



The role of the university and institutional support for climate change education interventions at two African universities

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Abstract

This paper presents findings on the role of the university and institutional support for climate change education interventions at two universities in East Africa. The findings were part of a larger study on opportunities and challenges for climate change education at universities in the African context: A comparative case study of Makerere University in Uganda and University of Dar es Salaam in Tanzania. A comparative multiple case study design was adopted collecting qualitative data from 58 lecturers, researchers, administrators and students on climate change related programmes at the two universities. Data was collected through semi-structured in-depth interviews and focus group discussions. Analysis was done using thematic analysis based on Braun and Clarke's (*Qualitative Research in Psychology*, 3(2), 1–41, 2006) approach with the help of MAXDA software. Findings from the cross-case analysis revealed similarities and differences in perspectives and multiple realities of participants at both universities regarding the role of the university and institutional support for climate change education in the African context. The findings shed light on the context and nature of climate change education interventions and how these are supported at both universities. The study contributes to empirical literature on the role of higher education in addressing climate change and the institutional support to the interventions in the African context.

Keywords Climate change education · The role of the university · Institutional support for climate change education · African context

Introduction and literature review

Climate change continues to be a serious threat to humanity across various sectors of the globe. The phenomenon has been referred to as a complex one linked to 'economic growth, environmental degradation and poverty reduction' (Narksompong & Limjirakan, 2015, p. 171). The climate change phenomenon has been found to

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be caused mainly by human actions that produce greenhouse gas emissions (IPCC, 2014). Various governments and other institutional actors have come up with various mitigation and adaptation interventions to deal with the challenge of climate change. A number of countries have ratified international climate change agreements and come up with national climate change policy frameworks to deal with the phenomenon.

Vale (2016) argued that climate legislation has become a norm in both developed and developing nations, outlining the key strategies to regulate actions that would contribute to emissions but also mitigation and adaptation interventions by government agencies, and other actors in those countries. Many of the policy legislations provide for targets for reducing the intensity of carbon emissions by percentages against their gross domestic product (GDP) while others provide for carbon emission trading arrangements. It is also interesting to know that climate change interventions have now gained momentum at national and subnational levels in various countries (Vale, 2016). This implies that actions trickle down to agencies and individuals through well-coordinated frameworks provided by the policy legislations and implementation strategies within those countries.

Virtinen (2010) asserted that ‘institutions of higher education can choose between two roles’; either as mere ‘indicators of changes in attitudes, knowledge and practices within a society but do not themselves provide the impetus for change’ or as ‘proactive leaders in promoting societal change.’ (p. 232). Similarly, parties to the 2015 Paris Agreement did recognize the ‘importance of education, training, public awareness, public participation, public access to information and cooperation at all levels of education on the matters’ (UN, 2015, p. 2). This implies that education at all levels has a key role to play in addressing climate change. Countries that have ratified this agreement are therefore required to explore interventions that education institutions can implement in addressing climate change. The education responses to climate change at various levels are yet to be fully explored (Lotz-Sisitka, 2010). In many developing countries, right from the primary schools to universities, institutions are yet to develop interventions or programmes that address climate change. This implies, therefore, that countries have to come up with reforms in their education systems to integrate aspects of climate change and sustainability. Recently, universities are also being asked to provide avenues for promoting sustainability and implementation of SDGs (Filho et al., 2019), and indeed, many have integrated SDGs in their curriculum and are engaging policy makers and actors in various sectors through their policy engagement for a to push for the implementation of SDGs. Many of such institutions will increase their ranking due to such engagements and contributions to addressing global challenges.

At higher education level, a few universities have already started climate change education programmes, including study courses, programmes and activities, research and innovation interventions as well as community engagement interventions on climate change (Filho, 2015). A review of both scientific and grey literature shows that several universities in Africa have developed climate change related courses and programmes. Examples of such universities include: University of Cape Town, Stellenbosch University and University of Vender in South Africa; Eduardo Mondlane University in Mozambique, Sokoine University and University of Dar es Salaam in Tanzania; Pan African University in Cameroon, University of Tlemcen in Algeria; University of Port Harcourt in Nigeria, Makerere University in Uganda and University of Zimbabwe.

The findings in this paper are part of a larger study that was conducted between 2016 and 2018 at two case universities in East Africa (University of Dar es Salaam in Tanzania and Makerere University in Uganda). The study explored the opportunities and challenges of climate change education at these universities in the African context. The findings in this paper were part of other findings that informed the development of a theoretical model linking university education and climate change interventions in the African context published earlier in March 2020. This model presented the roles of a typical university in the African context, the potential climate change interventions and the key drivers that universities need to exploit to effectively address issues of climate change in their programmes (Ssekamatte, 2020). In the model, the roles of a typical university included generating knowledge on climate change, training and capacity building on climate change, coming up with innovations and technological solutions for mitigation and adaptation, conducting mass sensitizations and providing technical guidance to all sectors on climate change as well as taking actions in the communities. The potential climate change interventions identified in the model included training and research on climate change science, climate change adaptation and climate change mitigation as well as conducting climate change outreaches and policy engagement. There are several drivers of climate change interventions that universities in the African context could explore. These include the Ubuntu philosophy; existing African Indigenous knowledge systems; institutional management support for climate change education; and committed and competent staff in climate change science. Others included multi-disciplinary teams; effective institutional arrangements for climate change programmes; and effective regional and local partnerships. Ssekamatte (2020) focused on the theoretical contribution of the larger study while this particular paper presents the empirical findings with respect to the role of the university and institutional support for climate change. The views and perspectives of study participants at the case universities presented in this paper could help other universities intending to explore ways of addressing climate change in their programmes.

Theoretical framework

The key findings on the role of the university and institutional support for climate change interventions across the two (2) case universities were generated based on the social learning theory. Barth (2015) argues that social learning provides a platform for individuals, groups of individuals and social units or organizations to reflect on their roles and how they can significantly contribute to sustainable development in their areas or communities. Using this theoretical lens, the researcher asked study participants across the case universities to share their views, perspectives and opinions regarding the role that their respective universities can play and the nature of institutional support that can be offered in addressing issues of climate change in their academic, research and community engagement programmes. The study of these aspects was done based on the principle of reciprocal determinism, where the role of the universities would help determine the contribution they make to climate change mitigation and adaptation. The findings are presented as per the theme and code structures for each case university and the comparison is made highlighting the convergent and divergent views and perspectives.

The paper explores the perspectives, views and opinions, as well as experiences of university lecturers, administrators and students, on climate change study and research-related

programmes with respect to the role of the university and institutional support for climate change education interventions.

Research questions

The purpose of this particular part of the larger study was to understand and explain the role of the university and institutional support for climate change education from different perspectives, and experiences of academics, administrators and students on climate change related programmes (Flick, 2009). Therefore, the key research questions were:

1. What are the participants' perspectives and experiences regarding the role of the university in addressing climate change issues in the African context at the case universities?
2. What are the participants' perspectives and experiences regarding the institutional support for climate change education at the case universities?

Method

Study context

The study was conducted at the two oldest universities (Makerere University and University of Dar es Salaam) in East Africa. Makerere University was established in 1922. Initially as a constituent college of the University of East Africa, which was later dissolved in 1970, giving birth to three independent universities: Makerere University in Uganda, University of Dar es Salaam in Tanzania and University of Nairobi in Kenya. Both Makerere University and University of Dar es Salaam are very instrumental universities in their respective countries.

Being public universities, they are characterized by a lot of government control and politically sensitive institutions. Governments have a grip on how they operate and often determine their role and level of autonomy through legislation and resource allocation. The two universities are often characterized by high bureaucracy and very inflexible management systems and programming. For example, at both universities, change of the curriculum and development of new programmes takes a lot of time due to the bureaucratic processes in getting accreditation of their courses and programmes. They depend on public resources through the government budget and therefore often have no financial autonomy. This affects their ability to swiftly respond to global issues such as climate change and sustainability. Most of their research is donor driven and therefore their research agenda is rarely fully implemented because they depend on donors to fund their research.

Despite the above, they are highly respected and influence policies and many decisions of governments in the respective countries. Most of the highly influential people in the two countries have been trained or educated at these two universities. The institutions are viewed as the leading public universities in their respective countries and often influence the rest of the public and private universities and other higher education institutions in the two countries. The two universities are already implementing some study programmes on climate change and both have climate change centres established at their campuses. Makerere University runs programmes focusing on meteorology (Bachelor of

Science and Postgraduate diploma in Meteorology) while University of Dar es Salaam runs programmes focusing on climate change and sustainability (Masters and PhD in climate change and sustainable development).

The above characteristics of the two universities prompted the researcher to examine the existing climate change programmes at these institutions, the challenges they face and opportunities that exist in implementing their climate change programmes. This particular paper focuses on sharing the views and perspectives of lecturers, administrators and students of climate change related programmes regarding the role that the universities play in dealing with climate change and the institutional support offered to climate change education programmes at these institutions.

Design and approach

The researchers adopted a qualitative approach based on the social constructivist paradigm. This was because the aim was to ‘describe and understand the meanings that participants of the study attach to the phenomenon under study’ (Polkinghorne, 2010, p. 425). A holistic descriptive multiple case study design was adopted based on Yin’s typology because of its ability to provide rich and revealing insights on the phenomenon under study (Yin, 2012).

Sample size and sampling procedures

The sample included 58 participants from both universities. They were selected using purposive sampling. Patton argued that the logic and power of purposive sampling is in its ability to ‘select information rich’ participants that will support in-depth understanding of the phenomenon (Patton, 2015, p. 169). At Makerere University, participants were purposively selected from the College of Agriculture and Environmental Sciences, where programmes on climate change are housed, and from the Makerere University Centre for Climate Change Research and Innovation (MUCCRI). From these units, nine lecturers, researchers and administrators were purposively selected as interview participants based on their knowledge and experience with climate change programmes, while 16 undergraduate and post graduate students were selected using purposeful random sampling to participate in focus group discussions. At the University of Dar es Salaam, participants were purposively selected from the Institute of Resource Assessment (IRA) and the Centre for Climate Change Studies. The researchers purposively selected three administrators from IRA and the Centre for Climate Change Studies as well as two researchers and four lecturers on climate change to participate in the semi-structured in-depth interviews. Then 24 undergraduate and postgraduate students taking courses related to climate change were selected purposively to participate in three focus group discussions with eight students per group.

Data collection

Document review

Data collection began with a review of the existing official documents on climate change programmes at both universities and the respective countries. As Berg and Lune (2012)

noted, these documents provide important and useful information that a researcher can effectively use as data. The researcher developed a document review checklist outlining the key documents and information that were to be reviewed. Such documents included: University strategic plans, research agendas, University policies, programme handbooks, prospectuses, quarterly and annual reports, national climate change policies and strategy documents, annual reports on climate change by government ministries and agencies, and international framework documents on education for sustainable development and climate change. Document review helped in collecting contextual information on case universities and countries where they are located.

Semi-structured in-depth interviews

Data from lecturers, researchers and administrators across the two case universities were collected using semi-structured in-depth interviews. Kvale (2007) argued that interviews provide ‘a key avenue for exploring the ways in which participants’ experience and understand their world’ and therefore provides opportunities to understand the lived experiences and multiple meanings they attach to those experiences (p. 9). Semi-structured interview guides for lecturers and researchers as well as administrators for climate change programmes were developed and pre-tested before being used to collect interview data. The interview guide covered questions on the following: the role of education and the university in particular in addressing issues of climate change; the kind of resources and other forms of support given by the university management towards climate change programmes at the case universities; the partnerships and collaborations that exist for climate change education programmes and the strategic and administrative support provided by the university governance and management to climate change interventions. During data collection, an audio recorder was used to capture data, which was later transcribed and prepared for analysis.

Focus group discussions

These were conducted among undergraduate and postgraduate students at both universities. Wilkinson (2009) argued that focus group methodology provides a way to collect qualitative data by engaging small groups of participants through an informal discussion around a particular issue or issues. At Makerere University, two focus group discussions were conducted among students from the department of geography and school of forestry. To ensure homogeneity, undergraduate (bachelor’s degree) students were put in one focus group, while the postgraduate students (masters and PhD) constituted the other focus group. Each of the groups was made of eight participants as recommended by Barbour (2007). At University of Dar es Salaam (UDSM), three focus groups were conducted each one with eight participants. Two focus groups were among undergraduates drawn from the department of geography, while the post graduate group was among students of Masters and PhD in climate change and sustainable development programmes implemented by the Centre for Climate Change Studies at UDSM. Focus groups were conducted by the researcher with the help of a research assistant at both universities. The researchers developed a focus group discussion guide with questions on the following: the role that universities could play in addressing climate change on the African continent; the current programmes and courses on

climate change; the kind of support provided by the university management to students undertaking climate change related courses; and the nature of support from the partners and collaborators outside the university towards climate change interventions by the case universities. All focus group data were captured using an audio recorder and transcribed for analysis.

Data analysis

Data were analysed using thematic analysis based on Braun and Clarke's (2006) model with the help of MAXQDA software. The software is distributed by VERBI GmbH based in Germany and was designed for computer-assisted qualitative and mixed methods data and textual analysis in scientific research. All audio recordings for both interview and focus group discussion data were played several times to derive textual data. Transcription was conducted by the researchers for both semi-structured interviews and focus group discussion data. The transcripts were re-read to correct any errors in transcription as well as grammar and representation. Transcription supported the researcher to become 'immersed in the data' and therefore generate 'important insights' from the data (Cohen et al., 2011, p. 525). The researchers put all the transcribed data (interview and focus group discussion data) for each case university together and then exported transcripts into MAXQDA software for analysis. Data for each case university were analysed following the six phases of analysis as prescribed by Braun and Clarke (2006). These phases included (1) becoming familiar with the data; (2) generating initial codes; (3) searching for themes; (4) reviewing the candidate themes; (5) defining and naming final themes and categories; and (6) synthesizing the key findings based on the themes generated to produce a report. The interpretation of key findings was based on the key research questions as outlined above in the [Introduction and literature review](#) section and the theoretical framework that guided the study. The analyst presented findings separately for each case as recommended by Yin (2009) with multiple narratives and later did a comparison of findings across the cases. This was because the researchers adopted a comparative multiple case study design as indicated above in the [research Design and approach](#) section.

Ethical considerations

The researcher received ethical clearance from the Carl Von Ossietzky University of Oldenburg Ethics Commission, the Tanzania Commission for Science and Technology (COSTECH) and the Uganda National Council for Science and Technology (UNCST). This ensured that the study adhered to the national and international ethical requirements in countries where the study was conducted. The study participants (lecturers, administrators and students) were well placed to provide the data because of their knowledge and experience with climate change related programmes at their respective universities. In the field, the researcher sought consent of participants, adhered to the principles of voluntary participation, autonomy of subjects and confidentiality. The quality of the research was guaranteed through systematic and conscientious analysis, systematic in-depth field work that yields quality data, and adequate training of whoever was involved in the collection and analysis of data during the study.

Table 1 Participant's views on the role of the university and institutional support for climate change education interventions at Makerere University

Themes	Participant views
Theme 1: The role of the university in addressing issues of climate change	<ul style="list-style-type: none"> ● A hub of knowledge generation on climate change ● A home for training and capacity building on climate change ● A house of innovation and technological solutions to climate change ● An epicentre of sensitizations and guidance on climate change phenomenon ● A centre of action on climate change in communities
Theme 2: Institutional support for climate change interventions	<ul style="list-style-type: none"> ● Strategic support ● Administrative support

Results

The code structure for the study

Case study 1: Makerere University

Table 1.

Case study 2: University of Dar es Salaam

Table 2.

Comparative thematic case analysis findings across case universities

Theme 1: The role of the university in addressing issues of climate change

The participants across case universities provided their views and perspectives regarding the role of the university in addressing issues of climate change. Some of the views were

Table 2 Participants perspectives and views regarding the role of the university and institutional support for climate change education interventions at the University of Dar es Salaam

Themes	Participant views
Theme 1: The role of the university in addressing issues of climate change	<ul style="list-style-type: none"> ● A knowledge generator on climate change ● A home for training and capacity building for climate change ● A source of information and guidance on the climate change phenomenon ● A leader of action for climate change in communities
Theme 2: Institutional support for climate change interventions	<ul style="list-style-type: none"> ● Strategic support for climate change programmes ● Administrative support for climate change interventions

common across the case universities, while others were divergent. The common and divergent key findings are presented below:

Common key findings regarding the role of the university

Study participants at both case universities agreed that the university is key in generating knowledge about climate change through research. A student from Makerere University looked at a university as a ‘centre with expertise to do research and bring out the real picture of what is happening because of climate change’ [MUK GD22 PGD; Position: 18–18]. From the university of Dar es Salaam, a lecturer looked at a university as a hub of knowledge and therefore should generate knowledge that can be used by others. In her own words she said:

I think [the] university is...a hub of knowledge, so it should perform...to the best levels that...can now generate knowledge that can be used by others. So, we need to make sure that we have...we conduct quality research and that can inform policy and can inform adaptation practices on the ground. [*Interview A13; Position: 76-76*]

The participants agree that universities can play a key role in advancing knowledge about climate change through scientific research which could be used by other actors across the sectors as well as policy-makers and communities in informing mitigation and adaptation practices.

The other common finding around the role of the university was that universities can offer training and capacity building on climate change. One of the lecturers from Makerere University noted,

[A] university is the one producing the human resource for the country. So, a university by integrating climate change in its curriculum teaching and learning, would be able to produce the human resource that is responsive to the changes in climate change, and of course that would have a multiplier effect in the various sectors. So, having or producing products or graduates who have some knowledge, some training on climate change, is...very important. [*MAK PA21; Position: 19-19*].

A lecturer from University of Dar es Salaam looked at the university as a home for training and capacity building on climate change. In her own words she noted,

Obviously...education is important at all levels, because we are talking about mainstreaming climate change issues in the development process, and these are the people who at one stage will be, you know, hmm working in various areas. [*Interview A11; Position: 15–15*]

Participants across the case universities argue that a university could produce well-informed and competent graduates that can effectively support climate change mitigation and adaptation efforts across sectors. Therefore, they called for universities to integrate or mainstream climate change issues into study programmes so that the graduates will have competences and skills to mitigate and adapt to climate change wherever they will go after the university.

The other common finding regarding the role of the university was that universities can ably carry out sensitizations and provide guidance to communities, policy makers and decision makers on issues of climate change. A participant from Makerere University argued that ‘universities can be centres of sensitization since these are centres of learning where

people come from various regions and countries to learn' [MAK GD22 PGD MAK; Position: 16–16]. A researcher from the University of Dar es Salaam talked about disseminating information and guidance to 'politicians and policy makers who don't have time to read, by synthesizing research findings through policy briefs' [Interview R12; Position: 37–37].

Divergent findings regarding the role of the university in addressing climate change issues

Across the case universities, participants had some divergent perspectives regarding the role that the university can plan in addressing issues of climate change. Participants from Makerere University looked at a university as a house of innovations and technological solutions for climate change mitigation and adaptation. One of them who serves as lecturer said:

[W]e come up with new products and these can be used, for example, if there are new technologies for crops..... We developed the first sweet potato crop model to test how sweet potatoes are likely to be impacted by climate change in East Africa. This is a process-based model. So, some of those tools are very relevant to addressing the impacts of climate change. So, education has a huge role to play. Without it you really have no base to use to make any progress. [MAK PL21; Position: 23-23]

This was not mentioned by any participant at the university of Dar es Salaam.

At the University of Dar es Salaam, participants talked about the university being a leader of action on climate change in communities. To them, the university can conduct outreaches and engage local communities in adaptation initiatives that are simple and friendly or easy to implement, supported by the research conducted on climate change. One of the administrators noted that:

[W]e need to have this local based adaptation initiatives being supported or routed from communities themselves, rather than injecting sophisticated information, science-based information to our local communities. [Interview A13; Position: 17-17]

This was not mentioned at Makerere University by any study participant and therefore a divergent perspective.

Theme 2: Institutional support for climate change education interventions

Participants across the case universities were asked to share their perspectives and views regarding the institutional support their own universities offer to climate change education interventions. Again, there were common and divergent perspectives which are presented below:

Common key findings regarding institutional support for climate change education interventions

At both universities, participants agreed that universities provide both strategic and administrative support to climate change education interventions. Across case universities, the strategic support was in terms of establishment of climate change centres and other structures within the universities that support climate change education. For example, at

Makerere University, participants talked about the establishment of the Makerere University Centre for Climate Change Research and Innovation (MUCCRI) to support research, teaching and training as well as community outreaches on climate change. One said:

I think, ahmm there are quite a lot of reflections on, one is institutional arrangement. This Centre (MUCCRI) is one of the efforts and is one of the institutional arrangements to make sure that the university serves as one gateway to link to the communities that need knowledge, skills and research projects that can support people who are involved in dealing with the change in climate. So to that end, there is an institutional arrangement making an effort that is in place. [MUK PA22; Position: 29-29]

At the University of Dar es Salaam, participants mentioned the establishment of the Centre for Climate Change Studies and the Mwalimu Nyerere Research Chair as key strategic institutional support to climate change education interventions at the institution. One of them noted that:

[T]he university management has always, and continues to be, happy with what we are doing in the centre, and IRA with respect to climate change, and there are two areas that they would like to intervene. One is to strengthen the centre, so that it becomes a fully fledged institute in the university system, and this will give us one or two opportunities. First, is to be considered in the budget, but also to be considered in terms of staffing. So, that is a very good move. And this comes out of the recognition by the university management that what the centre is doing, much as it is still very new, ... is commendable. So, this means that we have full support from the university management on what we are doing on climate change. [Interview R11; Position: 17-17]

The participants across the cases also agreed that administratively, universities have and continue to support climate change education programmes. The institutions provide infrastructural and operational services for training and research programmes on climate change. One participant from Makerere University reported that: 'the university provides the facilities, like (...) office space, labs, the time and at least supervision time and the students are our students here in the College' [MAK PL24; Position: 27-27]. This was supported by someone from University of Dar es Salaam who indicated that the university has been key in 'supporting the infrastructure (...) providing venues (...) and other support' [Interview L12; Position: 27-27].

Divergent key findings regarding institutional support for climate change education interventions

However, participants at Dar es Salaam reported other forms of institutional support which were not mentioned at Makerere. One noted that the university continues to be committed to develop and strengthen the climate change centre into a fully fledged institute which will enhance its budget and staffing, as well as the robust approval process for new programmes and proposals for research funding. This was unique to this case university.

At Makerere University, participants noted that the university deliberately included climate change research as one of the research priorities on the university research agenda. One of them said:

I would say they are fully supportive. When you look at the research priorities of the university, then climate change is among them. Meaning, it is already captured at a strategic level of the university. [MAK PL22; Position: 29-29].

The participant notes that one of the priorities on the university research agenda is climate change research. This implies that the university prioritizes climate research and therefore fully supports any research endeavours in this aspect. Funding of climate change related research would be easily accessed with the support of the university and that the university budget for research would include a percentage for climate change research. This kind of institutional support was not mentioned at University of Dar es Salaam and therefore it was unique to Makerere.

Discussion of key findings

The role of the university in addressing issues of climate change

The findings revealed that across the case universities, there is an agreement among participants that the university has key roles to play in addressing climate change. These roles include generating scientific knowledge on climate change through scientific research; providing training and capacity building on climate change; carrying out sensitizations and providing guidance to communities and policy makers on climate change. Other roles include advancing innovations and technological solutions for local context specific climate change mitigation and adaptation; taking the lead in technically supporting NGOs, CBOs and other actors in communities on aspects related to climate change; and engaging communities in simple and friendly local climate change adaptation initiatives through the community engagement function of the universities.

These findings are consistent with Virtanen's (2010) assertions that 'institutions of higher education can choose between two roles'; either as mere 'indicators of changes in attitudes, knowledge and practices within a society but do not themselves provide the impetus for change' or as 'proactive leaders in promoting societal change.' (p. 232). This assertion highlights the key roles that institutions of higher educations (including universities) have to play in addressing societal issues such as climate change. The findings also supported the arguments by Boateng and Boateng (2015); Buckland et al. (2018) and Reza (2016) that universities should address climate change and other sustainability issues across disciplines and programmes. Nussbaum et al. (2015) argued that universities have an enormous obligation to educate people on significant issues that affect them across disciplines and study programmes and therefore universities need to reform their operations and come up with comprehensive approaches to deal with climate change through their programmes.

Institutional support for climate change education interventions

The social learning theory provides a clear lens through which the researcher can ably explore the nature of behaviour by individuals, groups and social units given their social interaction (Bandura, 1977). Based on this theoretical lens, participants from the two case universities were asked to share their perspectives and views regarding the institutional support for climate change education interventions at their institutions.

The aim was to explore the behaviours of institutions and actors towards climate change education interventions and how this behaviour supports the interventions.

The findings revealed that across the case universities, participants reported various strategic and administrative institutional support offered by universities to climate change education interventions. It was reported that universities offered infrastructural and operational facilities for training and research programmes on climate change, and universities were committed to support and strengthen climate change centres in terms of budget and staffing, and that they supported research and study programmes by providing administrative support.

It should be noted that these study findings supported earlier research by O’Keeffe (2016) who concluded that ‘various universities have established climate change research centres to assist Ethiopia in addressing the potential problems of climate change.’ (p. 809). The author cites Addis Ababa University and the University of Gondar. The centre established by Gondar aims to ‘empower local communities to improve their living prospects and works’ amidst climate change through various interventions including climate change adaptation and mitigation, education and awareness. The findings also supported the call by UNESCO (2015) for institutions of learning at all levels to support climate change education interventions through capacity building and student learning as a way of contributing to the global action programme on ESD. Alghamdi (2018) reported that though public universities in Saudi Arabia had the potential to play a significant role in providing knowledge, skills and creating awareness on sustainability issues including climate change, the level of support towards the same was still wanting, which is consistent with the findings of this particular study. Many universities have recognized the key role they can play and are working towards developing study programmes and are engaged in research on climate change. This will boost the educational response to climate change and sustainability across the countries in additional to the mitigation and adaptation interventions by governments and civil society organizations across the globe (Calzadilla et al., 2018).

Conclusion

Universities in Africa have a critical role to play in addressing climate change (Filho et al., 2019). The roles identified by the lecturers, administrators and students that participated in this study could be a starting point for other universities that are yet to start climate change education interventions. The findings have illustrated examples of what such universities can do and how they can initiate themselves as key actors in climate change mitigation and adaptation through education. The findings on institutional support for climate change across the case universities in this study can be handy for other universities that are yet to fully support climate change education interventions at their campuses. University management could borrow these kinds of support and boost climate change education interventions in their campuses. The paper illustrates the need for university management across the continent to critically think about the contribution their institutions can make in dealing with climate change phenomenon and the kind of institutional support for climate change education at institutional levels.

Implications for policy and practice

The findings in this paper provides insights that could be useful to the practitioners, policy makers and administrators of climate change education and sustainability education at universities in African context. The practitioners may reflect on the views and perspectives of study participants from the two universities regarding the potential roles and interventions on climate change at universities as well as the kind of institutional support they can provide to enhance their programmes aimed at addressing the climate change phenomenon. The findings could also be useful to policy makers in reviewing university and country level policies on university education to provide for legislative support at local levels towards climate change education interventions using higher education and other levels of education within their countries. The university administrators may make use of these findings in reviewing their university operations and programmes to promote climate change mitigation and adaptation through their study and research activities. The researchers and scientific practitioners may also find these findings useful in extending further research in the area of climate change and sustainability education at higher education institutions in the African context.

Limitations of the study

The main limitation of the study was that it explored views, perspectives and opinions of university lecturers, researchers, administrators and students on climate change related programmes at the two case universities based on the qualitative approach. The sample size was small and purposively selected, which limits the ability to generalize findings. However, the findings could be transferred to other universities with similar context. The other limitation is that the study focused on exploring views and perspectives of participants on the role of the university and institutional support for climate change programmes. Other issues beyond these aspects were not covered, which limits the scope of the study.

Declarations

Conflict of interest The author declares that there is no conflict of interest.

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