climate Change Response Strategy, Ethiopia's Climate Resilient Green Economy, Tanzania's Agriculture Climate Resilience Plan 2014-2019, Uganda's National Climate Change Policy 2015, among others. An issue that has been of concern in scholarly debates is whether these mechanisms are working or not (Aura, Nyasimi, Cramer and Thornton 2017). Current climate change policies and strategies tend to inadequately address the needs of women and children, particularly in the contexts of nutrition, food security, and health. Additionally, women are poorly represented in consultation and decision-making processes during the development of climate change adaptation strategies at local, national, and global levels (Aura, Nyasimi, Cramer and Thornton 2017; Crawshaw and Shaw, 1996). Further, as literature shows, while the importance of indigenous knowledge has been realized in the design and implementation of sustainable development projects, little has been done to incorporate this into formal climate change mitigation and adaptation

strategies (Nyon, Adesina & Osman, 2007), and especially in consultation with women, who are largely in touch with the environment in different ways (Aluko, 2018).

Kenya has embodied its intention to address climate change within its Constitution, which already provides a fairly adequate framework for gender equality (GoK, 2010). The Kenya National Climate Change Action Plan also incorporates and addresses gender and women's issues. Aura, Nyasimi, Cramer, and Thornton (2017) explain that in the Kenyan context, a number of documents exist to show the state's commitment to climate change issues. These include Climate Change Act, No. 11 (2016); National Climate Change Action Plan (NCCAP) (2013); National Adaptation Plan (NAP) (2016); National Determined Contributions (2015); and Climate Smart Agriculture Framework (CSA) 2017. The subcomponents of these plans, as Aura et al. (2017) argue, have provisions for gender considerations in knowledge acquisition and dissemination in relation to climate change. This shows that the country is aligned to the international and regional push for serious observances of the challenges posed by climate change. However, having these components in the chapter is quite different from proving the concerted efforts aimed at implementing the same. Central to this is the place of indigenous knowledge in the mitigating efforts, especially as a contributory factor by women. Direct contact with the environment equips women with deep knowledge about it them legible to contribute to the design and implementation of sustainable development initiatives (Aluko, 2018; Wane & Chandler, 2002). Wane and Chandler (2002), therefore, suggest the urgent need to draw on women's indigenous knowledge and sustainable practices.

Indigenous knowledge systems

Given the unique challenges that women face, especially at the grassroots, they may not be in a position to use the sophisticated approaches to resolve challenges of climate change (Nawrotzki & Kadatska, 2010). Most of them have to rely on the indigenous knowledge systems. Indigenous knowledge is institutionalized local knowledge that the natives build on (Senanayake, 2006; Nyong, Adesina & Osman, 2007). This definition relates to Tume, Kimengsi, and Fogwe's (2019) indication that indigenous knowledge is a cumulative and complex body of knowledge, practices, and representations maintained and developed by peoples through extended histories of interactions with the natural environment. The complexity of this knowledge is shown in language, attachment to place, spirituality, and perception of worldview (Tume, Kimengsi & Fogwe, 2019), and is imparted to the young generation by community elders (Senanayake, 2006). Kenyatta (1965) notes that it is knowledge passed on orally through stories, riddles, proverbs, and folklore. However, as Nawrotzki and Kadatska (2010) explain, indigenous knowledge is rooted in a particular place and any set of experiences may not be applicable and transferable to other places. This implies that indigenous knowledge systems vary from

one place to the other and although they can be interdependent, the applicability varies depending on the context.

According to Tume, Kimengsi, and Fogwe (2019), the use of indigenous knowledge on climate change is grounded on traditions and culture, community priorities, needs, knowledge, and capacities, which enable local people to plan and cope with the impact of environmental change. For thousands of years, ancient and traditional societies have viewed physical and biological environments as linked in a web of relationships with what humans and non-humans, or Western science sometimes term ecosystems (Wane and Chandler, 2002; Capra, 1996; Smith, 1999). This knowledge includes the concepts, beliefs, perceptions, and experiences of local peoples in their natural and human-built environments (Dei, Hall, & Rosenberg, 2000; Wane, 2005; Wane & Chandler, 2002). Lately though, organizations working on environmental perspectives such as United Nations Environmental Program (UNEP) and United Nations Educational, Scientific and Cultural Organization (UNESCO) have developed tools for preserving traditional knowledge, called Local and Indigenous Knowledge Systems (LINKS) (Tume, Kimengsi & Fogwe, 2019; UNESCO, 2019), as seen below:

This program was one of the key pillars that contributed to the framing of the Millennium Development Goals (MDGs) of poverty eradication and of environmental sustainability. The same program has been expanded and incorporated in the Post-2015 Development Agenda (Sustainable Development Goals-SDGs) to empower local and indigenous peoples in various aspects of environmental management by advocating and mobilizing their unique knowledge and practices in climate change adaptation.
(UNESCO, 2015)

Irrespective of these developments, studies in the past have shown that there have been failures to recognize the resources, opinions, and knowledge of local people, which are useful mechanisms of mitigating the impact of climate change (Nawrotzki & Kadatska; 2010; Aluko, 2018; Olukoya, 2006). Nawrotzki and Kadatska (2010) list some of the coping mechanisms that range from special cropping methods, seed preparation, and water management techniques as a response to drought, as well as bamboo platforms, floating seedbeds, stilt houses, and drainage channels, which respond to challenges caused by flooding. Further, the scholars show that forest gardening, agroforestry, communal forest management, and forest protection based on supernatural beliefs are indigenous approaches used to tackle deforestation. They also show that indigenous communication techniques for information dissemination for the purpose of learning and disaster communication have been used in various contexts. Indigenous knowledge systems in the context of climate change can therefore be categorized as adaptation strategies that enable the individual or the community to cope with or adjust to the impacts of the climate in the local areas (Nyong, Adesina and Osman 2007). This chapter examines some of

the indigenous mechanisms that are applied and encouraged by women in the African context, and specifically the Kenyan perspective. Most of these focus on immediate needs to sustain livelihoods within families and communities.

Women, indigenous knowledge, and climate change in Kenya

Women in the African traditional worldview, just like the men, are equipped with the knowledge to understand how nature behaves and what predictions to make using a number of observations. Growing up in a small village in one of the Kenyan counties in the late 1980s, the use of watches and clock, for instance, was rare. All a woman needed to do was to look at the position of the sun and tell what time of day it was. They knew how the different seasons influenced the position of the sun, and from certain pointers, they would predict the weather. They also listened to roosters crowing in the morning and would estimate the time with such precision. They did not need alarm clocks to wake them up or send children to school. It is in school that we knew the timekeeper would use a watch to ring a bell. Uncannily, it was mostly children born and bred in towns who would own watches and who in turn would be appointed as timekeepers.

Similarly, women could tell of weather patterns by observing the behaviours of certain elements such as position and movement of the sun, moon, morning dew, flight of birds, and sounds of certain animals. Although urbanization, industrialization, westernization, and globalization have largely taken over the traditional belief systems, these environmental and climate indigenous knowledge systems are still in existence and are used by women to understand the weather patterns. The Kamba in eastern Kenya observe the flying patterns of the Jacobin cuckoo. If they are spotted flying from east to west, this is an indication that the rains are about. Other signs are sprouting and flowering of certain plants, the presence of certain birds and insects, such as crickets, among other signs. Further, among the Embu of central eastern Kenya, as Wane and Chandler (2002:89) show in the citation of an oral in-depth interview with an aged woman:

[E]very morning when I stand at my threshold, I look at the rising sun, at Mount Kenya, at the sky, and then look down and touch the soil and any plants around me and say thank you out aloud—thank you for the magnificent wonders of creation. When I look at the sun and Mount Kenya (based on whether or not I can see the white peak). I am able to tell what the weather will be like for the day. ... I also touch the soil and the plants to check the moisture content in the atmosphere for the day ... I learnt all this from my mother and grandmothers ... they did not sit to teach me, I followed in their footsteps.

All these allude to aspects that speak to ethno-meteorology and how this is interpreted to prepare communities for the various seasons. Both Kamba and

Embu women, especially the elders, still practice some of the remnants of the ancient African belief systems on how to predict weather patterns for the day, week, month, or season; care for the land and their immediate environment; all with an aim of ensuring smooth transitions into different seasons, as well as food security. As Nawrotzki and Kadatska (2010) note, indigenous knowledge is asymmetrically distributed according to gender and age.

The examples from the Kamba and Embu communities are no different from other Kenyan and African communities. Some communities in Cameroon, for instance, traditionally rely on sounds of birds and insects, availability of certain plants, smells, star constellation, temperatures, clouds, personal experience, and conviction, among others (Tume, Kimengsi & Fogwe, 2019). These scholars indicate that:

[in Cameroon], some people are gifted to predict the onset of first rains through weather smells, especially in the mornings of the months of February, March, and April. The sound of some birds and insects is a common indigenous weather forecasting tool in many communities of the Bui Plateau. One of such birds is the Senegalese Cowcow, which sings in the morning or anytime of the day to announce rains in about the next 10 to 60 minutes. Another visible indicator of cessation of the wet season is swarms of dragon flies that fly eastwards from October to November ... plants such as *Scadaxus multiflorus*, blossoms only once in a year in late February to early March. This plant has been used for generations ... to read the weather about the onset of the first rains.

(Tume, Kimengsi & Fogwe 2019: 7)

Women, as home caretakers, and mainly the managers of kitchen and food-stuff, are known to use organic farming. The use of compost pits for kitchen refuses and recycled water from the kitchen and household work for their vegetable gardens is a common practice. As cleaners, they use chicken, goat, rabbit, and other domestic animal droppings to manage soil fertility. These are alternative sources of water and fertilizer, which help boost the yields for subsistence farming to protect families from hunger and starvation. The traditional ways of preserving seeds are common. These include a selection of the best seed from the harvest, smoking of the same or preserving using non-chemical products such as wood ash. In between the short rainy season, when there is no need to use preservatives for the seeds, some of them are hung in granaries to dry, or in traditional kitchens where the energy source is firewood. The smoke from the firewood is believed to be curative. Unfortunately, a number of factors are slowly influencing these approaches. Insects are said to have become resistant. There are also intensified agricultural sensitization programmes that encourage the use of drought-resistant seeds that are genetically modified and chemically treated.

Women are also keen on culling the weak or not so healthy domestic animals such as chickens and rabbits. This selection process ensures that there

will be more viable future breeds. Culling is also a practice used by men who are mainly the custodian of cattle in the pastoral communities in the country, especially in the Northern and Eastern parts of Kenya. As Nyong, Adesina, and Osman (2007) explain, culling as an indigenous knowledge practice for pastoral communities reduces pressure on vegetation destruction and land and in turn curbs soil erosion and pressure of mobility in search of pastures.

To conserve soil in some parts of the continent, as Nyong, Adesina, and Osman (2007) show, subsistence farmers, who are mainly women, are likely to use a number of approaches such as zero tilling, natural mulches to moderate soil temperatures and extremes, suppress diseases and harmful pests, and conserve soil moisture. Given the small pieces of land that are left in the hands of women for subsistence agriculture, most women practice inter-cropping. In Kenya, different ethnic communities have different preferred foods, and so the practice of inter-cropping is widely varied. In eastern Kenya, women would plant maize and beans in the same piece of land, and alternate with sweet potato and cassava in the next season. In central Kenya, green peas and green leafy vegetables, potato, and maize would be inter-cropped. This is different from how the Taita women in the Kenyan coast would regulate their planting, depending on their family's as well as community's needs. Inter-cropping is not only useful in providing variety but also fixing the soil and preventing erosion. The indigenous knowledge on naturally regulated seasons allows for land to rest. The short and long rainy seasons allow for natural interchange of the kind of crops grown. This knowledge requires no formal education, and the wisdom is banked on the experiences that women have accumulated for years. In fact, many will be able to tell when rains are likely to do well or fail. In certain places, however, the advent of technologies such as irrigation using water from rivers or dams has been blamed for effects on soil and productivity levels. Although this is largely associated with men, who are custodians of commercial agriculture in most parts of the country (and the continent), the challenge is the failure to learn from the indigenous knowledge and implementation of approaches that value this form of knowledge.

For fuel, charcoal, in most parts of the country, turns out to be very expensive as a result of the government's ban on logging. Subsequently, recycling of sawdust, charcoal dust, and sugarcane waste into briquettes are common. These are then used on traditional or modern modified firewood cookers. Other communities, especially pastoral, rely on cow dung as a source of energy. These not only ensure a clean environment but are also user-friendly. Although liquefied petroleum gas may not be relatively affordable, it is still a luxury for many women. Firewood and charcoal are still commonly used in most rural homes, and women and girls spend quite an amount of time collecting these. In the long run though, this might not be sustainable.

On the management of forests, spiritual beliefs and practices, as well as rituals and taboos, are common among some pockets of eastern, central, western, and coastal regions of the country. Women have, for instance, used the taboo system as a cultural custom to warn, especially girls, on things that they should

not do to violate the observances stipulated for certain plants, trees, and generally forests. Taboo derives from the Polynesian word *tapu*, meaning “tied” or “forbidden.” Kilonzo, Gumo, and Omare (2009) show that forests in the western part of the country have been conserved by such practices. They indicate that among the Isukha community that is settled around the Kakamega forest, there are a variety of taboos that protect plants, animals, snakes, sacred sites, and birds. For instance, there are trees that cannot be cut and plants whose wood cannot be used as firewood, for this will cause calamities to the individual violating, her family, or the community at large. Some of the calamities indicated as a result of cutting down some trees or using some trees for firewood include infertility, blindness, angering of gods and spirits, droughts, swelling or roughening of the body, attack by demons, and hailstorms and floods, among others (Kilonzo, Gumo, & Omare 2009:44). Besides, the trees, storks, cranes, and francoli help the community predict the approach of planting seasons. Kingfishers are said to protect homesteads from evil, and, subsequently, these are protected. It is, therefore, the responsibility of mothers (and fathers) to educate their children on all these taboos.

The spiritual factor is quite strong among African communities. Among the Banyore of western Kenya, and specifically the Abasiekwe clan, which is widely known to be a rainmaking clan, specific men and women have the power to invoke the spiritual forces that send rain or stop it. They are believed to be so powerful that during market days on Monday and Thursday, traders are said to consult with the rainmakers on the condition of the weather, for them to determine the quantity of goods they should transport to the market since it mostly rains in the afternoon. In the context of Cameroon, as observed by Tume, Kimengsi, and Fogwe (2019), the community elders and local weather seers have the power to invoke the gods of the rain through periodical incantations and traditional sacrifices. This is in line with the arguments made by Wane and Chandler (2002) about the Embu women in eastern Kenya, who emphasize the first cosmological principle: interdependence between the various components of the earth, including the geological, atmospheric, and spiritual systems. It is this principle that stipulates the need to care for every form of life, human beings, plants, and animals, including invisible plants and animals in our universe. The same principle encourages communal perspective towards life: people are urged to help one another during seasons of hardship as a result of the challenging effects of climate change.

The above discussion shows some well-developed wealth of local knowledge base that uses local knowledge to read and predict the weather and climate; prepare for the seasons; and warn communities of dangers of mishandling the environment, which in turn allows for a reduction in the vulnerabilities related to farming and food security. For this reason, some studies show that the non-traditional agricultural techniques have failed, thus making it critically necessary for Africa’s Agricultural Policies to revert back to its age-old indigenous agricultural technologies (Aluko, 2018). In fact, literature has in certain instances suggested that the modern technologies that address climate

change can only succeed if they take into consideration Africa's home-grown innovative techniques and indigenous knowledge systems (Olukoya, 2006). On this, rural women play key roles in development projects and initiatives in many African countries, but unfortunately, as (Aluko, 2018) notes, the voices of indigenous women are seldom heard when discussing, planning, and implementing sustainable development and environmental conservation projects. Potential solutions are therefore masked because they come from women, whose voices are not included in decision-making processes. Ignoring these voices not only violates women's right to participation but also forecloses the inclusion of the valuable and often critical contributions regarding opportunities for better planning and implementation.

Challenges

In spite of these snippets that give indications of the use of indigenous knowledge in adapting to climate change, there are a number of hurdles that need to be crossed. For instance, the patriarchal nature of many African societies favours men over women in access to critical resources such as land and environmental resources, even though equal rights to access and control of resources are anchored in existing laws. These inequalities register themselves within the existing social structures and in different forms (Abdimajid, Muthama, Mwalichi and Kinama 2019). As these scholars exemplify, men in Kiambu, Central Kenya, mainly occupied by the Kikuyu have 82% more full access to household land than women in Kajiado, mainly occupied by the Maasai, in both rainy and extended drought seasons. The customary Maasai power structure locked women out of any opportunity to get their share during the subdivision of land holdings among the elders, rich herders, poor herders, and youths (Meinzen-Dick and Mwangi, 2009; Abdimajid, Muthama, Mwalichi and Kinama 2019). This account spells out the dynamics and challenges that indigenous knowledge is likely to face given the differing levels of gender inequalities in the different communities. Evidently, in the Kenyan perspective, women whose men were active in the fight against colonialists (and who therefore spent most of their time away leaving women at home) appear to have developed more effective coping strategies. As seen among the Kikuyu, Kalenjin, and Embu communities, these women became more informed on land use and developed other survival skills such as merry-go-round groups and small-scale business ventures to improve their livelihoods (Abdimajid, Muthama, Mwalichi and Kinama, 2019).

Babugura (2010) notes that to counter the challenge of patriarchy and gender inequality in Southern Africa, there are various institutions (government and non-government) committed to increasing equality between men and women. The institutions work together with the municipalities to reach all communities, and given the institutions have also had some influence on the way women view themselves. Both men and women seem to be aware of what their rights and how to exercise those rights. Given that these institutions are

committed to addressing gender equality, they are better positioned to address climate change from a gender perspective.

A gender-sensitive response requires disaggregated data as well as assessments of differential impacts of climate change on women and men. It requires an understanding of existing inequalities between women and men and ways in which climate change can exacerbate these inequalities (Aura, Nyasimi, Cramer and Thornton 2017). According to Appiah (2005) and Nyong, Adesina, and Osman (2007), there is a need to reflect on why projects that aim at contributing to climate change fail. The need to ensure the use of available resources and indigenous knowledge as opposed to external ideas, goals, and technology is key. Local communities' aspirations and needs should be recognized and an approach that encourages participation of women as key stakeholders and valid contributors to adaptation processes adopted. This will provide an effective platform for meeting the targets of SDG 13 in Kenya and other African countries.

While we look at the importance of indigenous knowledge systems in addressing adaptation to the effects of climate change, it is also equally relevant to know the challenges related to lack of documentation and conservation of the same. The existence of these systems has been threatened by formal education and foreign religions (Kilemba & Mafongoya 2017). As a form of knowledge that lacks universality, documentation remains a challenge. Its existence also depends on whether or not the old generation passes it down to the young generation, and the precision with which it is passed. For those learning about it through research, the only way to pass it across has mainly been through seminars and e-resources, libraries, and museums. These are not conducive platforms for a farmer or pastoralist (Kilemba & Mafongoya, 2017). Further, urbanization limits constant refreshment, transmission, and/or appropriate modification of indigenous knowledge (Tume, Kimengsi & Fogwe, 2019). Seemingly, the need to incorporate it in mainstream media such as radio or the Internet to ensure it reaches a larger audience may be useful. Institutions such as the centres for indigenous knowledge, as Nawrotzki and Kadatska (2010) explain, may help preserve such knowledge.

Conclusion

This chapter has shown that women, as a population that is at the centre of the impact of climate change, still use indigenous knowledge to adapt to the different vulnerabilities posed to them. Some of the adaptation strategies discussed in the chapter include predicting weather using various natural occurrences, choice of crops to plant in the various seasons, use of readily available resources, and invoking cultural and spiritual worldviews. To scale up gender-transformative climate change adaptation and resilience by women and communities in general, there is a need to acknowledge that indigenous knowledge has been helpful and that women's views and experiences are needed in an effort to combat the vulnerabilities. Subsequently, they should

be equally engaged in the development of agenda as well as implementation and monitoring on the use of indigenous knowledge that influence positive change on the call to reverse the effects of climate change. This knowledge should not be a substitute or an alternative to the already developed strategies but should be integrated into ways that the two are complementary to address the local needs of communities, who should be equal partners in the process. Such investments are critical if there is going to be progress in addressing SDG 13 in Africa.

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6 Putting words into action

The role of the Church in addressing climate change in Ghana

*Beatrice Okyere-Manu and Stephen Nkansah
Morgan*

Background

Churches in Ghana, mostly, will assent to the belief that God made humans stewards over the earth and its natural resources. As such, they hold themselves as having a duty of caring for the environment. Unfortunately, whereas in other places the church's impact on climate change, adaptation, and mitigation are strongly felt, the same cannot be confidently said about the Ghanaian Christian community. This chapter, as a result, presents a critical survey of what some churches in Ghana are doing or have done to help address the climate change phenomenon and what more is left to be done to fully harness the unique influence and prestigious advantage churches in Ghana have within the general population. The findings of the survey show that except for the Evangelical Presbyterian (EP) Church, there is a minimal record of the role churches in Ghana play towards climate change mitigation and prevention. The EP Church has engaged in education and knowledge transfer of climate change resistance and adaptation strategies to local farmers, rural communities, and students in accordance with the UN Sustainable Development Goal (SDG) 13, which calls for urgent action to combat climate change and its impacts, especially among the poor. SDG 13, among others, essentially seeks to intensify resilience and adaptive capacity to climate-related threats and natural disasters in all countries, improve education, awareness-raising, and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning. It also aims to foster mechanisms for raising capacity for efficient climate change-related planning and management in least-developed countries, including focusing on women, youth, and local and marginalized communities.

This chapter argues that the Church's almost ubiquitous presence in the country gives it a considerable power of social and political influence, and places her in a unique and advantageous position to do more in the mitigation, education, and prevention of climate change. Doing so will be in line with Christian ethics, which advocates for environmental stewardship, and traditional African environmental philosophy, which underscores humans' interdependency with nature.

Introduction

Changes in climatic conditions happen naturally over time. However, what is bemoaned as the global climate change problem has to do with humans' contributions to the continued rapid increase in greenhouse gas emissions such as carbon dioxide, methane, and nitrous oxide into the atmosphere. This is referred to as anthropogenic climate change. These greenhouse gases contribute to global warming, which is a gradual increase in global temperatures, resulting in rapid changes in weather patterns across the world (Shahzad, 2015; Sivaraman, 2015). There is evidence pointing to the fact that our world is getting warmer year after year. Consequently, the thermal expansions of our seas have led to increasing sea levels from 1960 to the contemporary period (Garvey, 2008).

Christianity has had more than its fair share of the blame for its contribution to the global climate change problem and the environmental crises currently facing the world. It is argued that the Christian Bible places humans over and above the rest of nature and gives humans authority over all things created by God (for example, Lyn White, 1967). The Bible account from the book of Genesis reads, "And God blessed them. And God said to them, 'Be fruitful and multiply and fill the earth and subdue it, and have dominion over the fish of the sea and over the birds of the heavens and over every living thing that moves on the earth'" (Genesis 1:28 ESV). Lynn White (1967) has argued that the Christian ideology had been the driving force or the motivating factor for advancements in modern science and technology with the sole goal of conquering the earth and exploiting its resources for human use.

Many have refuted the above accusation levelled against the Christian religion. Marisa Ronan (2017), for example, notes that many religions instead consider the deplorable state of the natural environment as a moral inadequacy. Many religions, including the Christian faith, hold ecological stewardship in high esteem, as a sacred obligation to safeguard and preserve the natural environment. In effect, they reject the idea that having dominion over the earth justifies excessive and abusive use of the earth's resources without having to give account. This view has led many religions to push for reforms that will protect the earth's resources.

We have also witnessed the direct involvement of religious groups in environmental advocacy over the years. The church's involvement in climate change advocacy is critical, given the devastating effect climate change can have on the earth's habitats. The world could witness severe threats to living conditions should global warming exceed 1.5–2°C. This can affect human security and development in health, accessibility of water, and world food production. It can also lead to erratic temperatures and weather patterns across the world, such as extreme heatwaves, droughts, rise in sea level, ocean acidification, and other extraordinary climate events (Germanwatch, 2014). These can bring about shattering snowball consequences, especially to poorer countries that do not have the wherewithal to mitigate the effects or have no adaptation blueprint.

The effect of climate change in Ghana has not gone unnoticed. The government and its development partners have put some measures to educate the populace and have introduced some adaptation methods for farmers. In recent times, some churches have joined the efforts, but it appears there is still more left undone. Thus, in this chapter, we assess the role churches in Ghana play in addressing the climate change menace and what more can be done. The work is a non-empirical analysis of existing literature.

Climate change in Ghana

Ghana is situated in West Africa. It is bordered on the east by Togo and on the west by Côte d'Ivoire, north by Burkina Faso, and south by the Gulf of Guinea. The country relies heavily on agriculture. Its main exports include cocoa, gold, timber, diamonds, bauxite, manganese, and hydropower. As such, Ghana is known to have vast areas of natural resources. These resources are at the centre of the social and economic development of the country. However, like in most countries, climate change here has and continues to disrupt these resources that provide the majority of the energy needs of all Ghanaians and their needs in food and agriculture, tourism, drinkable water, and general livelihoods.

There has been a notable decline in rainfall, particularly in West Africa, for the past 50 years (Owusu and Waylen, 2009: 115). The effect of this change directly impacts the health and livelihood activities in the entire region. Ghana's situation is not an abstract one; it is among the highly vulnerable countries to climate change globally. According to the ND-GAIN (2016) index, Ghana ranks 101 out of 181 in terms of climate vulnerability, and the effect is evident. There have been extreme weather conditions throughout the country in recent times, resulting in floods and droughts and severe storms that affect humans, non-humans, and agricultural production. Coastal cities and towns experience floods when levels of the sea rise. Several people have been displaced, and properties and lives have been lost due to these extreme weather conditions (Akudugu et al., 2012). Livelihoods and food security, particularly among the coastal inhabitants who depend on fishing and farmers in the interior and northern part of the country, have suffered and continue to do so due to these extreme weather changes.

According to Kuuzegh (2007), a study from 1960 to 2000 by the Ghana Meteorological Agency confirms a temperature rise and decreased rainfall in all agro-ecological zones in the country. The study predicted a continuous rise in temperature, with an average of 0.6°C in 2020, 2.0°C by 2050, and about 3.9°C by 2080. In terms of rainfall in all Agro-ecological zones, the study predicts a decrease of 2.8% in 2020, 10.9% by 2050, and 18.6 by 2080. Furthermore, some additional changes can be seen in the rising sea levels, particularly the eastern coast around Keta; the prediction is "16.5 cm and 34.5 cm by 2020, 2050 and 2080, respectively." In terms of greenhouse gas emission (GHG), the World Bank (2011) analysis ranks the country 151 out of 188 countries for per capita emissions.

The extreme weather conditions harm livelihoods, power supply, and the entire country's economy, making Ghana vulnerable to climate change's various manifestations. According to Kuuzegh (2007), the effects of these climatic conditions are projected to affect water resources, food scarcity, and human health, and lead to desertification. The rise in sea level is likely to affect roads, bridges, decreased energy (hydropower) production, tourism, women, and the poor who depend on natural resources for their survival. In addition, Ghana's economy is known to be heavily agrarian. Many of the crops grown, including its cash crops, are rain dependent. This means that extreme weather conditions exacerbated by climate change can cause much devastation to the farmers and the fragile Ghanaian economy.

In the opening remarks of the United Nations Framework Convention on Climate Change (UNFCCC) conference hosted by Ghana in August 2008, the then president, John Agyekum Kufour, warned about climate change, "The clock is ticking. ... We need to be pragmatic and move beyond rhetoric to make progress" (UN, 2008: 1). This was a call to all delegates gathered to put words into action and walk the talk.

Having signed the United Nations Framework Convention on Climate Change (UNFCCC) at the Earth Summit in Rio de Janeiro in 1992, which was further ratified on 5 December 1995, Ghana launched its National Climate Change Master Plan (2015-2020) to respond to the changing climatic conditions. In this plan, four major areas have been highlighted to be tackled: increased greenhouse gas emissions and loss of carbon sinks, increasing temperatures, rainfall variability leading to extreme events, and sea level rise. In addition to these four areas, the National Climate Change Committee of Ghana (2015) lists ten policy focus areas identified to address the four challenges. The ten areas are:

1. Develop climate-resilient agriculture and food security systems;
2. Build a climate-resilient infrastructure;
3. Increase the resilience of vulnerable communities to climate-related risks;
4. Increase carbon sinks;
5. Improve management and resilience of terrestrial, aquatic, and marine ecosystems;
6. Address impact of climate change on human health;
7. Minimize the impact of climate change on access to water and sanitation;
8. Address gender issues in climate change;
9. Address climate change and migration;
10. Minimize greenhouse gas emissions.

The above policy areas are to ensure the government of Ghana's commitment to climate change and have provided a comprehensive pathway for dealing with the challenges that accompany it. As noted, the many problems accompanying climate change cannot be dealt with by the government alone; it demands a concerted effort by all citizens and stakeholders in the country to

address the causes and effects. One of such stakeholders is the church. The church is well placed to create awareness at all levels because it has a readily available audience. It is also found everywhere, including the remotest parts of the country. Therefore, its involvement in the fight against climate change cannot be overemphasized.

The advantageous position of churches in Ghana

Ghana is a highly religious country. Over 96% of the population consider themselves religious. There are three dominant religions in Ghana, the largest being Christianity. According to Ghana's 2010 population census, approximately 71.2% of Ghanaians identify themselves as Christians, while 17.6% and 5% identify themselves as Muslims and Traditionalists, respectively (Murray and Andrew, 2018; Okyerefo, 2019).

The different Christian groupings have numerous churches and branches spread throughout the length and breadth of the country. There is no telling the exact number of churches in Ghana since an abundant number of them are not registered as required by the laws of Ghana; however, there is a report suggesting that as of 2014, there were more than 10,000 churches in Ghana (Kaledzi, 2016).

Churches in Ghana include traditional orthodox churches such as the Presbyterian Church, the Methodist Church, the Evangelical Presbyterian Church, the Roman Catholic Church, the A.M.E. Zion Church, the Seventh-day Adventist Church, and the Anglican Church (Foli, 2013). There are also the other missionary churches that followed these traditional ones. Notable among them are the Evangelical Churches of Ghana, the Good News Churches, the Evangelical Lutheran Churches, and the Churches of Christ. Foli (2013), in addition, states that some churches were born out of the Pentecostal Missions in the early 1930s. These include the Assemblies of God, the Apostolic Church, the Christ Apostolic Church, and the Church of Pentecost.

There has been the emergence of neo-Pentecostal Churches, popularly known as "charismatic churches" in more recent times. These are made up of the Christian Action Faith Ministry, the Redemption Hour Faith Ministry, and the International Central Gospel Church (Foli, 2013). Also worthy of mention are those churches referred to as "spiritual churches," which mostly started as breakaways from the traditional orthodox churches. Although their numbers may appear to be dwindling, they command a very sizable following. These include the Mozama Disco Christo Church, the Apostles Revelation Society, the Divine Healers Church, the Church of the Lord Brotherhood, the African Faith Tabernacle, the Cherubim and Seraphim, the Church of Christ (Spiritual Movement), the Saviour Church of Ghana, and the United Christian Mission (Twumasi-Ankrah, 1994; Foli, 2013). These churches' sheer numbers make them almost ubiquitous across the country's length and breadth, with a considerable following.

However, a key question is: what have been these numerous churches' contributions towards climate change mitigation and prevention thus far? A BBC World Service Trust's (2010) survey shows a dearth of knowledge among Ghanaians on how the government, religious organizations, NGOs, communities, and individuals' response to environmental and climate change challenges. This is particularly true in the case of the churches' efforts towards climate change prevention and mitigation. There is scarce information online and in literature that highlights the specificity of works being done by individual churches or as a collective. Despite the lack of readily available data online on Ghanaian churches' works towards addressing climate change challenges, an exception can be made for the Evangelical Presbyterian Church of Ghana (EP Church). The evidence online suggests that it has been actively involved in climate adaptation and mitigation programmes for the past decade. The Church is described as "a leading religious organisation working in the climate and environment sector" (Agboklu, 2013). Thus, the next section is dedicated to highlighting some of their activities.

Churches' response to climate change in Ghana - the case of the Evangelical Presbyterian Church

For the last ten years, the EP Church of Ghana (not to be confused with the Presbyterian Church of Ghana) has demonstrated leadership in the fight against climate change in Ghana. They have partnered with the UK-based Alliance for Religions and Conservation (ARC) and host and lead the Religious Bodies Network on Climate Change (RELBONET), faith-based institutions consisting of both Christian and Muslim organizations. According to George Agboklu, the national coordinator of RELBONET, the EP Church offers data and education to empower rural communities into food crop production and animal keeping as their primary source of livelihood. Under its climate and environment programme, the Church has projects taking place in some areas of northern Ghana. The Church's goal is to assist rural peasant farmers in these northern Ghana communities who are essentially reliant on rainfall to grow their crops, to adapt to climatic changes (Agboklu, 2013).

Like many of the major churches in Ghana, the EP Church is well structured and equipped in terms of human resources to reach a large audience with its work in climate change. As of 2012, it was estimated that the Church had 834 congregations with 150,000 members found in 147 districts of Ghana with and 450 pastors. The Church also operates up to 970 schools (from kindergartens to high schools), one university, and two colleges of education. In addition, the Church has set up sanitation clubs in primary and high schools in Northern Ghana and supports the solar disinfection of water projects in schools and rural communities (African Faith, 2012).

Much of the EP Church's work on climate change is in the Northern Region of Ghana, and for a good reason. In part, the Northern Region of Ghana is one of the most impoverished regions in the country. The region

has most of its populace engaged in agricultural work; thus, there is a heavy reliance on natural resources for survival. More so, Northern Ghana experiences harsh weather conditions, including droughts, and harsh environmental conditions such as desertification, deforestation, soil erosion, and bush fires. All of these threaten the food security and economic well-being of the indigenes. Thus, for many years, the EP Church has been engaged in impactful programmes to inform, transfer knowledge, empower the local farmers, and train others in climate adaptation strategies. Their initiatives have served the people well in creating jobs, securing livelihoods, and saving the environment from further rapid deterioration.

In the year 2002, for example, the EP Church initiated an environmental protection project in the northern part of the country where land degradation and desertification are constant threats to the people survival. Through their initiative, they ended up planting and establishing 100 acres of reforested woodlots and alternative livelihood training to the rural farmers by addressing the immoderate tree and shrub harvesting, which the people mainly use for firewood (African Faith, 2012). Furthermore, the EP Church trained fire volunteers in the communities in Northern Ghana in which they worked. These fire volunteers were equipped with bush fire prevention skills, fire education, and firefighting techniques to enable them to care for the many acres of woodlots (forests) against bush or wildfires predominant in these parts of the country. The initiative, we are told, had, as of 2012, trained 425 fire volunteers across the three districts (Agboklu, 2012).

The Church, again, through its development subdivision known as EP Development and Relief Agency [EPDRANorth], has organized various seminars for rural farmers to conscientize and improve upon their awareness of incorporating climate change mitigation and adaptation methods in their farming practices. In 2011, the Church attained grant support from the Inter Power Faith and Light Ministries of the U.S.A., an affiliate of the Alliance of Religions and Conservation of the United Kingdom. The Church used the grant support to initiate tree planting projects in parts of southern Ghana, resulting in 8 acres of planted fields in four communities (Agboklu, 2012). In 2011, during the Church's third Annual General Assembly (its highest legislative body), the EP Church formally embraced a policy strategy on the environment and climate change. This policy obliges the Church's structures to embark on environmental and climate change initiatives to protect God's creation as commanded in the book of Genesis. Ultimately, the Church's chief goal is to become the leading "green" religious organization in the country (African Faith, 2012; Evangelical Presbyterian Church-Ghana, 2012).

The EP Church is the initiator and leader of the Religious Bodies Network on Climate Change (RELBONET) in Ghana. RELBONET was set up in 2010 as an interfaith partnership for advocacy in Ghana. Its membership includes nationwide faith-based organizations that consult on issues in climate change. It involves 13 prominent mainline Protestants, Pentecostals, and Christian Charismatics. It also includes three of Ghana's major Muslim groups and the

Federation of Muslim Women Associations. It is estimated that RELBONET, with its national secretariat hosted by the EP Church, can reach more than five million Ghanaians every week. This expansive network places the EP Church and RELBONET in an advantageous position to propagate climate change and environmental messages (Evangelical Presbyterian Church-Ghana, 2012).

The Church's works and achievements in climate change mitigation and education have not gone unnoticed. It has gained many awards and accolades locally and internationally for the many successes it has chalked over the years. In 2009, the Church received the United Nations Environment Award. The award was presented to them by Prince Phillip and the UN Secretary at the time, General Ban Kim-Moon in the United Kingdom. On the local front, they were awarded the Ghana National Environment Day Award in 2010, the Ghana National Farmers' Day Environment Award (northern region of Ghana) in 2010, and the Environmental Protection Agency Regional Award (Chereponi in the Northern Region of Ghana) in 2006 (Agboklu, 2012).

The EP Church is still not resting on its oars. In collaboration with RELBONET, the church, in 2012, launched a seven-year plan of action on the environment. The action plans and details of the seven-year policy came about as a result of broad consultation comprising of seminars with 15 different church groups, education institutions, members of the clergy, and women and youth groups. The policy consultation also involved state agencies and NGOs such as the Forestry Commission and other government ministries.

Some of the long-term commitments stipulated in the seven-year policy include *awareness creation* through various communication media and religious outreach programmes, and *education*, by creating 1,000 eco-clubs and 1,000 eco-congregations to be at the fore of knowledge dissemination on environmental and climate matters (this is an initiative the Church had already started in 2011 in some selected schools). There is also *agriculture (food and farming)*, by making land available for rural farmers and teaching sustainable land management practices in schools, agriculture colleges, and other institutions and volunteers, and *nutrition*, by introducing rural farmers to plants that are good sources of protein such as *Moringa oleifera* trees and soya beans.

The other commitments as part of the seven-year policy are water and sanitation provision by introducing water-harvesting technologies in religious schools and rural communities and initiating sanitation clubs in primary and junior high schools. There is also a plan to continue and improve upon *tree planting and agroforestry* by partnering with RELBONET, churches, Muslim groups, students, and the Forestry Commission of Ghana to plant seven million trees. Finally, there were plans to go into *renewable energy* by providing fuel-efficient local stoves to rural farmers, obtaining and issuing 5,000 solar lanterns to farmers and fishers, among others (African Faith, 2012).

We can see clearly that the works of the EP Church and RELBONET in the northern part of Ghana advertently or inadvertently contribute towards meeting the goals of the UN Sustainable Development Goal (SDG) 13. SDG 13, among others, essentially seeks to intensify resilience and adaptive capacity

to climate-related threats and natural disasters in all countries, improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning. It also aims to foster mechanisms for raising capacity for efficient climate change-related planning and management in least-developed countries, including focusing on women, youth, and local and marginalized communities. This makes the work of the EP Church and her partners very critical to national development and poverty reduction. It is for this reason that the next section makes a case for other churches to join in the efforts of the EP Church in creating climate change awareness and mitigating interventions.

Improving the Church's role in climate change response beyond the Evangelical Presbyterian Church and RELBONET

We know from human history that religions influence people's behaviour as well as history. Generally, religion is considered an institution that sways people's attitudes, social order, and motivation (Ronan, 2017). The unique advantage enjoyed by churches in Ghana makes them a repository of human capital that can and ought to be harnessed for the good of the nation. While churches in Ghana have done a lot for their communities to provide education and health care facilities, their overall contributions towards environmental conservation and climate change mitigation have not been adequate.

Churches in Ghana today are in the perfect position to do better regarding climate change. Due to their large following, they possess a strong influence on the socio-political affairs of the nation. For this reason, they are better placed to play a significant role in the battle or race against anthropogenic climate change. Kwasi Yirenkyi (2000) describes the Church as the "moral conscience" of the nation. This places a high sense of responsibility for the Church to play a profound role in education and social justice advocacy. Ben-Willie Kwaku Golo and Joseph Awetori Yaro also note:

In countries such as Ghana where religious beliefs and practices are prevalent, religious leaders and groups make a difference in people's lifestyles by advocating values and principles by which people live. Consequently, there is little hope of tackling the climate crisis without taking religion into account.

(Golo and Yaro, 2013)

The Church, therefore, has a very crucial role to play in conscientizing the people and the government and augmenting the efforts of the government in addressing climate change.

The first approach is for churches to correct the erroneous but commonly held impression that God created nature for human use and that this implies exploitation of nature without recourse to its sustainability or any show of respect for the natural environment. In this regard, the Church needs to take a cue from

the African relational approaches to the environment. This has been highlighted by many African environmental ethicists as the philosophy embedded in the traditional African way of life towards the environment. The African relational approach to the environment posits that everything in nature is interrelated. This nature-human interdependence calls for respect for nature and judicious use of nature. Kevin Behrens (2010) describes the relationship as one where humans and nature have a harmonious relationship. This is not to say that the Christian worldview is entirely antithetical to environmental conservation, but it does appear that the Church has not made greater emphasis on its divinely mandated responsibility to be stewards of God's creation. Thus, a change in the people's ideology can lead to a change in their attitude towards nature.

Having in mind the Church's large following, one other key role the Church can take up is education. There is evidence that many Ghanaians are not abreast with the science behind climate change or the fact that it is a global problem. A report on a survey by the BBC World Service Trust indicates that many Ghanaians do not comprehend climate change science, even though they can tell of observable changes in the weather and seasons such as escalating temperatures, prolonged droughts, and irregular rainfall pattern. It was indicative that many understand climate change to imply the erratic changes in the weather conditions but are unable to connect these changes to the greenhouse effect (BBC World Service Trust, 2010). There is, therefore, the need to educate church members and the members of the local communities where churches are located on the meaning of the greenhouse effect and the role they play in bringing about this effect.

Further, churches in Ghana ought to identify specific areas they can contribute directly to in the fight against climate change. Churches can hold it upon themselves, for instance, to plant trees in every local district they are located. Those along the coastal belt and around river bodies can clean the beaches and riverbanks of plastic waste and other pollutants that could threaten marine life and the sanctity of the rivers for human use. The Church can assist local farmers whose source of livelihood contributes directly to environmental degradation with an alternate livelihood. They can introduce more eco-friendly farming methods and clearing of farmlands to curtail bush burning and reduce the practice of shifting cultivation to the local farmers. These will reduce land wastage and wanton depletion of the forests.

One of the goals of SDG 13 is to integrate climate change measures into national policies, strategies, and planning. Church leadership in Ghana can lead the way in this goal by getting their voice heard. Churches with high-profile leaders can influence government policies to ban the importation of old vehicles, machines, and home appliances that emit high levels of carbon dioxide and carbon monoxide into the atmosphere. They can push for "green policies" that could propel a change in consumer behaviour. With their vast numbers throughout the country, a church-led peaceful demonstration to drive home the reality and impact of climate change will be heard and noticed by state authorities. The Church can demand that politicians enumerate in their

manifestoes their plans on climate change so that climate change is brought to the fore of national debate. The Church can use its influence to demand a good balance between the use of nature for the development and preservation of nature. Thus ensuring sustainable environmental practices and policies that will benefit current and future generations.

Conclusion

This chapter has explored some churches' activities in Ghana towards climate change education, mitigation, and prevention. As available literature reveals, apart from the Evangelical Presbyterian (EP) Church, there is a minimal record of the role churches in Ghana play towards climate change mitigation and prevention. The literature depicts the EP Church as a leader in terms of efforts being made by Ghanaian churches in the fight against climate change. With most of its climate change activities based in northern Ghana, the EP Church has engaged in education and knowledge transfer of climate change resistance and adaptation strategies to local farmers, rural communities, and students. It has engaged in planting and establishing 100 acres of reforested woodlots in northern Ghana to address deforestation. It has planted acres of trees and formed eco-clubs in many schools. It has also adopted a seven-year policy guideline on climate change and the environment.

The EP Church of Ghana is neither the oldest nor the wealthiest in Ghana. It also does not have the largest congregation or the highest number of branches among the churches in Ghana, yet the leadership it has demonstrated in climate change mitigation, as the available literature suggests, is unmatched. If other more established and larger churches could replicate the EP Church's efforts, this will go a long way in inculcating climate change awareness among the Ghanaian populace.

The chapter provides some pointers on how churches in Ghana can get more involved in the fight against climate change and its impact; thus putting words into action. This, we believe, is in line with Christian ethics, which advocates for environmental stewardship, and traditional African environmental philosophy, which underscores humans' interdependency with nature. This is also in line with achieving the SDG 13 that calls for urgent action to combat climate change and its impacts globally, but especially in developing countries. Ultimately, the chapter's position is that the Church's almost ubiquitous presence in the country, and with its massive devotees, has considerable power of social and political influence in the country. As a result, the Church finds itself in a unique and advantageous position to do more than it is currently doing in responding to the challenge of climate change.

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7 The mainline churches and climate change in Uganda

David Andrew Omona

Background

This chapter describes the responses of mainline churches in Uganda to climate change. The discussion is premised on the understanding that global warming, which leads to change in climate, is a reality. The phenomenon is a result of human activities. Human activities such as deforestation, combustion of fossil fuels, and production of agricultural commodities and livestock, among others, cause a lot of emission of carbon dioxide and a significant rise in other greenhouse gasses into the atmosphere. Greenhouse gases absorb the energy radiated from the earth to space, thus warming the atmosphere. In Uganda, evidence from the National Environmental Management Authority (NEMA) shows that the rate of climate change is alarming. As in other developing countries, the significant contributor to climate change in Uganda is human factors like rapid deforestation, land degradation, increased industrialization, uncontrolled population, and so forth. The human factors that have caused climate stress have adverse effects on humanity. It is in discussion that this chapter seeks to assess the response of the mainline churches in addressing climate change.

Introduction

Mainline churches generally mean the “old” Christian denominations that have long been active with deep historical roots, some reaching back to before and from the Protestant Reformation. In many parts of the world, these Christian denominations came from all over Europe and the United States, or they emerged from a similar denomination already established in those areas. In the Ugandan context, mainline churches are the churches introduced by the Christian missionaries during the last quarter of the 19th century and the mid-20th century, first by the Church Missionary Society (CMS) and then by the White Fathers, in 1877 and 1879, respectively (Niringiye, 2016), and then others followed. After the introduction of the Anglican Church - loosely referred to as the Protestant Church, or the Church of Uganda - and the Roman Catholic Church to Uganda, the Orthodox Church, Methodist Church, Seventh-day Adventist Church,

the Presbyterian Church, and the Lutheran Church got introduced in Uganda. However, loosely speaking in Uganda, when people talk about the mainline churches, what comes to mind are the member churches of the Uganda Joint Christian Council that comprises the Church of Uganda, the Roman Catholic Church, and the Orthodox Church.

At the time of the establishment of these churches, Uganda had a sparse population, hence natural vegetation and water bodies covered much of the land surface. Wherever the missionaries went, they planted fruit and other types of trees. The intent of doing so was to have enough fruits in the diet of the missionaries and also use the same trees as windbreakers and shade for the people in such localities. The agents of the colonial administration, such as Semei Kakungulu, also did the same when they went extending the colonial administration to other parts of Uganda (Tenywa, 2012). Then, during their administration of Uganda, the colonial government had secured over 1.9 million hectares of land for forest and wildlife. Given that the land reserved for wildlife conservation is kept without destruction of the vegetation cover, it assisted in balancing the ecosystem of the country. However, as time went by, “whilst most Ugandans [did] not understand the science of climate change,” they started to notice “changes in the weather and seasons. ... They tell of excessive heat, increasing seasonal variability and reduced rainfall” (BBC World Service Trust & British Council, 2010: 1).

Due to the fact that climate change is a widespread phenomenon and is felt around the world, a significant body of literature on the phenomenon has now emerged. The majority of authors attribute climate change to human activities. These include industrial emissions, transportation, power generation, and land use that produces large quantities of greenhouse gases, particularly carbon dioxide (Antwi, 2013: 2). The change in climate manifests through the observable rise in or alteration of atmospheric temperatures, disruption in rainfall patterns, droughts, and the rising water levels, among others (Kaggwa, Hogan, and Hall, 2009; IPCC, 2007). Cognizant of these realities, the United Nations Sustainable Development Goal (SDG) 13 focuses specifically on climate change and its impact. All the countries have been mandated to undertake actions that are aimed at addressing climate change through this SDG.

Whereas the earth has a natural control system, which keeps the temperature of the earth at reasonable values to support life and economic activities, whenever there is too much emission of greenhouse gasses (GHGs) in the atmosphere, the control measures are overwhelmed. At times the control carried out by atmospheric gases, such as water vapour, carbon dioxide, nitrous oxide, ozone, and methane, end up trapping the infrared radiation from the earth's surface and reflecting it back to the earth, thus causing the earth's surface to warm up. Besides, human activities such as the burning of fossil fuels for heating, transport, and power generation, clearing of bush for agriculture, deforestation, and animal rearing (livestock) result in emissions of GHGs into the atmosphere. Over the past 50 years, emissions have significantly increased the concentrations of GHGs in the atmosphere, resulting in offsetting the

natural equilibrium, and hence warming the earth's surface, which has resulted in global climate change (Kaggwa, Hogan, and Hall, 2009).

Although the phenomenon of climate change is global, its varied effects are felt more severely in tropical arid and semi-arid areas of sub-Saharan Africa (Antwi, 2013: 2). This is because over 70% of sub-Saharan Africans live in rural areas and depend significantly on subsistence agriculture for their livelihood. Therefore, any change in climate has a direct effect on them. While people are managing to cope with the daily effects of weather, they have not been able to cope with the effects of climate change. This is perhaps because changes in climate are associated with a range of fundamental changes to the global climate system, involving interaction and feedbacks between atmosphere, oceans, land ice surface, and living things in the space. Such a complex biophysical process influenced by interaction of gasses at the earth's atmosphere causes land and sea temperatures to rise (Antwi, 2013: 2), thereby leading to climate change.

In the past 40 or so years, the discourse on climate change has taken different twists. While in the 1970s and 1980s people saw climate as an environmental issue, in the 1990s the focus of the discourse turned to power production and transport. Then, in the early 2000s, the discourse on climate change shifted to looking at the economy and energy, which discourse again has turned to human security in general and in particular food security. This is because climate change has a direct effect on both surface and ground water retention, consequently affecting food production, food distribution, and food utilization (Antwi, 2013: 2–3).

Like other sub-Saharan African countries, Uganda is experiencing rapid changes in climate in drastic ways. Smoothed time series of 1900–2009 rainfall extracted for crop growing regions in Uganda indicate that the 2000–2009 rainfall has been, on average, about 8% lower than that between 1920 and 1969. Although the June–September rainfall appears to have been declining for a longer period, the March–June decline has only occurred recently (USGS & USAID, 2012). Whereas some scholars argue that change in climate started to be felt in 1940, the 1980s show a drastic increase of the same (Funk et al., 2012). For, around the 1980s, the temperature in Uganda has increased by up to 1.5°C across much of the country (Funk et al, 2012: 4). In the years to come, Uganda's temperature is estimated to rise further by 2°C. To this end, Kaggwa, Hogan, and Hall (2009: vii) observe that “the fastest warming has apparently been in the south-west, where the rate was approximately 0.3°C per decade. In the last century, the frequency and intensity of extreme climatic events has been generally on the increase.” The high historical variability and the occurrence of extreme events, such as the heavy rainfall in 1961–1962 and 1997–1998, are reflected by the record of Lake Victoria water levels during the 20th century (Hepworth and Goulden, 2008).

John Ariko et al. (2009) in, “The State of Uganda Population Report 2009”, drawing from climate models used by the Inter-Governmental Panel on Climate Change (IPCC), show that for Uganda

- There will likely be a big increase in the frequency of heavy rainfall during October-December, with the number of significantly wetter years rising considerably as a result. Indeed, a wetter climate is likely for the whole country, including the arid and semi-arid regions. Farmers believe rainfall is already becoming more intense, and particularly the heavy rains of late 2007 across northern and central Uganda may be a foretaste of this future climate regime.
- For the long rains from March to June, the modelled effects of human-induced climate change are much weaker and less predictable. Future generations may therefore see a switch away from Uganda's current pattern of two rainy seasons across much of the country towards a new pattern, of a much more pronounced rainy season (with heavier rains) later in the year, with the rest of the year hotter and drier than at present.
- If Uganda becomes wetter, floods will become more likely: a product not only of higher rainfall and run-off but also of land use changes such as the draining of swamps, and blocked drains in urban areas.
- Changes in rainfall patterns may begin to become noticeable within about 12 years from now but could become particularly big from the mid-century.
- Temperatures will increase and this will become particularly noticeable within the next ten years. All seasons are likely to become warm to extremely warm (2009: 10).

Apparently, this situation has not changed much. During "The 1st Uganda climate change symposium and expo on low carbon and adaptation 2017," participants expressed concern about this phenomenon. Although prior to that, apart from 1997-1998, where there was heavy rain, in much of the 1991-2000 decade, Uganda experienced seven drought episodes. The extreme droughts had significantly negative effects on water resources, hydropower production, agriculture, and the overall economy. The principal disasters caused by climate change are the El Niño and La Niña episodes. Whereas the La Niña years tend to bring significant drying, the El Niño years bring soaking rainfall (UNFPA-Uganda, 2009: 8). After the extreme and prolonged drought of 2004-2005, the water level of Lake Victoria dropped dramatically by 1 metre in 2006. This was due to high evaporation from the lake surface, low rainfall in the headwaters of the rivers draining into the lake, and the excessive removal of water for power generation from Owen Falls Dam to meet the growing demand for electricity in the country (Kaggwa, Hogan, and Hall, 2009: vii).

Another way of noticing climate change is the unpredictability of the bi-annual rainfall in Uganda that usually come between March/April-June/July and August/September-November/December. The rainwater received between March and June, with rainfall of more than 500 mm during this season, is used to provide for crops and livestock. However, during the past 25 years or so, there has been a drastic decline in rainfall; thus populations in the central and western parts of the country are subjected to increased rainfall

deficits. Cropping areas northeast of Fort Portal, south of Gulu, and northwest of Bombo no longer receive, on average, the bountiful rains as they used to be between 1960 and 1989. Accordingly, if the “present rainfall trends continue, by 2025 the drying impacts will likely lead to a further contraction” (Funk, Rowland, Eilerts, and White, 2012).

Given the above, many districts in Uganda have endured the most of climate change given the changes in precipitation (rainfall), water availability, length of seasons, incidents of extreme weather patterns, floods, desertification, and distribution and prevalence of pests and diseases. This has been to the extent that even areas like Kabale that used to have the coldest weather have now warmed up, thus resulting in increased incidences of malaria, unlike previously reported. These, therefore, affect agriculture and infrastructure (Nuwagaba and Kisseka, 2013: 61), which is directly related to food security.

Causes and effects of climate change in Uganda

Given the reality at hand, available literature alludes to a variety of causes of climate change. At the global level, according to Katie Louma (2016), in the past 50 years, the world’s population has increased to over 7.4 billion people. These people need to feed, clothe, and use energy for cooking and warming themselves. Besides, they also produce a huge amount of waste. The amount of waste generated by them and their energy demands significantly lead to the production of greenhouse gas emission in the atmosphere, thus contributing to climate change (Louma 2016), whose impact is felt globally. As Louma (2016) argues, “The impacts of climate change are significant across the globe and its effects are already beginning to take place in different communities to different degrees.” This is very true in the case of Uganda given what is happening.

At the national level, the population of Uganda has progressively grown from about 7 million people at independence to over 44 million people in 2018 (Woldometers, 2018). Despite this increase in population, the land surface remains the same; the pressure of the population of land has invariably forced people to destroy the vegetation cover for agricultural purposes. To this end, Kaggwa, Hogan, and Hall (2009) argue:

The main socio-economic factors and activities predisposing Uganda’s micro-climate to changes include: (a) excessive land use for agriculture, extensive grazing, industrialization and urbanization at the expense of trees and forest cover; (b) inefficient technologies in the energy, production, construction and transport sectors; (c) deforestation and dependence on biomass, especially for energy and housing; (d) population explosion; (e) wild / bush fires.

(Kaggwa, Hogan and Hall, 2009: 3)

The above assertion of Kagwa, Hogan, and Hall (2009) is mostly linked to human activities.

Whereas to some extent, in some areas, it was the government that sanctioned citizen encroachment on forest reserves, in some cases the citizens unilaterally decided and went on the rampage. The present population explosion and urbanization, people's desire for commercial farming, and urge for energy for cooking, fires, and livestock damage, and pests and diseases like termites, pine wood aphid, and blue brown chalet (MWE, 2016: 25), all contribute to the changing reality in Uganda.

This phenomenon is a recent development. Whereas during its administration of Uganda the colonial government had secured over 1.9 million hectares of land for the forest, starting from the early 1970s to date a lot of negative developments have taken place that have negatively affected the conservation of forests. These developments have led to a drastic reduction in the size of the forest land to the extent that some forest reserves have depleted. One of the biggest causes of this was the tumultuous years in the history of Uganda. The fear of rebels hiding in some of these forests made successive governments to de-gazette chunks of urban forest areas for human settlement or cultivation. The forest reserves that have suffered as a result of the de-gazette are the forests located in Luwero, Mpigi, Mubende, Kampala, Mukono, and others (MWE, 2016: 25). Besides, during the turbulent years, Forestry Department Staff could not protect the forest reserves of Lwanunda, Ziruntic Range, and Lwanga. As a result, other forests, including, but not limited to, Mabira, Mount Elgon, and Kibale, were also heavily encroached (Kagolo, 2010).

The destruction of the forest cover as seen above is just but the tip of the iceberg. In different parts of Uganda, a lot more destruction of forests for timber, charcoal, and opening land for agriculture, and modernization is going on. Whereas this is a danger to the country in terms of its effect on the climate, those in authority seem to selectively apply the law. In that, those who seem to be connected with the people in authority are left to do whatever they like with the land and those who are not connected usually face the full brunt of the law.

The menace of rampant destruction of trees in the country has not spared the savannah grass and woodland either. Illegal charcoal burners have been destroying the savannah grassland areas. Whereas some local governments in parts of the country, like Gulu, have enacted laws that make charcoal burning illegitimate, there are some elusive people who connive with politicians and army officers to continue the practice. The process of deforestation usually causes climate change in three significant ways: firstly, it reduces soil moisture and leads to desertification; secondly, it increases the green house effects; and thirdly, it leads to melting of icebergs. It is important for Uganda to protect its forests.

In regard to the reduction of soil moisture that eventually facilitates desertification, given that many trees are being cut indiscriminately, their role of covering the soil and preventing it from losing water through evaporation is disorganized. For once the trees are cut, the soil is exposed to direct sunlight. This process leads to evaporation of the moisture in the soil, thus making the

soil dry up. Hence, the continuing act of deforestation in different parts of Uganda has broken down the water cycle. These therefore affect rainfall, thus making many parts of the country experience longer dry seasons than previously. This condition is further compounded by reckless burning of grassland for fresh grass to grow for animals, and clearing the ground so they are able to get access to certain food items in the forests. The smoke that rises from these burnings adds to climatic stress.

Concerning the emission of greenhouse gases in the air, when trees are felled, they release the carbon they are storing into the atmosphere. When this carbon mixes with greenhouse gases from other sources, they give an adverse effect on the climate. Whereas forest growth takes carbon dioxide out of the atmosphere, cutting forest does the opposite. Given that the lifetime of carbon dioxide in the atmosphere is somewhat elastic, its effect becomes great on the climate. For example, the study carried out by Rinkesh (2018) reveals that in 2010 alone deforestation resulted in the release of approximately a billion carbon dioxide into the atmosphere. With the constant cutting of trees world over, and in Uganda in particular, many forest covers have depleted, increasing the concentration of greenhouse gases that lead to an increase in global warming, and thus causing climate change with adverse weather patterns such as flooding and drought. As a result of this, Uganda has over the years experienced La Niña and El Niño. Besides, greenhouse affects the levels of evaporation and evapotranspiration. High temperatures cause extended dry spell periods and the exacerbation of drought conditions.

In regard to the melting of the iceberg in Uganda, the ice caps of Ruwenzori Mountain have been affected by the destruction of forests in the region and the country at large. The increased temperature in the country, as a result of forest destruction, has led to the melting of the icecap on the mountain. This has inevitably led to an alteration in the weather pattern, thus causing a change in the climatic conditions in the country.

Agricultural practices of cultivation and grazing have a great bearing on climate change. For example, the swart of land in Uganda commonly referred to as the cattle corridor is experiencing extreme climate change due to over grazing. Apart from the nomadic pastoralism practices in Karamoja and Western Uganda, the shift from keeping traditional cattle, goats, sheep, and pigs to an improved variety of the same imported from outside the country is causing a lot of stress on the environment. This is because, in most cases, as people set the modern farms, to avoid disease outbreaks, farmers tend to clear the vegetation cover, and/or open trenches in swamps and wetlands so that excess water is drained and the piece of land used for constructing paddocks. This, in most cases, is done in western and central Uganda. Through this process, a lot of trees are cleared, thus exposing the ground to constant heat, further leading to climate variability.

In regard to crop production, the destruction of the vegetation cover to support food crop production, if not carefully executed, also leads to land degradation. Since agriculture is the backbone of Uganda's economy, many people

have turned to land use for the cultivation and rearing of animals. Besides, with many rural areas becoming urbanized due to the multiplication of administrative centres, many cottage industries are beginning to emerge around the country. Furthermore, given the climate variability in Uganda, whenever there is high rainfall in some parts of the county, a lot of land and mud slides are experienced. This situation gets even worse given the rapid depletion of the vegetation cover across the country. And in some places, where the precipitation is low, especially the Karamoja area, overgrazing of animals softens the soil due to constant trampling of the animals on the soil. Hence, whenever there is a heavy downpour, a lot of soil is washed, leading to soil erosion. All these cause stress to the soil, thus affecting the environment, and eventually translating into climate change.

Figure 7.1 shows the devastation in Karamoja whenever the region experiences heavy rainfall. In some instances, when this occurs, the region gets cut off from the rest of the country, thus making the movement of goods and people very difficult.

Furthermore, the constant use of the same land over and over has caused a reduction in the fertility of the soil. In the wake of looking for virgin land, people have resorted to clearing forests so to produce more yields. In the process, a sizable quantity of bush is cleared, trees are cut, and cleared bush is burnt. This process destroys the vegetation cover, thus exposing the land to wind and water erosion. Besides, the smoke from burning the cleared shrubs and trees raises the levels of carbon dioxide in the atmosphere, thus affecting the ozone layer. Therefore, agriculture contributes to increase in greenhouse gas through (a) CO₂ releases linked to deforestation, (b) methane releases from rice cultivation and sugar cane by-products, (c) methane releases from enteric fermentation in cattle, and (d) nitrous oxide releases from fertilizer application (Nuwagaba and Namateefu, 2013: 69).

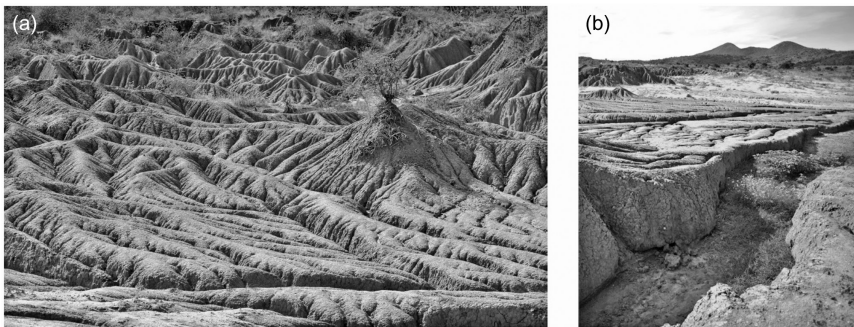


Figure 7.1 (a) & (b) Soil erosion in Karamoja. Source: Byekwaso, F. et al. (n.d), *The impacts of climate change on food security and livelihoods in Karamoja*, Kampala: C-ADAPT & MWE.

There is a rapid surge in the numbers of industries in Uganda. This rapid industrial development has also come with costs attached to it. Given the emerging industries manufacturing different products, some production processes have a devastating effect on the environment, thus causing climate change. Two quick examples: synthetic products processing and sugar production. Given the privy packaging in polythene bags and plastic bottles, factories producing them have surged in the country. Firstly, the process of manufacturing synthetic products causes carbon emissions as well as other environmental problems. Secondly, most people have failed to manage its disposal efficiently. Oftentimes, once people have taken the content, they dispose the polythene bags and plastic bottles anyhow. Usually, when it rains, these disposals block water channels, thus leading water logging. In some instances, when the synthetic products are buried underground, they lead to distortion of percolation of water and aeration in the soil. This eventually makes the land unfit for vegetation growth and food crops. Furthermore, careless dumping of synthetic products is ecologically dangerous because their mechanical shredding greatly reduces soil fertility (Nuwagaba and Namateefu, 2013: 66). Thirdly, whereas some people choose to burn synthetic products, the process of burning releases toxic fumes into the atmosphere. The accumulation of such fumes in the atmosphere damages the ozone layer.

Looking at the above instances, it becomes plain clear that the effect of climate change in Uganda is real. For example, the 2013 UNDP report on “climate change in Uganda” reveals that

Climate change can potentially impact agricultural production in a number of ways. In the case of crops this may be by changing: (i) the area suitable for agriculture, (ii) the length of the growing season, (iii) yield potential, (iv) the frequency and severity of extreme events (in particular droughts and floods) and (v) the incidence of plant diseases. In the case of livestock climate change may affect production through: (i) impacts on the quantity and quality of feed, (ii) increasing heat stress, (iii) changes to and spread of livestock diseases, and (iv), changes in water availability.

(UNDP 2013, see also Dale, Markandya, Bashaasha and Beucher, 2015: iii)

Indeed, looking across Uganda, the impact of climate change on agriculture is reflected in all the areas highlighted in the 2013 UNDP report. Farmers involved in both crop production and livestock sectors feel climate stress. Consequently, this affects food security at all levels.

The increase in average temperatures, change in rainfall patterns, and total annual rainfall amounts are the most critical climate change issues in Uganda, given that the change in temperature has an effect on water resources, food security, natural resource management, human health, housing, and infrastructure. Furthermore, given that rains also cause floods, such floods have a direct effect on transportation, housing, social services, and people’s livelihoods.

Unpredictable rainfall patterns have resulted in changing growing seasons and reduced water availability. This has several knock-on effects. Many Ugandans depend on rain-fed agriculture, and less rain means less food availability, accessibility, and utilization. With a majority depending on agriculture for jobs, it has an effect on income levels too. All of this disruption increases the chances of conflict and displacement in the country (FAO, 1996).

During the last two decades, Uganda has experienced several incidences of droughts, with regular incidences of extreme temperature, seasonal shifts, and reduction in rainfall (Magrath, 2008). Yet, Uganda is currently embarking on rapid industrialization at the expense of the environment. Many wetlands have been degraded for purposes of industrial development. Wetlands play a very vital role in carbon sequestration, and their destruction has an impact on climate. Failure by the government to fulfil its commitment to climate change adaptation and mitigation makes the whole situation worse. While the government often commits to combating climate change, implementation and enforcement of climate-related policies is still a big challenge in Uganda.

Snow caps in the mountainous regions have been melting and, along with too much rainfall, this has increased the frequency of flooding and mudslides, again impacting agriculture and also contributing to the spread of diseases such as typhoid fever and cholera. An outbreak of cholera in Kampala, for example, has been attributed to too much rainfall and poor disposal of faecal material within some areas in the city. It is within this context that the mainline churches in Uganda have sought to respond to climate change.

The responses of the mainline churches to climate change in Uganda

Given that religious convictions shape human attitudes and worldview in very profound ways, leaders of the mainline churches in Uganda have awakened people's concern on environmental issues and climate change. The leadership of these churches have taken discourse on environmental sustainability and climate change seriously. Drawing from biblical principles, that the advocates are greatly impacting knowledge on environmental sustainability has compelled the church leaders to see the need for sensitization and awareness creation based on biblical principles, especially on stewardship of natural resources. Since the Bible is awash with principles of conservation and effective use of resources (Gen 1:12, Gen 2:15, Exod. 16:4, Exod. 23:10) and God has empowered people to preach and speak about conservation (1 Kings 4:33), some church leaders use every available opportunity at their disposal to do so. Consequently, they take this up and share the same with the masses so that they are aware of the impacts of being bad stewards. To them the concept of Christian Stewardship requires human beings to be responsible for the world, and take care of the environment so that through that they will be able to feed themselves and leave the world a safer place for the generations to come (Kihumuro, 2018). In his charge to the 20th Diocesan synod, Bishop Samuel Kahuma, the successor

of Bishop Nathan in the Church of Uganda, called upon everyone “to avoid encroaching on wetlands and conversion of the same for agricultural activities,” knowing that God gave humans authority to utilize the natural resources but to be stewards over the same (Gen 2:15) (Kihumuro, 2018).

Partly, the zeal of the mainline churches’ participation in matters of environmental sustainability and climate change stems from the fact that environmental degradation and climate change pose a serious challenge by exacerbating communities’ fragility and increased resource-based conflicts. In advocating for sustainable use of the environment, the church leaders are able to address conflicts, especially pertaining to water and other natural resources.

Some of the mainline churches that are members of the All Africa Conference of Churches (AACC) have tried to pursue the recommendations of the 2008 AACC’s Nairobi declaration. This declaration calls upon “Christian leaders from across the continent to call on governments and donors to make environmental sustainability a priority, and take necessary measures to promote adaptation and mitigation efforts to the governments and the NGOs” (Yakubu n.d.: 52). Cognizant of this call, many mainline church leaders in Uganda have been sensitizing their congregations about environmental protection and encouraging tree planting as a way of mitigating climate change. To this end, some religious organizations have set up tree nurseries, from which they supply communities with seedlings so to encourage tree planting.

The Church of Uganda in its strategic plan has emphasized the need to curb the effects and impacts of climate change. Through this, as Archbishop Stanley Ntagali says, the Church of Uganda “seeks to be at the forefront of mitigating the adverse impact of climate change in our country”. To actualize this, the Church of Uganda Provincial Assembly mandated the development of a policy on climate change so as to help her promote environmental stewardship (DCA, 2009). This is because it has been identified to be one of the threats to spreading the holistic gospel, and therefore needs attention in addition to having it as a critical intervention area through identifying and forming climate change teams at all levels of the church. As a result, at the lower levels, some dioceses within the province of the Church of Uganda have headed to the concern seriously. For example, Kigezi Diocese has come up with the Kigezi Water Project that aimed at providing access to water resources to households. Bunyoro Kitara Diocese has developed a policy that emphasized tree planting on empty church lands since the Diocesan Anthem itself emphasizes “wise use of natural endowments to build and develop the church” (Kihumuro, 2018).

Bishop Nathan Kyamanywa, during his tenure as a diocesan bishop of Bunyoro Kitara Diocese in the early 2000s, made it a point to champion climate mitigation. He oversaw the growing of Pine trees on church lands, encouraged tree planting by every confirmation candidate, and preached the same at every church function. He had fallen in love with trees even before he became a diocesan bishop. Then, on the day of his consecration, he made the need to plant trees as part of his charge by calling all Christians to embrace tree growing. On that very day, he demonstrated the need to plant trees

practically by handing every clergy a tree seedling to go and plant (Kihumuro, 2018). Even after retiring from active church service, Bishop Kyamanywa has continued campaigning for sustainable use of the environment and has planted trees on vast lands. This commitment has earned him the title of ACT Alliance Climate Ambassador. By the time he handed over office to the new bishop, more than 100,000 trees were planted, and the 19th Synod endorsed his proposal to “observe an annual Diocesan Climate Change Day,” thus affording an opportunity to participate in climate-friendly activities on that day (Kihumuro, 2018).

That aside, in one of the five-year Development Plan of Bunyoro Kitara, the diocese put emphasis on the promotion of a sustainable environment for holistic development in all its parishes and churches. The strategy for achieving this was through promoting livelihood support and sustainable environment programmes such as community afforestation programme, sustainable agriculture at household levels, promoting horticulture, zero grazing, milk processing, apiary, and promotion of energy-saving technologies, such as stoves as initiatives towards that direction and use of solar lighting for a clean environment (Bunyoro Kitara Diocese, 2011). In a bid to walk the talk, the diocese has planted over 67,343 pine trees and the parishes had planted 567,327 trees at the time of writing. Following this lead, the diocese of Kitgum had started planting trees to secure church land from land grabbers.

The leadership of the Roman Catholic Church in Uganda had also encouraged the planting of trees and sustainable agriculture at various fora. When elected as a new Bishop of Soroti Catholic Diocese, Bishop Joseph Eciru Oliach urged all Ugandans to embark on tree planting as a way of combating global warming (Ojok, 2019). Even before this call had been made, as a way of mitigating climate change, some church leaders had joined the campaign of tree planting on open lands (Ahimbisibwe, 2010) by ensuring all candidates who are to take part in sacraments would plant at least a tree on church land before they participated in such a ritual. Through such campaigns, reforestation has been achieved in areas that had once been rendered wasteland.

At the time of writing, a growing number of mainline church leaders were mainstreaming environmental sustainability and climate change in both development programmes and theological education. There were a sizeable number of climate change projects in Uganda that the mainline churches were overseeing. These projects help to create awareness on environment degradation and climate change (Olika, 2010). The organizations carry out campaigns to sensitize the communities about environmental concerns through undertaking advocacy activities, organizing workshops and seminars, and establishing orchards and plantations. Some churches combine climate change initiatives with other programmatic areas such as peacebuilding, HIV and AIDS, gender, water, and sanitation, and others. Furthermore, in some theological colleges and seminaries, and church-founded schools, there has been a deliberate inclusion of climate change in the curriculum in order to equip the future church leaders and theologians with the required skills so that they are able to draw

the attention of their congregations on the dangers of climate change and environmental degradation. Such strategic inclusion of environmental education in the curriculum is in line with the aspiration of the UN Decade of Education for Sustainable Development (DESD). As Joseph Yakubu (n.d.: 52), quoting the United Nations Scientific Cultural Organization (UNESCO), asserts, this helps to

integrate values, activities and principles that are inherently linked to sustainable development into all forms of education and learning and help usher in a change in attitudes, behaviours and values to ensure a more sustainable future in social, environmental and economic terms.

Further, since much of the environmental degradation that leads to climate change is due to human activities, like agriculture, members of the mainline churches are encouraging a new form of framing code named “Farming God’s Way” (FGW), where people are taught how to make use of small pieces of land productively. While expounding on the concept of Farming God’s Way, Harry Spaling and Kendra Vander Kooy (2019) assert:

Farming God’s Way (FGW) is a type of conservation agriculture (CA) that re-interprets the CA principles of no tillage, mulching and crop rotation using biblical metaphors such as God doesn’t plow, God’s blanket, and the Garden of Eden. Through faith-based networks, FGW has spread throughout Sub-Saharan Africa, and beyond, as a development intervention for improving food security, adapting to climate change, and restoring soil productivity for resource-poor farming households.

(2019: 411)

From the above assertion, we could deduce that the principle of Framing God’s Way is a multi-pronged approach. It encourages both sustainable agriculture for increased food production and environmental protection. In Uganda, since 2012, A Rocha Uganda, a Faith-Based organization, has trained over 319 farmers in Farming God’s Way. Practising the skills acquired from the training has led to increased yields for the farmer and eco-friendly farming methods through using recycled waste products from the community (A Rocha Uganda, n.d.). Looking at this approach carefully, one could note that this is a ‘win, win’ programme given it results in

- Increased crop yield for the farmer, which also gives
- Better food security
- Opportunity for cash profit
- Recycling of waste products which also gives
- Natural fertilizer for the fields
- Cash saving – no need to purchase fertilizer
- Cleaner environment, reduction of rubbish (A Rocha Uganda, n.d.)

In actualizing this strategy, in 2014, three groups of farmers in the Mukono and Buikwe areas were offered training in Farming God's Way to help curb the serious land degradation and consequent reduction in crop yields in the Lake Victoria Crescent.

Besides, in some parts of the country, the church has set up demonstration farms where farmers are taught sustainable farming techniques such as intercropping and compost production. Poultry production and animal husbandry are also important components of the programme. The range of services provided by these faith-based institutions is available to communities without discrimination on the basis of religion or ethnicity.

Conclusion

From the foregoing discussion, it is clear that climate change is a reality with its adverse effects. However, the mainline churches, knowing that they have the mandate to create awareness to sustainably use the environment created by God, have taken it upon themselves to advocate for climate justice. They engage in various activities, seeking to contribute towards meeting the targets set in SDG 13 on climate change, as well as to address related challenges such as overcoming poverty. While doing so, they are cognizant that a lot still remains to be done in order to mitigate climate change and its adverse effects in Uganda.

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8 Five years after

An overview of the response of Catholics in Africa to the *Laudato Si'*'s call for creation care

George C. Nche

Background

Laudato Si' has recorded a tremendous impact across the world. Yet, little is known about how and what Catholics in Africa have done in response to the central message of the encyclical. This is despite the fact that the central focus of the encyclical (i.e. climate change and poverty) largely concerns Africa. This study examined how Catholics in Africa have responded to *Laudato Si'* in the last five years. Data were sourced from Google and online databases of Catholic-based news agencies such as Vatican News, Association for Catholic Information in Africa (ACIAFRICA), National Catholic Reporter (NCR), etc. A documentary analytical method was used to analyze the data. Findings show that responses to *Laudato Si'* have come in diverse forms: conferences/workshops/intellectual expositions, environmental initiatives, environmental activism, and government/organisational policy and action. Of these categories, conferences/workshops/intellectual expositions constitute the most prominent form of response, with 63% in the data. Although the responses are generally poor, most of the responses (i.e. 61%) across all the categories came from East Africa. Implications of findings for the Catholic Church, policy, and research are discussed in this chapter.

Introduction

In 2015, Pope Francis published the Encyclical *Laudato Si'* (Praise Be to You). This Encyclical, on publication, attracted great attention from both policymakers and scholars around the world. Tilche and Nociti (2015:2) note thus: “coming from the highest authority of a religion counting more than one billion followers,” the encyclical has generated a tremendous impact worldwide. In the United States, for instance, Hoffman (2015a) notes that the encyclical, on publication, provoked rapid response. And within a month after publication,

forty percent of American Catholics and one-third of all Americans had heard of it, many seeking it out and finding it to be accessible, engaging

and moving – sentiments that could not be said for many Encyclicals of the past, if people even knew what an Encyclical was.

However, this impact is not only because of the influential nature of the author of the encyclical (see Tucker 2015) but also because of the sensitive nature of its focus: climate change and poverty. For instance, there have been many global engagements and initiatives around the encyclical. These include academic conferences, global development initiatives, and research engagements.

Yet, the encyclical polarized Catholics and policymakers alike into those who believe in the reality of the challenge of climate change and the Pope's authority and responsibility towards the challenge, and those who question the reality of the challenge as well as the basis for the intervention of the Pope. For instance, about 5% of Catholics became less inclined to trust the Pope as a source of information on global warming after *Laudato Si'*; only 18% of Catholics discussed it within their place of worship, and after its publication some Catholics showed no greater desire to discuss climate change with family and friends than their non-Catholic neighbours, with three-quarters of Catholics reporting they had discussed climate change "rarely or never" (Marshall n.d.). In fact, some have gone to the point of faulting the socio-economic and ecological diagnosis made in the encyclical (see Capaldi 2017).

Nevertheless, having struck a chord that cut across denominations and continents, the encyclical remains one of the most innovative proposals put forward by world leaders in recent years on the path to common decisions and actions on climate change (Tilche and Nociti 2015). The encyclical proposes that we, amidst the capacities we have built through science and technology, assume responsibility by adopting a personal and cultural attitude of "integral ecology" recognizing that "everything is interconnected. The issues whose connections need to be recognized include economy, science, nature, education, culture, spirituality, and religion" (Whelan 2020). Overall, the encyclical makes a strong case for effective robust collective action on climate change and on delivering justice to the poor and vulnerable people who suffer disproportionately from the impacts of climate change. This is reinforced in the Goal 13 of the Sustainable Development Goals (SDGs), which calls for urgent action on climate change and its impact on the poor (see UN n.d). The majority of these poor and vulnerable people are found in the Global South, such as Asia and Africa. Little wonder, a few months after the release of the encyclical, the Pope visited three African countries: Kenya, Uganda, and the Central African Republic from 25 to 30 November 2015. These visits availed the Pope the opportunity to not only discuss the environmental ideas in his encyclical with the leadership of the countries but also feel or witness the reality of poverty and destitution worsened by the devastations caused by climate change.

The aim of this study, therefore, is to examine how the Catholics in Africa have responded to *Laudato Si'*'s call for creation care. Previous research on *Laudato Si'* has focused on highlighting the astute personality and beauty of Pope's vision in *Laudato Si'* (Tilche and Nociti 2015; Deane-Drummond

2016), exploring the relevance of *Laudato Si'* for environmental policy in Ireland and liberation theology in Latin America (Whelan 2020; Kerber 2019), the impact of *Laudato Si'* on the Paris Climate Agreement (Burke 2018). Not much scholarly attention has been given to Africa with respect to the encyclical, except for the contributions by Allatin (2018) and Osuji (2018), which approached the encyclical from the African environmental perspective, and by Ottaro (2020), which made quite a shallow attempt at assessing the impact of *Laudato Si'* in Africa. Again, previous empirical studies (see Ricci and Banterle 2020; Li et al. 2016; McCallum 2019; Myers et al. 2017; Maibach et al. 2015) that have gauged people's responses to the encyclical have not only concentrated in the United States and Europe but have also focused only on reporting *Laudato Si'*-induced attitudinal changes. There seem not to have been any study investigating similar attitudinal responses in Africa, nor has there been any documenting practical *Laudato Si'*-induced environmental programmes, initiatives, and activism in any country. While gauging and reporting the *Laudato Si'*-induced behavioural changes is important in knowing/measuring the impact of the encyclical, it seems more important to assess the impact of the encyclical by documenting or assessing the practical environmental programmes initiated on the account of the encyclical. All these justify not only the focus of this study but also its approach-documentary approach. Also, since Africa suffers disproportionately from the impacts of climate change (see IPCC 2014), it therefore seems important to examine the response of a group of Africans, such as Catholics, to a document that addresses climate change and vulnerability. The focus on only Catholics is necessary because while *Laudato Si'* is addressed to "every person living on this planet," as argued by Edenhofer et al. (2015:3) and Northcott (2016), the Catholics are the first recipients of the encyclical. It should be noted that the terms "climate change," "ecological crisis," and "environment" will be used interchangeably in this study depending on the context. Space considerations prevent a detailed description of the encyclical *Laudato Si'* and the reader is encouraged to familiarize her/himself with this strategic document, if she/he is not yet conversant with it (see, for example, https://www.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html, accessed 15/10/2020).

Methodology

To examine how or the ways Catholics in selected African countries and organisations have responded to *Laudato Si'* in years 2015 to 2020, this chapter relied on the document analysis method. Document analysis, in a general sense, refers to a systematic procedure for reviewing, evaluating, or interpreting documentary evidence - both printed and electronic (computer-based and Internet-transmitted) - in order to answer specific research questions or to elicit meaning, gain understanding, and develop empirical knowledge (Bowen 2009; Corbin and Strauss 2008; Rapley 2007; Frey 2018). In this method, documents of all kinds are critically analyzed to give voice and meaning around

an assessment topic or in the interest of social or historical value. Documents that may be analyzed can come in different forms: advertisements; agendas, attendance registers, and minutes of meetings; manuals; background papers; books and brochures; diaries and journals; event programmes (i.e., printed out-lines); letters and memoranda; maps and charts; newspapers (clippings/articles); press releases; programme proposals, application forms, and summaries; radio and television programme scripts; organizational or institutional reports; survey data; and various public records (see Bowen 2009). Video documentaries are also accepted materials for document analysis.

In this chapter, the document analytical method was used to analyze available *Laudato Si'*-related documents, events, and videos showing or containing information about how African Catholics have responded to the Encyclical's call for creation care. The Internet was the sole source of the documents for the analysis. Specifically, these documents were sourced from Google and databases of Catholic-based News Agencies such as Vatican News, Association for Catholic Information in Africa (ACIAFRICA), National Catholic Reporter (NCR), etc. The key words used for the searches included Catholic responses to *Laudato Si'* in Africa, *Laudato Si'* and Africa, Conferences/Seminars/workshops on *Laudato Si'* in Africa, the Pope Francis' encyclical in Africa, *Laudato Si'* and Environmental Initiatives in Africa, *Laudato Si'* and Climate policy and action in Africa, etc. The criteria for selecting these documents included (i) clear connection with *Laudato Si'*, and (ii) contain information on the climate change and environmental initiatives, programmes, and actions African Catholic churches and groups have taken in response to *Laudato Si'*. Although it is implied that this study is focused on responses over the period of five years of *Laudato Si'* existence (i.e. from 18 June 2015 to 18 June 2020), all the responses beyond 18 June to the end of the year 2020 were accommodated. It was necessary to accommodate the changes or impacts brought about by the COVID-19 as some responses that might have been recorded by some Catholics might have been disrupted by the pandemic and the resultant lockdown rules across African countries.

With respect to selected intellectual expositions, they had to be from Catholic groups or leaders of congregations (such as bishops and priests), not individuals affiliated with academic institutions in African or non-African institutions. This is because unlike academics or authors, bishops or Catholic congregational leaders represent the Catholic Church in different capacities in Africa, and as such were suitable for the focus of this chapter. Also, unlike intellectual expositions, those of Church leaders (such as bishops and priests) have the higher potential to attract great attention and compliance due to the perceived credibility of these persons in Africa. Again, while there are pockets of environmental initiatives, programmes, and actions executed by some Africa-based Catholic groups (e.g. The Catholic Youth Network for Environmental Sustainability in Africa [CYNESIA]), in the pre-*Laudato Si'* era, the researcher did not only select those executed in the post-*Laudato Si'* era, but also streamlined the focus of the study to those environmental/

climate conferences/initiatives/programs/actions with clear ties with *Laudato Si'*. Furthermore, there are some documented responses from some Catholic organizations whose nomenclatures include the term “African,” such as the Society of African Missions (SMA) based in Rome, Italy (see Drumm 2016a, 2016b). However, these responses were excluded from the list of African Catholic responses because while these organizations are committed to the spiritual welfare of Africa, they are not African in many respects and as such not suitable for this chapter. However, in cases where responses were recorded from the African branches of these organizations (e.g. the SMA, South African Branch and the Sisters of Mercy Education, Kenya), as well as where these responses are executed in Africa, such responses were captured in this study.

In the end, a total of 38 documents were selected, comprising eight intellectual expository documents, two video documentaries, and twenty-eight news reports. The selected documents were analyzed using four major frameworks: conferences/workshops/intellectual expositions, environmental initiatives, environmental activism, and government/organizational policy and action. These frameworks emerged from the critical analysis of the documents showing African Catholics’ responses to the encyclical. The “conferences/workshop/intellectual expositions” framework captures all the responses in the form of intellectual gatherings and expositions on *Laudato Si'*. The framework “Environmental Initiative” captures all responses (especially in the form of proposals) that show some level of innovativeness and creativity. The responses that involve vigorous campaigning in the form of protests or marches are captured under the environmental activism framework. Finally, the framework “Government/Organizational Policy and Action” contains responses that are tangible and have direct impacts/implications for environmental sustainability and climate change mitigation and adaptation in Africa.

The *Laudato Si'* call for creation care: the African Catholics’ response

Catholics in Africa have responded to the Pope’s encyclical on the care for creation in diverse ways. These responses (see Table 8.1 for details) shall be discussed using the following frameworks/themes: conferences/workshops/intellectual expositions, environmental initiatives, environmental activism, and government/organisational policy and action.

Conferences/workshops/ intellectual expositions

There have been some conferences and workshops organized in Africa on account of the need to care for the planet as espoused in *Laudato Si'*. For instance, a two-day international conference themed “*Young People Caring for Our Common Home*,” was held at the United Nations Environment Programme (UNEP) headquarters in Nairobi, Kenya, from 15 to 16 July 2019. This was jointly organized by the Catholic Youth Network for Environmental

Table 8.1 African Catholics' Response to *Laudato Si'*

S/N	Conferences/Workshops/Intellectual Exposition	Environmental Initiatives	Environmental Activism	Government/Organizational Policy/Action
1	A sub-regional conference held from 21 to 22 October 2020 with the theme: "Young people as actors and promoters of the safeguard of our common home: Challenges of integral human development in Great Lakes Region of Africa." Organizers: The social apostolate of Rwanda–Burundi Region, Venue: Jesuit Urumuri Center, Kigali, Rwanda	The composition of <i>Laudato Si'</i> Song "Waka-Waka" by Steeven Kezanutima, a lay Franciscan, regional manager for Justice, Peace and Integrity of Creation Franciscan Africa (JPIC-FA) in Nairobi	The 22 September 2019 MEO-led march to create climate change awareness and to foster the sense of environmental stewardship in Kenya	The commitment and pledge to divest from fossil fuels by the Catholic University of Eastern Africa, the Association of Member Episcopal Conferences in Eastern Africa and Some lay organizations in Malawi and Nigeria
2	A two-day international conference on the fourth anniversary of <i>Laudato Si'</i> jointly organized by the Catholic Youth Network for Environmental Sustainability in Africa (CYNESA); World Wildlife Fund (WWF) Regional Office for Africa; and the Holy See's Dicastery for Promoting Integral Human Development and the UN Environment's Faith for Earth Initiative Venue: Nairobi, Kenya. Date: 15-16 July 2019	The making of the film: <i>Laudato Si'</i> in Africa by the Songhai Centre by the Chemin Neuf Community		The Catholic-led (e.g. the Global Catholic Climate Movement Africa) opposition against The East Africa Crude Oil Pipeline (EACOP) project in Uganda and Tanzania

(Continued)

Table 8.1 (Continued)

S/N	Conferences/Workshops/Intellectual Exposition	Environmental Initiatives	Environmental Activism	Government/Organizational Policy/Action
3	A conference scheduled at the Christian Brothers Centre, Stellenbosch on Saturday 9 May 2020 in preparation for Laudato Si' Week (Due to the COVID-19 pandemic, this conference was held online)	The translation of Laudato Si' into Kiswahili language by the Tanzanian bishops' conference		The execution of wastewater management project by the Jesuit Conference of Africa and Madagascar (JICAM)
4	A multi-agency conference on agroecology. Venue: Tabor Hill Pastoral Centre in Nyahururu in Kenya. Date: 24-29 November 2019	The initiation of a tree nursery project, initially with 12,000 seedlings by the Catholic Justice and Peace Commission (CJPC) in the Diocese of Kakamega in Kenya		The planting of trees at the end of the week-long celebrations of Laudato Si' at the Arrupe Jesuit Institute at Atomic Hills, Ghana This was executed by the Ghana-based Ignatian Youth Network (IYNIGO)
5	Webinars, online prayers and a tree-planting ceremony organized to mark the fifth anniversary of Pope Francis' Encyclical Letter Movement in Africa (GCCM) scheduled for 16-24 May 2020	The building of a rooftop Laudato Si' Garden in Nairobi, Kenya		A tree-planting exercise organized to mark the fifth anniversary of Pope Francis' Encyclical letter on the environment on 18 May 2020 in Nairobi, Kenya
6	A call by the Zambia Catholic Bishops' Conference (ZCCB) to Zambian politicians to consider going beyond political correctness and base their actions on what can safeguard the earth and the ecosystem. Date: 24 September 2020	The training of 24 persons on alternative sources of household cooking fuel (wood-saving stoves) by the leadership of Zambia's Ndola Diocese		

- 7 A joint publication titled “Joint Reflection on Land in Africa: An Exploration on Laudato Si’s Approach to Our Relationship and Responsibility to Care for the Land and Its Small-Scale Food Producers” by AEFIN – Africa-Europe Faith and Justice Network; AFIN – Africa Faith and Justice Network; AFSA – Alliance for Food Sovereignty in Africa; SECAM – Symposium of Episcopal Conferences of Africa and Madagascar; and RECOWA – Regional Episcopal Conference of West Africa with the support of CIDSE West Africa Regional Seminar was held on the theme “The Future of Work and Labour after Laudato Si’” in Cape Verde from 7 to 9 May 2019 organized by UNIAPAC and International Coordination of the Young Christian Workers (ICYCW)
- 8 The production of *Laudato Si’* Workbook by the Jesuit Institute in South Africa
- 9 Organization of online symposium and exhibition by UNEP Faith for Earth initiative and GCCM Africa to celebrate *Laudato Si’* fifth anniversary. Theme: Connecting the efforts of youths. Date: 22 May 2020

(Continued)

Table 8.1 (Continued)

S/N	Conferences/Workshops/Intellectual Exposition	Environmental Initiatives	Environmental Activism	Government/Organizational Policy/Action
10	A publication titled "The Future of Work, Labour after Laudato Si': Labour-related experiences of migrants and refugees in South Africa" by the Scalabrini Institute for Human Mobility in Africa (SIHMA)			
11	A paper entitled "Climate Change: Now is the Time to Live Laudato Si'" by Cardinal John Onaiyekan, Archbishop of Abuja posted on Wednesday, 3 August 2016 15:05 on the AfricaReport website			
12	A three-day conference (21 -23 Feb. 2018) organized by the Department of Moral Theology, Tangaza University College and the Missionaries of Africa			
13	The organization of the Mercy day feast on 22 September 2019 with the theme "Climate Action for Peace" by the Mercy Learning and Spiritual Centre aka Mercy Education Office (MEO). Venue: St. Elizabeth Lungalunga, Kenya			

- 14 The focus on *Laudato Si'* with respect to family and environment during Sundays of Ordinary Time in 2016 by the Southern African Catholic Bishops' Conference (SACBC) (covering three countries: South Africa, Botswana and Swaziland)
- 15 Ninth Marshallan Reunion Conference (27-29 July 2018) organized by University of Ghana, Legon, with the theme "Laudato Si' and Implications for Human Development"
- 16 The eighth meeting of German and African bishops from 23 to 27 May 2018 on the theme "The integral development of the human person." Venue: Antananarivo, Madagascar
- 17 A paper titled "Laudato Si' and the ecological crisis" by Ralph Okechukwu Madu. Published 2018 in an edited book titled "African Philosophy and Environmental Conservation"
- 18 The 25 September 2020 webinar themed, "Jubilee for the Earth - Reflections on Responding to the Ecological Crisis," by the Zambia Conference of Catholic Bishops (ZCCB)

(Continued)

Table 8.1 (Continued)

S/N	Conferences/Workshops/Intellectual Exposition	Environmental Initiatives	Environmental Activism	Government/Organizational Policy/Action
19	A paper entitled "An African perspective on Laudato Si' – towards an African theology of ecology" by Franck Allatin (2018). Available at the Society for African Missions website			
20	A paper entitled "Laudato Si' revisited: God heals our spiritual disconnectedness" by Stan Muyebe OP (2020). Available at the Spotlight Africa website			
21	A paper entitled "Laudato Si' takes root in Africa, but much urgent work remains" by Allen Ottaro (2020). Available at the EarthBeat website			
22	The 11th plenary session of Inter-Regional Meeting of the Bishops of Southern Africa (IMBISA) on 26 November 2020 in Maseru, Lesotho, South Africa with the theme: "Empowering the laity for effective engagement in socio-political and environmental issues. Laudato Si' as a point of reference"			

- 23 A seminar held at the Catholic University of Eastern Africa (CUEA) on 17 June 2016 with the theme "Living our vocation to be protectors of God's creation as our Christian Experience." Organizers: The Centre for Social Justice and Ethics-CUEA, The Global Catholic Climate Movement, The Mother Earth-Network (ME-NET) and the Franciscan office of Justice, Peace and Integrity of Creation, Franciscan Africa
- 24 A report entitled "Unmasking Land Grabbing in Ghana: Restoring Livelihoods, Paving Way for Sustainable Development Goals" by Caritas Ghana (2016). Editors: Samuel Zan Akologo and Bernard Y. Guri

Sources: Global Catholic Climate Movement 2020; Onaiyekan 2016; Archdiocese of Cape Town 2020; CISA 2020; CIDSE 2018; Weideman n.d.; Roewe 2020, 2019; Njuguna 2018; Marshall 2018; Admin 2020; Akologo and Guri 2016; Mama 2020; Atemanke 2019; Kahiu 2020a, 2020b, 2020c, 2020d; Ottaro 2020.

Sustainability in Africa (CYNESIA), World Wildlife Fund (WWF) Regional Office for Africa, the Holy See's Dicastery for Promoting Integral Human Development, and the UN Environment's Faith for Earth Initiative. The conference, which brought together about 360 participants from 50 countries, was organized to mark the fourth anniversary of *Laudato Si'*. During the conference, youth were urged to drive a movement to address the current climate emergency and to also learn from the example of the outspoken 16-year-old Swedish climate activist, Greta Thunberg, who has staged protests about the urgency for immediate action against climate change.

Also, a conference was held at the Tabor Pastoral Center, Nyahururu, Kenya, from 24 to 29 November 2019. The conference was convened by the umbrella organization for Catholic development agencies from Europe and North America (CIDSE) and Caritas Africa within the framework of agroecology under the theme, "Food for All, Care for Our Common Home" (Maina 2019a). The conference was partly a response to the UN call to alleviate an impending humanitarian crisis due to food insecurity in Ethiopia, Kenya, Somalia, and Uganda (see FAO, UNICEF & WFP 2019) and largely in response to the *Laudato Si'* call for creation care. On the connection the conference had with *Laudato Si'*, the Kenya Coordinator for Swiss Catholic Lenten Fund, Fastenopfer, Stellamaris Muelar reportedly said "*Laudato Si'* is the inspiration of this conference; it is the root, moral guide of agroecology and you find that most of the principles of agroecology underline that. At the heart of agroecology is human dignity and care for creation" (Maina 2019b). With about 80 participants from Kenya, Uganda, Ethiopia, South Sudan, and Malawi, the conference offered the opportunity to reflect on how to promote sustainable agricultural practices that prioritize the needs of farmers and minimize the negative effects on resources and the environment (Maina 2019b).

Furthermore, for the period 16-24 May 2020, the Catholic Church all over the world, including Africa, celebrated the fifth anniversary of the encyclical letter *Laudato Si'* in a week-long event christened "*Laudato Si'* Week." Symposia and exhibitions were organized by Catholics in Africa to celebrate the letter. Speaking on the theme of the celebration, which was "Everything is connected," the Global Catholic Climate Movement (GCCM) Programme Manager for Africa, Rev. Fr. Benedict Ayodi said, "this theme is significant during these times because it refers to the globalization of the world. It explains the interconnectivity of human nature and creation" (Adigolo 2020). According to the GCCM's Communications Coordinator for Africa, Stephen Makagutu,

The goals of *Laudato Si'* Week are to honour five years of bringing *Laudato Si'* to life and connect its social teachings on integral ecology to this moment; cultivate hope, spiritual fortitude, and global solidarity and encourage ambitious action to address the ecological crisis.

(Adigolo 2020)

Hence, individuals were urged to do something symbolic, such as planting a tree, talking to their families about *Laudato Si'*, and participating in a global online prayer service to commemorate the day on 24 May 2020.

Environmental initiative

Some environmental programmes have also been initiated by some catholic groups in Africa in response to the Pope's encyclical. For instance, Steven Kezanutima, a lay Franciscan and regional manager for Justice, Peace and Integrity of Creation Franciscan Africa (JPIC-FA) in Nairobi, composed *Laudato Si'* Song, "Waka-Waka." The lyrics of the song feature words sung in Latin, Italian, French, English, and Swahili. Launched on 22 May 2020 and featured by the Mercy International Association to herald the season of creation (from 1 September to 4 October) celebration, the "*Waka-Waka*" song has one unifying message: "it's time to come together and care for our common home" (Global Catholic Climate Movement 2020). According to Kezanutima, the song was composed to help spread the message of Pope Francis' inspiring encyclical on climate change and ecology, which calls on all people to understand that "everything is connected" and that now is the time to care for creation (Global Catholic Climate Movement 2020).

Also, the Chemin Neuf Community, in 2017, made a film entitled "*Laudato Si' in Africa (the Songhai Centre)*" for the International Ecumenical Fraternity, "Net for God." This film, whose duration is 31:28 minutes, was made to showcase the beauty and vision of *Laudato Si'* in an African context. In the introductory part of the film, Fr. Laurent Fabre, the founder of the Chemin Neuf Community, talks about the connection between nature and humans, describing it as a couple-like relationship. He says that nature, or creation, is like a wife to humans, and just like wives deserve to be catered for and nurtured, so is creation. Unfortunately, however, humans have been exploitative and disdainful of nature, causing a lot of devastation to many societies across the world. The film shows how Fr. Godfrey Nzamujo, founder and director of the Songhai Centre, and his team were able to restore apparently barren soil to fertile soil without using chemicals. This was done by listening to nature, taking it as a reference point, and developing initiatives adapted to the local context. The Songhai Centre is a pioneering farm, training and research centre in Porto Novo, Benin. Begun in 1985 on a single hectare of land, the Songhai project has expanded to six sites in Benin and one in Nigeria. With the motto, "Commitment to Excellence," Songhai symbolizes Nzamujo's belief that Africa's ecological characteristics are advantages rather than impediments (The New Agriculturist n.d.).

Environmental activism

Very few responses to *Laudato Si'* have come in the form of environmental activism. For instance, the Mercy Learning and Spiritual Centre aka Mercy Education Office (MEO) (i.e. an arm of the Congregation of the Sisters of

Mercy), on 22 September 2019, organized a march on the streets of Kenya to create climate awareness and to foster a sense of environmental stewardship. Over 1,000 children, youth, and adults from Mercy-associated institutions and others participated in this march. The specific objectives of the march included (i) to remind people of their interconnectedness and duty to care for all of creation through little daily actions of Mercy and Social Justice, (ii) to teach how to tackle the twin challenges of environmental degradation and climate change, from the perspective of Catholic social teaching, and the teaching of other faith traditions, on care for creation. This was driven by the belief that reads, “*One creation, one earth, many religions one goal,*” (iii) to foster the understanding of environmental responsibility and re-energize youth to be ready to take a lead on the challenge of climate and halting biodiversity loss, and (iv) to provide for networking and advocacy for environmental sustainability as well as for collection of best practices across institutions and faiths.

During the march, industries and residents within Mukuru slums environs were specifically taught how best to dispose of their waste properly and to avoid pollution. A cleanup exercise was also done within the St. Elizabeth Primary School, as well as at the Nairobi River that flows through the Mukuru slum. With 400 tree seedlings donated by the Nairobi county government, trees were planted at the St. Elizabeth Primary School. The school has experienced intense flooding during rainy seasons, at times calling for the suspension of learning due to the risk posed by the waters. Planting the trees went a long way in controlling the floods and providing carbon for the nearby industries (see Congregation of the Sisters of Mercy 2020).

Government/organizational policy and action

Apart from the encyclical’s position on the need to reconsider the reliance on fossil fuel-driven economy, the Pope, on the World Day of Prayer for the Care of Creation on 1 September 2019, called for a decisive move towards clean energy and a sustainable economy in place of the fossil fuel that has contributed to creating a climate emergency that threatens all life on the planet. In response, a number of Catholic groups in Africa have taken tangible steps towards divesting from fossil fuels. For instance, the Association of Member Episcopal Conferences in Eastern Africa (AMECEA) - which represents bishops’ conferences in Djibouti, Eritrea, Ethiopia, Kenya, Malawi, Somalia, South Sudan, Sudan, Tanzania, Uganda, and Zambia - announced on 13 September 2019 that it would divest from fossil fuels (Roewe 2020; 2019a). Some lay organizations in Malawi and Nigeria have also been reported to have pledged to divest (Roewe 2019a).

Divesting from fossil fuels has been a significant way of addressing climate change. This is because greenhouse gas emissions, which cause climate change, have been largely driven by the burning of fossil fuels such as oil, gas, and coal since the late 1800s and the Industrial Revolution. Specifically, greenhouse gas emissions have risen by 1.5% per year over the last decade, with only a brief

period of stabilization between 2014 and 2016 (UNEP, 2019; Nche 2020a). Scientists have warned that driving down emissions this decade is critical to keeping temperature rise to 1.5°C (2.7°F) and preventing irreversible destruction of communities and ecosystems (Roewe 2020). To this end, Fr. Paul Igweta, coordinator for the East African bishops' Department of Promotion of Integral Human Development, said that the bishops' conferences made the decision to divest because of the harmful impact of coal, oil, and natural gas on the environment, adding that it is important for the church to advocate for alternative energy sources and safeguard the environment for future generations (Roewe 2019a).

Also, following the environmental stewardship principles in *Laudato Si'*, the Global Catholic Climate Movement Africa has put up a strong opposition against an ongoing East Africa Crude Oil Pipeline (EACOP) project. The EACOP is a proposed \$3.55 billion, 1,443 km electrically heated pipeline that will snake through Uganda down to the Tanzanian Indian Ocean port of Tanga (Papa 2020). This project is believed to have serious consequences for human rights and the environment. Hence, lawsuits have been filed against the Ugandan government and the French oil company, Total, requesting, among other things, the project be stopped. Speaking on the connection between the opposition and *Laudato Si'*, the coordinator for Global Catholic Climate Movement Africa, Prince Papa, said,

with Pope Francis' *Laudato Si'* encyclical as our guide and in line with the landmark 2015 Paris Climate Agreement, Global Catholic Climate Movement opposes EACOP and supports a cleaner and more life-giving future for the people of Uganda and Tanzania.

(Papa 2020)

Furthermore, a new wastewater management project was reportedly commenced in 2018 in Kenya by the Jesuit Conference of Africa and Madagascar (JCAM). This project was meant to not only address the water scarcity in Kenya but also to address to the problem of waste. Specifically, the project is aimed at minimizing water wastage through treating used water and rechanneling the same for use and reuse in flushing systems and in small irrigation projects. Speaking on how *Laudato Si'* influenced the project, Agbonkhianmeghe E. Orobator SJ, the President of the Jesuit Conference of Africa and Madagascar (JCAM), said that Pope Francis has given a great lead-in through *Laudato Si'*. "But in particular I am struck by the pope's emphasis on the inescapable responsibility that each person has in the duty of caring for our common home... Here at JCAM we are striving to do our part" (Jesuit Missions 2018).

Implications and conclusion

The aim of this study was to examine how and in what ways Catholics in Africa responded to the *Laudato Si'* call for creation care in the period under

Table 8.2 Showing the Statistical Presentation of the Responses

<i>S/N</i>	<i>Responses</i>	<i>Frequency</i>	<i>Percentage</i>
1	Conferences/workshops/intellectual exposition	24	63%
2	Environmental initiatives	8	21%
3	Environmental activism	1	3%
4	Government/organizational policy/action	5	13%
	Total	38	100

Source: Researcher (2020)

study. These responses were analyzed using four frameworks: conferences/workshops/intellectual expositions, environmental initiatives, environmental activism, and government/church policy and action. Findings have shown that most of the responses fall under the conferences/workshops/intellectual expositions framework with 63% of the entire data (see Table 8.2/Figure 8.1). This suggests that in the period under study much effort and energy have been channelled towards intellectual engagements around *Laudato Si'*. Indeed, conferences, workshops, and intellectual expositions have great relevance and role in driving behaviour change and solutions to social problems. They offer opportunities for training, exchange, and cross-fertilization of ideas that lead to behavioural changes (see Rawson et al. 2017; Sneddon et al. 2018) and also provide participants opportunities to network and make vital connections that can lead to new initiatives (Oester et al. 2017). With respect to environmental sustainability and conservation, these events do not only lead to practical in-the-field-conservation, better conservation, and management policymaking but also encourage participants to communicate and educate people about environmental sustainability and conservation (Oester et al. 2017).

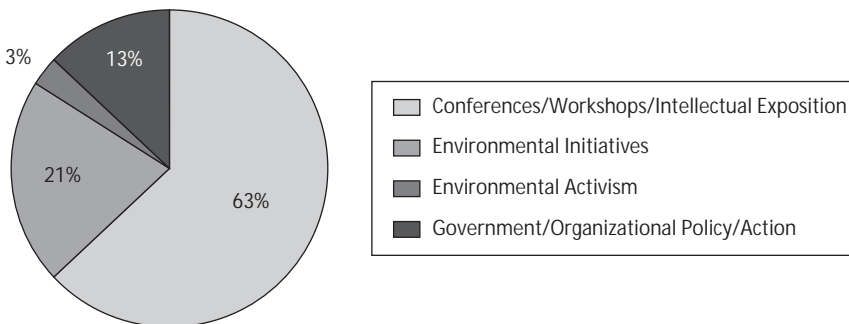


Figure 8.1 Showing the percentage distribution of responses.

In the context of this study, however, these events do not seem to have yielded many fruits in Africa as participants, especially Catholic priests, seem not to have done a great job in educating or transmitting information about *Laudato Si'* to parishioners. For instance, in a comparative study investigating country-by-country changes in public interest in the environment after the release of *Laudato Si'* using Google-based internet activity, McCallum (2019) reported that African countries, unlike other developed and Latin American countries, scored very low in the rate of internet searches around the environment and *Laudato Si'*. This is, according to McCallum, despite the large biodiversity hotspots and Catholic population on the continent. Although lack of adequate internet access could partly explain this trend (see Nche 2012a for other challenges of eco-sustainability campaign), it is more likely to be as a result of the gap in communication about *Laudato Si'* between the priests and the parishioners. This is because one of the most important diffusion mechanisms within the church is communication from priests to parishioners (McCallum 2019:218; Nche et al. 2017; Nche 2012b). This highlights the need for Catholic priests to do more in the area of educating parishioners not only on the environmental principles in *Laudato Si'* but also on the practical ways to implement these principles. It is also important for future studies to investigate the level of awareness about *Laudato Si'* and its influence on climate change/environmental perceptions among parishioners in Africa. A study of this nature will provide clear insights into the impact of the encyclical in Africa.

The findings also show a huge gap (see Table 8.2/Figure 8.1) between the responses under the conferences, workshops, and intellectual expositions (63%) and other responses such as environmental initiatives (21%), environmental activism (3%), and government/church policy and action (13%). Myers et al. (2017) investigated whether exposure to *Laudato Si'* can increase the consistency between attitudes and activism behaviours among people with pre-existing strong attitudes, particularly for behaviours

Table 8.3 Showing the Regional Differences in Responses

S/N	Responses	North Africa	East Africa	Central Africa	West Africa	Southern Africa	Total
1	Conferences/workshops/intellectual exposition	–	11	–	6	5	22
2	Environmental initiatives	–	5	–	–	1	6
3	Environmental activism	–	1	–	–	–	1
4	Government/organizational policy/action	–	3	–	1	–	4
	Total (%)	–	20 (61%)	–	7 (21%)	6 (18%)	33

Source: Researcher (2020). Note: Five responses were excluded, either because they were jointly executed by more than three Catholic churches/organizations from different regions, or because they were organized online by an African-based organization with branches across the continent.

that are less difficult (such as consumer and political advocacy behaviours). Findings revealed that among people who are already concerned about climate change, higher exposure to the Pope's climate change message is associated with increases in attitude-behaviour consistency for less difficult activism behaviours. This finding is, however, not supported by the present study as the gap between the knowledge-building events and the documented actions suggest that the exposure to *Laudato Si'* has not really spurred much action among Catholics in Africa. Perhaps, just like Myrick and Comfort (2019) found in their study in a US sample, the encyclical's message on the care for creation may not be enough to spur the desired actions from the Catholics in Africa. Moreover, studies have suggested that knowing and being concerned about climate change are not guarantees for corresponding actions (see Knutti 2019). There could be other factors such as populist sentiments, perceived elitism of a climate change messenger, the fear of climate change threat, the previous direct experiences of climate change-induced disasters, an efficient framing of the climate change message, etc. that need to be combined with the Pope's message in order to push Catholics to engage more in climate actions on the continent.

Nevertheless, it is commendable that some Catholic groups were able to develop some important initiatives and engage in some actions in line with the principles of the encyclical (see Table 8.1). The composed *Laudato Si'* song, the film, and the translation of *Laudato Si'* into the Kiswahili language, etc. will help create environmental/climate change awareness, the proposed divestment, the wastewater management project, the opposition against the EACOP, and the tree planting are important for climate change mitigation and adaptation in Africa. Language, for instance, has been indispensable in effectively communicating the science of climate change, as well as the need for mitigation and adaptation (see Tirosh 2020; Nerlich et al. 2009). Tree planting, on the other hand, has been relevant for both mitigation and adaptation in the sense that trees absorb carbon dioxide (CO₂) (mitigation) and provide shade and help control erosion (adaptation) (see Gill et al. 2007). All these highlight the need for Catholics in Africa to invest more energy in performing these actions across the continent, as the encyclical stipulates. With respect to environmental activism (i.e. with strict application to peaceful protest), findings show that it is the lowest in the recorded responses (see Table 8.2/Figure 8.1). This is unlike what has been observed in Europe, America, and Asia, where a number of peaceful protests have been held in response and in support of *Laudato Si'*. The global climate strike marches in Rafaela, Argentina, Brisbane, and Australia on 15 March 2019, and many others (about 50 strike marches involving over 1.4 million people), planned to take place on 24 May 2019 by *Laudato Si'* Generation are cases in point (Roewe 2019b). Also, on 18 June 2015, environmental activists marched towards a Roman Catholic Church to celebrate the release of *Laudato Si'* in Manila, Philippines (Roewe 2016).

However, that environmental activism has not been pronounced in the entire body of African Catholic responses to *Laudato Si'* in the last five years

should not come as a surprise. This is largely because in Africa climate change is not deemed as a priority by many who think that they have other more pressing challenges. As a continent, Africa faces a lot of development challenges such as youth unemployment, poverty, migration, human rights abuses, infrastructural decay, political corruption, insecurity, inter-ethnic and religious conflicts, etc. These challenges, as exhausting as they are, have pre-occupied the minds and attention of everybody, including the young and the old, the clergy and the laity on the continent. For instance, an auxiliary bishop of the Enugu Diocese in Southeast Nigeria, Ernest Obodo, reportedly rates migration over climate change among the challenges facing the Catholic Church in the country (Egwu 2020). Interestingly, however, these challenges in question have significant connections with climate change. Migration and conflicts, for instance, could be in some contexts driven by climate change and other environmental hazards in Africa (Barrios et al. 2006; Hoffmann 2020). Nevertheless, most instances of activism in the form of protests on the continent are mostly tied to these challenges and rarely focused on the environment or climate change (except in South Africa, where some cases of climate change protests have been observed).

Even in the midst of gross environmental destruction and degradation in some countries on the continent, protesting is rarely contemplated due to the authoritarian nature of governments in these countries. For instance, a Togolese environmental activist, Kevin Ossah, expressed his worries over the danger inherent in staging climate change protests in some African countries. He reportedly said he admires the huge crowds taking to the streets from Sydney to Stockholm, but in his West African homeland - ruled by an authoritarian regime that has cracked down on protests - that was not really an option. In his words, "As youth, we can't be putting our lives in insecurity by entering roads and doing something that Greta is doing" (see Knott 2019). Moreover, climate change awareness remains low on the continent. Fewer than three in ten Africans are "climate change literate" in the sense that they have heard of climate change, associate it with negative changes in weather patterns, and know that human activity is a major cause (Afrobarometer 2019). Even, among specific groups such as church leaders, climate change awareness is poor (Nche 2020b; 2020c). All these could largely explain why environmental activism was found to be very low in the present study.

The findings also show that regional differences were significant in the response patterns (see Table 8.3/Figure 8.2). Most of the responses across all the categories commendably came from the eastern part of Africa, especially Kenya. For instance, most of the conferences and workshops, the environmental initiatives, the environmental activism, and the government/organizational policies and actions were either executed in or organized by Catholic churches and groups in Kenya, Tanzania, Madagascar, Zambia, Malawi, and Uganda. Very few are traced to, for example, South Africa, Cape Verde, Ghana, and Nigeria. Perhaps, the experiences of the severity of the impacts of climate change in the eastern part of Africa (see FAO, UNICEF & WFP 2019; Adhikari et al. 2015) could account for this level of response to the

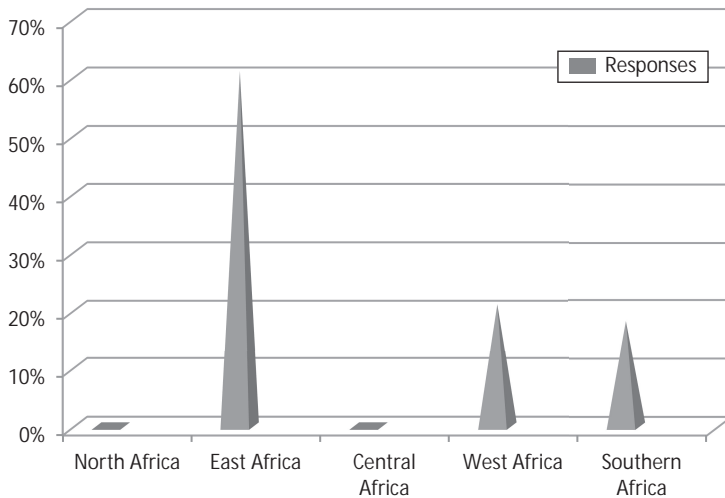


Figure 8.2 Showing the regional distribution of responses to *Laudato Si'*.

Laudato Si' call for creation care, as studies have shown that experiences of climate change impact influence climate action (see Nche 2020b; Spence et al. 2011). This level of response from eastern Africa to *Laudato Si'* could also be a direct impact of Pope Francis' visit to Kenya, Uganda, and the Central African Republic from 25 to 30 November 2015. This is because visiting these countries a few months after the release of the encyclical might have not only availed the Pope the opportunity to press home his climate change ideas but also to create an enduring impression on the people of the region. This notwithstanding, the regions that are lagging behind in the response to *Laudato Si'* need to rise to the challenge as impending climate change impact is not going to spare any region of the continent.

Conclusion

In conclusion, while the responses already recorded are commendable, a general assessment of the responses shows that much still needs to be done. A continent of 1.2 billion people with over 170 million Catholics (see Murphy 2015), faced with a threat of impending severe climate change disasters and devastations, indeed needs to do more with respect to climate change mitigation and adaptation. That a call to care for the environment came from the most respected Catholic figure, the Pope, even makes it an obligation for Catholics on the continent to take climate change mitigation and adaptation more seriously. While commenting on the third anniversary of *Laudato Si'* in 2018, Onyejiuwa (2018) noted that unlike the case with the global north, there is a poor level of response to the papal encyclical on creation care from the

African continent. This, according to Onyejiuwa (2018), is despite the fact that Africa will be the continent worst affected by climate change.

This observation is supported by the evidence provided in the present study. Although there seems to have been little improvement from the year 2018 (i.e. looking at the responses recorded in the subsequent years), the responses still leave more to be desired. After assessing the impact of *Laudato Si'* in Africa, the executive director of the Catholic Youth Network for Environmental Sustainability in Africa, Allen Ottaro, also noted that while commendable efforts have been made “in bringing *Laudato Si'* to life in Africa, much urgent work remains” (Ottaro 2020). This, therefore, calls for an improvement in the responses to climate change, especially among Catholics in Africa. Implementing *Laudato Si' in Africa*, for Ottaro, cannot be a task left to development agencies only. Given the population of Catholics on the continent, robust and conscious Catholic church-based efforts towards the mitigation and adaptation to climate change would make a huge impact. To this end, Ottaro suggested that the leadership of Catholic churches need to engage in sustained awareness campaigns, especially among the youth population in Africa in order to motivate Catholics on the continent to take action. Telling the stories of successful environmental initiatives at parish and diocesan levels, for Ottaro, would also help in fostering environmental action.

However, while it is important to consistently create awareness of *Laudato Si'* environmental principles, it is also important to give adequate attention to the framing of the campaign messages (see Nche 2020a). For instance, parishioners need to know the connection between climate change/environmental care and other seemingly more pressing development issues in Africa, such as poverty, migration, and conflicts. They need to know how climate change has contributed to and how inaction on climate change could worsen these development issues on the continent. By so doing, climate change will be brought to either the same level or made a priority in the scale of issues preoccupying the minds of people on the continent. Interestingly, this is exactly what Pope Francis did in the encyclical. He neatly tied climate change to other development issues. Hence the saying “everything is connected.” This approach would go a long way in fostering climate action among parishioners. Also, in addition to creating awareness among parishioners, Catholic leaders in Africa, as Ottaro suggests, also need to engage with the government to make sure that they make pro-environmental policies. The reported Catholic-led opposition against the East Africa Crude Oil Pipeline (EACOP) project in Uganda and Tanzania is a case in point and such engagements, if sustained, would certainly put governments across the continent in check.

This study, however, has some limitations. First, it relied completely on the internet for the documents showing African Catholic responses to *Laudato Si'*. This implies that environmental initiatives and actions taken on the account of *Laudato Si'* that are not reported online were not captured. Second, the study focused only on Catholics in Africa, suggesting that responses from non-Catholics on the continent are not also captured. All these suggest that the

generalization of findings need to be done with caution. Again, the limitations do not only highlight the importance of the internet for Catholic churches in the dissemination of information about their activities but also provide future studies with new areas of inquiry; for example, the responses of non-Catholics to the *Laudato Si'* call for creation care in Africa. In all, this chapter, while relying on internet resources, has provided an important insight into how African Catholics have responded to *Laudato Si'* in 2015–2020.

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9 Youth and climate change in the United Church of Zambia

Damon Mkandawire

Background

Climate change is real. It is a global challenge that is also being strongly felt in Zambia. Some of the effects of climate change in Zambia include incessant floods and droughts. In the case of floods, there has been damage to agricultural produce, loss of property, and loss of lives. The Church (including the United Church of Zambia (UCZ), the focus of this chapter) should not bury its head in the sand, but it needs to be alive to the fact that climate poses a great threat to humanity and the entire cosmos. It is, therefore, incumbent upon the UCZ to develop a viable theology that addresses the reality of climate change and contribute towards mitigation and adaptation. Without writing off the older generations, this chapter argues that such a theology is more likely to be successful when young people are driving its emergence. The UCZ theology must engage with the indiscriminate cutting of trees and the pollution of water bodies. Such a theology must be holistic and cover not only the spiritual but also the physical well-being of humanity and creation. This is critical and requires a rigorous approach. The call to restoration must also address environmental protection, and teachings must be centred on a clear response to climate change. The UCZ, which was born on 16 January 1965, boasts of over three million members, with the youth constituting the majority. The youth are key partners to the church's mission and are well placed to become active agents to drive the theology to address climate change. One way this could be achieved is by using its schools. At the time of writing, these schools were Kafue Boys, Chipembi Girls, Sefula, Mwandu, Masuku, Njase Girls, Mwenzo Girls, Mable Shaw, Senga Hill, Lubwa, and Nambala. The young people in such schools could act as agents of social change in a society that is ready to impact positively on the threat of climate change. The youth in the UCZ could essentially become active voices in advocacy and awareness creation on the need to care for Mother Earth. This will go a long way in helping to achieve the United Nations Sustainable Development Goal (SDG) 13, which focuses on climate change and its impacts.

Introduction

Our world today is faced with a critical challenge of climate change. The changes in our climate not only affect the Western world but also Africa and Zambia. The world has experienced moments that have clearly shown our increasing susceptibility to climate change. Current science provides the clearest evidence yet that human activity is changing our climate. Acts such as the indiscriminate use of fossil fuels, deforestation, and unsustainable agriculture contribute to climate change, which decreases the availability of nutritious food and clean water, and destroys ecosystems and secure living environments. Climate change is not an isolated phenomenon; on the contrary, it will affect young people in all aspects of their lives. The impact of climate change will in many cases be strongest in developing countries, and thus climate change poses a threat to development, as it risks hampering access to water, food, sanitation, and security, among other things (UNCC 2020).

The Church is a major stakeholder in addressing climate justice and must particularly consider how it can bring the young people on board. The UCZ, which has been in existence for over 50 years, must come to the fore with regard to noting the negative impact of climate change. The critical question that must be addressed is in relation to its theological position on climate change and environmental management. It is also critical to examine how it trains the youth in response to addressing climate change.

Climate change in Zambia

As noted earlier, climate change is a real challenge globally, in sub-Saharan Africa and Zambia. It is no longer just a subject matter discussed on paper, but it now affects all walks of life. It has the potential to add to the insecurity faced by some of the most vulnerable people in some of the most vulnerable countries. According to a UNCC (2020) article, today's evidence suggests that developing countries – which are mostly located in warmer regions and whose major source of income is agriculture – will be worst hit by changes in rainfall patterns, greater weather extremes, and increasing droughts and floods. Change in precipitation patterns is likely to affect the quality and quantity of water supplies, thus compounding the impact of poor water and sanitation, as well as malnutrition.

The acts of forest burning, indiscriminate cutting of trees, and disposal of toxic substances into water bodies, all need to be redressed. Climate change has already led to changes in freshwater and marine ecosystems in eastern and southern Africa, and terrestrial ecosystems in southern and western Africa. A UNCC 2020 article further indicates that countries such as Zambia is vulnerable to the adverse impacts of climate change as a result of its geographical location, the multiple socio-economic stresses it is subjected to, and its low adaptive capacity. This is true in that climate change has left a number of

negative trails in respect of social, political, and economic impacts in the country. On the social front, human welfare has been hard hit as children, youth, and women are the vulnerable target. Floods experienced in the northern, Luapula, and western parts of Zambia left many families homeless and at risk of starvation.

Impacts of climate change are also affecting the health of the vulnerable population in Zambia. Climate change is predicted to increase mortality levels associated with climate-sensitive diseases. Health in general will also be affected by climate hazards in terms of heat stress caused by the rising temperatures, increase in waterborne diseases, and malnutrition due to insufficient food. This has an impact on malaria, the number one killer disease in Zambia, by way of transmission dynamics, or indirectly through the many socio-economic factors that underpin malaria risk (Nissan, Akuwuba and Thomson 2021).

The role of the church in climate justice

We stand at a time when we need a very significant and credible theology with regard to ecological justice that is culturally relevant to Zambian communities. Developing such theology has become necessary, as this could promote a purposeful ideological orientation for sustainable ecological justice praxis.

The modern environmental movement has encouraged a profound shift towards science, technology, and policy to solve large problems. Yet, environmentalists are increasingly aware that our current climate crisis will require more than just solutions based on hard science – these efforts must be accompanied by a widespread and deep-rooted change in individual norms and behaviour. Framing environmental action as a moral necessity is particularly important considering that many national and international agreements concerning climate change have stalled. The issue of ecological injustice can create a platform for the collaboration of diverse people and bring the issues of poor people to the table. This is a civil rights issue – fighting for people to live in a healthy environment. Reconnecting all communities to nature and providing with good reason to be engaged is important.

To this effect, religious communities, especially the youth and children, are well-positioned to shape ecological and economic justice due to their influence over personal moral development. Africa's majority is religious, as John S. Mbiti (1970) shared this unitary view of the pervasive religiosity of African traditional society. He wrote that Africans were reputed to be “notoriously religious,” and asserted that they deserve this reputation, for they had traditionally been, and still were, “deeply religious,” lived in “a religious universe,” and possessed “a religious ontology.” He claimed that “religion permeates all the departments of life [in African societies] so fully that it is not easy or possible always to isolate it” (Mbiti 1970). Moreover, he added, “religion is the strongest element in traditional background and exerts probably the greatest influence upon the thinking and living of the people concerned.” Africans, therefore, were religious beings: “it is this that makes Africans so religious: religion is

in their whole system of being.” Kaunda (2016) in his article, “Towards an African ecogender theology: A decolonial theological perspective,” proposed that an African ecogender theology is informed by the non-existence of dualism in creation. All creation is woven by God into a single fabric of life, a web of life which is characterized by the interdependence of equals.

Religion, for a child of Africa, therefore, has a mandate for environmental care, justice, and sustainability. In the case of the Christian faith, the Church’s mandate can be drawn from a biblical text in Genesis 2 vs 15, where the man (sic) is charged to take care of the garden or simply put the environment in which he/she was living. Nalwamba (2013: 194) shares a similar thought when she says, “we cannot underestimate the power of sermons (religion). The ... impact of churches in Zambia preaching ecologically sensitive sermons ... could make a difference and shape an ethos for earth keeping.”

The natural environment is the major domain and the source of livelihood for all human and non-human living things. It is from the environment that we get the fundamental prerequisite and essentials for life such as air, water, food supplies, shelter, and clothing. Again, it is within the boundaries of the natural environment that we obtain medicinal supplies to treat the many sicknesses and diseases that afflict and plaque humankind over the years. The environment is also the source of employment in sectors such as agriculture, forestry, mining, quarrying, and fishing. The extent of proper attention given to the environment will determine its sustainability.

Throughout history, most religions or traditions in Zambia have expressed some ethical concerns for the environment and its creatures. Greed and wanton destruction of creation are condemned by most religious traditions. These are reflected in their historical teachings even if they are not put into practice. Traditionally, there have been various cultures that highlight ecological justice. According to Kaunda (2016), there are proverbs, folktales, myths, legends, taboos, and ritual practices in Africa and Zambia in particular, all of which focus on natural environment preservation and conservation. There are rules and regulations on farming, fishing, hunting, felling of trees, and sanitation. The stringent adherence to these traditional orders goes a long way to preserve some rivers, lagoons, trees, fish, and many others. Those who abused them are sanctioned.

However, with the rise of modern society, these concerns have been fading. With the influx and development of modern science, economic and political institutions have taken the place historically accorded to religion. As a result, traditional religious attitudes towards nature have largely disappeared in modern society. Yet, in other sectors some leaders of religion in Africa have returned to their origins to recover the pre-modern teachings to present them as religious environmental ethics. Perhaps it is time for the Church in Zambia to join in the fight against environmental degradation. Jonathan Kangwa (2014: 20) in his Ph.D. thesis submits that religion, in particular, Christianity, plays a major role in shaping young people’s perceptions and attitudes. Especially, the Bible

as a sacred text may influence how people see the environment and the natural world.

The biblical mandate of the church for environmental care is to be committed to the task of promoting a sound and healthy environment, care for people, the poor, marginalized, wildlife species, and plants. It links environmental concerns with social justice issues. The two purposes of this care are sustainable development and environmental integrity. According to Sapru (1994: 41), “Sustainable development encompasses meeting the needs of the present without compromising the ability of the future generation to meet their own needs.” It fosters economic growth without sacrificing the natural resources of a given community. It ensures access to natural resources for future generations. Finally, it creates environmental integrity, economic prosperity, and community livability. On the other hand, environmental integrity is the protection and improvement of air, water, and land, on which all living things depend for their survival. It means not only avoiding harm to the natural environment but also enhancing the environment through developmental decisions.

Ian Bradly (1990:90), in his book, *God Is Green: Christianity and the Environment*, opens chapter 5 with an interesting question, “Does Christianity offer distinctive insight into the proper relationship between human beings and the rest of creation?” He goes on to ask, “Do Christians indeed have a special contribution to make to the Green movement and the battle to preserve the natural environment from the many threats that are now facing it?” Similarly, Conradie (2020) asks, does Christianity then have any distinctive constructive contribution to offer in collaborative, multi-disciplinary efforts in public forums to address escalating ecological concerns? To all these questions, the answer is a strong “yes.” As part of the human race, Christians can do their part by consuming less energy, going for organic gardening, recycling their waste, and any other environment-friendly practice to reduce the carbon footprint. In this chapter, I argue that these individual lifestyle changes are just a first step. Christians must use their collective power as the organized Church to bring about structural changes. Christians are thus called upon to live the change that they would want to see in this world.

In both the Old and the New Testaments, we have ample evidence of the Scripture pointing to the fact that there are numerous moral injunctions, regulations, and laws aimed at protecting the environment and they depict the fact that the natural environment is good and that it also reflects God’s glory.

Every call to save the environment is predicated on human action. The environmental disasters such as land degradation, pollution, deforestation, and others have a very serious implication on humanity and the ecosystem. Thus, the church acts in response to reverse the situation that humanity inflicts on the created order. Besides, there is a more realistic view that nature and humanity are imperfect as marred by sin, and again subject to decay. The church, therefore, works on nature to maintain it. John Grim and Mary Tucker (2014: 96) share the same view; they said, if religious educators promote a spirituality that ignores responsibility for the world, they are not promoting a Christian

spirituality as one cannot fulfil him/herself spiritually unless one walks in harmony with the earth. Again, one cannot be a true creature of the earth unless one reflects with one spirit and soul on the meaning, beauty, depth, and value of all creation.

There have always been small numbers of individual Christians involved in the environmental debate. Churches, however, have dragged their feet. This was recognized many years ago, when the 1972 United Nations Conference at Stockholm on the Human Environment was addressed by Dr. Elfan Rees, of the World Council of Churches:

I admit, Mr. President, that the churches were slower than you were in realizing the terrible implication of this problem [environmental degradation]. You have awakened us, but in so doing you have lit a fire you cannot extinguish. We will follow you as long as you advance, we will spur you if you halt and we will take a vociferous lead if you turn back.

From the above statement by Dr. Rees, one begins to ask if the Church has realized that the fight against environmental degradation is a fight for all human race. How involved is the church in advocating for ecological and economic justice today?

Nalwamba (2013: 86) in her Masters thesis, "Spirited Bodies as a prerequisite for an earth-keeping ethos: A Juxtaposition of the first creation story of Genesis with Ubuntu Cosmogony" says, "That absence of the Christian 'voice' in regard to the eco-crisis the nation [Zambia] faces can be attributed to the fact that Zambian Christianity still espouses biblical anthropology that regards human beings to be at the pinnacle of creation." Can this pilgrimage of justice help to correct the biblical anthropocentrism of humans? Or is the pilgrimage of peace and justice creating an eco-friendly world? Conradie and Ayre (2016: 5) state that churches are therefore called upon to get their own house in order before they can prescribe an environmental praxis, ethos, and spirituality to others.

The involvement of the youth in churches in addressing issues of environmental sustainability is key. In many African countries, the youth are the majority, and churches command a lot of respect in terms of the number of loyal adherents, regular meetings, moral leadership, and at times the financial capacity to help with coming up with mitigation measures. Young people in church are critical when addressing pressing issues such as poverty, HIV, gender-based violence, food security, and environmental sustainability. They are very well placed to contribute towards meeting the targets of SDG 13.

Kuzipa Nalwamba and Teddy Sakupapa (2016:80) propose that the church taking part in environmental sustainability is not an option. In quoting Paul Santmire, they say, a theology of nature that is biblical, Christological, and ecological will also be ecclesiological. It will be incarnate in the life of the Christian community. In worship, the community of faith will form its identity and theological matrix of its spiritual and ethical praxis in the world. Revisionist

ecological ethics will be first and foremost communitarian and only secondarily principled and prescriptive.

It is very important to note that the Church's calling to service must be directed towards the life-affirming substance of all God's creation. Nalwamba and Sakupapa (2016) further state that a damaged and exploited earth is an unjust world; it calls for the church's hope and action. Environmental degradation that has led to the suffering of creation itself, economic disparity, climate-induced migrations of people and animals among other effects, calls for a reassessment of the Christian community's self-understanding and ways of being. An over-spiritualized expression of the Christian faith that ignores the physical world of nature and the false dichotomy often drawn between the spiritual and the temporal stand radically challenged.

In radically challenging ecological injustice, the Church must realize that this problem of ecological injustice needs realistic solutions to tackle it. This means the Church must be ready to speak far beyond paper recycling and lead-free petrol to involving a major shift in the balance of economic power between the rich and the poor nations. The Church must play its prophetic role in speaking truth to power and be able to speak for the Earth. The Church must raise a generation of youth that is environmentally conscious and concerned. Who is better positioned to raise an environmentally concerned generation than the Church? Kaoma (2015) challenges the church by saying that the Church must engage in prophetic witness. This is characterized by taking specific actions to respond to climate change and shifting from verbal advocacy to demanding specific socio-economic reforms, and ecologically sensitive policies. Ezra Chitando, in his article, "Praying for Courage: African Religious Leaders and Climate Change," (2017) says that when religious leaders demonstrate their commitment in response to climate change, their declarations will carry weight. Chitando cites the Inter-Religious Council for Peace Tanzania, when it says,

"[r]eligious leaders have a key role to play, probably more than any other section of society. This is because they have the backing of their followers. ... They can use the same approach to impart knowledge of mitigating climate change and rescue [the continent] from occurring disasters such as floods and droughts. Religious leaders can educate people on proper environment management such as planting trees."

(the IRCPT cited by Chitando 2017: 430)

Children, youth, and climate change in the United Church of Zambia

Having examined the theological imperative for the Church to be involved in responding to climate change, in this section we describe some of the activities by the UCZ youth to respond to the climate emergency. The threats of climate change caused by deforestation are growing to alarming rates annually in Zambia. This is exacerbated by high rates of unsustainable land use

practices such as charcoal production, early burning, and unsustainable agricultural practices. Most of the three million members of the UCZ are youth. The UCZ equips youth and children with skills to mitigate the effects of climate change.

The UCZ runs a number of secondary schools in the country, which adopted a policy that each student must plant a tree and must look after that plant during their stay at the school. Some of the schools also have environmental clubs. The UCZ is developing an environmental summer camp for children in conjunction with GreenFaith. In this summer camp the children are taught about water science, ecological footprint management, and caring for creation.

For older youth and young adults, the UCZ teaches Climate Smart Agriculture through its Chipembi College of Agriculture, including “Conservation Farming,” which is sometimes referred to as “Farming God’s Way.” Other measures and training activities include sustainable forest management and renewable energy. Through different projects from the UCZ Synod and Plan Zambia, youth are also taught the importance of agroforestry and afforestation, as well as beekeeping. Students are also trained in sustainable and ecological fishery methods.

The United Church of Zambia Chipembi College of Agriculture is one institution in the church that is raising a generation of environmental stewards. Chipembi College of Agriculture offers agricultural skills training to the youth and the community around the mission centre. The college is mostly training youth in technical methods of farming, as well as skills in different areas of agriculture.

As an educational institution, the college is training the youth about the value of trees to the ecosystem. The training emphasis is on the awareness of the danger of cutting down trees and also putting into practice measures to combat climate change. Students are educated on conservation agriculture as a mitigation measure in agriculture towards climate change. Other measures and training activities include sustainable forest management, sustainable agriculture practices, and renewable energy.

Main objectives of the training

- To train the youth to have a better understanding of Climate Smart Agriculture and natural resources management, and how these are managed at local levels and in communities
- To promote sustainable land management technologies and practices to the youth
- To enhance the participation of youth in climate change mitigation measures
- To impart knowledge to the youth on the magnitude of the effects of climate change on the socio-economic and impacts on the livelihood, food security, wildlife, and general environment of the local communities.

To address climate change and its impacts, the following project activities at Chipembi College of Agriculture are designed to bring about environmental and socio-economic benefits to the youth's local communities in which they live.

Conservation farming

According to Spaling and Vander Kooy (2019), conservation farming, sometimes referred to as "farming God's way," is based on minimal soil disturbance, and the creation of a nutrient-rich blanket of humus on the topsoil by covering it with a layer of mulch (dead grass or crop stover). Other activities include growing the crops under acacia trees, which provide natural nitrogen fertilizer; working plots according to cycles of sunlight and rainfall; and planting in very precisely spaced rows. The fertile soil means the young farmers can grow on the same plot area year after year. Students have yearly plots where they do their practical field trainings. The participation of the students in the practical activities on the ground enables them to have a more feasible and practical approach towards the mitigation measures of climate change.

The benefits of conservation farming include:

- Soil erosion control
- Maintenance of soil fertility and soil structure through zero tillage, which minimizes the damage done to soils
- Reduced soil contamination from inorganic fertilizers and other chemicals
- Reduced leaching of soil nutrients due to humus from animal and plant manure
- Reduced clearing of vegetation leading to minimized disturbance of the soil structures, and consequently leading to the ecological balance in the environment
- Improved household food security.

Climate Smart Agriculture

Climate Smart Agriculture is an activity taught to the youth, which involves the youth being trained to conduct conservation agriculture combined with agroforestry. This has proven to be effective in building climate change adaptive capacity among the young farmers as well as to mitigate the effects of climate change. The students are growing agroforestry trees such as moringa, green manuring crops such as pigeon peas, velvet beans, and other indigenous trees. Climate Smart Agriculture or CSA is a term coined by the Food and Agriculture Organization of the United Nations (FAO) in the background document prepared for the 2010 Hague Conference on Food Security, Agriculture and Climate Change by the FAO in 2010.

CSA is an integrative approach to address the interlinked challenges of food security and climate change that explicitly aims at the following objectives:

- Sustainably increasing agricultural productivity, to support equitable increases in farm incomes, food security, and development.
- Adapting and building the resilience of agricultural and food security systems to climate change.
- Reducing greenhouse gas emissions from agriculture.

The Climate Smart Agriculture activities engaged in varied from crop rotation, minimum tillage, mulching, inter-cropping, and use of manure or compost. However, the levels of practice of agriculture activities are low. Crop rotation and use of animal manure or compost were the commonly used practices. Manure is collected from the college farm and compost is made by the students themselves during practical classes.

Tree seedling production and tree nurseries

Students are taught the importance of agroforestry and afforestation. Through different projects from Synod (Project Secretary) and Plan Zambia (Kabwe), students were supplied with different tree species for tree nursery production and later to be planted in the fields for reforestation.

The benefits of agroforestry are:

- Increased fuel wood and timber supplies
- Management of reserved and open forests by the local communities, including youths
- Increased involvement of youth in the communities in the management of forests and increased training activities
- Creation of awareness about the effect of climate change and environmental degradation implications of unsustainable use of forests (deforestation, soil erosion, agricultural productive losses, etc.)
- Creation of alternative sources of income through fuel wood sales
- Reduced distances covered by women to collect fuel wood
- Reduced deforestation of natural forests
- Reduced soil erosion and general land degradation
- Sustained supply of seedling to the community for the establishment of community woodlots
- Availability for alternative income sources for households
- Introduction of exotic species leading to the biodiversity of tree and animal species due to improved and extended habitats.

Beekeeping

Through Plan Zambia Project, six bee hives were given to the institution for honey production. The students are learning how to scout for good land to put up beehives, considering water availability, identifying trees with good flowers for nectar, considering closeness to water and security for the beehives.

The benefits of beekeeping are:

- Use of alternative bee hives (locally made)
- Improved honey processing and quality
- Increased income generation through sale of honey and wax
- Community conservation of forests and increased appreciation of trees
- Improved household nutrition.

Fish farming and organic gardening

Other mitigation measures include gardening through organic farming to avoid the use of pesticides and herbicides. Also, fish farming is a mitigation measure that students are taught, and students have dug fishponds. Students are trained in pond demarcation and construction, fish pond management and fish harvesting, and sustainable fishery methods.

Students are taught the benefits of fish farming, which includes reduced overfishing in rivers, and youth are empowered with skills in the management of fishery resources.

Is the United Church of Zambia doing enough to address climate change?

It is important to reflect on whether the UCZ is doing enough to address climate change. This is a critical question for sure that needs assessment. From the point of view of the observations made, the answer would be that the UCZ has not done much in respect of climate justice in Zambia. Yes, pockets of activities as mentioned earlier are seen in creating awareness on climate change, and particularly the involvement of youth. It is clear that the UCZ has not formulated and documented a theology to address climate justice. Rarely are sermons delivered to specifically call for environmental management. The church usually embraces the Christian calendar with strict observance of the Advent, Easter, Harvest, and other key periods, but there is no designated Sunday to speak about climate justice. In terms of tree planting, the church resolved in a Synod meeting, minute number SE/2017/21 (ii) that “the first Saturday of November be adopted as a day to plant and manage at least a tree by each member at every mission station closest.” This has not been observed and still remains a mere resolution. The church also has a youth policy which is sometimes referred to as a Youth Handbook, which has no mention of issues of climate justice.

In a nutshell, it remains to be seen in terms of measuring the impact the UCZ is making with regard to social justice, and especially in mobilizing young people to address climate change. The UCZ is well dispositioned to becoming an agent of change in addressing climate justice. Being the largest Protestant Church in Zambia, the UCZ should take advantage of its size in terms of church membership, which predominately is youthful and develops a

theology that addresses climate change and sustainable development. Its focus should be on posterity and saving earth mother. The church must carry the young people along.

Conclusion

The decisions made today will have a significant impact on the lives of young people. They will live the consequences. They will breathe the air and drink the water that the current generation will leave. Young people need to be given a greater voice on climate change issues. They need a platform from which they can express their demands. They want to work with governments and communities to help design and influence the policies that will affect their lives, now and into the future.

The UCZ should advocate and teach about the importance of education in the context of a sustainable environment and energy supply. Young people at every stage of their education should be informed about the dangers of environmental degradation, overuse of fossil energies, and the prospects of renewable energy. Therefore, the church will do well to include environmental education in its catechism lessons and the Sunday school curricula. Young people are the majority in Zambia (and in Africa). Mobilizing them for climate action within the UCZ and other faith communities will lay a firm foundation for achieving the goals of SDG 13 and ensure effective responses to climate change in Zambia.

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10 Hinduism and climate change in Africa

Elizabeth Pulane Motswapong

Background

Climate change continues to be a catastrophe that has affected several lives and caused devastation to the environment in Africa and across the globe. However, it is worth noting that Africa has contributed relatively little to carbon emissions, save for South Africa. The fifth assessment report of the IPCC, published in 2014, uses the word “religion” only once, and it uses it in relation to adaptation to the changing climate. This reference has negative undertones because it sees religion posing as a barrier to an adequate response to climate change. However, each religious tradition has its own way of offering its unique set of moral values and virtues to guide human beings in their relationship with the environment.

There are divergent views on the role religion has played in the climate change debate, as the environment continues to be depleted, due to human greed and exploitation. Due to the rapid impact of climate change on people and the deterioration of the environment, there is a sudden interest in religious traditions willing to take up the challenges and help protect and conserve the environment. Hinduism, like other world religions, has been fully engaged in the ecological crises. This chapter asserts that Hinduism, though relatively new in Africa has, like Christianity and African Traditional Religions, been addressing issue of climate change. The discussion will revolve around the teachings of Hinduism in relation to conservation, while highlighting the role played by the religion in addressing climate change in Africa.

Africa and climate change

Although Africa is the least contributor to climate change and destruction of the environment, it is one of the continents which is hardest hit by the pandemic (see the state of climate in Africa 2019 report). This was confirmed by Richard Washington, a climate specialist, in 2019 during an interview with BBC World. Evidence shows that the change in temperature has affected health, livelihoods, food productivity, water availability, and overall security of the African people. According to the Climate Change Vulnerability Index for

2015, seven of the ten countries most at risk from climate change are in Africa. Furthermore, Africa has seen a decrease in rainfall over large parts of the Sahel and Southern Africa, and an increase in parts of Central Africa. Over the past 25 years, the number of weather-related disasters, such as floods and droughts, has doubled (as in the case of Zimbabwe and Mozambique), resulting in Africa having a higher mortality rate from droughts than any other region. There has been an impact on weather patterns, like flooding, drought, impacts on water supply and quality, impacts on agriculture and food.

Climate-sensitive diseases and health impacts can be high in poor countries that have minimal resources to treat and prevent illnesses, and Africa falls under this category. Furthermore, there has been an impact on shelter, on the vulnerable population, especially that of women, children, and the elderly who are susceptible to climate impacts across Africa. Furthermore, women labourers often experience additional duties as caregivers, besides societal responses to climate change after extreme weather events (e.g. male migration). Unfortunately, children often die from starvation, malnutrition, diarrhoea, diseases, and flooding (IPCC 2014). Similarly, climate change impacts have the potential to intensify national security issues and increase the number of international conflicts. One thorny issue is the recent incident where members of the Botswana Defence Force shot and killed four Namibian citizens who were allegedly caught fishing in a red zone territory on the Botswana side (Tau 2020:1). These encounters often occur over the use of already limited natural resources: fertile ground and water. Notwithstanding, climate change has already led to changes in freshwater and marine ecosystems in eastern and southern Africa as well as telluric ecosystems in Southern and Western Africa. The extreme weather events have demonstrated the vulnerability of some of southern Africa's ecosystems. The migration patterns, geographic range, and seasonal activity of many terrestrial and marine species have shifted in response to climate change. Subsequently, the abundance and interaction among species has also changed (IPCC 2014).

Religion and climate change

Religions can act as ultimate pillars to support humanity in a technological society. It can further preserve the individual existence against depersonalizing effects of the techno-industrial process, by encouraging the individual to identify human inadequacy and to combine pragmatism and optimism. While technology can assist the individual with the corporeal supremacy to produce and terminate, religion gives the moral strength to grow in virtue by cultivating restraint humility and emancipation from self-centeredness. Whether directly or indirectly, religion can be an influential cradle for ecological management and fortification (Dwivedi 1990). Furthermore, religions can individually offer a unique set of moral values and rules to guide human beings in their relationship with the environment. Schipper (2016:1) maintains that "insofar as climate change is entangled with humans, from causes to consequences and

from meanings to meliorations, it is also entangled with all the ways in which religion shapes, haunts, interprets, inspires, or otherwise attends human ways of being.”

Therefore, it is imperative that a full understanding of climate change be achieved. Most importantly, it is vital to pay attention to the religious aspects, especially in the way religion is involved in human experiences, and human responses to climate change should be highlighted. Hence, religion should be seen as an essential arena for taking action to reduce the risk from climate change. This explains why Schipper (2016) finds religion to be reactive in reducing susceptibility to climate hazards while at the same time increasing exposure and proneness to hazards through activities that express devotion and faith. This emanates from the premise that “some denominations founded their beliefs in principles that encourage fatalistic attitudes which support views that individuals should not interfere with the impacts of natural hazards” (Schipper 2016: 2). However, the recent mushrooming of faith-driven environmental movements leaves little doubt about a growing understanding that there are strong linkages between beliefs and environment changes.

Similarly, the bridge that links religion and climate change is a perception that nature exists to enable human beings to appreciate nature as a sacred divine creation. Tucker and Grim (2001) have proposed that religion serves to bridge humans to their environment by using ritual to mark the rhythm of seasonal changes, expressing gratitude for the bountiful harvests and praying to keep away destructive natural forces. There are variations in the degree and type of human-nature relationship but there are a few religious traditions that are not shaped by the natural landscape in which they originate. Thus the respect for nature, and above all the recognition that a degraded environment is not healthy for humanity. As a result, “sacred elements in nature lead people to become committed to environment causes, particularly when religious identities emphasise conceptualization of human as caretakers of this plant” (Sachdeva 2016:1). However, in other cases, it is quite the sacred aspect of nature which precludes environmental action that leads to the denial of climate change. This denial is precarious because it can take many forms, for example, from an outright refusal to the principle of climate change to a divine validation of eschatological beliefs. It is uncertain whether religious identity can facilitate the acceptance of anthropogenic climate change, but perhaps it can aid with how people adapt to its inevitable effects (Sachdeva 2016). Water, a central religious symbol, is viewed as both a physical decontaminant and an ethical one (Benessaiah 2011). Similarly, in Hinduism, for example, cremation ceremonies specify what type and how much wood is to be used, depending on the properties of one’s life (Carpenter 1986).

Religion also provides an explanation as to how the world was created, what is humanity’s role within it, and when natural disasters may occur (Pierotti & Wildcat 2000; Spilka, Shaver & Kirkpatrick 1989). It is worth noting that religions have often emphasized the effective aspect of nature (for example,

medicinal herbs), valuing species for their milk, but this form of consumption is imbued with spiritual meaning. The latter also has

the spiritual beliefs that shape ecological reasoning in many indigenous cultures by recognition of eco-theological diversity which display the important implications for climate change policy as strategies that are successful within one religious and cultural context may not perform as well as others.

(Sachdeva 2016: 3)

Just because climate change is irreducibly cultural does not mean that religious responses to it are intrinsically helpful. Religious perceptions affect how humans see their place in their surroundings, but ecological features shape religious perspectives as well. That explains why some religious identities are caught up in denialist politics, religious thought that interprets climate change in different ways, resulting in religious dynamics which can intensify cultural conflicts. Having described this general background on religion and the environment and climate change, the following section focuses on Hinduism in Africa.

Hinduism on the African soil

Before tackling the theme of Hinduism and climate change in Africa, it is important to have an appreciation of the religion. There is no scholarly unanimity of what is Hinduism, although various scholars have provided diverse definitions of the phenomenon. Thus, for example, "Hinduism is a term which denotes the religions of the majority of people in India and Nepal and some communities in other continents who refer to themselves as Hindus" (Flood 1996: 5). The term "Hindu" had originally a territorial and not a creedal significance. The people on the Indian side of the Sindhu (Indus River) were called Hindus by Persians and later Western invaders (Cross 1994; Radhakrishnan 1960). Hence, it does not come as a surprise that the Indians we call Hindus do not among themselves use the term. According to them, their religion is referred to as "*Vaidika dharma*," the Vedic Religion or "*Sanatana dharma*," which means eternal religion (Beaver, 1932; Radhakrishnan, 1960; Klostermaier 1998; Klostermaier 1994). Hindu texts are classified into *shruti* (heard) and *smriti* (remembered). Hinduism spread outside the borders of its homeland to Southeast Asia, and in the 19th century to the Western world and Africa (Pratap 2000). Despite being one of the oldest religions in the world, in Africa it can be deemed to be still in its infancy stage. However, some, from both within and outside the tradition, might claim there is no such thing as Hinduism, while others might claim that despite the diversity, there is an essence which structures or patterns its manifestation. This diversity, though, should not distract from the underlying unity of belief. Three words in Sanskrit, from the *Īśopaniṣad*, broadly characterize the Hindu outlook: "*Īśāvāsyam idam sarvam* (ISO Mantra 01). Thus, "This entire universe is to be looked upon as the energy of the Lord."

Despite its diversity and a large following, there is very limited literature on Hinduism in diaspora, especially in Africa. However, the sources have reached a consensus that the religion infiltrated Africa around the 19th century with the colonization of African countries by the British (Pratap 2000). Hinduism was introduced by Indians who migrated as casual labourers from British India, some of those who chose to remain in Africa. The ban on the slave trade in Africa made the British look for casual labourers from other continents. Most of the casual labourers were from India, also a British colony. The religion has been embraced in several countries in Africa, but the majority of the followers are of Indian origin with very few African “converts.” South Africa is one of the few nations in Africa with a large population of Hindus. In West Africa, Hinduism is relatively a minority religion, but it is seen growing fast in Ghana due to a recent Indian migration to this part of Africa (Atiemo 2020). Likewise, there are many Hindus in most of the Eastern and Southern African countries, especially countries that were British colonies. The religion, though having a few similarities with some of the African traditions, has received resistance from Christians and Muslims in some African countries. According to the Pew Research Centre, there are more than 100,000 Hindus in the Democratic Republic of the Congo. The Eastern region of Africa is home to many migrant communities from India. This region is home to various Hindu temples, mainly in Tanzania, Uganda, and Kenya. The country of Mauritius, retaining a Hindu majority, is found in Eastern Africa. The largest concentration of Hindus in the continent can be found in the Southern region of Africa. South Africa is home to more than 500,000 Hindus. In Botswana, the community of Hindus began to form in the early 20th century with the beginning of immigration from India to Botswana through South Africa. There are 3,000 Hindus in Botswana who are of Indian descent (Motswapong 2012).

The Hindus’ view on nature

Hindu scriptures reveal a clear conception of the ecosystem. On this basis a discipline of environment ethics developed, which formulated codes of conduct (*dharma*) and defined humanity’s relationship to nature. An important part of that conduct is maintaining proper sanitation. In the past, this was the duty of everyone, and any default was a punishable offence. In their paper, “Introduction: Climate Change and Religion – a review of existing research,” Veldman et al (2012:270) observe:

While religion and climate change is a topic whose many dimensions scholars have only begun to explore, we would like to point out a few areas that we think are particularly in need of further research. Geographically, we received few submissions discussing events in East Asia, South America, Russia, and Europe. As for religious traditions, more work on Islam (particularly in the Middle East), Hinduism, and Buddhism vis-à-vis climate change would be beneficial. Topically, little has been written from a

social-scientific perspective about transnational and interfaith groups that have worked on climate change, about the participation of religious individuals and groups in climate justice movements, about religion among climate refugees, or about how faith-based relief and development organizations are responding climate change.

This chapter responds to the observation by Veldman et al (2016) regarding the need for further studies on Hinduism and climate change. Whereas there is now considerable literature on the dominant religions in Africa (African Traditional/Indigenous Religions, Christianity and Islam), there is very limited material on the so-called smaller/minority religions and climate change. This chapter seeks to address this gap in the available scholarship by focusing on Hinduism in Africa and climate change.

The earth as the mother

Mātā bhūmi putro aham pṛthivyāḥ! The Earth is my mother and I am her child!

Atharva Veda (12.1.12)

The Vedic seers advocate for a caring reciprocal attitude of nature-human relation as mother-child relation. The Vedas reveal deep respect towards the earth, likening it to the child that is ever committed to his/her mother. The mother is considered the first guru of the child. Earth is construed as the mother caring for her offspring, and nature is regarded as intrinsically or inherently valuable and draws respect as well. The concept of Mother Earth advocated in the Vedas, particularly *Bhumi Sukta* (Atharva Veda 12.1), is unique. Mother Earth is adorned with mountains, hills, plains, high slopes, forests, plants, herbs, and treasures. She takes care of every creature that breathes. She is a source of all creativity, and everyone depends on her for their development and evocative existence. Therefore, whatever food they eat, the water they drink, the clothes they wear, the air they breathe is dependent on Mother Earth. Therefore, humans are indebted to Mother Earth for every single moment of their lives. The popular practise of touching the ground when waking up is an opportunity to convey their gratitude to Mother Earth and to God, who created the universe. *Vishwanitra Smriti* also sees the earth as the mother. The earth is depicted as a mother who is covered with oceans as her garment and mountains as her bosom "... whose breasts are in the form of the great mountains, O Mother Earth, wife of Vishnu forgive me for placing my feet upon you." (*Vishwamitra Smriti*, 1/44–45). There is personification of motherhood equated with earth or normal world such that goddesses are somehow referred to as Mother Earth or as the Earth Mother. Hence, the divine mother, Devi Adi Pakashakti or Shakti, manifests herself in various forms, representing the universal creative force. She becomes Mother Nature (*Mula Prakti Parati*) who gives birth to all forms of plants, animals, and such for herself. She sustains and nourishes them

through her body, especially the earth with its animal life vegetation and minerals. These examples are indicative of Hinduism as a religion with ecological concerns at its heart.

Hinduism in Africa and its response to climate change

Evidence has shown that climate change has affected the health, livelihoods, food productivity, water availability, and national security of Africans. Hindus, like followers of other religions, have faced the ramifications of climate change due to the *dharmic* or religious duty each adherent must lead. This further ensures that they have a purposeful, plentiful, and bountiful planet. The reasons have been advanced as follows:

Climate change creates pain, suffering, and violence. Unless we change how we use energy, how we use the land, how we grow our crops, how we treat other animals, and how we use natural resources, we will only further this pain, suffering, and violence.

(Hindu Climate Declaration 2015)

The declaration further encourages every Hindu, on a personal basis, to reduce this suffering by beginning to transform their lifestyles, by simplifying lives and material desires, and not taking more than our reasonable share of resources. Furthermore, each has been encouraged to adopt vegetarianism as one of the single most powerful initiatives that all Hindus can take in reducing environmental impact. By adopting vegetarianism, Hindus maintain the ecological and *rita* (cosmic order), an order that allows life and existence to flourish.

Hinduism and food security in Africa

Hinduism, like other religions, has the issues of food security at heart in Africa. The FAO defines food security as, “When all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (International Food Policy Research). Food insecurity has been rising in Africa in recent years, and the continent is not on track to eliminate hunger by 2030. However, sustained economic growth is not enough: reducing inequalities, including gender-based and spatial inequalities, is essential to strengthening household resilience, laying the path to inclusive growth, and reducing food insecurity and tackling the multiple forms of malnutrition. For instance, a charity such as BAPS, which is a social service branch of Swaminarayan Sanstha sect of Hinduism, has been very active across the world. It focuses on several activities, such as improving education and healthcare for the poor through work of volunteers in the United States and elsewhere. BAPS organizes food drives at local community centres to cater to low-income families and communities affected by natural calamities.

One of the aspects adopted by Hinduism is *Prasadam* or food for life. This initiative means providing nutritious and environmentally sustainable food to all people always is one of the greatest challenges currently facing society. This problem is particularly acute in Africa, where an estimated one in four people still lack adequate food to sustain an active and healthy life. *Prasadam*, which is referred to in the Bhagavad Gita 3:13, 9: 27, is a mental condition of generosity, as well as a material substance that is first offered to a deity in Hinduism and then consumed. Literally, it can also be seen to be a gracious gift. It is anything, usually edible, given by a saint, perfect master, or the avatar and then distributed in his name. *Prasadam* has the deity's blessing residing within it. Recently there have been cases of malnutrition in Botswana in the Kweneng district, as Baitlotli reported

The increasing cases of malnutrition in the Kweneng district has been attributed to shortage of food commodities resulting in the insufficient supply to primary schools and health facilities in some areas in the district. This was revealed in a multi-sectoral report to the Drought Inter-ministerial Assessment Team presented by the Mogoditshane/Thamaga subdistrict.

(Baitlotli 2017:1)

ISKCON temples are known for providing free *prasadam* meals to all who come, as they believe that this is not only feeding the poor but also providing them with Krishna's mercy food. ISKCON has inspired and sometimes sponsored a project called food for life. The goal is to "liberally distribute pure vegetarian meals (*prasadam*) through the world. This was inspired by Bhaktivendata Swami Prabhupada's instruction given to his disciples in 1973, when he said, "No one within ten miles of a temple should go hungry, and I want you to immediately begin serving food" (Back to the Godhead 2020).

Hinduism, land shortage and cremation

Cremation of the dead is a Hindu ritual that is used to dispose of their dead. Ideally, the family will want to hold the funeral right away so the body can be cremated in order to liberate the soul. The ritual is in line with the release of the soul for reincarnation during the cycle of birth, death, and rebirth (*Samsara*). However, in the context of climate change, cremation is advantageous for preservation of the environment and freeing up land for agriculture and future generations.

Due to the population boom in most African countries, there is little space to bury the dead, particularly in urban areas. As a result, land in Africa is becoming scarce and a very expensive commodity. There have been instances where close family members have maimed or killed each other in battles for land ownership. Such conflicts could be avoided if land was saved for other things, such as farming and construction of residential and commercial houses.

As land is gradually become scarce, it poses a national security challenge due to the ensuing conflicts. Migration to cities has also contributed to the crowding of graveyard space and producing a landless generation without cash for a funeral. Following the shortage of land in Africa, Hindus offer cremation as a method of disposing of the dead, hence saving land for future generations. In Botswana, Zimbabwe, Kenya, and Ghana, to mention a few, the service has been made available. However, there has been a lot of resistance from Africans who are very uncomfortable with cremations because it is considered a taboo. Cremation has been opposed on cultural grounds, where traditional beliefs are often respected even among Christian and Muslim devotees. "You associate your family tree with where your ancestors are buried," said Mwambutsya Ndebesa, a professor of History at Makerere University in neighbouring Uganda (Muhumuza 2018:1). "A burial site is like a physical site of identity, of tribal identity" (Muhumuza, *Ibid.*). Notwithstanding, Batswana are slowly adopting to cremation as an option to dispose their dead, however, they are still reluctant to fully accept it because it is a sensitive issue that needs a cautious approach; therefore, "consideration of culture and religious beliefs of people should be considered" (Mooketsi 2010:1). The resistance is also fuelled by the fact that it is a new practice because their forbearers never practiced it. Likewise, in a public cemetery in Langata, Nairobi, there is very limited space, and at times graves are dug shallowly to avoid disturbing the other dead beneath, a practice that was shot down by Batswana when it was suggested that "if we don't cremate, we must bury more than one person in one grave" (Mooketsi 2010:1). Despite these diverse opinions, the Hindu community has extended their crematoriums to Africans of other faith so they can leave land for future generations.

Hinduism, climate change and health

Africa continues to face a lot of health problems due to climate change. There is tendency of parasitic and viral infections to spread more especially when the climate is conducive for such. These include pandemics such malaria. The World Health Organization (WHO, 2017) and the World Meteorological Organization have identified malaria as one of the most climate-sensitive diseases, with a wealth of evidence suggesting significant associations between changes in temperature, rainfall and humidity, and malaria incidence (Climate Change and Malaria Report 2015).

However, the main challenge facing the African continent is maternal and child health in Africa, where a growing proportion of maternal and child deaths occurs. Climate change increases the risk of maternal and infant mortality, birth complications, and reproductive health, particularly in tropical, developing countries (Raylander, Odland and Sandager 2013). So it has been suggested that faith-based organization (FBO) religious leaders and promoting faith-based or faith health-inspired health services could be an effective means of addressing the maternal and child challenges. For centuries FBOs have played a key

role in the global effort to promote health and well-being, especially among the most disadvantaged populations. Owing to insufficient local resources, FBOs originally concentrated on building hospitals and clinics and training healthcare workers to improve access to affordable health and rehabilitation services. The WHO estimates that 30-70% of the sprawling healthcare infrastructure across the African continent is run by FBO with percentages varying within this range in different countries (Widmer et al. 2004). In Botswana, the Sathya Sai Baba in Gaborone has been providing free medical clinic through voluntary medical personnel every Sunday for the past eight years. The medical services address general health issues as well as dermatological problems, respiratory illnesses, cardiovascular problems, metabolic diseases, and women's health issues (see Sathya Sai Baba in Botswana).

Hinduism and natural disasters

Whenever there is a problem of climate, natural disasters are prone to happen. Widmer et al. (2004) emphasize the role of faith organizations in disaster risk reduction. Religious groups are usually well integrated within local communities and thus often able to respond to a disaster in a very short time span (see, for example, Ali 1992; Bolin and Bolton 1986; Crawford 1998; Fisher 1985; Fountain et al. 2004; Merli 2005; Smith 1978). Moreover, these organizations often benefit from a high level of trust among local communities. For these reasons, religious non-governmental organizations (NGOs) have long been at the cutting edge of disaster risk reduction. In Eastern Kenya in 2018, for instance, the Sai Baba organization was quick in their response to flooding due to heavy rains. The rivers Galana and Sabaki flooded many homesteads and thousands of people became homeless. Many areas of Kilifi County had been affected by floods and the affected were in urgent need of daily necessities. There was an urgent appeal for help, and the Kenya Defence Forces responded with helicopters to rescue trapped families and distributed food. The Sathya Sai Centre in Mombasa responded directly to the call for help and Sathya Sai volunteers jumped into action to assist their brothers and sisters in need. They started to collect food and essential items for distribution, including blankets, plates, spoons, mugs, maize meal, sugar, clothing, water jerry cans, salt, etc. (see Sathya Sai Baba in Kenya).

Conclusion

In conclusion, this chapter has highlighted how climate change continues to be a major challenge for the African continent. The ramifications are felt all over the continent, and there is a growing realization that religion needs to be playing a more prominent role in climate change mitigation and adaptation. Notwithstanding, credit has to be given where its due, especially to some religious traditions such as African Traditional Religions, Christianity, and Islam, which have worked tirelessly in addressing these challenges in Africa.

However, this chapter has highlighted that they are not alone in the fight because Hinduism has also become a significant player. Therefore, the chapter would like to recommend that African people can benefit immensely from the diverse religions if they work in partnership, as opposed to the current situation where each one of them is working from its corner, far removed from the rest. Once these religious traditions come together and partnerships are forged for the common good, Africa will emerge victorious in its fight against climate change. Hinduism, with its openness, flexibility, and commitment to the practical salvation of humans and Mother Earth, is strategically placed to facilitate such joint religious action for climate justice in Africa.

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11 Risk reduction interventions, building resilience and adaptation to climate change in northeastern Kenya

A review of the response by the Islamic relief worldwide

Hassan Juma Ndzovu

Background

There is nothing in the world today that poses a greater risk to human existence than climate change. However, despite climate change being a threat to the global community, it seems to have overwhelming consequences among the less-developed and vulnerable population of Africa, including Somalis of northeastern Kenya. In the northeastern region of Kenya, climate change poses numerous challenges from poverty to forced migration to conflict. As a consequence, the Kenya government has joined efforts with numerous non-governmental organizations (NGOs), including the Islamic Relief Worldwide (IRW), to tackle the growing danger and menace posed by climate change in this part of Kenya. Resolving the problems presented by climate change is crucial to the IRW because it provides the organization with the opportunity to fulfil its mission of addressing the root causes of poverty in the region. This chapter, therefore, examines efforts of IRW interventions in northeastern Kenya and analyzes how the local community is working with the organization to adapt to climate change and build resilience, including resolving conflicts and giving people a voice in inclusive development policies. More so, it will also show why the IRW is vocal on climate change issues, and how it has supported the local residents of northeastern Kenya in coping with the challenges of climate change, thereby promoting sustainable living among the people. This chapter also draws attention to the role of the IRW in promoting peace-building in the wake of conflict caused by climate change in the region in focus.

Introduction

Climate change is one of the most pressing emergencies of our time. Whereas most activists have directed their efforts at governments in an effort to get them to commit to achieving the set targets in order to provide effective responses to climate change, there is limited attention to the role of non-state actors in

the climate emergency. This chapter addresses this gap by focusing on the role of a Muslim NGO, namely, the Islamic Relief Worldwide (IRW) in responding to climate change in northeastern Kenya. Although there is an emerging interest in Muslim faith-based organizations (FBOs) and social welfare in Africa (see, for example, Haron 2020 and Weiss 2020), there is very limited focus on Muslim FBOs and climate change in Africa. Due to the fact that a longer narrative is required to do justice to the theme of Islam and climate change in Africa or in Kenya, the chapter focuses on northeastern Kenya. This must be understood within the context of the developments in the global responses to climate change outlined below.

In 1992, the United Nations Framework Convention on Climate Change (UNFCCC) was approved as a measure to alleviate atmospheric concentrations of greenhouse gases (GHGs), and around 197 countries signed up to the structure.¹ Subsequently, the Conference of Parties (COP) was established by the United Nations (UN) in 1995 to review progress made by the respective state parties. Based on the information available, the COP assesses the effects of the measures taken by member states in realizing the critical objective of the convention.² Significant was the Kyoto Protocol of 1997, which committed state parties to reduce greenhouse gas emissions.³ The Paris Agreement of 2015 strengthened the international response to the threat of climate change by targeting global efforts to limit the temperature rise to 1.5°C.⁴

The 24th COP held in Katowice, Poland, in 2018, aspired to build on the previous attainments of the Paris Agreement and outlined steps to transformative change. During this meeting scientists from around the globe underscored the gains of limiting warming to 1.5°C. In their report they indicated that human activities have resulted in global warming, and predicted that the globe will heat up by about 3°C by 2100, threatening the global ecosystems, species, destruction of crops, exposing human populations to extreme weather, culminating in societal collapse. At the 24th COP, governments were not only expected to renew and increase their pledges, but to also abide with the resolutions. It was observed that the consequences of climate change are felt all over the planet, but with more severe repercussions among the developing countries of Africa that lack the capacity to adapt to these adjustments. The COP resolved to continue examining the situation, ensuring that these developing nations have the necessary resources to protect their citizens.⁵ While many industrialized nations have clear action plans of how they intend to reduce their carbon emissions, there are others, particularly in Africa, that do not have such a framework. Without a doubt, the issue of countries reducing their greenhouse gas emissions is a complex endeavour.⁶

A question could be posed: why is the IRW concerned about addressing the challenges of climate change? According to the organization, they have established that much of the poverty and suffering they are working to reduce in less-developed countries could also be linked to climate-related factors.⁷ Kenya, like other parts of Africa, is extremely vulnerable to the impact of climate change compared to other countries in the developed world. Despite emitting a small

number of greenhouse gases, the country is experiencing droughts and floods regularly (Dahir 2018). For example, in northeastern Kenya, where IRW has worked for several years, drought has always been identified as the major cause of famine in the region. Thus, climate change is one of the biggest challenges confronting the community residing in this part of Kenya. Consequently, due to scarce water it is difficult for the local residents to meaningfully sustain live-stock keeping, a main source of livelihood.⁸ And in the wet seasons, the rains are in most times experienced in the form of violent storms with subsequent floods that culminate in destruction of property, lives and infrastructure like roads, hampering rescue efforts in the affected regions (Otsialo 2020a, 2020b). Clearly, climate change presents an additional uncertainty to the lives of the marginalized and impoverished segments of the local Somalis living in this region. Due to the effect on livelihoods, sections of the local community living in poverty are harshly affected since they lack the resources and capacity to deal with challenges posed by climate change. Northeastern Kenya is largely an arid region, and subsequently, the climate change phenomenon is proving to be more brutal in the region.

Since climate change is the biggest environmental challenge in Kenya's northeastern region, IRW is at the forefront of implementing climate-related projects to supplement the government's efforts. The organization's recent (by 2020) projects in not less than 13 countries have facilitated some of the most vulnerable communities in Africa to adapt to the effects of climate change. In northeastern Kenya, the organization has accomplished numerous projects geared at improving the community's resilience, preparedness, food security, and enhanced self-reliance by enabling the local Somali pastoralists who have constantly lost their livestock to drought to switch to growing fruit and vegetables. The organization's Climate Change Policy influences how the local community responds to the climate change challenges. Giving impetus to the IRW's efforts is the Islamic Declaration on Global Climate Change that calls upon the global Muslim leaders to protect the environment.⁹

Based on secondary data, this chapter seeks to answer the following questions: Why is IRW vocal on the issue of climate change and where does it derive its inspiration from? To what extent has the IRW been successful in campaigning for emission reduction, promoting sustainable living, and protecting the most vulnerable segments of society in the world? How have the local residents of northeastern Kenya been assisted in coping with the challenges of climate change, including addressing conflict caused by climate change?

The Islamic Relief Worldwide and the Islamic declaration on climate change

Since 2018, the IRW has been at the forefront championing issues related to climate change, including in Africa. The organization is the leading Muslim agency providing leadership on tackling climate adaptation and mitigation. Through their project on climate, "Action on Climate and Consumption,"

they have been consistent in demanding the reduction of carbon emissions in both developed and developing countries. Consequently, local communities are working with the organization to adapt to climate change and build resilience, including efforts to reduce the risk from future effects.¹⁰ During the COP23, held in Bonn, Germany, IRW, as one of the world's largest FBOs inspired by the Islamic faith, contributed a religious perspective to assist deal with the problem of global warming. At COP23, the organization presented its experience of working with Muslim communities at the Compassionate Simplicity Initiative, which is a multi-religious coalition that promotes faith-based climate advocacy. Apart from the organization mobilizing volunteers to join the GreenFaith movement and delivering a multi-religious declaration for sustainable living to COP 23, they also appealed to individuals from other religious "organizations and spiritual groups" to "make a commitment to a lifestyle of compassionate simplicity for the sake of the climate."¹¹ Together with IRW, GreenFaith seeks to establish a multi-faith global movement on climate and environmental awareness geared at saving the planet from the effects of climate change (Bader 2020).

By 2020, IRW had numerous climate-related projects in several countries, in which some of them were geared towards building resilience among communities vulnerable to climate change. Across the world, the organization's climate change effort involved sustaining "campaigns and initiatives, promoting an Islamic approach to sustainable living and working directly with governments and vulnerable communities."¹² Together with other key partners, the organization jointly supported the drafting of the Islamic Declaration on Climate Change, which was endorsed by over 80 Muslim leaders. Due to its activist character, IRW runs "a global advocacy campaign to encourage Muslims to tackle climate change following the Islamic declaration."¹³ In addition to this declaration indicating the possible danger to the human race, it also underscores the Islamic obligation to live sustainably and justly on earth. The organization's climate change policy summarizes "the Islamic principles of sustainable living as well as the conservation techniques that Islamic Relief has successfully [implemented] in Muslim communities."¹⁴ This confirms the fact that the responses of the IRW to climate change in northeast Kenya are informed and driven by Islamic principles. It is a non-state actor that is motivated by clearly defined faith principles in its engagement with climate change.

As extreme weather conditions such as drought, heat waves, heavy rain, and flooding turn out to be a recurrent phenomenon, the Islamic declaration envisages undesirable outcome on the universal economy, biodiversity, and services offered by the eco-systems. It warns that "the earth's core physical systems" are at the risk of "abrupt and irreversible change."¹⁵ Consequently, the IRW plays an active role through its various climate programmes focused on strengthening the adaptive capacity of individuals and local communities as a way of reducing their vulnerability to the consequences of climate change. To avoid the effects of climate change become a calamity in perpetuity, adaptation initiatives have been promoted besides emission reductions. In the estimation of

the organization, it believes that it can still achieve its vision of reducing poverty and suffering to the less fortunate members of society in spite of climate change. The organization purports to be in the front responding with relevant development, adaptation, and risk-reduction interventions to assist the affected communities to deal temporarily with impacts of climate change as it sought for long-term mitigation.¹⁶ Thus, it declares to advocate for alleviation policies that facilitate in setting up conditions that allow for sustainable, equitable, and global prosperity among the poor segments of society, such as those residing in the northeastern region of Kenya.

Northeastern Kenya: a brief historical context

In order to put the IRW engagement with climate change in northeastern Kenya, it is strategic to provide an overview of the region. The northeastern part of Kenya is home to ethnic Somali of Degodia, Ajuran, and Ogaden clans, who are predominantly Muslims. It is partly because of this Islamic factor that IRW has concentrated their work in this region since 1993, providing humanitarian support.¹⁷ Present-day counties covering northeastern Kenya include Wajir, Mandera, and Garissa. The majority of this community is entrenched in nomadic or semi-nomadic lifestyles (Scharrer 2018). This expansive arid and semi-arid area was in the years running towards independence claimed by the Republic of Somalia in its ambition to build the Greater Somalia. Although the majority of the inhabitants were in favour of secession from Kenya in a referendum held before independence in 1963, their voices were ignored by the Jomo Kenyatta government (1963-1978), leading to a three-year secessionist war. A fusion of secessionist insurgency, inter-ethnic and clan warfare, together with banditry has characterized the region ever since. As a result, the Kenya government has always considered the northeastern region as a major security problem (Ndzovu 2014). It is because of this perception that some of the post-colonial governments have employed emergency laws and draconian measures to bypass the judicial system as a pretext of enforcing law and order in this region. This has included powers to arrest, move or detain people, confiscate or destroy livestock, prohibit gatherings, and impose a mandatory death penalty for illegal possession of firearms (Human Rights Watch 2012; Otunnu 1992).

Hostility between ethnic Somalis and the government security agents have led to relentless conflicts over attempts to control the community's movement, resulting in awfully serious abuses, such as the massacres in Garissa in 1980 (300 killed) and in Wajir in 1984 (up to 2,000 people killed in the infamous Wagalla massacre). While the "Wagalla massacre was the result of an effort to disarm" the various "Somali clans that were engaged in a conflict over grazing land in Wajir," the Garissa massacre was security forces' "reaction to the killing of four civil servants by armed bandits," which saw the Kenya government embracing a "policy of collectively punishing an entire community for the crimes of a few" (Adow 2013).

Competition among the different Somali nomadic clans over livestock and grazing pasture, coupled with periods of drought, has perpetuated a way of life characterized by persistent tensions. Further, the Somalia civil war that erupted in the 1990s has forced over 500,000 Somalis as refugees to Kenya, enabling free movement of firearms, which has exacerbated instability in the northeastern region.¹⁸ However, one of the evident legacies in the region attributed to persistent tensions and conflicts is the state of underdevelopment in the various aspects of life. The government's resources were fundamentally directed towards security operations in an effort to preserve law and order. To realize this agenda, the government adopted the policy of containment than that of engagement with the local community, and this is why there was no constructive development that took place during this period, rendering the region, today, to be the least developed and marginalized part of Kenya (Scharrer 2018). It is in this context that the IRW has sought to respond to climate change. This forms the focus of the following section. It is, however, important to bear in mind that many of the struggles described below also apply to other parts of Kenya.

The Islamic Relief Worldwide and climate change in northeastern Kenya

Currently, the work of IRW in Kenya is focused in the northeastern region, which, as previously noted, is largely inhabited by nomadic Somali pastoralists and beset by recurrent drought, flash floods, and inter-clan conflict.¹⁹ In Kenya, the drought conditions are worse in the arid and semi-arid parts of the country, including this part of the country, where countless water sources have desiccated following the low rains. *Due to successive droughts witnessed in the region, poor families from the local Somali community have been pushed to the brink, thereby being in dire need of humanitarian support to ease their suffering.* Sylvia Brown, the Conflict Advisor for IRW, confirms this ailing situation arguing, 'we know all too well that poor communities often become less able to cope every time they are hit by a disaster, because each disaster destroys valuable assets, like livestock.'²⁰ Without a doubt, the increasing crisis owing to the climate emergency is becoming a reality for many local inhabitants, as harsh weather conditions of drought are periodically on the rise. The majority of the inhabitants depend on water and pasture to be able to sustain their large herds of livestock, which is fundamental to the Somali culture and is also the main source of earning a livelihood. However, increasing *global temperatures has resulted in severe droughts whose harsh* impact on the herding community has been overwhelming because of the scarcity of water.²¹ Thus, the *drought conditions* in the region have left several members of the local community desperate.

When it is not drought decimating northeastern Kenya's poor segment of the society, seasonal rainfall has always been a source of fatal flash floods in this region. In early 2018, floods attributed to torrential rains across Kenya, displacing over 200,000 people and killing around 100 others in several counties

in the country. As the floods adversely caused havoc in the poor counties of the northeastern region, they also affected the refugees in the Dadaab camp, impacted businesses, swept away homes, forced the closure of not less than 200 schools, destroyed several water points, and increased the probability of disease outbreaks such as cholera and malaria. Worse, the effects of the ravaging floods came after the region and other parts of the country had experienced a devastating drought and famine in the last two years (Dahir 2018). This distressing scenario was confirmed by the IRW Regional Director for East Africa, Yusuf Ahmed positing:

The ever-changing climate is wreaking havoc in East Africa. Only last year [2017] we saw the impact of drought on local farmers and pastoralists who were forced to flee their homes to find water. This year [2018] they are fleeing their homes to save themselves from flooding.²²

The drought condition, which was made worse by El Niño, reduced crop production in the country, raised food prices, escalated inflation, and hindered economic growth. The heavy rains exposed both the country's and the counties' poor planning and the lack of disaster preparedness, as the affected regions continue being exposed to a vicious cycle that interchange between droughts and floods. As a result of the floods, the transport network system broke down as most of the roads in the northeastern region were rendered impassable, thereby frustrating humanitarian efforts. Like drought, this extreme climatic condition aggravated hunger and poverty among the pastoralist communities who had lost their livestock during the drought and were now being swept away by the floods (Dahir 2018). These recurring calamities have relentlessly exhausted the coping strategies of the local community that is already vulnerable.

Owing to arguably systematic marginalization by the different postcolonial governments in Kenya, the northeastern region is one of the poorest parts of Kenya. Already confronted by numerous challenges, the climate emergency seems to present another enormous survival difficulty to the local community as resources such as pasture and water become increasingly in short supply.²³ Generally speaking, this situation has led to the emaciation of livestock crucial for the survival of the local Somalis, hence posing difficulties to the livelihood of this marginalized community. Due to unpredictable rains, water is scarce, compelling the local community to walk long distances to fetch water trucked in by the government. In its effort to assist families living in drought-stricken areas, the IRW has been at the forefront in drilling new boreholes as an intervention to address the water crisis in the affected locale. Moreover, in the process, IRW initiated numerous activities among the locals, with a focus on ensuring that women, the older, the disabled, and other vulnerable members of the society accessed the required vital support. For the long term, the organization embarked on mobilizing interventions and activities that would boost community resilience to drought.²⁴

The saving water for food initiative

Consequently, several residents from northeastern Kenya have benefited from the organization's Saving Water for Food initiative.²⁵ With the customary source of income of the people affected by the unpredictable weather conditions, some local families teamed up together and resorted to growing fruit and vegetables against all odds. Through the technical support from the IRW, the local farmers are employing "a combination of solar power and precision irrigation to overcome the harsh conditions and the chronic lack of rainfall."²⁶ Thus, with the established infrastructure, solar energy is vital in propelling "water from a purpose-built shallow well, and drips" it in moderation and accurately on "each plant through perforated tubing – a system known as drip irrigation."²⁷ Despite using water sparingly and incurring lower running costs with this system of irrigation, the results have been incredible, with increasing yields for crops like tomatoes and onions. It is anticipated that gradually more local farmers will embrace the new technology, ensuing that numerous families reap the benefits of a more cost-effective, productive farming, and secure source of livelihood. To avoid creating the impression of waiting for "manna to fall from heaven," the locals also contribute to mitigating the challenges presented by climate change, which is aptly captured on the Islamic Relief Worldwide website:

The only things that Islamic Relief provides for free are specialist advice for the farmers on farming techniques and on how to form and manage group savings and loans associations, plus the raw materials needed to construct the shallow wells – cement, metal frames, timber, plastic piping and wire binding. All the other costs – for the solar panels, the water tanks and the irrigation pipes and tubing – are covered by the farmers themselves through a combination of their own savings and microfinance loans.²⁸

Therefore, through the solar irrigation project, the local communities are able to support each other as they seek to address the problem of food shortage in the region attributed to climate change.

The Islamic Relief Worldwide addressing the security challenges from climate change: promoting dialogue through peace councils

Having outlined some of the major interventions of the IRW in terms of promoting livelihoods in the foregoing sections, in this section the chapter proceeds to summarize another strategic contribution by the organization. The IRW seeks to promote peace by addressing conflicts caused by climate change. The severe and prolonged drought experienced in northeastern Kenya has exerted enormous pressure on the local community, which has been exacerbated by an intricate history of state marginalization, conflict, and the proliferation of small

arms. *As the effects of climate change grip the northeastern region, the local pastoral Somali clans get into conflict due to increasingly scarce water and grazing pasture.* Thus, owing to severe drought conditions, *a section of the local inhabitants has been forced to always move around searching for water and pasture* for their livestock, accelerating conflicts as they compete for access to scarce resources. Since there are many people relying on fewer available natural resources, it is, without doubt, a recipe for conflict. With local communities struggling to survive the harsh climatic condition and coupled with increasing movement of people across the porous borders of Kenya-Somalia-Ethiopia looking for water and pasture for their cattle, *disagreements over the right to use the land and wells can sometimes spiral into violence.* With the easy availability of small arms coming from the “stateless” Somalia, some of the reported cases of violence have turned out to be fatal (Omosa 2005; Mkutu 2005; IRIN News 2009). This scenario of possible conflict and insecurity was correctly described by an official of the IRW website as below:

Northeast Kenya has a history of armed conflict over livestock and access to grazing land. ... This type of conflict is made worse by climate change. For generations pastoral communities have reared livestock for food and income, but now precious pasture and water are in increasingly short supply and the competition over scarce resources is causing clashes. ... Furthermore, when livestock die as a result of drought there is increasing pressure on pastoral communities to engage in cattle rustling to replace their loss.²⁹

Clearly, there is a need for instigating lasting solutions, which would in an innovative way promote community peace-building initiatives in this less-developed part of Kenya. In easing tensions among the local communities, the IRW embarked on providing well, water treatment, cash transfers, and livestock feed during the drought period. More so, through a peace-building community programme initiative in the region, the IRW has supported local clans to build lasting peace themselves. The organization’s Conflict Advisor opines:

As well as holding clan peace dialogues to build a collective approach to peace in the region, we are training women and young people to run peace councils that resolve disputes such as cattle theft... We’re also supporting traditional community leaders and informal peace advocates like female teachers, faith leaders and community activists to work together to conserve precious natural resources, adapt to climate change and find peaceful solutions to the challenges they face.³⁰

Funded by the Swedish International Development Cooperation Agency (SIDA), the peace-building programme by the IRW also broadcasts a monthly radio talk show that promotes peace across the expansive north-eastern region. The show, broadcast by local channel Star FM, encourages

deliberations between the various clans, religions, and community's opinion leaders to ease tensions whenever they arise and resolve conflicts that have already erupted. The broadcast peace programme is undoubtedly one of the popular innovations of the project that seeks to empower community members to promote peace messages across the airwaves and share valuable information about managing natural resources effectively. In this largely rural region, many of the local inhabitants rely on the radio to be updated with the latest news. Although most of the people residing in this region are ethnic Somali, there are extremely tense clan differences. Therefore, it is important for the radio talk show to strive to ensure that there is some form of clan balancing among the speakers to guarantee fairness and unbiased range of opinions, thereby establishing a sense of solidarity among the different communities.³¹

With this being a predominantly Muslim community, the role of religious leaders during the radio show cannot be overstated. Occasionally, Islamic clerics are invited to calm tensions by invoking religious texts that advocate the need for good neighbourliness and the importance of maintaining peace with neighbours. Such a religious intervention "reminds people of their commitments to each other and to Allah as Muslims."³² By listening to their community leaders raising their grievances and subsequently pleas of their religious leaders to exercise patience whenever misunderstanding amongst them arises, the radio show facilitates the possibility of constructively responding to the potential triggers for conflict. The community peace-building programme, which is set to wrap up in 2021, aspires not only to provide the communities with the necessary skills to cope with the impacts of climate change but also to respond to other forms of distress that could fuel intolerance and violence. This seemingly holistic peace-building programme supports the locals who are increasingly faced with tough choices of survival.³³

To realize its objective, the peace programme strives to support the community leaders and other societal agents of peace like women, teachers, religious leaders, and community activists to work together and come up with innovative ways to tackle the dual challenge of conflict and climate change. Through the programme youth and women peace councils were established in consultation with the government authorities and local leaders. These peace councils are tasked with the responsibility of advocating for peace and resolving disputes whenever they arise due to scarce pasture and cattle rustling. They provide structured platforms for dialogue on issues affecting the community, ensuring that the process is all inclusive. Apart from having a focus on the youth, women, and vulnerable community members, the programme also encourages peace dialogues between conflicting clans so that they can be able to build a collective approach to peace in the region.³⁴ Apart from participation in the radio peace talk shows, the IRW also supports the creation of social media groups to be used as early warning mechanisms because of their capabilities to swiftly raise alarm whenever an escalation in the local security situation is detected. This subsequently contributes to safety within the community

and allows the organization to assess the factors affecting peace and stability, thereby tailoring appropriate response.³⁵

Conclusion

This chapter has examined the work of IRW in northeastern Kenya, which is largely inhabited by nomadic Somali pastoralists and characterized by recurrent drought, floods, and inter-clan conflict. Allegedly, this region has been marginalized by the government for decades and this is why the general infrastructure, health, and education facilities are poor. *Being one of the country's less developed regions, the local communities experience the harshest effects of climate change, with many already in dire condition due to many years of government neglect and marginalization.* Consequently, the IRW is among the FBOs that have responded in addressing the damages of climate change in the region through supporting the local Somali community in combating the resultant effects of these changes, while at the same time inviting the global Muslim societies in joining this noble initiative. To mitigate the threatening situation in the region, the IRW has assisted the local communities in adapting to the changing climate, as well as initiating extensive campaigns for necessary action that could address the challenges of climate change. Further, the organization has supported the government's initiative to conflict management efforts.

As illustrated, with frequent and severe droughts experienced in the region, natural resources, agricultural productivity, and livestock keep diminishing, thereby exposing a sizeable population living in this area to a vulnerable and desperate state. After several years of poor rains, vast areas of grazing pasture have disappeared and most water points have dried, and inter-clan conflicts have increased as people have become desperate because of their livelihood being threatened. In alleviating the suffering of the locals, efforts have been put in place to provide them with food, water, drilling, and rehabilitating strategic boreholes in the affected areas. Like other parts of Kenya, the effects of floods in the northeastern region are also dire, resulting in several homes being destroyed, livelihoods lost, and a number of them losing their family members. With the erratic and unpredictable climate, livestock herding is becoming untenable, leading to the local people being encouraged and supported to develop new skills that would assist them to build alternative livelihoods. Significantly, the local community is assisted through the construction of dams to conserve the precious rainfall, thereby enabling them to cope with the changing climate.

In addressing the persistent conflicts emanating from climate change, the IRW promotes local conflict resolution mechanisms. To avoid being partisan whenever tensions arise, the organization endeavours to bring all the conflicting parties together through the establishment of peace councils, which promote fair and equal access to the valuable resource of water for both people and animals. Further, the local pastoralist communities are advised to diversify into agro-pastoralism by being encouraged to embrace the use of irrigation

technology to produce high-value fruits and vegetables. In addition, the most marginalized and desperate segments of the local community, especially women, are given priority support to enable them to improve their livelihoods by training them to run small businesses.

Without a doubt, it is critical that the relevant government authority together with the development partners encourage and support innovative measures to prevent further catastrophe and disintegration of the social order in this fragile region due to climate change. Thus, additional support for interventions that bring together humanitarian assistance, resilience strengthening, and support to locally initiated conflict-prevention procedures should be promoted. The combination of state and non-state actors can increase the effectiveness of interventions to address climate change in northeastern Kenya. As this chapter has highlighted through a case study of the IRW, Muslim-inspired FBOs are strategically placed to make valuable contributions towards empowering communities in Africa to respond effectively to climate change.

Notes

- 1 United Nations. 1992. "United Nations Framework Convention on Climate Change," FCCC/INFORMAL/84, GE.05-62220 (E) 200705, pp.1--24.
- 2 "Conference of Parties," np/nd, <https://unfccc.int/process/bodies/supreme-bodies/conference-of-the-parties-cop?page=%2C%2C%2C0%2C%2C%2C%2C%2C%2C%2C%2C0%2C0%2C0>
- 3 United Nations. 1998. "United Nations Framework Convention on Climate Change," FCCC/CP/1997/7/Add.1, pp.1--59.
- 4 United Nations, 2015. "Paris Agreement," pp.1--25
- 5 United Nations, 2018. "United Nations Framework Convention on Climate Change," FCCC/CP/2018/10/Add.1, pp.1--46.
- 6 United Nations. 1992. Op.cit.
- 7 Islamic Relief Worldwide, "Climate change," np/nd, <https://www.islamic-relief.org/climatechange/>.
- 8 Christian Aid, "Life on the edge of climate change: the plight of pastoralists in Northern Kenya," nd, pp.1--15.
- 9 Islamic Relief Worldwide, "Climate emergency threatens peace as communities fight for water and land," np/nd, <https://www.islamic-relief.org/climate-emergency-threatens-peace-as-communities-fight-for-water-and-land/>
- 10 Islamic Relief Worldwide, "Working for climate justice," np/nd, <https://www.islamic-relief.org/working-for-climate-justice/>
- 11 Islamic Relief Worldwide, "Islamic Relief delivers a faith perspective at UN climate change conference," np/nd, <https://www.islamic-relief.org/islamic-relief-delivers-a-faith-perspective-at-un-climate-change-conference/>
- 12 Islamic Relief Worldwide, "Islamic Relief delivers a faith perspective at UN climate change conference," Op.cit.
- 13 Islamic Relief Worldwide, "Working for climate justice," Op.cit.
- 14 Islamic Relief Worldwide, "Islamic Relief delivers a faith perspective at UN climate change conference," Op.cit.
- 15 "Islamic Declaration Global Climate Change," Section 1.5, nd.
- 16 Islamic Relief Worldwide, "Working for climate justice," Op.cit.
- 17 Islamic Relief Worldwide, "Where we work," np/nd, <https://www.islamic-relief.org/category/where-we-work/kenya/>

- 18 "World Directory of Minorities – Africa – Kenya – Pastoralists." 2008. Minority Rights Group International website, np,<http://www.minorityrights.org/3950/kenya/pastoralists.html>
- 19 Islamic Relief Worldwide, "Where we work," Op.cit.
- 20 Islamic Relief Worldwide, "Climate emergency threatens peace as communities fight for water and land," Op.cit.
- 21 Islamic Relief Worldwide, "Supporting peace in communities pushed to the brink by climate change," np/nd, <https://www.islamic-relief.org/supporting-peace-in-communities-pushed-to-the-brink-by-climate-change/>
- 22 Islamic Relief Worldwide, "Lethal flooding in East Africa," np/nd, <https://www.islamic-relief.org/lethal-flooding-east-africa/>
- 23 Islamic Relief Worldwide, "Supporting peace in communities pushed to the brink by climate change," Op.cit.
- 24 Islamic Relief Worldwide, "Urgent drought response launched in Somaliland and Kenya," np/nd, <https://www.islamic-relief.org/urgent-drought-response-launched-in-somaliland-and-kenya/>
- 25 Islamic Relief Worldwide, "World environment day: Remarkable rewards of solar-powered farming," np/nd, <https://www.islamic-relief.org/world-environment-day-remarkable-rewards-solar-powered-farming/>
- 26 Ibid.
- 27 Ibid.
- 28 Ibid.
- 29 Islamic Relief Worldwide, "Climate emergency threatens peace as communities fight for water and land," Op.cit.
- 30 Ibid.
- 31 Islamic Relief Worldwide, "Supporting peace in communities pushed to the brink by climate change," Op.cit.
- 32 Ibid.
- 33 Ibid.
- 34 Ibid.
- 35 Islamic Relief Worldwide, "How we are building social cohesion in four counties," np/nd, <https://www.islamic-relief.org/how-were-building-social-cohesion-in-four-countries/>

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12 The religio-spiritual and sacred dimensions of climate-induced conflicts

A research agenda

Joram Tarusarira and Damaris S. Parsitau

Introduction

The impacts of climate change are increasingly undermining human, national, and international securities. Scholarly and practical responses prioritize secular and modern technologies such as earth-observation technologies and market-based mechanisms to understand how and under what circumstances climate change influences the risk and dynamics of violent conflicts. Conversely, the influence of human and cultural factors such as religion, spirituality, and the sacred in dealing with climate-induced conflicts is sidelined. Yet religion, spirituality, and the sacred shed critical theoretical light on the motivations and positionings of conflicting parties. This chapter charts a research agenda that transcends established perspectives of responding to climate-related conflicts by arguing for the interrogation of how religion, spirituality, and the sacred influence violence and conflicts that are induced by climate change.

In what follows, we first discuss the relationship between climate change and violence. We then consider the current scholarly, practical, and policy responses and the place of religion in them, before pointing out the lacunae in the existing literature, as well as in practical and policy responses. After exposing these gaps and their scholarly and practical implications, we bring religion, spirituality, and the sacred into the discourse on climate change and violent conflict. To ground our discussion, we focus on African indigenous communities, especially the Shona in Zimbabwe, and their sacred relationship with their natural environment to distil the cognitive, emotional, and moral meanings that emerge from that relationship and show how they mediate climate-related conflicts. Drawing on our findings, we conclude by re-stating the need for a research agenda that critically considers how religion and spirituality or any similar phenomena, such as traditional knowledge of ecological systems, mediate climate-induced conflicts. We argue that marginalizing the influence of religious, cultural, spiritual, and moral orders not only results in a failure to comprehend why some climate-induced conflicts become intense, impassioned, and intractable, it also hinders the development of locally grounded sustainable peace-building and conflict transformation strategies. This chapter contributes to advancing SDG13: take urgent action to combat climate and its

impacts. We argue that addressing SDG 13 should not only be about mitigation and adaptation, but also about the consequences such as climate-induced conflicts when climate change exceeds adaptive capacities of the communities.

Climate change-induced collective violence and its potential to increase

The heated debate over whether climate change is directly connected to conflict and violence has resulted in an avalanche of quantitative (Meirding 2013, Salehyan 2014, Buhaug 2015, Seter 2016, Ide 2015) and qualitative studies seeking to measure how climate change may translate into violence and under what conditions it is likely to do so (Fjelde 2015, De Juan 2015, Alvarez 2017). Some scholars argue that, rather than precipitating a violent conflict, climate change results in resource scarcity which, on the contrary, might foster cooperation over resources rather than trigger a conflict (Buhaug et al. 2008, Buhaug 2010, Koubi et al. 2012, Wischath and Buhaug 2014). Likewise, resource abundance can also precipitate violent conflict (Ostrom 2007; Young 2011). However, there is increasing evidence indicating that climate change is causally associated with collective violence, generally in combination with other causal factors such as poor economic or governance systems. Numerous studies have shown that the risk of violent conflict in East Africa increases during periods of unfavourable climatic conditions for agriculture and pastoralism (van Baalen and Mobjork 2016, Ember et al. 2012, 2014, O'Loughlin et al. 2012, Releigh and Kniveton 2012, Maystadt and Ecker 2014, Maystadt, Caledrone and You 2015). To be clear, we do not suggest that climate change is always a trigger (De Chatel 2014). Analysts should also consider other socio-economic and political factors, like the strength of political institutions, for a thorough examination. For instance, in the Sahel region, the success of jihadi groups and political militia is attributed to weak state authority, an abundance of firearms and the steady erosion of local mechanisms of dispute resolution. However, research shows that climate change and the resultant collective conflict and violence are set to increase (Reuveny 2007). It is on this basis that we argue that SDG 13 on climate action should also include addressing climate-related conflicts.

It is estimated that by 2100, people living in coastal areas (ca. 20% of the global population) or in small-island nations will suffer the greatest impact of the expected rise in sea levels. Some island nations may disappear and other coastal areas may become uninhabitable, which may force many people to become internally displaced within their own countries or refugees in neighbouring countries. Elsewhere, sea-level rises will damage cropland, create salt-water incursions into river deltas and groundwater aquifers, and cause shortages of food and fresh water. As a result, there will likely be major political, economic, and social disruptions, sometimes associated with violence, as people compete for control of land and other depleting resources (Levy, Sidel, and Patz 2017). It is thus imperative to understand the dynamics between climate

and possible alternative practical intervention strategies, both theoretically and conceptually.

The current scholarly and practical response to climate change and associated conflicts

Statistical analyses of large N-studies and propositions for technological and economic problem-solving currently dominate research on the climate–conflict nexus (Ide and Scheffran 2014, Ide 2017). Policymakers and scholars perceive climate change as a subject for climatology, physics, chemistry, oceanography, physical geography, and integrative earth sciences (Scheffran et al. 2012), leading them to deploy hyper-techno-rational, economic and military responses that are exclusively secular, mechanistic, and modernist (O’Sullivan 2017, Werrell and Femia 2017). No wonder SDG 13 emphasizes to reduce greenhouse gas emissions and strengthen resilience and adaptive capacity to climate-induced impacts, which is the focus of natural sciences. This promotes “the illusion that problems in our natural agency mostly can be solved by technical innovations” (Bergman 2009: 107), thereby underestimating the human and cultural dimensions of global climate change. Prominent publications such as those of the IPCC do not account for the human, cultural, and ethical dimensions of climate change. Religious, spiritual, and sacred interpretations are not factored in because climate-linked conflicts are perceived as a scientific problem, a physical phenomenon that can be described without reference to cultural influences and that can be dealt with by mapping, measuring, and recording using technological instruments (Nordqvist and Krampe 2018, O’Brien 2017). Policy and practice pay no attention to inhabitants’ interpretations of climate change, nor do they consider the potential strategies for conflict resolution and transformation that have been used traditionally or are currently being used, of which religion, spirituality, and the sacred are part (Barnett and Campbell 2010: 21; de Wit 2014, Ulloa 2011).

However, the preferred scientific or positivist approaches and methodologies are shaped by the limits of contemporary mechanistic and economy-oriented world views that tend to externalize nature (Bergman 2009: 98). Regardless of how ecologically informed and sustainable they are, these approaches are inherently unsuitable for integrating religio-spiritual factors that are hard to quantify but are nonetheless crucial in understanding the dynamics of climate-related conflicts such as identities, narratives, or perceptions of threat. Furthermore, they cannot take different users’ perceptions into account, nor the role of their attitudes and beliefs in understanding climate challenges. As Bergman argues, “anthropogenic environmental problems cannot simply be ‘fixed’ by technical and economical systemic solutions and environmental ‘management’” (Bergman 2009: 99). Religion, spirituality, and the sacred are central and determinative driving forces in human practices and ideologies with regard to both mitigation and adaptation (see Bergmann 2014), and are

therefore also capable of influencing how climate-linked conflicts are analyzed and dealt with.

Merely dealing with climate change and conflicts through the frame of technology is thus insufficient. Climate scientist Mike Hulme argues that the idea of climate exists as much in the human mind and the matrices of cultural practices as it is an independent and objective physical category. Climate change takes us well beyond the physical transformations that are observed, modelled, and predicted by natural scientists (Hulme 2018). The idea of climate change carries quite different meanings and seems to imply quite different courses of action depending on who one is and where one lives (Hulme 2018). Among indigenous communities, this means recognizing and addressing the impacts of emergent climate-induced conflicts on indigenous rights to the traditional use of land and on their historical and spiritual connections with the land, their rights to traditional ways of living off the land, and the right to protect the sacredness of the land that has been their home since time immemorial (Kerr-Wilson 2017).

Consideration of the human and cultural dimensions of this problem is nonetheless beginning to find its way into the debate, thanks to the “constructivist and poststructuralist turn,” which has opened up new ways of looking at why climate change translates into violent conflict (Froelich 2012). Local perceptions of climatic and environmental changes can differ considerably from the data provided by technical methods and are essential for understanding social actions in specific localities (Chirongoma and Chitando 2021). However, they can hardly be incorporated into large-*N* studies (Ide 2017) because they are non-quantifiable. Rainfall or temperature figures are often based on satellite readings, but there can be a considerable difference between the perceptions of local inhabitants and the findings of scientific experts or orbiting satellites on the causes of environmental changes (Ide and Scheffran 2014; see also Tarusarira 2017). Non-positivist local perceptions and rationalities could contribute to theoretical understandings of why people act the way they do (their motivations) in an environmental or climate-linked conflict (Froelich 2012). What is needed is qualitative and ethnographic research to capture non-quantifiable crucial elements such as religion and spirituality and thus shed light on different aspects such as human modes of perception, action, and thought, as well as motivations, thereby increasing our understanding of the potential links between climate and violent conflict (see Bergmann and Gerten 2010). Qualitative techniques can complement statistical analysis by detecting causal pathways indicated by correlations, or by explaining why these correlations are misleading.

No research to date addresses how religion and spirituality mediate in dealing with climate-induced conflicts. What exist are studies of how religion can contribute to climate change mitigation and adaptation, research that is theological, pastoral or normative and specific to particular faiths, and that draws on resources internal to the specific faiths (Haluza-Delay 2018). This is how scholars of religion and the environment are trying to advance SDG 13. These

studies are located within and start out from the “greening religion” discourse, in which religious traditions become more pro-environment, a topic we revisit below (Taylor et al. 2016). Research on the greening of religion provides accounts of how religious traditions such as Judaism, Christianity, and Islam are becoming more pro-environment and are sharing strong doctrines of creation, such as the assertion that God created the world and made it good. Thus, the careless and unintentional altering of the climatic balance is deemed disrespectful and blasphemous. Engaging with religion is seen as beneficial because religions may be able to encourage a response to climate change through their influence on believer’s world views or cosmologies and the moral duties they promote. Religions can engage a broad audience which accepts their moral authority, may have significant institutional and economic resources, and can provide social capital through the connectivity they generate (Haluzá-Delay 2018).

However, it would be naïve to conclude that the existence of pro-environment doctrines of creation means that religious traditions are entirely pro-environment. An apocalyptic perspective that sees climate destruction as the point in time when God is beginning the final overthrow of extractive empires might lead to political inaction regarding climate change (ibid.). How religion and spirituality shape, haunt, interpret, inspire, or attend to human ways of being has become entangled with climate change. Religion, spirituality, and the sacred operate in the background of climate change conversations, where underlying concepts about places, environments, humans, and other animals generate particular expressions of environmental concern (Jenkins, Berry and Kreider 2018). From the extant literature, we lack knowledge of how this cosmovision mediates how actors position themselves in climate-related conflicts or how interveners factor it into addressing emerging violent conflicts. A lacuna thus exists regarding how ideas about religion, the spiritual and the sacred, which underlie concepts about places, environments, humans and other animals, influence positioning and affect how conflicts over natural resources, which embody the effects of climate change, are conceptualized and dealt with.

Analysing climate-induced conflicts through religion, spirituality, and idea of the sacred

Religion and spirituality are conspicuous by their absence from research into the possible mechanisms and conditions that shape how climate change does or does not translate into violent conflict. Despite this, most studies are undertaken in contexts in which religion, spirituality, and claims of the sacred are significantly present and intertwined with such conflicts. A case in point is local diviners in Tanzania, who say prayers of blessing and protection for cattle raiders (*ngingoroko*), with whom both the elders and traditional religious leaders have close connections. Inter-pastoral conflicts, including violent livestock-raiding, are on the increase due to more frequent and prolonged droughts, which, in combination with socio-economic changes, are increasingly overwhelming

existing adaptive capacities (Schilling et al. 2012). This chapter therefore hypothesizes that understanding people's religious, spiritual, and sacred perceptions of climate and the environment is essential to understanding how climate change translates and how actors position themselves in climate-linked conflicts, thus presenting creative alternatives to addressing such conflicts. While populations that are most severely affected by climate change, like those in sub-Saharan Africa, depend heavily on rain-fed agriculture for food production and income, resulting in market-based intervention strategies, this chapter suggests that it might not only be economic factors that translate climate change into violent conflict. Religion, spirituality, and ideas of the sacred have the potential to impact on patterns of climate-related conflict because they offer cognitive, emotional, and moral meaning regarding the human–environment relationship. They explain why things are what they are (cognitive), how and what people should feel and under what circumstances (emotional), and how they should act (moral) (Campbell 2010: 167), in this case, concerning the environment and associated climate-related conflicts.

As already mentioned, the focus on the influence of religion on the human–environment relationship gained traction through the “greening of religion hypothesis” (religions becoming more environment friendly), which was precipitated by Lynn White's seminal publication “The Historical Roots of Our Ecologic Crisis” (1967). He argued that Judeo-Christian ideas have negative environmental impacts because of the dominion argument, which gives humans authority over the earth because they are the only beings that were created in God's image. Dominion also entails the use of natural resources for human benefit. The development of science and technology and the subsequent destruction of nature have Occidental and specifically a Christian origin (Eckberg and Blocker 1989). This thesis dovetails with the conceptualization of nature as a resource, a material good for human survival, in environmental sociology (van Koopen 2000). Critics and analysts have responded variously to White's argument. Some have agreed with his thesis of a peculiarly Western form of exploitation. Others have argued that the account in Genesis 1 meant something different from White's interpretation and that later chapters in Genesis offered a “stewardship” orientation towards nature. Yet others have questioned the relationship between theology and culture. Others went on to argue that culture does not operate in the straightforward manner that White proposed. Capping it all are firm denials that the Occident is especially exploitative of the environment (for an overview, see Barbour 1973; Shaiko 1987: 244–46).

A related dimension is the attribution of divine agency to environmental change, whether welcome, harmful, or catastrophic. For some Christians, natural disasters are often seen as God's punishment for sins committed by humans (Steinberg 2006, Rosenau 2015). Indigenous people attribute hostile climate to the shunning of their traditions, gods, and ethical obligations (Auwah-Nyamekye 2014). Muslims perceive God as the controller of the environment, who changes it when he sees it fit (Bell 2014). In Buddhism, some argue that

the adverse effects of climate change are due to various offences against gods or spirits (Manandhar et al. 2013). On the other hand, White averred that Asian religions, indigenous traditions and nature-based cosmologies and value systems, unlike the Judeo-Christian religions, appear to foster pro-environmental perceptions and behaviour.

After being treated as a truism for about 30 years, from the 1980s to the present, White's hypothesis that religion was a causal driver in shaping environmental attitudes and behaviour started to be vehemently contested from different angles (see Taylor et al. 2016). One criticism, for instance, was that White's thesis was based on Abrahamic traditions that included Judaism and Islam, but in practice was limited to Christianity in the United States. The argument from humans' mastery or dominion over nature varied among the Christian denominations, whether they were liberal or conservative being more determinative (Taylor et al. 2016: 319). Eckberg and Blocker (1989) argued that four factors expressing "environmental concern" were correlated with four religious variables: whether one is Jewish or Christian, being conservative Protestant, believing that religion is essential, and believing in the literal interpretation of the Bible. The net result of factoring in and considering the background and religious variables was that the crucial predictor of lower levels of environmental concern was biblical literalism, that is, belief in the literal interpretation of the Bible (see also Greely 1993). Other studies did not see a necessary connection between attitudes and behaviour: they argued that previous studies had emphasized environmental attitudes rather than environmental behaviour. Yet others focused on church attendance, which they found to have differing effects on environmental behaviour. The argument that the complexity of biocultural systems makes it difficult to make conclusive statements about what, if any, role religious ideas have in shaping environment-related perceptions and practices, and if so which, was distilled from these criticisms. Pro- and anti-environment perceptions and behaviour, behaviour without such perceptions, and vice versa, among many others, can be found in various religious, spiritual, and sacred traditions (Taylor et al. 2016).

The case of indigenous sacred beliefs and practices

Indigenous sacred beliefs and practices can hinder attitudes of respect for non-human animals and environmental systems. However, they have developed what is known as traditional ecological knowledge (indigenous knowledge, knowledge systems) in which stories and perceptions about plants, animals, and sometimes supernatural agents and forces are entwined with ecological understandings, ceremonies, customs, and cultural practices that promote environmental conservation and sustainable livelihoods (Mauro and Hardison 2000, Bannister and Hardison 2006, Watson and Kochore 2012), which would contribute to advancing SDG 13. The land is seen and felt as an experience of the sacred in daily life, as adherence to sacred life (Smith 1999). It is therefore invested with a profoundly religious and emotional meaning, so much so that

collective sentiments strongly resist any attempt to alter the setting. Climate-related conflicts thus become place-protective actions, founded upon processes of place attachment and place identity (Devine-Wright 2009).

Land is not only a scientific but also a human phenomenon, linking politics, structural violence, and religious phenomena. Land, rivers, water, and cattle are not merely economic but also social, cultural, spiritual (or religious), and ontological assets that structure the social identities and lives of communities. “The land is the charter on which indigenous culture is based, the resting place of ancestors, and the source of spiritual power” (Goldsmith and Hildyard 1984: 29). It is understood as being alive and agentive, a collective material and spiritual benefit that must be preserved for future generations (Lutz 2005). Some indigenous sacred beliefs and practices promote perceptions of non-human organisms as persons to whom they have ethical responsibilities and with whom they are in a relationship, sometimes even as kin. Subsequently, this results in the promotion of biological diversity and the protection of specific habitats of linked human–natural systems (Abram 1996, Nelson 2011, Kimmerer 2013, Whyte et al. 2015, Cruikshank, 2005). Land is fundamental because it is connected to the sacred or non-human, escalating conflict over it to cosmic levels (see Juergensmeyer 2000).

As we have seen, since Lynn White’s hypotheses the notion of the greening of religion has focused on pro- or anti-environment perceptions and behaviour, or in today’s language a focus on pro- or anti-mitigation and adaptation to climate change perceptions and behaviour. The influence of religion, spirituality, and the sacred when climate change exceeds the capacities of communities and results in violent conflict remains underresearched. As we have suggested, current discussions of climate change have focused on “expert” knowledge, informed by the “device paradigm” – a belief that human-made problems can be controlled and fully managed and solved by technological progress (see Bergmann 2009) – at the expense of local religion, spirituality, or indigenous knowledge systems. Yet processes connected to climate change affect indigenous people’s cultural identities and relations with the non-human. Climate-related knowledge is dependent on each culture’s perspectives of the human and non-human beings that make up the non-human world. How indigenous communities deal with climate change is shaped by an understanding of the world that can be described as more than human and as cosmological.

The case of the Shona indigenous religion

In most African contexts, caring for the environment and the climate has always had religious and spiritual roots in human motivation (Tarusarira 2017). Citing the example of Shona indigenous religion in Zimbabwe, Mapara argues against applying the term “green religion” to indigenous religions, which, he opines, have always been pro-environment (Mapara 2016). He also avers that the term “green religion” should only refer to

religious movements that have had a recent reawakening, in that they have not always embraced humanity's stewardship over the earth, and have only chosen, after realizing the dangers of global warming to abandon, or moderate, their greed, which derives from the misconception that humanity is to have dominion over everything on earth.

(Mapara 2006:83)

The Shona believe in ancestral spirits (*midzimu*) who mediate between themselves and the Creator, Mwari or Nyadenga (the Heavenly One), who is himself an ancestral spirit and the arch-ancestor. Chiefdom or territorial ancestral spirits (*mhondoro*) are referred to as guardians of the land. They concern themselves with maintaining harmonious relations between people and the land and respect for sacred places and with issuing and enforcing directives about the community's use of its environment (Byers et al. 2001). Hence, it is they who are usually associated with traditional African ecological religious beliefs. The Shona also believe in *mashavi* (alien spirits), which are the potentially spiteful and malicious spirits of deceased non-relatives and other animate beings that are not necessarily human. The *midzimu* and *mashavi* guide humans in how to live with one another and the environment, and in how to derive benefit from nature, while also warning humans of the consequences of non-compliance with their advice (Mapara 2006). This pro-environment perspective, however, should not obscure Taringa's (2006) warning that we should not romanticize the positive influence of African indigenous religions on perceptions and behaviour regarding the environment. Problematizing the view that Shona traditional religion is environment friendly, he argues that Shona attitudes to nature are discriminatory, ambivalent, and based more on fear of or respect for ancestral spirits than on respect for nature itself (Taringa 2006). The jury is still out on whether this is the case, but whatever the verdict may be, it will not dislodge the view that indigenous religions influence the protection of the environment.

In Shona cosmivision, therefore, relationships between nature and humans, spirits and nature, are not dichotomized or compartmentalized but are integrated into an interdependent system of existence that is tied together through spiritual interactions (see McDonnell 2014). This epistemology and cosmivision see the physical world of the land, rocks, vegetation, rivers, and the spiritual worlds of ancestral spirits (*midzimu*), and alien spirits (*mashavi*) as integrated, giving initiates a deep respect and reverence without exploitation of and for nature and a commitment to conserve and enrich it. Nature and the environment are part and parcel of life, forming a unity with the Shona people because there is no separation between them. Adherents of Shona indigenous religions express feelings of belonging and connection to the earth, thus perceiving themselves as bound to and dependent on the earth's living systems. To destroy nature and the environment is to destroy oneself. Thus, for the Shona to defend their natural resources means defending oneself and one's life, as well as existence itself, a matter of defending one's identity and being. Living

in harmony with the natural world translates into living in harmony with the spiritual world, as they are interconnected and mutually dependent. Thus, natural phenomena, such as plants, rocks, and bodies of water, are respected and revered as vehicles connecting one to the spiritual world (*axis mundi*) (Eliade 1957) and as having both visible and invisible powers (Haverkort and Reijntjes 2007). Nature and the environment are thus protected from violation, desecralization, and conquest by enemies. This review of religion, spirituality, and the sacred in the context of Shona indigenous religion serves to demonstrate the attitude and motivation with which the Shona position themselves in conflicts related to climate change.

Towards resolving and transforming climate-linked conflicts

The religious, spiritual, or sacred quality of the natural environment can only be sustained as long as the resource is integral and therefore cannot be divided. Communities that consider the natural environment religious, spiritual, or sacred thus strongly resist any attempt to alter the context. Conflicts over natural environments that are considered religious, spiritual, or sacred can therefore not be resolved through partition, sharing, or side payments, as would ordinary disputes (Hassner 2009: 38–43). Unlike other conflict resolutions over what are divisible resources, the sacred land and natural environment that are at the centre of climate-related conflicts are perceived as indivisible, irreplaceable, inviolable, and impossible to monetize. The usual trade-off strategies are thus unworkable and lead to what are called *indivisible disputes* (ibid). They are indivisible in two distinct ways. First, the resource at the centre of the conflict, like the land, is perceived as indivisible in and of itself; it cannot be taken apart. Second, the resource is indivisible from those who own it, signifying that they will not tolerate parting with it. Dividing them or allowing enemies to take them over undermines their symbolic coherence because they are sites at which believers can expect to communicate directly with the divine. In times of competition – for instance, over depleting resources – the people will put their all into it, resulting in impassioned, intense, and intractable conflicts. Resolving such conflicts by establishing a value for the damaged or lost resource, negotiating a monetary settlement, or trading, among the dominant options in traditional positivist conflict-resolution strategies, may be considered insults and abhorrent by religious adherents who defend sacred sites and resources in the context of climate-linked conflicts (ibid.).

The sacred or spiritual relationship between people and the environment (Wabule and Tarusarira 2019; Smith 1950) mediates how the former position themselves in conflicts related to climate change. The idea of the sacred can harden boundaries between conflicting parties, thereby defining the conflict in zero-sum terms and facilitating the demonization of one's opponents. The belief is that the enemy is morally inferior as well as dangerous, and so must be dealt with harshly (Pape 2005, Chitando and Tarusarira 2017). Environmental practitioners are often trained within a scientific system which situates humans

as the observers or managers of nature, rather than as components within a complex and interrelated socio-ecological system (Sachdeva 2016, Alberti et al. 2003; Atran and Medin 2008; Grimm et al. 2000, Medin and Atran 2004; Tress et al. 2001). As a result, this perspective might not align well with those eco-theologies who emphasize the inseparability of religious, spiritual, and ecological knowledge (Pandya 2014; Pierotti and Wildcat 2000).

Climate-induced conflicts, religion, and spiritualist: a research agenda

Religion, spirituality, and the idea of the sacred thus provide us with insights into how human and cultural factors frame human–environment relationships. They present cosmologies or world views that contain the most fundamental assumptions about the world and the place of humanity in the cosmos (Haluza-Delay 2018). It is thus vital to have expertise in religious imagination in order to understand the way people interact and all the relations involved in and revolving around climate change (Hulme 2018). The latter thus emerge from the former and are critical in confronting climate-related conflicts in contexts where religion, spirituality, and the sacred are critical variables. First, religion, spirituality, and the sacred help set the institutional dimensions of everyday environmental management, establishing rules in use, routinized practices, and sets of rights and responsibilities. These institutions are enmeshed in culture (Watson 2009). In the context of conflicts linked to climate change, they provide the cultural archive on the basis of which people act.

Second, religion, spirituality, and the sacred influence the qualitative nature of human relations with the environment - how people perceive it, how they feel about it, how they value it, how they treat it. They influence the degree to which the environment is respected, revered, or considered either dispensable or indispensable, structuring how relations with others are constructed and negotiated. Religious, spiritual, or sacred connections between communities and the environment are instrumental in the different kinds of inter-group relations (Watson 2010), including in contexts of inter-pastoral conflicts that are precipitated by climate change. Religion, spirituality, and the sacred are assumed to be important influences on adherents' attitudes and subsequent behaviour, as well as being powerful social actors (Haluza Delay 2018). It is thus essential to pay attention to the influence of religious, spiritual, and sacred beliefs and practices in structuring movements and engaging with space, especially during climate-related conflicts. The human–environment nexus is lived, inhabited, performed, and experienced, impacting qualitatively on individual subjectivity, forms of identity, and relations with others (Watson 2010).

Third, religion, spirituality, or the sacred may be sources of social capital. Most studies have focused on the ability of religion, spirituality, or the sacred to encourage a response to climate change through their influence over believers' world views or cosmologies and the moral duties that they promote. They can engage a broad audience, many of whom accept and respect their

moral authority and leadership. Sometimes they have significant institutional and economic resources at their disposal, and thus the potential to provide the connectivity (e.g. in the form of social capital) that fosters the achievement of collective goals (Watson and Kochere 2012). This organizational function is particularly relevant in the case of collective violence induced by climate change, which will require just the type of collective action that religion, spirituality, or the sacred can help promote.

Fourth, religion, spirituality, or the sacred seek to provide explanatory conceptions of and narratives regarding general orders of existence. Explanatory narratives for climate change are crucial to how problems are identified and causes diagnosed, and hence to how particular solutions are designated as appropriate. It explains how the world was created, why, what the role of humans within it is, and maybe even when natural disasters occur (Pierotti and Wildcat 2000; Spilka et al. 1985). If religious, spiritual, and sacred ideas and teachings shape locals' explanatory narratives, they will consequently also powerfully shape the selection and implementation of different practical responses, not only to mitigation and adaptation, but also to climate-related conflicts. Religion, spirituality, and the sacred represent a powerful force that offers a framework in which world views and cultural imaginaries frame practical actions, understandings, and relations. Religion's influence reaches far beyond the personal and spiritual to other realms of human action (Watson and Kochore, 2012).

It is these characteristics and features of religion, spirituality, or the sacred about human–environment relations that should inform the interrogation of how adherents position themselves in conflicts over the natural environment as a result of rapid climate change. Some research shows that religion, spirituality, or claims of the sacred are shaping climate perceptions and behaviour concerning climate mitigation and adaptation, which is in line with SDG 13's climate action agenda. However, we lack knowledge of how they shape climate perceptions and behaviour in connection with violent conflicts induced by climate change, especially when it is now clear that climate change has exceeded adaptive capacities, thus engendering impacts and responses such as social instability and conflict. Further research that factors in and connects religion, spirituality, and idea of the sacred to social instability and violent conflict induced by climate change is thus required to answer corollary questions such as the following: How are religion, spirituality, and ideas of the sacred the key to understanding climate-induced conflicts? How do they influence the particular preferences, perceptions, and attitudes of actors in climate-related conflicts? How do actors engage with and mobilize religion, spirituality, and claims of sacredness to position themselves in conflict situations? To what extent do religion, spirituality, and the sacred cause the onset, intensity, or de-escalation of climate-induced conflicts? What does this say about the distinction between the religious and the secular? How can religion, spirituality, and ideas of the sacred enrich and complement positivist, secular, technical, and market-oriented conflict-handling mechanisms? How do climate-change challenges change religion, spirituality, and the idea of the sacred? How does climate

change challenge and change the conceptualization of religion, spirituality, and local epistemologies and ontologies? These questions constitute the research agenda that this chapter calls for. They will require interrogation of how religious, sacred, spiritual, and moral orders mediate conflicts that are induced by climate change. Thus, extend the focus of SDGs beyond mitigation and adaptation to include dealing with conflicts that are induced by climate change.

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13 African religious leaders and climate change financing

Veronica Nonhlanhla Gundu-Jakarasi

Background

African religious leaders have played a major role in influencing the lives of many people. Although there are assertions that religion has created lazy believers who constantly believe in miracles, especially in the Pentecostal era, religion has also been critical in moulding culture and influencing lifestyles. The spirit of capitalism and the moral energy of religion, in conjunction with social, political, and economic institutions, drives economic growth to deliver wealth and prosperity. Given Africa's marginal position in the climate space, religious leaders can play an assertive role in representing the continent in the global arena and subsequently mobilizing climate change financing to address the impacts of climate change that are rampant and affect the poorest and most vulnerable communities due to their low adaptive capacity. This chapter reflects on the advocacy and resource mobilization strategies that African religious leaders can employ to mobilize climate change financing and help communities to cope with different climate change challenges, including extreme weather events such as drought, floods, cyclones and hailstorms. This chapter reflects on advocacy, coalition and trust-building, mapping of climate change funds, and instruments, including philanthropic and/or charity financing. It outlines some of the key strategies that African religious leaders can engage to mobilize resources to fund continental and national climate change priorities. The chapter argues that African religious leaders are a key asset that should be leveraged in addressing climate change challenges, including their capacity to mobilize human and financial capital for enhanced climate action.

Introduction: climate change in Africa

The world is facing a multitude of challenges, ranging from poverty, hunger, wars and conflict, poor health systems, poor education systems, limited access to clean water, poor sanitation facilities, lack of clean and affordable energy, environmental degradation, climate change, and gender inequality (Intergovernmental Panel on Climate Change (IPCC), 2007). Countries came together in 2015 and developed 17 Sustainable Development Goals (SDGs)

to try and address these challenges (United Nations, 2015). Growing inequalities and climate change are among the highly rated challenges that need global consensus and effort to address. These challenges were compounded by COVID-19 in 2020 and 2021, and whose full effects will continue to be felt, going into the future. It resulted in a global lockdown, affecting the ways of doing business and sources of income at national and local levels. Creativity, political will, and advocacy will be required in order to address the impact of both COVID-19 and climate change, particularly for countries in Africa and the global South.

It has become increasingly undeniable that human beings have contributed to climate change. According to the IPCC (2018), it is estimated that anthropogenic activities have caused approximately 1.0°C of global warming above pre-industrial levels. The emissions are rising behind the backdrop of significant efforts by governments, the private sector, development finance institutions, and the civil society increasingly establishing climate-smart policies and increasing climate finance flows to adopt clean technologies (World Bank, 2020). Whilst Africa has contributed to less than 4% of global fossil fuels (about 1185 MtCO₂), it has not been spared from the increasing impacts of climate change. Africa has seen increasing temperatures, with the inland sub-tropics warming the most. Extreme precipitation in the Horn of Africa has resulted in increased frequency of floods and back-to-back droughts in Southern Africa. The sea level rise of coastal lines of sub-Saharan Africa is expected to increase by 10% more than the global average (Serdeczny et al., 2017).

Sectoral impacts of climate change have also been observed, with sub-Saharan Africa facing water scarcity due to prolonged droughts contributing to water security. The increasing threat to water security has been attributed to its demand for industrial use, irrigation, and hydropower production. This has been further exacerbated by the growing population and economic development despite runoff, siltation of dams, and evaporative losses (Beck and Bernauer, 2011). Water security issues are also demanding national security. The Grand Ethiopian Renaissance Dam project has triggered conflict among Ethiopia, Egypt, and Sudan on the use and management of River Nile water. Egypt has called for the international community to intervene, and there have been threats to hold back the most needed developmental aid to Ethiopia (Mbaku, 2020).

Social consequences of climate change are not gender neutral: due to social inequalities, women and men are affected differently by climate change impacts. Persons in vulnerable situations, such as youth, children, persons with disabilities, and indigenous peoples, are also affected in a differentiated manner. About 70% of the women in Africa are involved in agriculture; therefore, addressing poverty challenges by growing the agriculture sector will be beneficial to the African women (World Meteorological Organization (WMO), 2020). However, this is a sector that is increasingly affected by climate change, hence, improving women's access to weather and climate services will be important to improve productivity, individual resilience, and adaptive

capacity. Droughts have been the most significant widespread natural hazard in Africa, substantially affecting agricultural production in most parts of the continent and in some areas contributing to famines. However, due to climate change, in some contexts, droughts have been occurring back-to-back. For the 2019-2020 season, what was envisioned to be a drought year transformed in the second half of the season and it manifested in the form of heavy rains and cyclones (WMO, 2020). Southern Africa experienced Cyclone Idai and Cyclone Kenneth, which resulted in the great loss of life and property. Some of the survivors of such events attributed their survival to the strength of the social capital (Chanza et al., 2020). Religion has historically played a huge social capital role in most communities, including providing informal social networks, welfare services, and informing people about public affairs (Norris and Inglehart, 2004).

Africa has been reliant on conventional energy sources such as coal and wood fuel, which also contribute to climate change. According to the African Development Bank (AfDB) (2020), over 640 million Africans do not have access to clean and affordable energy with only 40% of electrification compared to the global average of 87.7%. Approximately, 600 000 Africans (mostly women and children) die annually due to indoor pollution, which is attributed to the use of wood fuel for cooking. Studies have shown that access to energy by women unlocks significant productivity gains and strengthens their social and economic outcomes (Clancy and Dutta, 2005).

Subsequently, the participation of youth in green energy initiatives is forward-looking and a cornerstone in the quest for sustainable development, creating green jobs and income. Renewable energy is becoming a more affordable source of energy, and future off-grid renewable energy systems have an even greater capacity to provide energy to the marginalized groups, creating an opportunity for Africa's sustainable growth. Therefore, investment in Africa in the energy sector is important to bridge the development inequality gap and assist the continent to meet its transformational and developmental goals.

According to the IPCC (2018), it is envisioned that climate change impacts and future related climate risks would be curtailed by upscaling and accelerating far-reaching, multi-level, interdisciplinary and cross-sectoral climate mitigation actions and incremental and transformational adaptation interventions. As a result, the role of religion in shaping human behaviour, affecting social cohesion, consumption trends, and willingness to pay for climate change mitigation or adaptation initiatives is an important factor in addressing climate change. According to Skirbekk, De Sherbinin, and Adamo (2020), religious affiliation is linked to greenhouse gas emissions, energy use, and gross domestic product (GDP) on a global scale. They observed that countries with more emissions and greater GDP tend to be less religious, with reduced population growth and improved preparedness to deal with environmental challenges. On the contrary, highly religiously affiliated countries had younger populations, higher environmental risks, reduced GDP, and limited preparedness to deal with environmental challenges.

Whilst religious leaders have advocated for better care of the environment and climate justice, Skirbekk et al. (2020) argue that the relationship between the planet and the environment should not be premised on advocacy alone. Hence, the role of religious leaders in Africa in mobilizing climate change finance to address the climate change challenges and ensure that climate justice is attained has become imperative.

Climate change financing

Significant funding is required to address climate change challenges, among other Sustainable Development Goals (SDGs) needs. According to the United Nations Conference on Trade and Development (2014), US\$3.3-US\$4.5 trillion will be required per year in developing countries alone for basic infrastructures such as roads, rail, water and sanitation, food security, climate change mitigation and adaptation, health, and education. However, with the current financing, developing countries face an annual gap of \$2.5 trillion to fund their SDGs.

On the other hand, to address climate change and achieve a low-carbon transition, an estimated investment of US\$1.6-US\$3.8 trillion is required annually between 2016 and 2050, for supply-side energy system investments alone (IPCC, 2018). Additionally, the Global Commission on Adaptation (GCA, 2019) estimates adaptation costs of US\$180 billion annually from 2020 to 2030. Following the COVID-19 pandemic, the International Monetary Fund estimates that low-income countries (LICs) will need around US\$200 billion until 2025 to step up their response to the pandemic before their economies can normalize.

The resources needed to address climate change, among other challenges, require concerted effort, including bringing the private sector, civil society, and philanthropists to raise additional funding to cover the identified funding gap. Initiatives such as blended financing offer possible solutions to address these challenges, and religious leaders are strategic to taking up the challenge of mobilizing part of the required additional funding. Blended finance is the strategic mobilization and use of public or philanthropic development capital for the mobilization of additional external private commercial finance for sustainable development-related investments (Thirdway Africa, 2018). Blended finance investment solutions capitalize on partnerships among diverse actors, including international organizations, religious and philanthropic donors, development cooperation agencies, and private enterprises.

As the impacts of climate change continue to be more dire, there has been a demand by developing countries that climate finance should be “new and additional” against the usual official development assistance (ODA). UNCTAD (2015) highlighted the need for clear definitions on how countries interpreted new and additional financing in the climate discourse. UNCTAD (2015) provided for options on how countries could interpret new and additional financing. These included:

- a. ODA funding/gross national income above 0.7% target by OECD countries is considered to be additional finance needed to address climate change, which was not historically considered.
- b. Any increase over a set level of climate finance is additional based on an established baseline.
- c. Additionality calculated in the rise of ordinary ODA to include climate change finance.
- d. Funding from novel and innovative sources, separating development and climate change finance.

Whilst developing countries have made a call for new and additional climate finance to address the challenges that are already being faced by their communities, it has been difficult to clearly demonstrate if additional financing has been flowing to these countries as it is sometimes accounted for in the mainstream ODA. This is supported by Weiler and Sunubi (2019), which additionality plays a less prominent role in Africa, and most development aid is driven by donor interests. Ritchie and Kenny (2021) further confirm that climate finance has not been additional, but it has somehow displaced other traditional development objectives. As such, while countries such as Germany, the United Kingdom, Japan, and Italy increased their total development spending mainly through export credits, spending of Canada and the United States fell within the period 2009-2018 and yet countries such as the United States are among the major emitters. Deichmann and Zhang (2013) call for additional resources, following the need to address the impacts of climate change, including enhancing the resilience of communities. Enabling the transition to a low-emission, climate-resilient development pathway requires addressing both sides of the same coin: scaling up climate finance and scaling down brown finance or developing policies that disrupt brown investment (“dirty investments,” such as fossil fuels) (Gundu-Jakarasi, 2019). One of the key elements of the Paris Agreement is for developed countries to show leadership in emissions reduction and providing finance to support developing countries to deal with climate change. Governments should ensure an agreed definition of any measure and of the baseline for any future climate spending target to measure additionality and the impact thereof as this is strategic in determining progression and leadership in providing climate finance. Religious leaders, as part of a vibrant and growing civil society in Africa, are very well placed to challenge and collaborate with governments to ensure that adequate resources are availed to meet the climate emergency.

The overall implication is that religious leaders in Africa are being challenged to be more visible in mobilizing finances to respond to climate change. One major positive factor is that religious leaders are not new in providing aid. Faith-based organizations (FBOs) were established in different settings to provide humanitarian aid. Across different contexts, FBOs such as Islamic Relief, Christian Aid, and Caritas Internationalis are strategic in fostering human care, economic growth, and low carbon and climate-resilient development.

Globally, over 80% of people identify with a religion. Hence, FBOs are strategic to make an impact in bolstering climate action. According to Act Alliance (2015), most communities rely on FBOs as a coping mechanism during disasters and environmental shocks. FBOs have been a source of information, comfort and hope, social capital, spiritual resilience, and financial support. In Africa, they need to leverage this historical role by being more directly engaged in mobilizing funds to respond to the climate emergency.

Beyond advocacy: African religious leaders on climate change financing

Religious leaders have been instrumental in advocating for climate justice. For example, Pope Francis joined the United Nations Framework Convention on Climate Change fight on climate change. He acknowledged that climate change science was increasingly becoming undebatable, hence the Catholic Church viewed climate change as a moral issue that had to be urgently dealt with to protect the planet and its people (UNFCCC, 2015). To urgently address climate change, there is a need for the means of implementation, which include capacity-building, technology, and finance. According to the African Group of Negotiators (AGN), the establishment of adequate institutional arrangements and mechanisms is essential for mobilizing and providing adequate levels of finance and support to meet the needs of developing countries, including addressing loss and damage as a result of climate change.

The UNFCCC Convention, Article. 4.7 states that:

The extent to which developing country Parties will effectively implement their commitments under the Convention will depend on the effective implementation by developed country Parties of their commitments under the Convention related to financial resources and transfer of technology and will take fully into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties.

Hence, climate justice has been premised on the historical contribution to climate change due to industrialization and the need to support the developing countries to develop more sustainability and increase their adaptive capacity to climate change. As a result, advocacy by religious leaders has been focused on ensuring that the developed countries take on their responsibility and ensure that the poor communities are supported to close the climate change inequality gap.

Patton (2008) identified six interconnected strategies that are pertinent for effective advocacy, which included coordination, establishing strong coalitions, developing focused messages, and opportunistic lobbying, among others. Coordination of different countries at the continental level or of communities at the grassroots level has been an important advocacy factor in the climate

change arena. The AGN has achieved most of its wins in the climate negotiations based on coordination, where countries share their interests, and a common position is reached. This has supported the formulation and sustainability of a strong alliance that puts the interests of Africa at the fore. Religious leaders have the potential to form a strong coalition for resource mobilization of climate finance for Africa. The shared vision of low carbon and climate-resilient Africa should be a push factor for effective lobbying and resource mobilization to bolster climate action. A combination of these different strategies has strengthened advocacy efforts.

Addressing climate change is an issue of scale and impact. Hence, building networks and coalitions of religious leaders to grow influence and achieve climate change impact is important. Religious leaders can build strong coalitions that would engage with national governments and multilateral funding institutions to support the call for proposals for funding as well as support resource mobilization for regional and national climate action programmes. Religious leaders have the capacity to drive resource mobilization initiatives, especially among the philanthropic and charity funders, leveraging on a multitude of networks, including their followers who have vast capacities, talents, and skills that can be harnessed and operationalized. This can be done ethically, without exploiting the members. Whilst resource mobilization to foster climate action can pose a possible conflict between the donor countries and the religious leaders due to the prosperity gospel and fundraising that has existed in the Pentecostal churches, supporting climate justice is inevitable. According to Chitando (2013), the prosperity theology by young Pentecostal prophets has been contested by Protestant or mainline churches such as Methodist and Roman Catholic, whilst the non-Christian community indicted prophets for commercializing religion in Zimbabwe. Hence, such activities may compromise the role of the religious leaders in resource mobilization but the need for climate justice needs coordinated effort to change the narrative of commercializing the gospel or prosperity theology.

Trust-building is an important factor in fundraising or mobilizing resources. Religious leaders have been viewed as respectable people in the communities they operate in. Gaining trust from the donors is a fundamental factor as it will determine the tenor of the ongoing relationship that is beneficial to both parties and determines the sustainability of climate change work and future growth. Religious leaders should understand the donors' expectations and constantly improve communication, maintain close relations with resource partners, and constantly build on trust and mutual accountability (FAO, 2015). Relationships built on trust tend to see donors releasing more resources to support the societal challenge that needs to be addressed and this will be important for climate finance as it will take a while to address the challenge.

Beyond advocacy, religious leaders should take leadership to mobilize climate finance and implement climate change mitigation and adaptation strategies. Chitando (2019) states that it is leadership that mobilizes followers for initiatives to succeed. He further acknowledges the efforts by the AGN

for the great leadership that they have exhibited under the United Nations Framework Convention on Climate Change (UNFCCC) negotiations. They have remained resolute, united for a common cause, adopted an appealing ethical position, focused on understanding substance and procedure, and ensured consistency. The AGN has expanded the meaning of leadership and demonstrated the importance of ideas in defining leadership beyond uneven playing fields and confirmed that leadership is not limited to those with economic, political, and military power (Chitando, 2019). According to Acts (6:3), the disciples asked the early church to choose seven men who were of good reputation, full of the Holy Spirit and wisdom to undertake the responsibility of serving. Therefore, there are certain characteristics that leaders should carry for them to be successful in their mission. Religious leaders should establish a leadership strategy for positive impact in addressing climate change. They can partner with organizations such as the environmental and forestry agencies to plant trees in their communities and offer awards to members who have demonstrated good stewardship. The religious leaders can also identify different adaptation initiatives that their communities can implement to improve societal adaptive capacity and subsequent resilience.

As the call for urgent climate action increases, more sources of climate finance are being established and more non-traditional financiers are beginning to support climate change. Religious leaders can play an important role in mapping climate change funds sources; their requirements and accessibility as the global climate finance landscape are increasingly becoming more complicated. They can help regional bodies and national governments to identify and access the funds from public, private, international, and domestic sources. Climate finance sources range from multilateral funds such as the Green Climate Fund (GCF), Adaptation Fund (AF), bilateral funds such as the Nordic Climate Facility, development finance institutions such as the Infrastructure Development Bank of Zimbabwe (and similar banks in their respective countries in Africa), and the World Bank, including philanthropic and commercial funders (e.g. banks), among others. Governments may have limited capacity to track and access philanthropic and charity funding, hence religious leaders can build capacity and close this gap by strategically harnessing such funds. While there are strategic opportunities for religious leaders in Africa to mobilize funds to mitigate the impact of climate change, there is a need to reflect on the challenges and prospects. The chapter turns to this discussion in the following section.

Challenges and prospects

African religious leaders can engage to mobilize resources to fund continental and national climate change priorities. However, there are some challenges and barriers that need to be overcome. Compiling a picture of overall climate financing by the participating institutions is a challenge. Firstly, there are several different types of financial flows that can support climate change outcomes

(Buchner et al., 2019) and the climate finance landscape is increasingly becoming complicated, with over 500 different financing mechanisms being used globally. Secondly, trust plays a major role in accessing funding, hence there has been a very slow pace by developed countries to support nationally accredited entities, as the greater part of the resources has been flowing through multilateral agencies. Hence, there is a need to build national capacities to access bilateral and multilateral funds. On the other hand, there has been a lack of clarity on whether developed countries have met their pledges under the big climate finance mechanism, the Green Climate Fund. The lack of clear climate finance commitments from 2013 to 2020 has also been a challenge. As a result, this challenges the entry point of the new players in the finance landscape such as the religious leaders.

Whilst climate change affects the poorest and most vulnerable communities due to their low adaptive capacity, climate finance is increasingly becoming loans compared to grants. This affects the poor developing African countries who are already over borrowed or highly indebted and their communities have no capacity to repay these climate change loans. The debts of most African countries have been growing, and COVID-19 stalled the most needed economic growth to keep these countries solvent. For example, as of October 2020, Zambia's debt was 120% against the national gross domestic product, resulting in the country plunging into a financial crisis and thereby defaulting on the Eurobond (The Africa Report, 2021).

Different donors and partners have specific requirements to access funding. This means that the religious leaders should have enough understanding of the basic requirements of each fund. Whilst most of the funds demand idealistic and ethical requirements which can be in sync with religious requirements, such as ensuring the protection of indigenous peoples, gender integration, and environmental and social safeguards, these requirements may also act as barriers to accessing climate change funding. Developing policies and conducting baselines on such matters can be an additional cost during project preparation for project developers who are already constrained. This also contributes to the lengthy and highly technical processes required to secure funding (Commonwealth, 2013).

Whilst a myriad of challenges exist in the climate finance landscape, there is a growing commitment to increase financial flows and address climate change challenges. With increased capacity-building among religious leaders and religious organizations, they can access private, bilateral, and multilateral climate finance. The funding mechanisms such as the Green Climate Fund and agencies such as Funds for NGOs conduct capacity-building workshops on how to access climate funding, including training on how to develop quality proposals and development of funding templates.

National governments have continued to develop the legal and policy instruments and institutional arrangements to mobilize climate change resources for improved implementation of adaptation and mitigation actions. However, many countries in Africa still lack clarity on how some existing

funding mechanisms such as the domestic Environmental Fund and the Water Fund should be utilized (Dhlakama, 2015). This is an opportunity for religious leaders to advocate for sustainable utilization of such funds in the sectors that have a great impact.

Impact investing is a growing element which is strategic towards supporting climate change interventions. These are investments that seek to generate market or below market return alongside positive, measurable social and environmental impact (Global Impact Investment Network, 2020). Some of the impact investors include pension funds, wealth managers, institutional and family foundations, as well as development finance institutions (DFIs), among others. Institutional and family foundations are able to leverage greater assets to grow social and environmental objectives whilst also growing their endowments. Religious leaders can identify areas where climate change interventions provide such opportunities, and such charity and philanthropic foundations can be engaged.

The desire to address climate change globally by different partners has seen the growth of diverse funding sources and the broadening of innovative finance instruments (Buchner et al., 2019). Religious leaders can explore different instruments that they can be better placed to access such as reimbursable and non-reimbursable grants depending on the nature of the climate change interventions that they could potentially address.

Conclusion

The growing commitment by global leaders and the demand for climate justice by civil society have contributed to the increased climate cooperation. Countries are improving their national commitments to reduce greenhouse gas emissions and build the climate change resilience of their communities. Net-zero targets have been developed by most developed countries and the post-COVID-19 era will offer an opportunity for green recovery. Religious leaders have the opportunity to tap into the going momentum and call for more commitment from leaders and mobilize climate funds from different sources using their influence and networks. Trust-building, advocacy, coalition, and leadership are among the critical qualities that religious leaders have. They can leverage these qualities to also play a critical role in climate finance resource mobilization for their communities, nations, and the continent of Africa. Hence, religious leaders are strategically placed to help African and national governments unlock climate finance and investment for enhanced climate action.

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14 Climate change as a multi-layered crisis for humanity¹

Ernst M. Conradie

Introduction

In his book *The Great work*, Thomas Berry (1999) describes the transformation of industrialized societies in order to become more sustainable as a pertinent example of a “great work” – a collective and multi-disciplinary task in which people from all walks of life need to participate over several generations in order to accomplish an encompassing vision. This is an apt description of what it would take to address climate change. What is needed is nothing less than the transformation of the energy basis of the current global economy from fossil fuels towards more sustainable alternatives.

This is not an open-ended process though. From the first international treaty at Kyoto (1997), this has to be accomplished within, let us say, five decades, of which the first was the most critical. To add such an ominous time frame to this “great work” is to allude to a sense of crisis – which did not apply to the medieval examples that Thomas Berry refers to. The word “crisis” is one that I prefer to use hesitantly. All too often such a crisis evokes apocalyptic images that induce a paralysing fear. This is far removed from the encompassing vision that provided the moral energy in examples of social transformation such as the Renaissance, the Enlightenment, the industrial revolution, and the struggle for democracy in South Africa.

Yet, if the word “crisis” implies a turning point, a time of danger or suspense, a time for appropriate decisions (from the Greek *krino* = to decide), then climate change unmistakably presents such a crisis. However, it is not immediately clear in what sense it poses such a crisis. In this chapter, I will unpack some of the many layers of this crisis. In the process I will acknowledge why climate change requires a multi-disciplinary approach. The direction of the analysis will be to support the observation in ecumenical discourse on climate change that it presents a cultural, a moral, and indeed a spiritual crisis. If so, why exactly is this the case? In what sense is it a crisis? I will intersperse my observations with quotations from a document produced by the South African Council of Churches (SACC) entitled *Climate Change – A Challenge to the Churches in South Africa* (2009).

Human hardship?

At the surface, and the most obvious level, climate change poses a crisis in terms of human hardship and suffering, of making ends meet in a hostile environment. This typically has to do with either too much water or too little water. Climate change is already affecting the lives of millions of people in this sense. This applies most obviously to island states which are threatened by flooding or by the salination of soils. One may also consider seasonal flooding in other parts of the world, although it is not always clear whether this results from overpopulation, deforestation, or changing weather patterns. In Africa, suffering of this kind usually results from changing rainfall patterns and thus to fresh water supplies (Simms 2006; Niang et al. 2014; Chitando and Conradie 2017). This is expressed in the SACC's document on climate change:

Many of us are or will probably become the victims of climate change. In South Africa this will be related to environmental refugees from elsewhere in Africa, increased competition for jobs, changing weather patterns in particular parts of the country, a lack of drinking water resulting from that, diminishing crop yields, diseases such as malaria becoming more widespread, rising food prices and transport costs. While the affluent may have the resources to overcome challenges in terms of food, health, housing, transport and security, the poor amongst us will be unable to attend to even our most basic needs. Those of us who are vulnerable therefore intuitively fear what climate change will bring. We know that we will be hit the hardest.

(SACC 2009:10)

Social services?

At another level, the social impact of such hardships becomes evident in terms of delivering humanitarian aid but also with the subsequent migration of people, and especially with environmental refugees. This obviously puts pressure on social systems elsewhere in the world in terms of housing, food, social services, employment, and so forth. In climate change jargon, this is the problem of "adaptation." The difficulties around adaptation are well-known. A comment from the SACC (2009:25–26) document may suffice:

Such assistance and emergency measures are often thwarted when powerful institutions face an economic, financial or military/security crisis. Then the tendency is to attend to one's own interests first. Thus, at a time of financial crisis as experienced in 2008, politicians tend to be more worried about the standard of living of their voters than about the global poor. Likewise, when security threats emerge – as will be increasingly likely due to conflict over scarce resources – these tend to override any concerns

over sustainability. In such a context, when love tends to “grow cold,” churches can and have played a crucial role in assisting the victims, including those of climate change.

Biological sustainability?

At another level, which requires a longer-term perspective, climate change will, according to scientific reports, present a crisis in terms of biodiversity within particular ecosystems, the extinction of species not able to adapt timeously and eventually the disintegration of some ecosystems. For humans this poses the problem of the sustainable use of renewable biological resources. Given the United Nations’ Sustainable Development Goals (SDGs), discourse on “sustainability” has become widespread and subsequently rather confused and sometimes contradictory (for example with references to debates on “sustainable growth” and “sustainable development”) (Conradie 2016). One may argue that the problem is not merely *whether* something can be sustained or *how* it can be sustained, but *what* it is that has to be sustained (Conradie 2017; 2020:47–78). To put it crudely, is the question of how long the lifestyles of the consumer class may be sustained? Or mega-sports? Or institutions like universities? Or global tourism? Or industrialized civilization? Or neo-liberal capitalism? As many have recognized, what is at stake is the very foundation of our contested notion(s) of civilization. The SACC (2009:55) document puts its finger where it hurts:

These aspects can be sustained, but only at grave costs and only when sacrifices are made elsewhere in order to make that possible. Some may need to travel more, but that is only sustainable if others travel less (if using fossil fuels). Some may want to have a carbon footprint above 2 tons per year, but then the footprint of others have to be less than that. *The real problem is that decisions over what should be sustained are not made by those who have to make the sacrifices.*

Human survival?

Climate changes may also present a crisis in terms of human survival. Survival is another word which I use hesitantly since the poor and the wealthy in South Africa alike adopt the language of survival to legitimize their particular interests (SACC 2009:57). However, the worst-case scenarios around climate change quite literally present this as a crisis of human survival. James Lovelock’s *The Vanishing Face of Gaia* is an example. He believes that an average temperature rise of more than 5°C is by now virtually inevitable, that adaptation therefore has to be prioritized and then only 100 million human beings may survive the catastrophe by the end of this century if the carrying capacity of the land surface falls to 10% of what we have now (Lovelock 2009:87). If this is even remotely true, the survival of human culture, languages, institutions, scientific ventures,

and technological progress would most certainly be at stake as well. In *The Collapse of Western Civilization* (2014), Naomi Oreskes and Erik M. Conway imagine how a future historian living in the Second People's Republic of China in 2393 may look back at a past that is our present and (possible) future in. They anticipate 2393 as the year of the "Great Collapse," i.e. when the West Antarctica ice sheet will have collapsed, driving up sea levels by 5 m across the globe. As a result, they imagine, Africa would have become almost completely depopulated (Oreskes and Conway 2014).

As the SACC's document on climate change therefore notes, "climate change evokes some silent but pervasive fears for the future." It adds,

Most of us wonder what kind of world our children and grandchildren will inherit from us. While some may be excited about technological progress, climate change has placed a damper on any easy sense of optimism. We fear living on a hotter, drier, heavily polluted planet, under a more dangerous sun, with more people to feed, more refugees, more conflict over ever-scarcer resources and much beauty irrevocably lost.

(SACC 2009:9)

Scientific reliability?

Such scenarios present a crisis of a different kind, namely around the credibility of scientific reports. I am referring here not merely to tampering with scientific data, and certainly not to the possibility that the climate change sceptics may after all be right given the wide-ranging nature of such scenarios. What is at stake is the now global trust in the salvific potential of science to resolve all of our most serious problems. Such trust has been earned by four centuries of meticulous scholarship. Yet, predicting changes in the global climate is so enormously complex that anything approximating scientific certainty has proved to be elusive, leaving room for the "merchants of doubt" to sow confusion (Oreskes and Conway 2010). The IPCC has found an admirable way of coping with such uncertainty through consensus reporting. Yet the question remains: can science, technology, and education save us if they very much form part of the roots of the crisis? Put concisely, we need not only Western science but also indigenous (African) ecological wisdom. What is nevertheless quite remarkable about the role of science in the current discourse on climate change is that prophetic warnings in this regard do not come from churches or religious people but from scientists who have assumed the role of prophets, probably against their own methodological inclinations.

Technological innovation?

One may argue, in response, that this is a pseudo-crisis. We know quite enough about the gravity of the looming crisis by now to be able to act upon it. Scientific uncertainties cannot provide excuses for inaction. Perhaps the

crisis is around suitable technologies to address the problem? Surely, science can help us here? It should be obvious that technological solutions will be required. However, two problems remain: some of the highly innovative solutions around geoengineering (Hamilton 2013; Clingerman and O'Brien 2016; Conradie 2020:149–170) are far too risky and the suspicion remains that technology is not ethically neutral: it has exacerbated the impact of the industrial revolution, it can enhance human destructiveness (SACC 2009:6), and funding around technology remains in the hands of the already powerful. Moreover, the simple truth, according to numerous reports, is that technology is already available to address the problem. Why, then, does the crisis seem so intractable? Why do we fail to use the available technology? Is that because these technologies are too expensive or not cost-effective?

Financial or economic instability?

Two other layers of the crisis may indeed be of a financial or economic nature. The word “crisis” should be used sparingly here too as this evokes the connotation of the “financial crisis” (of 2008) and attempts to return to the economy to “normal,” i.e. to sustain economic growth. Of course, this crisis may offer another easy excuse for inaction. The problem is clearly not merely financial. As the Stern report already indicated, the costs of transforming the energy basis of the global economy are not exorbitantly high. The costs of inaction will eventually far outweigh the costs of funding the required transformation. Indeed, a greener economy may provide lucrative opportunities for business to some. Is the real problem then of an economic nature? This may be closer to the truth. For economists, the underlying question is how the stability of the market may be maintained before questions of economic growth, or can sustainability be addressed (SACC 2009:44–45). The cynical response from ecumenical activists may be that this emphasis on the market merely assumes that the ecologically destructive system of industrialized capitalism has to be brought back on track (SACC 2009:31). At least one may say that economic hesitation to urgently introduce the drastic measures required is related to anxieties about the instability that may cause to markets in already troubled economic waters.

Political leadership?

Politicians, understandably, have a primary interest in the state of their national economies. Given the functioning of the global market, they seek competitive advantage for trade in relation to other role players. Of course, this requires mutually beneficial business partnerships so that self-interest cannot be the only determining factor. A failing economy in one part of the world will have an adverse effect on other national economies. Nevertheless, the difficulties of finding a political solution to climate change through a binding treaty are evident from the various Conferences of the Parties (COP), most notably the failed Copenhagen COP in 2009. One may be inclined to blame this on a lack of

political leadership and courage. However, the truth is that politicians are caught between expectations from the general public to come to a groundbreaking agreement and by the interests of economic power blocks involved in international negotiations on any issue. Of course, the Paris Agreement of 2015 was a huge accomplishment and demonstrates considerable political commitment. However, that will remain dependent upon trajectories in the carbon emissions of China, the United States, the European Union, and India – and what room this allows for carbon emissions elsewhere in the world given the overall “carbon budget” for the next few decades until 2050 when net zero emissions are to be reached (<https://www.globalcarbonproject.org/>). This poses yet another layer of the crisis: the role and the credibility of the United Nations in addressing any such a global issue. The big ship of the global economy cannot change its direction (its energy basis) overnight. It would take considerable time, even though the captain’s decision can indeed be made at a single Conference of the Parties. If the political decision comes too late, the Titanic may not be able to steer away from the iceberg. The iceberg cannot move.

The role of the media and marketing?

The failure of political leadership may perhaps be explained with reference to the rather meek excuse of political parties that they cannot alienate voters too much, for example, by proposing drastic carbon taxes. Political survival can only come through winning the next election. One may well say: Ecological suicide in 50 years from now will always seem preferable compared to political suicide five years from now. In democratic countries, political solutions remain dependent upon the will of the majority. But what if that proves to be ecologically self-destructive? Every family in China or India may wish to own and use private motorized transport (on par with North America) but that would be catastrophic for traffic congestion, air pollution, and climate change. In such a case, more than political leadership is required. The media and marketing undoubtedly have to play crucial roles in the education and conscientization of the electoral public. At least one would need to swing the views of 10% of opinion makers in the population who are influential enough to change the minds, attitudes, and behaviour of others. However, the truth is that the media cannot help but to send us mixed messages. The prime time allocated to discuss greenhouse emissions scarcely has the same impact than the time allocated to advertise the lures of motorized transport. Since the media are dependent on such income, they are trapped in a situation where they reflect rather than challenge the dynamics of society.

Social transformation?

An analysis of these layers of the crisis points in the direction of the need to understand processes of social transformation. Here one has to address the limits to rapid social change (Rasmussen 1975). Societies can and have to change almost

immediately in times of disaster through fires, floods, earthquakes, or epidemics. However, if the full extent of such a disaster will only be evident, let us say in 50 years from now, it is far more difficult to persuade whole societies to urgently introduce the required measures now. Case studies on communities living around volcanoes predicted to erupt quite soon would illustrate that. What is at stake here is evidently resistance to change, but such resistance can come from protecting vested interests, from lethargy or from an inability to see viable alternatives. Here one may draw on various contributions from the social and behavioural sciences to understand why societies would change and why not. I recall a few examples:

- Historians like Jared Diamond (2005) have pointed out that societies have in the past responded in different ways to an impending crisis, and that this may indeed trigger financial instability, the disintegration of economic systems, an inability to provide military security, and eventually the collapse of entire civilizations.
- Malcolm Gladwell's bestseller *The Tipping Point: How Little Things Can Make a Big Difference* (2000) indicates three key factors that each play a role in determining whether a particular trend will "tip" into an influential movement. He labels these the "Law of the Few," the "Stickiness Factor," and the "Power of Context." However, given the focus on already existing trends, it is far less clear that such a tipping point can be socially engineered, let alone if the steps required may prove to be unpopular.
- The work of NOVA in South Africa on the use of coal stoves by the urban poor indicates that a 100% success rate is possible through demonstrations of the Basa Magogo technique of packing coal that would save 30% coal, if only people would see the attractive alternative (<http://www.nova.org.za/projects/basa-magogo.php>).
- An interesting case study by Hijme Stoffels on the willingness of people to change their views on nuclear arms suggests that a person has to weigh the reasons why she or he should change against the reasons why change may not (yet) be appropriate. If only the reasons why change is necessary are highlighted, the person will psychologically be inclined to stress the arguments to the contrary. A better rhetorical strategy may therefore be to recognize the reasons why change may not be appropriate so that the same person would come to acknowledge the reasons why change may well be necessary. In Afrikaans we call this "boere-sielkunde" and from personal experience, I can attest that it works extremely well. Of course, classic studies in the rhetoric offer a more complex account of the difficulties encountered in the art of persuasion.
- Yet, in cases where some form of revolution is required such rhetorical strategies would not suffice. Then a latter-day Marcuse would wish to identify the possible carriers of the revolution. Given the commercialization of higher education students may not be our best hope, while artists may indeed be the "antennae of society" (Ezra Pound) but can only be effective through media coverage.

- Stefan Skrimshire (2011) observes that there has been a proliferation of rhetoric in the public media on “tipping points.” What impact does such rhetoric have on environmental ethics and grassroots political culture? Tipping points represent the prediction of the unpredictable but also of the ethically unthinkable. Such uncertainties pose the problem of risk management. Skrimshire argues that such rhetoric may lead to two erroneous conclusions, namely that nothing will happen until we reach such a tipping point and that once we reach that point, nothing can be done about it. This poses questions around risk willingness, risk avoidance, and risk acceptance – in the context of endemic uncertainty. The underlying question at an individual and the collective level is what difference (if any) our actions could make given the unpredictability of climate change. He recognizes that an ethics of risk is required rather than blind faith or shrewd calculation in order to commit oneself to an uncertain goal (Skrimshire 2011).

Sceptics may want to say that it is virtually impossible to introduce the kind of changes required timeously. Collectively, people will only recognize the need for such transformation when it is already too late. This may well be the case, but it would be simply irresponsible to wait for that to happen.

If so, it is clearly imperative to gain a better understanding of why people are willing to change and to accept responsibility for that. Such an understanding would be necessary for the kind of social engineering that will be required to shift the energy basis of the global economy from fossil fuels to sustainable alternatives. My sense is that social scientists are only beginning to contribute to the global discourse on climate change.

I suspect, though, that such behavioural studies will not yield promising results either. The underlying crisis (if one wishes to call it that) is that all our most trusted mechanisms for social change seem to prove helpless for the kind of change that is necessary here. Why is this the case?

- The underlying problem is clearly not just a lack of information or planning. Knowing what is right does not always translate into doing what is right. We do respond to available information and education but that is necessarily a slow process. Moreover, we also have to take into account that those with the highest carbon footprint are typically also amongst the better educated. Even those of us who are well acquainted with scenarios around climate change find it difficult to curb our carbon footprint to anything approximating sustainable levels. Changes are possible but only when attractive alternatives become available.
- If education fails, marketing provides another trusted strategy for social change. Information on a cheaper or better product or the demonstration of alternatives can prove to be very effective as long as we can recognize the positive outcomes for our lives. However, marketing works much better if the product on offer does not require from one to scale down.

- If marketing fails, effective management and innovative leadership may help to steer an organization or society through a crisis. However, our theories of management have scarcely prepared us to address a problem that is global in scope, that will become truly ominous only in a few decades and that will indeed require a collective, coordinated effort from at least all industrialized and industrializing countries. Indeed, climate change is the “largest collective action problem that humanity has ever faced” (Jamieson 2017:61).
- If management fails, punishment offers another, no longer widely promoted option. People are typically willing to change if they recognize that not doing so will have negative implications for them. This strategy may yield some results, for example through “the polluter pays” principle and through carbon taxes. However, there are scarcely analogies in history where the powerful throughout an empire will collectively accept punishing taxes introduced by themselves in order to effect the required change. Even then the question is whether such taxes will yield the required 80% reduction in greenhouse emissions in industrialized countries. The unpalatable truth is that greenhouse emissions have been rising steadily since 1990, also in industrialized societies – despite the temporary declines caused by the global financial crisis in 2008 and the COVID-19 pandemic in 2020. The question remains whether our proposed policies are in line with the gravity and the global scale of the problem (<https://www.globalcarbonproject.org/>).
- If punishment fails, one can still call on a sense of responsibility. People are indeed willing to accept responsibilities on the basis of a sense of identity and their role responsibilities in a particular context. Most of us are more than willing to do our duties, to pay our TV licenses simply because it is the right thing to do – as an SABC advertisement has it. What is required here, though, is (rapid) social change, not an affirmation of cultural identity. Such a sense of responsibility is fostered through moral formation – which is widely recognized in virtue theory, theories of personal and social development, and theories of moral education. However, the emphasis here is on socialization and internalization. This would prepare people to handle social change psychologically, but are hardly aimed at social transformation. What is required here, though, is (rapid) social change, not an affirmation of cultural identity. It is possible to extend such a call for responsibility, for example towards citizenship, future generations, technology, or nature, but the broader the scope, the vaguer the specific sense of responsibility seems to become. It would be a symptom of megalomania to accept responsibility for what lies beyond one’s locus of control.
- If calling on a sense of responsibility fails, prophetic warnings and threats may be considered. This is the most trusted strategy in the media. Apocalyptic images abound in scientific reports, science fiction movies, cartoons, and heavy metal rock music alike. We human beings seem to derive pleasure from such images. We are thrilled by thrillers. However,

people seldom respond to prophetic threats in an appropriate manner. Apocalyptic images prompt anxieties, and fear more often paralyses than not. It seldom promotes responsible decision-making. Nevertheless, it seems that secular critics are becoming drawn to the genre of apocalypse in order to come to terms with the possible end of civilization.

- A final strategy to introduce social change is to speak to peoples' desires, their dreams, and aspirations for the future. People are willing to endure hardships (like studying towards a degree) if the reward is attractive enough. We are quite willing to save in order to purchase something desirable. Such dreams for the future may be based on a vision for a good society. In South Africa many were willing to fight for justice even where this may not have been in their own immediate interests. However, there is a deeper problem here, namely that people's dreams and aspirations are being shaped more decisively by a culture of consumerism than by the belief that "a different world is possible" (see below). Indeed, the content of such dreams matters because they can become self-fulfilling prophecies.

The question therefore remains how rapid social change can be induced, as they say, "before it is too late."

A cultural crisis?

This last comment points in the direction of a deeper, cultural crisis that climate change is presenting. Several religious leaders have suggested that the underlying problem around climate is less a problem of know-what or know-how than of know-why and know-wherefore (Rasmussen 1996:74). The crisis that we have to face is not primarily an ecological crisis but a deeper, cultural crisis in nature and wholly of nature running fully against it (Rasmussen 1996:7). The environmental crisis is a pathological sign of cultural failure and bankruptcy. It indicates that the values underlying the dominant cultural and economic practices in the world today have become bankrupt. The Orthodox theologian Timothy Ware observes that

Yet, in fact the crisis is not first and foremost an ecological crisis. The fundamental difficulty lies not outside but inside ourselves, not in the ecosystem but in the human heart. The present-day crisis, that is to say, is primarily a crisis not concerning the environment, but concerning the way in which we ourselves think.

(Ware 1997:26)

The dominant global culture is evidently shaped by consumerism and that affects urban Africa as well. Although there are signs of resistance against consumerism amongst the very affluent and those close to retirement, there can be little doubt that the dreams and aspirations of the lower middle classes are

being shaped by the demonstration of affluence. The SACC (2009:15) document recognizes this clearly:

In the context of consumerism we have to be aware of the ways in which our rampant desires have fuelled the economy and have spiralled beyond control. Although the consumer class have led the way in this regard, sadly, we who belong to the lower middle class also desire that which we do not have. When it comes to a love of money, it may well be true that those who have it the least, love it the most.

Ironically, such a spirit of consumerism is promoted by economic inequalities – both in terms of the conspicuous consumption of the affluent and the aspirations of the poor. Preaching the prosperity gospel offers a religious legitimization of such upward social mobility. This is undoubtedly the fastest growing form of religion on the African continent.

It is not difficult to offer a critique of consumerism (Conradie 2009). It is far more difficult to consider viable and attractive alternatives. The Global Social Forum may declare the belief that “a different world is possible” and some may practice viable alternatives, but this remains very much on the margins of society. Again, what is needed is a rapid transformation of the energy basis of the global economy in order to reach net zero emissions by 2050.

A psychological crisis?

Climate change may also be regarded as a psychological problem. There are by now ample studies that explore issues such as climate denialism (and its associated defence mechanisms to avoid the truth), climate anxiety, tacit assumptions that someone will come up with technological solutions, paralyzing apocalyptic fears, the crippling effect of recognizing that personal efforts will hardly make a difference, and the impact of inherent uncertainties over what the future will hold. Each of these factors tends to undermine appropriate responses at the personal level but clearly also shapes decision-making processes at the corporate and political levels. Moreover, many scientists have observed that the biggest factor in uncertainties over climate change scenarios is not related to physical variables but over social and political responses that are hard to envisage.

It is important to understand how psychological factors inhibit appropriate responses. Dale Jamieson (2017) argues that evolution did not design humans to solve or even recognize the kind of problem that climate change is. We have a predisposition to respond to dramatic movements by middle-sized objects that can be visually perceived. Instead, the impact of climate change is typically invisible because it is geographically distant, statistically averaged, and temporally delayed given the lag effect of carbon in the atmosphere. Jamieson (2017:103) captures the problem vividly:

While we can be very responsive to individual victims, we have difficulty empathizing with statistical victims. We mobilize huge resources around highly publicized cases of little girls falling into wells while we do comparatively little to save children when they are the invisible victims of policy choices.

Such psychological factors are obviously crucial but by themselves they can also undermine human agency, including the agency of the very victims of climate change. The danger is that the problem becomes pathologized so that culprits are treated as victims of forces beyond their control. If the diagnosis is of a psychological nature, then some medication, or psychotherapy is required without accepting personal or collective responsibility. If human evolution has ill-prepared us to deal with climate change, then it seems that only biotechnology or genetic engineering could offer a way forward. Instead, it is necessary to also confront the moral and indeed the spiritual nature of the problem.

A moral crisis?

Following the critique of consumerism and the problem of apathy, many others, politicians and spiritual leaders alike, have argued that climate change presents us not only with a cultural crisis but also with a moral crisis. Again, one needs to speak of a moral crisis carefully as this may sound like yet another call for moral rearmament or for another wave of the moral regeneration movement, and another moral summit in South Africa (Richardson 2003). The current situation clearly calls for moral discernment. It is a matter of justice since those who are likely to be most affected by climate change have contributed least to the problem (SACC 2009:30). This is widely recognized in climate negotiations with differentiated responsibilities around mitigation and the allocation of funds for adaptation. Why would one then speak about a moral *crisis*? The answer may be simple, namely, that justice is not yet seen to be done. If we are collectively unable to change the current situation that implies that the injustices will continue. Of course, this cannot be done overnight – which allows space for sloth. Climate negotiations suggest the difficulty of taking a differentiated responsibility for mitigation and adaptation (including the transfer of technology and skills). In response to this lingering situation, ecumenical bodies, also in southern Africa, are insisting on the recognition of “ecological debt” (SACC 2009:31).

Climate change also calls for moral judgement in terms of at least two other moral standards, namely, participatory decision-making (allowing those most affected by change a say) and, of course, ecological sustainability. The moral vision behind these criteria have already been articulated in 1975 at the Nairobi Assembly of the World Council of Churches with its notion of “towards a Just, Participatory and Sustainable Society.” The Vancouver Assembly in 1983 then initiated the Conciliar process on “Justice, Peace and the Integrity of Creation,” culminating in the World Convocation on JPIC in Seoul in 1990.

Climate change requires attention to all the three underlying moral problems, namely economic inequalities and injustice, conflict at different levels, and ecological destruction – in relation to each other. These moral standards are also expressed in the 16 principles of the Earth Charter and in many other documents from religious forums.

A reminder of these moral standards may be helpful but still does not seem to address the root of the moral crisis. Is our main problem that we cannot recognize which standards apply or cannot gain clarity on conflicting moral imperatives? This seems unlikely, if only because there seems to be widespread consensus on such moral norms, also in international decision-making processes, for example with reference to the notion of a common but differentiated responsibility. Or is the problem that we do recognize but find ourselves unable to follow such standards? Moreover, the danger is that a reiteration of moral standards through prophetic critiques of the global economic order and of climate negotiations can merely result in judgemental moral judgements. Then the prophet can merely shake her head or shrug his shoulders wondering why on earth people are not doing what is obviously the right thing to do. Others have recognized that more is at stake, namely the need for moral leadership, moral courage, moral vision, and moral imagination. The task of a prophet is not merely to denounce evil and injustices but also to inspire people with an attractive vision for the future, or a way out of the current dilemma, helping them to see what the next appropriate step is.

This points to a different crisis, namely a lack of moral imagination and a moral vision. In a *Message from African Faith Leaders to the 17th Conference of the Parties (COP17)* following a meeting at UNEP in Nairobi, 7-8 June 2011, this need for a moral vision is clearly recognized. The statement observes that

there is a profound need for a renewed moral vision for the future of humanity and indeed of all life. We debase human beings by seeing them only as economic instruments and debase the sanctity of life by commodifying it.

It then continues:

We must realise that well-being cannot be equated with material wealth. The quality of life is not dependent on the quantity of material things or growth measured by GDP. Instead, our standard of living depends on our standard of loving and sharing. We cannot sustain a world dominated by profit-seeking, rampant consumerism and gross inequalities, and an atmosphere of competition where the powerful take advantage of the weak without caring for the well-being of every form of life. Development cannot be sustained if the affluent project themselves as examples to be copied by everyone else, and if the poor model their lifestyles on such examples.

In its document on climate change, the South African Council of Churches observes that, “We live in a time that lacks a compelling moral vision, even

though most businesses and institutions continually talk about their vision and mission” (SACC 2009:40). The document adds that,

It is indeed a matter of moral vision. We need to envisage alternatives to the current global economic order that has caused climate change – alternatives that will be able to *generate* sufficient wealth, *distribute* such wealth more equitably and help to *redefine* our very understanding of what wealth entails. Such a vision needs to be attractive enough to motivate millions of people, to energise and mobilise action.

(SACC 2009:39)

An ethical crisis?

One would need to distinguish between a moral crisis and an ethical crisis – where ethics is understood as a disciplined, second-order critical reflection on moral judgements. Is the problem perhaps ethical in this sense?

Stephen Gardiner (2011:19–48) aptly describes climate change as a “perfect moral storm.” He shows how three thorny “storms” intersect and exacerbate each other to create this perfect storm: (1) the “basic storm,” i.e. the way in which causes (carbon emissions) and effects (changing climates) become spatially dispersed, while agency becomes fragmented through a vast number of households, institutions, and countries; (2) the “inter-generational storm” (i.e. balancing current interests against the interests of future generations); and (3) the “ethical storm” in the sense that the dominant utilitarian framework (a cost-benefit analysis) to assess the situation is itself part of the problem. It cannot weigh current interests against long-term future interests or human interests against those of other forms of life. It also does not address the problem of moral corruption (Gardiner 2011:19–48).

However, even if climate change poses the “perfect moral storm,” this does not imply that this can be resolved through ethics as theoretical, second-order reflection on the basis of moral judgements. A lack of ethical clarification does not appear to be the stumbling block even though there is an ongoing need to reflect on the relation between scientific facts and social values in climate change discourse. Jamieson (2017:76) rightly questions the “linear” model of first describing scientific facts through climate science, then determining the social impact of changes in climate and only then judging that through policy-making and management. His conclusion is apt:

Whatever is true about the complex relations between facts and values, we cannot simply read what we ought to do from science, any more than we can ignore science when deciding what to do about problems such as climate change.

The difficulty is that climate change cannot be easily addressed in terms of traditional theories of moral responsibility. Jamieson (2017:161–162) mentions

several reasons in this regard: (1) Innocent acts can have devastating consequences, (2) causes and harms may be diffuse, (3) causes and harms may be remote in space and time, (4) the magnifying impact of technology, and (5) the complexity of carbon cycles. Together these constitute the most complex collective action problem in human history.

It is therefore not clear whether the language of responsibility (or stewardship or governance) is commensurate to the scale of the challenge of the Anthropocene. It is hard to have a sense of responsibility for the whole world – or for the far-future. Moreover, even those who have an acute sense of responsibility for being complicit in anthropogenic climate change (those with a large carbon footprint) do not necessarily know what options are available to them to reduce their footprint in a way commensurate to the challenge. They feel themselves trapped in societal structures determined by where they live and work (suburban homes, their use of electricity, required modes of transport, and work-related travelling) more than by individual choices. They find it difficult to translate an awareness of ecological concerns into appropriate forms of praxis. As the SACC (2009:19) document states:

Those of us in the urban middle class find it difficult to adopt a lifestyle that is not harmful to the environment. We may take some modest steps to address climate change – such as reducing the use of electricity, water, transport and chemicals, while recycling and re-using resources. Such steps are highly appropriate to challenge consumerist habits and demand considerable effort and dedication. However, a guilty conscience and a 10% reduction in resource usage would not nearly be sufficient, given the scale of the problem. By contrast, those of us who are poor lack the resources to alter our squalid living conditions and to steer away from the (comparatively minute) environmental damage that we do cause. We naturally desire to obtain more of the wealth that we observe around us – but we can scarcely be concerned about the impact that what we desire (but do not yet have and perhaps have little hope in getting) would have.

A spiritual crisis?

It is a liberal fallacy to assume that knowledge and education form the only key to moral action. If we know from science that we have to do something, why we have to do that and how to do that (technology) but still find ourselves unable to do so, that is no longer only a moral but also a spiritual problem. For Christians that is a familiar problem: we know that we need to love our neighbours as ourselves but often find that rather hard to do. More knowledge is not really required here.

Is moral persuasion potent enough to induce people to make major sacrifices that go against their more immediate interests? If so, this is a problem that has to be addressed through moral formation and not merely through more information or ethical deliberation and decision-making processes. It is not

simply a matter of agreeing with a memorandum spelling out of some common values either. It would for example not help to blame the directors of oil companies for escalating carbon emissions if they act on behalf of their shareholders and in response to consumer demand. The problem is one that has to be addressed through moral formation and not merely through more information. It is therefore appropriate that there is a widespread retrieval of virtue ethics in response to ecological concerns. The problem is not merely identifying appropriate virtues such as wisdom, justice, resilience (hope), care, and temperance (Bouma-Prediger 2019). Not only prophetic moral imperatives are needed, but also moral will and moral energy.

Since moral formation typically takes place within faith communities, this implies that the ecological transformation of religious traditions is critical to the emergence of an ecological ethos. In their foreword to the series on world religions and ecology, Mary Evelyn Tucker and John Grim (2000: xix) comment:

It is becoming increasingly evident that abundant scientific knowledge of the crisis is available and numerous political and economic statements have been formulated. Yet we seem to lack the political, economic, and scientific leadership to make necessary changes. Moreover, what is still lacking is the religious commitment, moral imagination, and ethical engagement to transform the environmental crisis from an issue on paper to one of effective policy, from rhetoric in print to realism in action.

The deepest crisis therefore seems to be one of a lack of moral vision, imagination, will, and leadership. In the light of these considerations, the spiritual dimensions of the environmental crisis have to be acknowledged. What is required is a fundamental change of orientation. As Ecumenical Patriarch Bartholomew 1 of Constantinople has observed on the issue of climate change:

Climate change is much more than an issue of environmental preservation. Insofar as human-induced, it is a profoundly moral and spiritual problem. To persist in the current path of ecological destruction is not only folly. It is no less than suicidal, jeopardizing the diversity of the very earth that we inhabit, enjoy and share.

(WCC 2005:67)

A “Declaration on the Environment” signed by Patriarch Bartholomew and Pope John Paul II on 10 June 2002 expresses a similar assessment:

What is required is an act of repentance on our part and a renewed attempt to view ourselves, one another, and the world around us within the perspective of the divine design for creation. The problem is not simply economic and technological; it is moral and spiritual. A solution at the economic and technological level can be found only if we undergo, in the most radical way, an inner change of heart, which can lead to a change in

lifestyle and of unsustainable patterns of consumption and production. A genuine conversion in Christ will enable us to change the way we think and act.

Several observers have recognized the potential of the world's religious traditions to offer the necessary inspiration, spiritual vision, ecological wisdom, ethical discernment, moral power, and hope to sustain an ecological transformation. Accordingly, religious traditions can offer the mystic motivation and enthusiasm for earth keeping projects that no other secular or government initiatives can muster on such a wide scale. Religious traditions can provide what science *qua* science cannot: they promise not only meaning but also survival power, deliverance, healing, and well-being (Rasmussen 1994:177; 1996:185). Religions provide basic interpretive stories of who we are, what nature is, where we have come from, and where we are going (Tucker and Grim 1994:xvi). In a statement at the Bali meeting on climate change in December 2007, Ahmed Djoghlaif, of Algeria, the executive secretary of the United Nations Convention on Biological Diversity stated,

In my view there are three ways to reach people: through their wallets, their health and their soul. ... The first two are certainly current, the third has yet to be achieved. I would warmly welcome a far higher level of engagement by faith groups in biodiversity issues.

(Vanya Walker-Leigh 2007)

Can the world's religious traditions (whether literate or pre-literate) muster sufficient moral power and vision to turn the tide, to show a path out of the maze of ongoing environmental degradation? Indeed, can religious discourse really make a difference? It seems clear that this will require nothing less than a transformation of each tradition (preferably in terms of each tradition's own heritage and particularity). Larry Rasmussen (1996:10) urges that all religious and moral impulses of whatever sort must now be matters of unqualified earth-bound loyalty and care. Each faith has to become an earth-centred faith.

For the Christian tradition this poses a particularly stark challenge. The biblical roots of Christianity articulate a moral vision through a number of core symbols. It speaks of shalom, of the coming reign of God, of a new Jerusalem, of a new heaven and new earth where the lion and the lamb will live together peacefully, where justice and peace will embrace each other, where God's loyalty will allow the earth to flourish (Psalm 85:10–11). This allows for various theological ways of motivating the need for earthkeeping, albeit that these are often in conflict with each other (see Conradie 2011 for a discussion of such approaches).

The SACC document on climate changes recognizes the challenge in no uncertain terms. It states:

It is deeply worrying that we as Christians, too, so often seem unable to portray through our witness and action the alternative that is required.

This is strange because the Jewish-Christian tradition has such a cherished heritage in this regard. In fact, many Christians have been supporting a vision that is currently proving to be destructive. We have placed our faith and trust in human ingenuity, scientific progress and technological innovation. We believe that knowledge and education (or suitable qualifications) will offer us, and especially our children a ticket to prosperity. We have followed the secular dreams of increasing prosperity and economic development. We have come to follow a lifestyle (or to hope to be able to adopt one) that is unsustainable and cannot be adopted by all others. We have been captured by the lure of what could now be described in terms of the ideologies of consumerism, hedonism or materialism. This means that the focus of our hopes, trust and enjoyment is to gather wealth, to be able to buy and consume whatever our hearts desire, and to pursue a life of pleasure.

(SACC 2009:41)

The document continues to speak of the need for prophetic critique but also of the danger of idolatry and heresy. It recognizes that, “The most overt way in which the consumer society is defended theologically is through the propagation of the prosperity gospel” (SACC 2009:46). Perhaps, at least from a theological point of view, this is the deepest crisis that we have to face. Theologically, the flaws of this heresy are not difficult to identify. However, given the corporatization of universities, the commercialization of religious products, and the adaptation of churches to the consumer society, it is hard so see how a sophisticated theological critique of such idolatries and heresies could be credible. If the problem is indeed spiritual, the complicity of the Abrahamic religions in the root causes of climate change, most notable that of Christianity, then nothing short of an ecological reformation of Christianity (Conradie, Tsalampouni and Werner 2016), of all Christian traditions and of Christian theology, would be required to address the challenge (Conradie and Koster 2019).

Note

- 1 An earlier version of this chapter was presented at a one-day colloquium on “Climate change as a crisis for humanity,” hosted by the Uniting Theological College, Sydney, 20 September 2011. Parts of the argument have been used in my *Secular Discourse on Sin in the Anthropocene* (2020).

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