

# Fostering University Contribution Towards Sustainable Development Within an African Context: The Instrumentality of Indigenous Knowledge System



Marcellus Mbah and Ane Turner Johnson

1 **Abstract** Universities are often seen as drivers of change in their regions of operation  
2 through research, teaching, engagement and enterprise activities. This is significant  
3 in Africa where several universities are state owned, rely on government subsidies,  
4 and possess a mission to promote the sustainable development of the nation. While  
5 the UN sustainable development goals provide an opportunity for Africa to achieve  
6 its development targets, we examined the role of the university. More specifically,  
7 we considered the significance of Indigenous knowledge to a university's mission  
8 towards development. This is pivotal, as Africans and their institutions provide lead-  
9 ership to the transformation of their nations, not just in terms of knowledge production  
10 but also integration. We adopted a multiple case-study design that recruited partic-  
11 ipants from Zambia (N = 50) and The Gambia (N = 40) comprising academics,  
12 university managers and community members. Participants took part in relational  
13 dialogues that address the intersection between Indigenous knowledge, the univer-  
14 sity's mission and sustainable development. Findings from a comprehensive data  
15 analysis posit the need for the university in Africa to re-envision its teaching and  
16 research architectures for sustainable development. The chapter underscores that  
17 Indigenous knowledge holders should be provided space to contribute to the curricula  
18 if the teaching mission of the university would result in graduates who are suited to  
19 contribute to the continent's development with sustainable outcomes. Similarly, it is  
20 argued that Indigenous people can be co-researchers, who can identify and provide  
21 indigenised methodological insights into the investigation of complex development  
22 challenges faced by their communities.

---

M. Mbah (✉)

Nottingham Institute of Education, Nottingham Trent University, Clifton Lane, Nottingham NG11 8NS, UK

e-mail: [marcellus.mbah@ntu.ac.uk](mailto:marcellus.mbah@ntu.ac.uk)

A. T. Johnson

College of Education, Rowan University, 201 Mullica Hill Rd, Glassboro, NJ 08028, USA

e-mail: [johnsona@rowan.edu](mailto:johnsona@rowan.edu)

© The Author(s), under exclusive license to Springer Nature Switzerland AG 2021  
W. Leal Filho et al. (eds.), *Sustainable Development in Africa*, World Sustainability Series,  
[https://doi.org/10.1007/978-3-030-74693-3\\_2](https://doi.org/10.1007/978-3-030-74693-3_2)

1

## 1 Introduction

Africa as a continent is endowed with great wealth, characterised by the abundance of natural resources (Lebert 2015), with an estimated 30% of the world's recognised mineral reserves (Sharaky 2014). While the continent could be considered the envy of the world in terms of natural resources, this has also resulted in the new scramble for Africa (Pakenham 2015; Carmody 2017). However, the extreme poverty in the continent, evident by many of its nations among the poorest on the planet (Christiaenson and Hill 2019; Beegle and Christiaensen 2019) does not demonstrate the reality of the abundance of natural wealth. Income inequality; protracted conflicts; the scourging impact of climate change on different sectors such as agriculture, transport and energy; corruption; political instability; poor infrastructures; lack of good support systems; hunger and health crises are some of the challenges facing the continent with abundance of mineral deposits (Dude et al. 2016; Aryeetey et al. 2012; Coates 2020).

Regardless of the many challenges facing the continent, it can be argued that the wealth of Africa can be leveraged to promote sustainable development. Although sustainable development can be defined as development that meets the challenges of the present without compromising the ability of future generations to meet their own needs (WCED 1987), it can also be confined to achieving relevant goals such as the UN Millennium Development Goals or the ensuing Sustainable Development Goals. The attendant effect of realising these goals has the potential to transform the living conditions of Africa's masses and instead of its natural resources being seen as a liability, evident via protracted conflicts, natural hazards, corruption and slow economic growth (Van der Ploeg 2011; Scheffran et al. 2019; Adams et al. 2019; Tiba and Frikha 2020), they can be reliable assets supporting national unity, nurturing collective self-reliance, and reducing social inequalities. Although Africa made significant progress in achieving the Millennium Development Goals (MDGs), demonstrated through a galvanised effort to meet the needs of those living in extreme poverty, halting the spread of HIV/AIDS and providing access to primary education, many development targets are yet to be realised (UN 2015a).

The UN sustainable development goals provide yet an opportunity for the continent to meet many of its development priorities and given the strategic part it played in negotiating the post-2015 development agenda. The development aspiration of the continent has been captured in its Agenda 2063, adopted by the Heads of State and Governments of the African Union. This Agenda highlights inclusive growth and sustainable development that touch on poverty eradication, human capital development, improved agricultural activities and prioritising adaptation to climate change among others (UN 2015b). To realise its development targets, many authors have opined the instrumentality of Africa's home-based solutions (Shaw 2019; Ani 2019; Mngomezulu 2019). Similarly, African institutions such as their universities have been considered over the years to possess the potential and orientation to catalyse the development of the continent's economy and society (McCowan 2016; Tikly 2019; Mbah 2016). Whereas the role of higher education in fostering sustainable

66 development is foregrounded in literature (Hallinger and Chatpinyakoop 2019; Leal  
67 Filho et al. 2019; Leal Filho 2011), including the operational idea of the ecological  
68 university (Barnet 2011), there is need to continue to interrogate novel ways African  
69 universities can consider in their attempt to engender development in their region  
70 and country. This is particularly significant within the remit of home orchestrated  
71 solutions to Africa’s challenges, that seek to engage relevant knowledge holders and  
72 their knowledge-bases.

## 73 2 Engaging Indigenous Knowledge (IK) for Sustainable 74 Development

75 The idea of engaging IK for sustainable development can be nested in the concep-  
76 tual notion of the ecological University propounded by Ronald Barnett. Barnett  
77 (2011) suggested that an ecologically driven university, unlike the entrepreneurial  
78 and managerial university models proliferating the world, is characterised as one  
79 ‘for others’ (452), reflective of Ubuntu philosophies, often associated with shared  
80 responsibilities and communal solidarity (Ramose 2004; Waghid 2014). According  
81 to Barnett (2011), the ecological university takes the form of “an engaged university, a  
82 critical and an enquiring university and a university-for-development, acting to put its  
83 resources to good effect in promoting world well-being” p. 452. While it is not clear  
84 how the ecological university can engage for development within an African context,  
85 it is worth noting that most African universities capture a development agenda for  
86 their regions in their mission statements. This overarching development mandate of  
87 African Universities was equally captured in the mission statement of the Association  
88 for African Universities: “to enhance the quality and relevance of higher education  
89 in Africa and strengthen its contribution to Africa’s development”. This statement is  
90 consistent with many considerations of African universities’ potential to foster the  
91 continent’s development (Coleman 1994; Teferra and Altbach 2004; Sawyerr 2004;  
92 Preece et al. 2012). A notable voice is that of the former UN Secretary General Kofi  
93 Annan, who asserted that “the university must be a primary tool for Africa’s devel-  
94 opment in the new century” (Annan in United Nations Information Service (2000),  
95 cited by Bloom et al. 2006, p. 4). Similarly, different authors have pointed to the rela-  
96 tionship between universities and communities in Africa via increasingly concrete  
97 engagement policy orientation (Mtawa et al. 2015); as partners in peace (Johnson  
98 2019); through an indigenized curriculum (Dei 2014); Africanisation (Preece 2013);  
99 and through an institutionalized Ubuntu framework (Mbah 2016).

100 Dei (2014) conceived of the university as an African Academy in which academic  
101 excellence is context-specific, anti-colonial (see also Dei 2013), community engaged  
102 through reflexivity, and, most importantly, epistemically indigenous. Engagement  
103 with Indigenous communities within the structure of higher education, or what some  
104 refer to as the Africanisation of higher education, ‘emphasizes the importance of  
105 rethinking development and changing educational policies in order to take account of

106 local curriculum with local values, local culture and local languages' (Babaci-Wilhite  
 107 2015, 18). An Indigenous, co-generative epistemology is critical to the reconsideration  
 108 of higher education as a development actor in Africa. So called modern, western,  
 109 northern, minority world, or developed notions of development and the theory and  
 110 discourse backing such notions have been fundamentally insolvent. It can be argued  
 111 that "the lack of respect for local or Indigenous knowledge and the assumption by  
 112 many Western scientists about the superiority of Western epistemology and scientific  
 113 discourse is a serious obstacle to sustainable development in light of their apparent  
 114 failure to meet human development needs" (Breidlid 2009, 142).

115 The ecological premise of an African university cannot overlook the role of Indige-  
 116 nous knowledge holders and their knowledge-base as it positioned itself to promote  
 117 sustainable development in the continent. It can also be maintained that interven-  
 118 tions designed to address the development needs of a given people or community  
 119 should adopt an engagement approach that would capture and respect the views of  
 120 those living within that environment, if such interventions are not be considered an  
 121 intrusion by the locals, irrespective of the good intentions. This justifies the United  
 122 Nations' emphasis on inclusion of Indigenous peoples and local communities in  
 123 achieving different sustainable development goals (Kaya 2014; Magni 2017). In this  
 124 light, the university can institutionalize mechanisms to overturn bankrupt develop-  
 125 ment discourses and schemes via authentic engagement with Indigenous knowledge  
 126 and align its mission toward sustainability. While notions of sustainable development  
 127 have been present in African Indigenous knowledge and understanding for genera-  
 128 tions, connecting balanced use of natural resources to social harmony (Mawere and  
 129 Awuah-Nyamekye 2015) for instance, the university can also leverage on this form  
 130 of knowledge to foster its outreach mission.

### 131 3 Contextual Background

132 The study that underpins this chapter focused on two countries not commonly  
 133 addressed in the African education literature, namely: Zambia and The Gambia.  
 134 Two public universities were examined, because they are often guided by and evalu-  
 135 ated on their contribution to sustainable development. Additionally, each country  
 136 claims many Indigenous communities and cultures.

#### 137 *Zambia*

138 Located in Southern Africa (see Fig. 1) and a member of the Southern Africa Devel-  
 139 opment Community (SADC), Zambia is a country of over 16 million people, claiming  
 140 diverse ethnicities. The country is a Lower Middle-Income Country (LMIC), whose  
 141 economy relies heavily on copper mining exports. The brunt of climate change  
 142 was felt in the country recently, because of an increase in temperature and more  
 143 extreme weather events. These events negatively impacted the management of natural  
 144 resources and the agricultural sector, which are key aspects of the economy.



**Fig. 1** Map of Africa, showing the location of Zambia

145 The public university of interest in the research that underpins this chapter was  
146 the University of Zambia (UNZA), established in 1966 to respond to the shortage  
147 of skilled manpower and development needs of the country (Chipindi and Vavrus  
148 2018). The student body at UNZA has grown tremendously ever since the founding  
149 of the institution, with an estimated number of around 30,000 as at the 2018/19  
150 academic year. There is also an estimated academic workforce of 802 and 2,000  
151 administrative staff members. Although the country boasts over 70 languages and  
152 dialects, the official language of instruction is English.

153 ***The Gambia***

154 The Gambia is located in the Economic Community of West African States  
155 (ECOWAS) (see Fig. 2), with a dense population of 2 million people (176 people per  
156 square kilometre), belonging to the Manidaka (34%), the Fula (24%), Wolof (15%),  
157 and Jola (10%) ethnic groups, among others, 57% of which live in urban or peri-urban  
158 centres (World Bank 2020). According to the United Nations Human Development  
159 Index, The Gambia ranks below most African countries and sits at 174 out of 189  
160 countries in the world in terms of human development (UNDP 2019). The economy  
161 relies heavily on agricultural exports (predominantly peanuts), employing more than  
162 68% of the workforce. Due to climate change, The Gambia has experienced changing  
163 weather patterns, drier conditions, excessive salinity in the river, coastal erosion, and  
164 increased temperatures.



**Fig. 2** Map of Africa, showing the location of The Gambia

165 The public university of interest in The Gambia at the nexus of this paper is The  
 166 University of The Gambia, established by an Act of the National Assembly of The  
 167 Gambia in March 1999. In the country's National Development Plan (2018–21), the  
 168 university has a mission to promote equitable and sustainable socio-economic devel-  
 169 opment of communities through relevant, high-quality gender-sensitive teaching,  
 170 research and outreach programmes. It has also been mandated to develop its informa-  
 171 tion and communication technologies infrastructure as a driving force for the educa-  
 172 tion of more people rapidly and for the improvement of the efficiency and academic  
 173 quality associated with the goals of poverty alleviation and national development.

#### 174 **Methods and Cross-Case Analysis**

175 The research employed a collaborative, exploratory multiple case study design (Stake  
 176 2013). After receiving ethical clearance from each university, semi-structured inter-  
 177 views and talking circles were the main instruments for data collection. These  
 178 entailed responsive and relational dialogues (Chilisa 2012) with academics engaged  
 179 in community-based research, community counterparts and university managers that  
 180 support the research mission of the institution (Table 1). These dialogues were flexible  
 181 enough to allow for serendipitous moments (Simons 2009).

**Table 1** Project participants, total

University	Academics	Managers	Community members
University of Zambia	22	12	16
University of the Gambia	17	11	12

182 Conversation with academics and university managers centred on their under-  
 183 standing of Indigenous knowledge, community-based research, sustainable devel-  
 184 opment, and structures that support the university’s engagement with Indigenous  
 185 knowledge and practices for sustainable development. Essentially, the dialogues  
 186 which lasted between 30 min—1 h, were structured to place the participants’ exper-  
 187 tise and experience at the centre of the engagement. Community counterparts who  
 188 participated in the research were recruited via relevant university contacts due to their  
 189 engagement in community-based research projects. They were asked about their roles  
 190 in the community, participation in research, and what they have shared about their  
 191 practices with researchers. The implementation of talking circles with community  
 192 members was appropriate as “in African contexts and among [I]ndigenous peoples,  
 193 there are many occasions when people form a circle...and given a chance to speak  
 194 uninterrupted” (Chilisa 2012, p. 213). Such a context encourages idea sharing, togeth-  
 195 erness, respect, and equality of members (2012). Not unsimilar to focus groups,  
 196 talking circles replicated the Bantaba found in The Gambia, where men in the  
 197 community meet in a public place (often around a large tree) to discuss commu-  
 198 nity business. In our methods, however, we were sensitive to gender issues in each  
 199 country and systematic in creating circles that were gender segregated and represen-  
 200 tative. Given that a majority of community participants could not speak English, the  
 201 data collection process was aided by an interpreter. Interviews and talking circles  
 202 were recorded and later transcribed.

203 The process of data analysis started with coding within and between cases. The  
 204 initial phase involves using coding to parse the data or taking the data corpus apart  
 205 in order to make sense of the whole (Stake 1995). Initially, we captured concep-  
 206 tual phrases and participant-driven examples consistent with the research ques-  
 207 tions (Saldaña 2016). This phase of coding focused on defining concepts such as  
 208 Indigenous knowledge, community-based research, and sustainability, and generat-  
 209 ing examples, connecting to institutional support frameworks, and matching with  
 210 participant experiences. The next phase of analysis entailed pattern coding that  
 211 grouped the structural codes into a smaller number of categories, effectively reducing  
 212 the data into analytic units, to facilitate emerging explanations of the case (2016).

213 It was essential that we also isolated participant stories and examples from the  
 214 corpus to exemplify the analysis. Simpson asserts that ‘stories formed in everyday  
 215 conversation, which may include those generated in research processes, are directly  
 216 linked to the experience of organisational members and their desire to account for and  
 217 make sense of their lives’ (p. 94–95). Finally, we focused on constructing the cases

218 by using categorical aggregation to put the parts of the corpus deconstructed during  
 219 coding back together to create a whole (Stake 1995) and provide an opportunity for  
 220 an in-depth interpretation of the phenomenon under investigation. In the ensuing  
 221 findings, we represent the cases in the form of naturalistic generalisations (1995).  
 222 Furthermore, we supported the findings with the use of participant stories and thick  
 223 descriptions (Ponterotto 2006) to illustrate aspects of the cases in our work. We  
 224 present a description of our major findings based on this analysis:

## 225 4 Findings

226 Data analysis resulted in two important findings. These capture the significance of  
 227 Indigenous knowledge (IK) to sustainable development and legitimisation of IK for  
 228 sustainable development by the university. Insights into these findings have been  
 229 presented below:

### 230 **The Significance of Indigenous Knowledge (IK) to Sustainable Development**

231 To understand our participants' perception of the significance of IK to sustainable  
 232 development, it was needful to capture their definition of the key concept. Their  
 233 responses subsequently reveal a great deal of variety of insights on what indigenous  
 234 knowledge represents to them. An academic at the University of The Gambia noted:

235 Well, Indigenous knowledge by my understanding simply means knowledge that is native to  
 236 a particular environment or locality, and not just any knowledge. It is a functional knowledge  
 237 because that is what is keeping the community... So, certainly, those people have one form  
 238 of knowledge or the other, which they have been using to move their enterprise over the  
 239 years. Basically, they have some knowledge which we can always fall back on and we can  
 240 also use as a baseline for any other thing we want to do

241 Given this assertion, a few insights come to the fore. These include Indigenous  
 242 knowledge being localized and the knowledge holders reside in a specific geographical  
 243 community. It is also functional, in that, it forms part of a peoples' cultural capital  
 244 and informs their way of life, that has been passed from one generation to the other.  
 245 A few participants also noted its distinctiveness from other forms of knowledge.  
 246 Some contrasted and disengaged IK from "Western" knowledge, while others identified  
 247 a complementary evolution between scientific knowledge and IK, and many  
 248 focused on its context, temporality, history and dissemination of that knowledge. The  
 249 following participants posited:

250 You know the problem with the Indigenous knowledge is, it cannot be used to explain some  
 251 things to you. But, if you really think scientifically with your scientific background you can  
 252 easily see the reason why it happened. For example, in The Gambia, it is a tradition, common  
 253 in all the communities, that do not graze your animals early in the morning. They believe if  
 254 you do it, the animals will be sick. Scientifically, some worms or larvae, early in the morning  
 255 are on the leaves and are active. When animals graze early in the morning, they ingest the  
 256 larva and the worms develop in their systems. The farmers wait until when the sun is out;  
 257 that sun desiccates those larvae and they die or fall off, and that's the time it's safer for the



258 animals to graze. But they will not be able explain all these parasitology stuff to you. But  
 259 you have to use your own knowledge and relate to whatever they do. (An academic in The  
 260 Gambia)

261 Okay now, in the first place these terms are terms that you also need to very careful with  
 262 because during the colonial system, the local knowledge was given very negative represen-  
 263 tation. When you call it native education, native was taken in a very negative connotation  
 264 and so is indigenous. So quite a number of times when you are using these terms, you are  
 265 already [devaluing] that knowledge because of that history. (An academic in Zambia)

266 I think this is knowledge that people have which has nothing to do with maybe foreign  
 267 knowledge for example; knowledge that people have used from time immemorial is what  
 268 Indigenous knowledge is. It has nothing to do with western knowledge. (An Academic in  
 269 Zambia)

270 What often pervaded these definitions was intangibility: IK was also difficult to  
 271 *identify* due to dissemination practices, fatigue, trust, secrecy, and inhibited access  
 272 by community members. Community members underscored these issues, suggesting  
 273 that researchers engaged in community-based projects that furthered distrust:

274 The farmers would tell the researcher to, say, you know we are facing this type of problem,  
 275 but when they go back when they go to their centres after doing the research usually they  
 276 don't come back and report to say you can solve these problems by these and these, they  
 277 don't come back. (A community member in Zambia)

278 There was an awareness of this problem among university administrators as well:

279 We need to have better trust developed between universities and the communities where this  
 280 information is coming from because the minute those people will know that you are there to  
 281 milk them of what they know then disappear, you are cutting the very source of that, so we  
 282 need to develop better mechanisms of ensuring that the information is flowing but also the  
 283 community is benefiting from what they had. (A university manager in Zambia)

284 Clearly, these participants pointed to the need for transparency, predicated on  
 285 effective communication and sensitization of Indigenous knowledge holders if their  
 286 knowledge systems are to be accessed for sustainable development. The insights from  
 287 participants denote that Indigenous knowledge holders may be hesitant to communi-  
 288 cate with someone they consider a stranger, and should the researcher wants to access  
 289 their knowledge, the individual may consider spending extended time with the indi-  
 290 genes to build rapport and breach any cultural gap. An academic at the University of  
 291 Gambia noted:

292 I do a lot of sensitization, you have to know their culture, you have to make sure that they  
 293 accept you, you have to accept them, then you will be able to have those. And, you must  
 294 go and stay with them, get involved in their social activities and things like that, then we'll  
 295 be able to know some of the things. Because, the moment they trust you, they invite you to  
 296 their places, saying "come and see this, this is what I do".

297 This participant's account posits that as relationship is established and trust is  
 298 built, access to Indigenous knowledge and practices can be given. Potentially, the  
 299 resultant effect on any development endeavour can be maximised. Mostly, partic-  
 300 ipants noted that IK is the gateway to sustainable development and provides the  
 301 baseline of any project in terms of identifying what community needs are, ongoing

302 solutions/interventions and gaps that need to be addressed. The following participants  
303 asserted:

304 To be honest, if we are truly serious about sustainable development, if we want development  
305 to be sustainable (yeah), obviously, it has to make use of Indigenous knowledge, it has to  
306 make use of Indigenous links and networks, only then it will succeed. (An academic in  
307 Zambia)

308 I think is very important because you can't develop a people if you don't understand the  
309 knowledge they have about development. Indigenous people have a knowledge regarding  
310 development. They may not be comfortable wearing clothes; they may be comfortable  
311 wearing their lace animal skin and all that stuff, and you may ask yourself but why? You go  
312 there and carry out research, and they may tell you that the weather here is so hot that they  
313 can only feel comfortable in patches of animal skin, so that when the wind blows, it can keep  
314 them cold and fresh all the time. (An academic in The Gambia)

315 Given these assertions, it can be argued that Indigenous knowledge holders and  
316 their knowledge-base are crucial to any development endeavours, especially if the  
317 outcomes are to be sustainable. The role of IK in any development architecture does  
318 not lie in Indigenous knowledge holders providing legitimacy to their knowledge  
319 systems as it has served them over the years and therefore its validity can be estab-  
320 lished. However, it can be argued that the onus lies with the university to give IK  
321 legitimacy or the pride of place it deserves in its development mission.

### 322 **Legitimization of Indigenous Knowledge for Sustainable Development** 323 **by the University**

324 During the enquiry process, many participants noted that although Indigenous knowl-  
325 edge is instrumental for sustainable development, it has not been given a prime place.  
326 According to participants, it is considered inferior to other forms of knowledge. A  
327 participant put it this way: "So you are looked down upon and you are not taken  
328 seriously and that's another challenge if you are into African Indigenous knowledge  
329 systems and even you publishing that... I don't think people will take you serious"  
330 (An academic in Zambia). While definable and significant, participants expressed  
331 concern over the legitimacy of IK in academia and noted that it should be recognised  
332 in every facet of a university mission, notably, teaching and research.

#### 333 *Teaching Indigenous Knowledge for Sustainable Development*

334 Despite the challenges associated with engaging IK, efforts can be made to incorpo-  
335 rate it into the teaching and learning mission of the university, increasing its relevance  
336 to students and the community. A participant highlighted the fact that students being  
337 trained at the University are going to increase the work force of the nation and will  
338 be serving different communities, as such it is expedient that they understand the  
339 context of Indigenous knowledge for easy integration:

340 Let me start by talking about the university structure and the education structure. You see,  
341 we are training our students, our graduates to have an impact on the community, alright.  
342 So we are not training them for export to Europe, we are training to have an impact on  
343 the community... I think its strongly important for our students to understand the contexts  
344 of Indigenous knowledge, we should highlight this kind of knowledge as we teach. (An  
345 academic in Zambia)

346 Another participant noted that in order to understand abstract concepts or western  
347 forms of knowledge, there is need to start with a deconstruction and create space for  
348 local knowledge which can be used to cast meaning on other forms of knowledge or  
349 render them relevant to local contexts:

350 So, here, we have the advantage of tapping or buying into the Indigenous knowledge available  
351 and seeing how we can use it to adapt to the environment we find ourselves. There was a  
352 time I proposed the idea of bringing in the study of Indigenous culture into our curriculum,  
353 especially in my own field of sociology. We have a lot to read, we have a lot to learn  
354 from that area. Basing everything on Western system of knowledge hardly contribute to our  
355 understanding. What we can only do is borrow the knowledge, contextualize it to our own  
356 situation. (A university manager in The Gambia)

357 While so little precedent exists for steering on how to institutionalize indigenous  
358 knowledge in a university teaching mission. A participant pointed to a context at the  
359 University of Zambia.

360 I think we need to train a new cream of students to appreciate their own Indigenous knowl-  
361 edge, similar to the way we have done it here at the University of Zambia. We have estab-  
362 lished a new program on Zambian Cultures and Ceremonies (ZCC). So, the intention of that  
363 program is to train a new cream of youths to appreciate their own cultures. (An Academic  
364 in Zambia)

365 As the university institutionalized IK in its curriculum, it can be considered an act  
366 of legitimisation and cooperation with different knowledge holders in the community  
367 can flourish for sustainable development.

#### 368 *Researching with Indigenous Knowledge Holders for Sustainable Development*

369 It was noted during fieldwork that a few academics engage in different forms of  
370 research among Indigenous people. While it may be a laudable initiative to research  
371 Indigenous people and different issues in their contexts, this can also result in some  
372 forms of resentment against researchers. Many participants posit that there was  
373 distrust between the researched and researchers, and this was because local people  
374 are often not part of framing the research protocols. Some of the participants consid-  
375 ered themselves being used and abandoned without due access to research findings.  
376 In order to address this unease between both parties, a participant noted that local  
377 people should also be considered as researchers:

378 We know that Indigenous people, they do their own research through observation, experi-  
379 mentation, trial and error. There are different types of research methods that are being used  
380 by Indigenous people to come up with their own form of knowledge. For instance, you see  
381 the Indigenous people, they can predict the time as to when it is going to rain. Over time  
382 and through observation, they may say that, "okay, when a particular bird cries, it shows that  
383 rain will soon come". Over time, they've observed, and they know that this is true. When it  
384 comes to farming, they know that the intercropping of certain crops can improve the yield.  
385 They have known this through experience. (An academic in The Gambia)

386 Insight into the data reveals that as co-researchers or investigators, Indigenous  
387 people can articulate community problems that need attention, as well as the appropri-  
388 ate methodology that will be best suited in each context, and in addressing issues  
389 of concern to them. Once they are part of an entire research process, including the  
390 data analysis, they will be privy to research findings. A participant revealed:

391 Indigenous knowledge in my research has been a source of problem identification because  
 392 often Indigenous knowledge is not reflected in conventional knowledge and in policies. The  
 393 second part is that Indigenous knowledge has helped to define my research methodology.  
 394 For instance, you can read a book that states that a focus group discussion should have no  
 395 more than eight persons and then in the field, people wondered and say “but this guy, does  
 396 he really know that actually in this rural area you cannot chase someone away from a group  
 397 discussion, because we are one and live as a community?”. (An academic in Zambia)

398 Given this account, it can be asserted that for the research mission of the university  
 399 to yield sustainable outcomes, Indigenous knowledge holders should be involved in  
 400 every stage of the research process, that is, from conceptualization, to design and to  
 401 implementation. Another participant exhorted:

402 Most development interventions in Africa are not sustainable for the fact that somebody will  
 403 sit in DC and think that they know what the local people want... they know what needs to  
 404 be done for local people. That is why they're not sustainable. Now for development to be  
 405 sustainable especially the SDGs, for example, education, health; for them to be sustainable,  
 406 we need to involve local communities not only in the design phase, but also the imple-  
 407 mentation phase. Their knowledge is key, because they understand more the issues that are  
 408 important to them. They understand the historical and cultural contexts. (An Academic in  
 409 Zambia)

410 By including indigenous people in every process of a university's research mission  
 411 aimed towards sustainable development, participants also argued that this can be  
 412 empowering to local people, as it gives them a sense of agency and ownership of  
 413 their development.

## 414 5 Discussion

415 Similar to participants' understanding, Indigenous knowledge has been defined in  
 416 varying ways—with no consensus of a universal thought, especially given its interdis-  
 417 ciplinary nature (Battiste 2005; Daes 1993). Notwithstanding, it has been associated  
 418 to a native way of knowing (Semali et al. 2002) and an embodiment of the historical  
 419 experiences of a people over time and which has informed their way of life, enhance  
 420 community cohesion and provided solution or coping mechanisms toward societal  
 421 and environmental challenges (Katerere et al. 2019). However, some participants  
 422 were of the opinion that IK being referred to in a particular way such as being native,  
 423 draws a negative connotation of primitivity and rejection. Other authors maintain  
 424 a similar line of thought by asserting that some of the challenges associated with  
 425 Indigenous knowledge are the continuing marginalisation, devaluation, primitiviza-  
 426 tion, domination, rejection, subjugation, invalidation and exclusion by Eurocentric  
 427 scholars and western oriented actors (Dei 2002; Shava 2013). However, it can be  
 428 argued that one cannot disentangle the Indigenous knowledge systems of a people  
 429 from what they may consider to be sustainable development, disease prevention, and  
 430 food provision. It forms part of their individual and collective identity and memory,  
 431 can cement their social, as well as cultural capital, and provide communities with

432 a sense of resilience in the face of adverse conditions. It could also be argued that  
 433 this form of knowledge underlies the South African philosophy of Ubuntu, one  
 434 of solidarity and shared humanity (Mbah and Fonchingong 2019; Muwanga-Zake  
 435 2009).

436 Given that IK is a knowledge system that is being passed down from one generation  
 437 to another (Banda and Banda 2018; Daes 1993; Semali and Kincheloe 2002), it is not  
 438 static but dynamic (Dei et al. 2002; Shava 2013, Masuku Van Damme and Neluvha-  
 439 lani 2004). It is adaptable (Dei 2008) and renewable (Katerere et al. 2019). Research  
 440 participants were emphatic in their view that development cannot be sustainable  
 441 without a significant hold on IK. Similarly, scholars on IK have pointed out the issues  
 442 with Eurocentric or western epistemologies as incapacitated to generate sustainable  
 443 solution to global crises without engaging other forms of knowledge (Shiva 1993;  
 444 Shava 2013). It has been recognised that development initiatives that capture Indige-  
 445 nous inputs and ways of life are more prompted to generate sustainable solutions  
 446 and meet people's needs (Sillitoe 1998). Notwithstanding, there is need for a consci-  
 447 entized empowerment of Indigenous knowledge holders as they present alternative  
 448 ways of looking at and understanding development. Katerere et al. (2019) assert that  
 449 they present alternative epistemologies and therefore, IK needs to be move from the  
 450 margins of sustainable development architecture to its core. Notably, IK can mean-  
 451 ingfully inform the fundamental elements of teaching and research architectures of  
 452 the university towards achieving sustainable development in Africa.

#### 453 *Re-envisioning the Teaching Architecture of the University for Sustainable Develop-* 454 *ment*

455 A key facet of the marginalization of Indigenous knowledge in Africa is that it is not  
 456 recognised in dominant curricula across different disciplines as they are heavily Euro-  
 457 centric or westernized. The attendant outcome of such marginalization by fuelling  
 458 the curriculum with what is not relevant to the people of Africa is the impediment  
 459 of development. As African universities envision their role to educate development  
 460 agents of the future, a scrutiny of the content of the curriculum is needed. Chilisa  
 461 (2017) affirms that 'African scholars, and academia as a whole, need to contest the  
 462 role that colonization, imperialism, and its new form of globalization continue to play  
 463 in suppressing and silencing knowledge systems of formerly colonized, historically  
 464 marginalized, and oppressed groups' (p. 814). By indigenizing the curriculum or  
 465 reclaiming space for Indigenous knowledge in the teaching element of the academy,  
 466 university students, who are potential agents of change can be impacted with rele-  
 467 vant knowledge for the sustainable development of their communities. Therefore,  
 468 the curriculum can be realized with inputs from Indigenous knowledge holders, with  
 469 no inferior consideration of their knowledge system.

470 While it can be argued that Africa's Indigenous knowledge system is not homoge-  
 471 nous and therefore one form that pertains to a certain culture or community cannot  
 472 be generalized (Ndofirepi and Gwaravanda 2019), the academy can work with domi-  
 473 nant forms to provide a steerage or exemplar in teaching IK for sustainable develop-  
 474 ment. Although there are growing voices calling for the deconstruction of western-  
 475 ized curriculum for sustainable development in Africa, with some traces of ongoing

476 practices, more needs to be done (Ndofirepi and Gwaravanda 2018; Mawere 2015;  
477 Emeagwali and Dei 2014). An awareness of the significance of teaching Indigenous  
478 knowledge for sustainable development needs to be intensified. As existing courses  
479 are being enriched with content on IK, universities can also create short courses  
480 or professional modules on Indigenous knowledge that address specific sustainable  
481 development goals as these can appeal to different stakeholders or sectors of the  
482 wider community. Support opportunities for module, course or programme devel-  
483 opers on the intersection between Indigenous knowledge systems and sustainable  
484 development in Africa can also be established to share best practices and boost  
485 continuity.

#### 486 *Re-envisioning the Research Architecture of the University for Sustainable Develop-* 487 *ment*

488 As African universities exercise their mission as catalysts of sustainable develop-  
489 ment, they must rethink how they conduct themselves in Indigenous communities.  
490 Any sustainable outcome of development must be predicated on trust and respect of  
491 Indigenous knowledge holders and their knowledge system. Some research partic-  
492 ipants decried how university researchers often use them to gain vital knowledge  
493 during fieldwork, without returning to the local community to communicate their  
494 findings, thereby fuelling distrust. Similarly, other authors have opined that Indige-  
495 nous knowledge have been engulfed by western knowledge without due credit to the  
496 knowledge provider (Hountondji 2002; Akena 2012; Shava 2013). Given that the  
497 value system in communities where Indigenous knowledge thrive is encapsulated by  
498 relational existence and shared respect, a form of legitimacy is needed for African  
499 universities to maximize IK in their contribution towards sustainable development.

500 It is important for Indigenous people to own the research aimed at their devel-  
501 opment. By owning the research, the reasoning is not on single handed conceptual-  
502 ization of research ideas, implementation of research methodologies and diffusion  
503 of research findings but in the context of coevolution or cocreation of knowledge.  
504 As research participants noted, Indigenous knowledge holders are researchers them-  
505 selves and primarily through observation and experimentation over the years, they  
506 have been able to validate or evidence certain occurrence in agriculture, medicine,  
507 climate change, food security, governance and conflict resolution among others.  
508 Therefore, it is fitting for Indigenous people not to be restricted to the periphery of  
509 research or deciding what challenges in their context need addressing for optimal  
510 sustainable development but should also be part of the entire research process and  
511 contributing indigenized methodologies and approaches (Chiliba 2012; Banda and  
512 Banda 2018). This involvement as coresearchers can be empowering to Indige-  
513 nous knowledge holders by unleashing their potential to be owners and drivers of  
514 their own destiny. It can rightly be observed that people cannot be developed; they  
515 can only develop themselves by exercising a sense of ownership over processes or  
516 projects aimed toward their development. As university research becomes increas-  
517 ingly pivotal for sustainable development in Africa, new ways of conducting research  
518 are needed (Waas et al. 2010). Consequently, we argue that new forms of research to

519 aid sustainable development in Africa must be rooted in Indigenous leadership and  
520 epistemologies.

## 521 6 Conclusion

522 In this chapter, we have drawn attention to the fact that African universities have  
523 been considered as engines of change to pilot the continent's development in the  
524 new millennium. This position has been echoed in the mission statements of most  
525 African universities, including the Association of African Universities (AAU). As  
526 the UN sustainable development goals provide an opportunity for Africa to realize  
527 its development targets, we brought to the fore, the idea of the ecological university  
528 propounded by Barnett (2011). Drawing on inputs from research participants, we  
529 examined the instrumentality of a University's teaching and research missions to  
530 sustainable development and what difference Indigenous knowledge can bring to  
531 bear. Following a cross case analysis, a number of key lessons can be learnt. Firstly,  
532 it can be ascertained that development cannot be sustainable without incorporating  
533 and acting on the inputs from the intended beneficiaries of development. Therefore,  
534 it is needful to legitimize Indigenous knowledge systems in the academy via a re-  
535 envisioning of the university's teaching and research architectures. Secondly, it can  
536 be posited that space must be reclaimed in the curricula for inputs from Indigenous  
537 knowledge holders if the teaching mission of the university must produce the needed  
538 human capital to stimulate the continent's development drives. Thirdly, indigenous  
539 people are researchers, who can participate as co-investigators to identify and provide  
540 indigenized methodological insights into the study of complex issues faced by their  
541 communities. Finally, it can be affirmed that Indigenous knowledge systems and  
542 sustainable development in Africa are inseparable and therefore, any future prospect  
543 to frame and firm-up development architectures in Africa must be predicated on  
544 mutual respect and trust. These virtues should be underscored in any joined venture  
545 between Indigenous knowledge holders and the academy in Africa for sustainable  
546 development.

## 547 References

- 548 Adams D, Adams K, Ullah S, Ullah F (2019) Globalisation, governance, accountability and the  
549 natural resource 'curse': implications for socio-economic growth of oil-rich developing countries.  
550 Resour Policy 61:128–140
- 551 Akena FA (2012) Critical analysis of the production of Western knowledge and its implications for  
552 Indigenous knowledge and decolonization. J Black Stud 43(6):599–619
- 553 Ani NC (2019) Three schools of thought on "African Solutions to African Problems." J Black Stud  
554 50(2):135–155
- 555 Aryeetey E, Devarajan S, Kanbur R, Kasekende L (eds) (2012) The Oxford companion to the  
556 economics of Africa. Oxford University Press, New York

- 557 Babaci-Wilhite Z (2015) Local languages as a human right in education: comparative cases from  
558 Africa. Sense Publishers, Leiden
- 559 Banda F, Banda D (2018) Framing theoretical/conceptual frameworks and research processes  
560 in African indigenous knowledge systems and everyday experiences. *Excellence in Higher*  
561 *Education*
- 562 Barnett R (2011) The coming of the ecological university. *Oxf Rev Educ* 37(4):439–455
- 563 Battiste M (2005) Indigenous knowledge: foundations for first nations. *WINHEC: Int J Indig Educ*  
564 *Scholarsh* (1), 1–17
- 565 Beegle K, Christiaensen L (eds) (2019) Accelerating poverty reduction in Africa. The World Bank,  
566 Washington D.C.
- 567 Bloom DE, Canning D, Chan K (2006) Higher education and economic development in Africa, vol  
568 102. World Bank, Washington, D.C.
- 569 Breidlid A (2009) Culture, Indigenous knowledge systems and sustainable development: a critical  
570 view of education in an African context. *Int J Educ Dev* 29(2):140–148
- 571 Carmody P (2017) The new scramble for Africa. Polity Press, Cambridge
- 572 Chilisa B (2012) Indigenous research methodologies. SAGE, Thousand Oaks
- 573 Chilisa B (2017) Decolonising transdisciplinary research approaches: an African perspective for  
574 enhancing knowledge integration in sustainability science. *Sustain Sci* 12(5):813–827
- 575 Chipindi FM, Vavrus F (2018) The ontology of mention: contexts, contests, and constructions of  
576 identity among University of Zambia faculty. *FIRE: Forum Int Res Educ* 4(3):135–150
- 577 Coates SJ, Enbiale W, Davis MD, Andersen LK (2020) The effects of climate change on human  
578 health in Africa, a dermatologic perspective: a report from the international society of dermatology  
579 climate change committee. *Int J Dermatol* 59(3):265–278
- 580 Coleman JS (1994) Nationalism and development in Africa: selected essays. Univ of California  
581 Press
- 582 Christiaensen L, Hill R (eds) (2019) Poverty in Africa. The World Bank, Washington D.C.
- 583 Daes EIA (1993) Study on the protection of the cultural and intellectual property of indigenous  
584 peoples. Special Rapporteur of the UN Sub-Commission on Prevention of Discrimination and  
585 Protection of Minorities and Chairperson of the Working Group on Indigenous Populations.  
586 <https://www.refworld.org/docid/3b00f4380.html>. Accessed 21 Sep 2020
- 587 Dei G (2002) Rethinking the role of Indigenous knowledge in the academy. Lecture paper presented  
588 at the studies in national and international development. Queen's University, Kingston, Ontario
- 589 Dei SGJ, Hall BL, Rosenberg DG (2002) Indigenous knowledges in global contexts: multiple  
590 readings of our world. University of Toronto Press, Toronto
- 591 Dei GJS (2008) Indigenous knowledge studies and the next generation: pedagogical possibilities for  
592 anti-colonial education. *Aust J Indig Educ* 37(1):5
- 593 Dei GJS (2014) Indigenizing the curriculum: the case of the African university. African indigenous  
594 knowledge and the disciplines. Sense Publishers, Leiden, pp 165–180
- 595 Dei GS (2013) Critical perspectives on indigenous research. *Socialist Studies/Etudes socialistes*
- 596 Dube T, Moyo P, Ncube M, Nyathi D (2016) The impact of climate change on agro-ecological  
597 based livelihoods in Africa: a review. *J Sustain Dev* 9(1):256–267
- 598 Emeagwali G, Dei GJS (2014) African indigenous knowledge and the disciplines. Sense Publishers,  
599 Rotterdam
- 600 Hallinger P, Chatpinyakoo C (2019) A bibliometric review of research on higher education for  
601 sustainable development, 1998–2018. *Sustainability* 11(8):2401
- 602 Hountondji PJ (2002) Knowledge appropriation in a post-colonial context. Indigenous knowledge  
603 and the integration of knowledge systems: towards a philosophy of articulation, pp 23–38
- 604 Johnson AT (2019) University infrastructures for peace in Africa: the transformative potential of  
605 higher education in conflict contexts. *J Transform Educ* 17(2):173–194
- 606 Katerere DR, Applequist W, Aboyade OM, Togo C (eds) (2019) Traditional and indigenous  
607 knowledge for the modern era: a natural and applied science perspective. CRC Press, Boca  
608 Raton



- 609 Kaya HO (2014) Revitalizing African indigenous ways of knowing and knowledge production.  
610 Restoring indigenous self-determination, p 105
- 611 Leal Filho W (2011) About the role of universities and their contribution to sustainable development.  
612 High Educ Policy 24(4):427–438
- 613 Leal Filho W, Salvia AL, Pretorius RW, Brandli LL, Manolas E, Alves F, Azeiteiro U, Rogers  
614 J, Shiel C, Do Paco A (2019) Universities as living labs for sustainable development. World  
615 Sustainability Series
- 616 Lebert T (2015) Africa: a continent of wealth, a continent of poverty. New Int 24
- 617 Lockwood Commisison (1963) The report on the development of a university in Northern Rhodesia  
618 (Zambia). Lusaka, Government Printer
- 619 Magni G (2017) Indigenous knowledge and implications for the sustainable development agenda.  
620 Eur J Educ 52(4):437–447
- 621 Mawere M (2015) Indigenous knowledge and public education in sub-Saharan Africa. Afr Spectr  
622 50(2):57–71
- 623 Mawere M, Awuah-Nyamekye S (eds) (2015) Between rhetoric and reality: the state and use of  
624 indigenous knowledge in post-colonial Africa. Bamenda, Langaa RPCIG
- 625 Mbah MF (2016) Towards the idea of the interconnected university for sustainable community  
626 development. High Educ Res Dev 35(6):1228–1241
- 627 Mbah M, Fonchingong C (2019) Curating indigenous knowledge and practices for sustainable  
628 development: possibilities for a socio-ecologically-minded university. Sustainability 11(15):4244
- 629 McCowan T (2016) Universities and the post-2015 development agenda: an analytical framework.  
630 High Educ 72(4):505–523
- 631 Mngomezulu BR (2019) Revisiting the notion of ‘African solution to African problems’: successes  
632 and challenges. J Afr Union Stud 8(2):9–23
- 633 Mtawa NN, Fongwa SN, Wangenge-Ouma G (2016) The scholarship of university-community  
634 engagement: interrogating Boyer’s model. Int J Educ Dev 49:126–133
- 635 Muwanga-Zake JW (2009) Building bridges across knowledge systems: Ubuntu and participative  
636 research paradigms in Bantu communities. Discourse: Stud Cult Polit Educ 30(4):413–426
- 637 Ndofirepi AP, Gwaravanda ET (2019) Epistemic (in) justice in African universities: a perspective  
638 of the politics of knowledge. Educ Rev 71(5):581–594
- 639 Pakenham T (2015) The scramble for Africa. Hachette UK, London
- 640 Ponterotto JG (2006) Brief note on the origins, evolution, and meaning of the qualitative research  
641 concept thick description. Qual Rep 11(3):538–549
- 642 Preece J, Ntseane P, MmaB O (eds) (2012) Community engagement in African Universities:  
643 perspectives, prospects and challenges. Leicester, NIACE
- 644 Preece J (2013) Towards an Africanisation of community engagement and service learning. Perspect  
645 Educ 31(2):114–122
- 646 Ramose MB (2004) In search of an African philosophy of education: perspectives on higher  
647 education. South Afr J High Educ 18(3):138–160
- 648 Saldaña J (2016) The coding manual for qualitative researchers, 3rd edn. SAGE, Thousand Oaks
- 649 Sawyerr A (2004) Challenges facing African universities: selected issues. Afr Stud Rev 47:1–59
- 650 Scheffran J, Link PM, Schilling J (2019) Climate and conflict in Africa. In: Oxford research  
651 encyclopedia of climate science. Oxford University Press, New York
- 652 SDGC (2019) Reflection on a three year journey. [https://sdgcafrica.org/wp-content/uploads/2019/09/SDGCs-Implementationin-Africa-Reflection-on-3Y-Journey\\_Report.pdf](https://sdgcafrica.org/wp-content/uploads/2019/09/SDGCs-Implementationin-Africa-Reflection-on-3Y-Journey_Report.pdf). Accessed 18 Aug  
653 2020
- 654
- 655 Semali LM, Kincheloe JL (2002) What is indigenous knowledge?: voices from the academy.  
656 Routledge, New York
- 657 Sharaky AM (2014) Mineral resources and exploration in Africa. Department of Natural Resources,  
658 Institute of African Research and Studies, Cairo University, Egypt
- 659 Shava S (2013) The representation of indigenous knowledges. In: International handbook of research  
660 on environmental education, pp 384–393
- 661 Shaw TM (ed) (2019) Alternative futures for Africa. Routledge, New York

- 662 Shiva V (1993) *Monocultures of the mind. Perspectives on biodiversity and biotechnology*. Zed  
 663 Books, London
- 664 Sillitoe P (1998) The development of indigenous knowledge: a new applied anthropology. *Curr*  
 665 *Anthropol* 39(2):223–252
- 666 Simons H (2009) Listen, look, document: methods in case study research. In: *Case study research*  
 667 *in practice*, pp 43–66. Sage, London
- 668 Simpson P (2008) Stories. In: Broussine M (ed) *Creative methods in organizational research*. Sage,  
 669 London, pp 93–107
- 670 Stake RE (2013) *Multiple case study analysis*. Guilford Press, New York
- 671 Stake R (1995) *The art of case study research*. Sage, Thousand Oaks
- 672 Teferra D, Altbachl PG (2004) African higher education: challenges for the 21st century. *High Educ*  
 673 47(1):21–50
- 674 Tiba S, Frikha M (2020) Africa is rich, Africans are poor! A blessing or curse: an application of  
 675 cointegration techniques. *J Knowl Econ* 11(1):114–139
- 676 Tikly L (2019) Education for sustainable development in Africa: a critique of regional agendas.  
 677 *Asia Pac Educ Rev* 20(2):223–237
- 678 UN (2015a) MDGs Report. [https://sustainabledevelopment.un.org/content/documents/203](https://sustainabledevelopment.un.org/content/documents/2036MDG%202015%20rev%20(July%201).pdf)  
 679 [6MDG%202015%20rev%20\(July%201\).pdf](https://sustainabledevelopment.un.org/content/documents/2036MDG%202015%20rev%20(July%201).pdf). Accessed 18 Aug 2020
- 680 UN (2015b) Agenda 2063 – The Africa We Want. [https://www.un.org/en/africa/osaa/pdf/au/agenda](https://www.un.org/en/africa/osaa/pdf/au/agenda2063.pdf)  
 681 [2063.pdf](https://www.un.org/en/africa/osaa/pdf/au/agenda2063.pdf). Accessed 18 Aug 2020
- 682 Van der Ploeg F (2011) Natural resources: curse or blessing? *J Econ Lit* 49(2):366–420
- 683 Van Damme LSM, Neluvhalani EF (2004) Indigenous knowledge in environmental education  
 684 processes: perspectives on a growing research arena. *Environ Educ Res* 10(3):353–370
- 685 Waas T, Verbruggen A, Wright T (2010) University research for sustainable development: definition  
 686 and characteristics explored. *J Clean Prod* 18(7):629–636
- 687 Waghid Y (2014) African philosophy of education as a response to human rights violations:  
 688 cultivating Ubuntu as a virtue in religious education. *J Study Relig* 27(1):267–282
- 689 WCED (1987) *Our common future: the world commission on environment and development*. Oxford  
 690 University Press, Oxford