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Environmental Ethics and Future Oriented Transformation to Sustainability

Abstract
The current study underscores the importance of environmental ethics as a vehicle for engaging society, businesses, and policy-makers towards mainstreaming transformation to sustainability. This reflects an innovative trend towards using narratives in social and management sciences, which needs to be replicated by other disciplines, organisations, agencies, and social groupings. In this paper, focus is on identifying storylines, phrases, myths, and local and indigenous knowledge systems of ethical and ecological significance. Using examples from written and unwritten narratives of Hausa – one of the widely spoken languages in sub-Saharan Africa, this study shines light on some key narratives relevant to present day critical environmental issues such as management of agricultural landscapes, municipal waste, ecosystem services, integrated natural resource management, and biodiversity loss. Environmental ethics drawn from the narratives provide an integrated platform where formal and informal institutions of sustainability can be strengthened, supporting transformation towards sustainability through enhancing ecological consciousness, skills, and attitudes.

Keywords: Ecocriticism, Human Dimensions, Institutions, Knowledge, Narratives

Introduction

The current global campaigns for transformation to sustainability are handicapped by gaps in existing knowledge systems that leave out essential elements for engaging society and policy (Rauschmayer et al. 2015). A key challenge, therefore, is to identify innovative and practical pathways that can address the seemingly inexorable trends in global environmental change. Currently, humanity is challenged to keep the Earth within safe limits of the nine planetary boundaries (Rockstrom et al. 2009). To stay within a safe operating space, it is vital to explore innovative environmental-problem solving strategies (Pattberg and Widerberg, 2015). Most attention has focused on scrutinising the role of industries and businesses and their tampering with the quality of global and local ecosystems. In most instances, the footprints of big polluters are quantifiable and even prosecutable. Conversely, it remains extremely difficult to establish patterns of individuals' and households' unsustainable consumption, behaviours, and commitments to sustainability (Gilg et al. 2005; Grunert et al. 2014; Hirsh, 2014). In this context, Garrard (2007) argued that environmental solutions make more sense when they wear moral characters, as in the cases of asking the public to recycle materials, reduce travel, or switch off lights. As such, it is essential to search for innovative and people-oriented strategies that can effectively prepare people's minds to tilt towards environmentally sustainable behaviour.

38

Referring to the current sustainability challenges and the prospects of creative narrative-based environmental ethics, Willis (2012:58) argued that "we already have enough technical information to know what needs to be done. What seems to be lacking is practical knowledge about how we might lead good lives in the face of this challenge and the practical wisdom to make the moral commitment to do so." Hence, creative stories, literary works, and indigenous and local knowledge could be vital sources to engage humans in this age of rapid local and global environmental change. A good example of using creative writing as an innovative tool for driving modern businesses is seen in How Stella Saved the Farm (Govindarajan and Trimble, 2013). The story was built around a diverse animal community and its goal is to teach business administrators the principles and skills of innovative management, creative thinking, and strategic planning. Narratives such as the Parable of Flute given in The Idea of Justice by Sen (2009) are used in explaining social justice theories. Creative stories such as the satirical Animal Farm by George Orwell show the extent to which human storytelling can go in addressing political problems. While such stories were not written for the purpose of promoting environmental ethics and sustainability, educators can contextualise and link them to the environmental ethics and sustainability causes.

Many developing countries such as those in sub-Saharan Africa have limited institutional and technical capacities to tackle sustainability and environmental ethics issues. The long-standing effects of colonisation, globalisation, and urbanisation have negatively impinged on African environmental ethics and indigenous and local knowledge systems. As an example, Neumann (2004) questioned the rationale of shoot-on-site orders against illegal hunters in many African countries who are trying to meet straitjacket international conservation obligations. However, it is crucial to state that most of the current sustainability challenges in Africa are exacerbated because of collapsing and fading indigenous and local knowledge systems and institutions. For instance, Gerber and Veuthey (2007) observed that prior to introduction of industrial forest exploitation, African communities considered forests as their cohorts, origin, destiny, source of power, wealth, health, sacredness, and security. Another serious challenge is the rising number of middle-class Africans which has recently exceeded 300 million and is often associated with anti-sustainability consumerism (McEwan et al. 2015). According to Silver (2015), urbanisation

69 in sub-Saharan Africa is enmeshed in flawed logics and failures to comply with decarbonisation

70 strategies. These challenges underscore the need for innovative ways to ensure sustainability

71 thinking and environmental ethics become more embedded within people's attitudes and

72 behaviours.

73

74 Building on and extending these examples, the current study therefore seeks to identify the

75 prospects of environmental ethics narratives as a vehicle for engaging society, businesses, and

76 policy-makers in the quest for sustainability. The study assumes that individuals are at the core

77 of transformation to sustainability and hence most examples are drawn based on experiences of

78 individuals. Our specific research question asks: how do literary works and other narratives

79 support environmental ethics and provide a route to transformation towards sustainability? We

80 tackle this research question by focusing on developing countries that experience dire ecological

81 problems.

82

83   In exploring the potentials of environmental ethics in addressing the sustainability crisis, this

84 study focuses on example narratives from Hausa speaking areas in West Africa. According to

85 Webster (1997), narrative is present in myth, legend, fable, tale, novella, epic, history, tragedy,

86 drama, comedy, mime, comics, news item, conversations, and is present in every age and place,

87 and it is trans-historical, transcultural. Hence, we anticipate a countless number of narratives of

88 ecological and ethical importance in African languages. With as many as 40 million first

89 speakers, and twenty million second language speakers, Hausa is the second most widely spoken

90 language in sub-Saharan Africa after Swahili (Manvell, 2012). The core Hausaland is located in

91 Northern Nigeria and Southern Niger Republic (Figure 1). However, pockets of Hausa speaking

92 people or Hausa diaspora are found in Chad, Cameroon, Ghana, the Sudan, and Central African

93 Republic and Middle East (Alidou, 2012). The importance of Hausa is observed in the ways in

94 which media organisations such as the BBC, Voice of America, Deutschewelle, Radio France

95 International, Radio Iran, Radio Beijing transmit programmes in the Hausa language. Similarly,

96 some universities in the UK, US, and Germany also offer Hausa language and literature studies

97 up to doctoral level.

98

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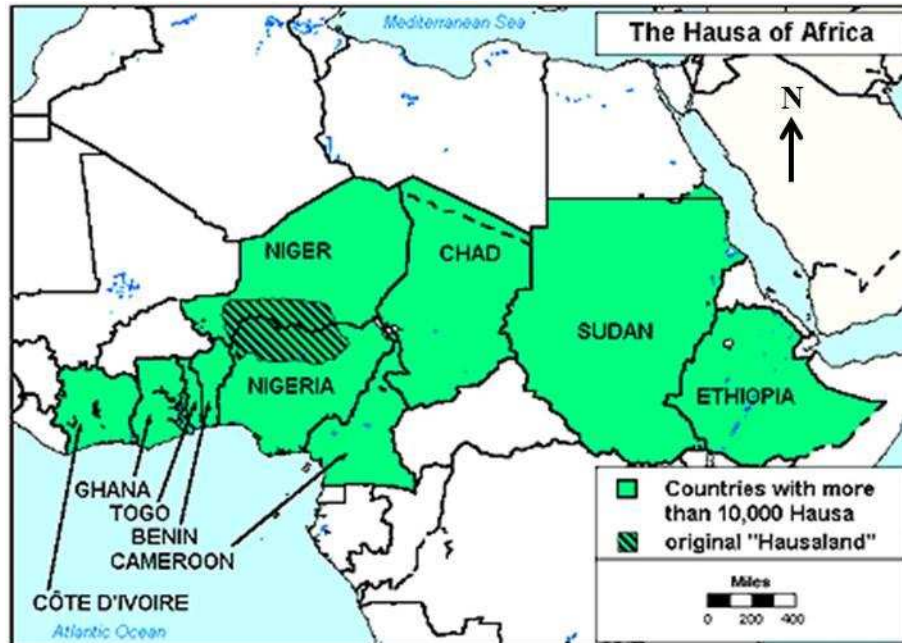
Figure 1: Map of areas in sub-Saharan Africa showing the distribution of Hausa speaking people adapted from Korea Computer Mission (KCM) http://kcm.co.kr/bethany/p_maps1/8035.gif

This paper comprises six intertwined sections – introduction, literature review, conceptual framework, methods, results, discussion and conclusion. The introductory part of the paper presents the rationale and urgency for using narratives to support environmental ethics and transformation to sustainability. The study exploits a wide range literature to develop its conceptual framework, perspectives, and arguments. Numerous literature sources were analyzed in addition to undertaking interviews with selected respondents. The results section identifies the potential role of narratives and environmental ethics for addressing and understanding land degradation, biodiversity conservation, municipal waste etc. The paper's discussion and conclusion underline the imperative for environmental ethics as an alternative for enhancing transformation to sustainability.

Literature review, conceptual framework and assumptions

Oliveira de Paula and Cavalcanti (2000) argue for the need to entrench alternative pathways and values that foster solidarity, fraternity, social equity and help in reversing destructive economic

121   models that are incompatible with sustainability. As such, sustainability researchers need to shift

122   towards exploring people's sense of purpose, responsibility, and consciousness for the

123   environment and its vulnerability to unfettered consumerism. In a related vein, Vallance et al.

124   (2011) observed that during the first decade of the 21st century, many social scientists conducted

125   studies aimed at building bridges between humans and the bio-physical environment through

126   environmentally friendly behaviours and stronger environmental ethics. Environmental ethics

127   than thus be seen as a connector.

128

129   According to Toepfer (2006), ethics lies at the heart of all human endeavours; from the

130   foundations of human civilisation and the great religions, to the day-to-day decisions we all

131   make in the course of our lives. By and large, environmental ethics offers a broad menu of moral

132   frameworks that can enhance awareness and transparent communication between a wide range of

133   environmental sustainability stakeholders (Randall, 2013). Building such awareness is not easy,

134   and sometimes nations can run into ethical quandaries, particularly when decisions made to

135   protect elements of the biophysical world clash with other priorities in the human world. One

136   example of such a clash is the case of the moratorium on elephant poaching in southern Africa.

137   This aimed to protect elephants. It was highly successful and led to an increase in elephant

138   populations. However, it also created human-elephant conflict (UNEP, 2006), as these mega-

139   fauna destroyed crops and undermined people's livelihoods.

140

141   Environmental ethics is closely associated with what social scientists call normative dimensions

142   of sustainability, which is concerned with what ought to be done by all players to achieve or

143   improve environmental sustainability (Moldan et al. 2012; Schroeder, 2014; Pattberg and

144   Widerberg, 2015). The ethical dimension of sustainability is commonly viewed as a social

145   sustainability issue different than the ecological and economic dimensions of sustainability

146   (Thompson, 1996). However, researchers have recently paired ethics with normative dimensions

147   arguing that efforts to support sustainability are rooted in ethical foundations of non-

148   anthropocentrism, preservationism, enlightened anthropocentrism, and social justice theories

149   drawn from both the natural and social sciences (Miller et al. 2011).

150

151 Often, the science and policy community pays more attention to the conventional principles and

152 institutions such as national, regional or international environmental standards and multilateral

153 protocols, neglecting socio-ecologically useful indigenous knowledge systems, including

154 environmental ethics (Hayden, 2012). Even in developed countries, the process of knowledge

155 generation and exchange for environmental sustainability research has continued to depend

156 substantially on the views and opinions solicited from experts (Reed et al. 2014). This overlooks

157 indigenous knowledge systems that can build bridges across disciplines, and traditional

158 ecological knowledge (TEK) and which can act as a useful platform to redistribute sustainability

159 knowledge, including environmental ethics. In many cases, environmental ethics is inherent in

160 indigenous knowledge systems, which include oral narratives and other literary devices

161 (Webster, 1997). Indeed, one of the merits of African narratives is that a single story can be

162 analysed in the context of a wide range of environmental and sustainability issues.

163

164 The significance of indigenous knowledge bases, in, for instance, literature, is that it is not

165 merely a text for reading, but equally functions as an amalgam of context and performance

166 (Healy-Ingram, 2011). Hence, it is this real and practical sense of the literature that translates

167 into ethics that guide human behaviours and interactions with the environment. For example,

168 using Africa to demonstrate the imperative of environmental ethics in the age of critical

169 ecological crisis, Mazrui (2014:262) argued that African people's low flower-loving culture has

170 inherent environmental ethics, which he explained in the context of George Bernard Shaw's

171 story:

172
173   George Bernard Shaw was once visited by a flower-loving aristocratic fan. The lady visitor
174   observed that there were no flowers inside Shaw's home. "Mr. Shaw, I am surprised to see
175   no flowers in your beautiful home. Don't you love flowers, Mr. Shaw?" Bernard Shaw
176   responded: "Indeed I do love flowers, dear lady. I also love children. But I do not go around
177   chopping off their heads for display in my living room!" Shaw was asserting that a genuine
178   love of flowers required our leaving them to prosper as plants in the soil. There is a sense in
179   which African attitudes to flowers is organic in the same sense.
180
181

182 According to Estok (2011), most scholars analyse ecological narratives through textual and

183 contextual explanations. For instance, Manvell (2012) used lexicons and vocabulary in his

184 documentation of birds in parts of Hausaland. Using narratives to drive the message of
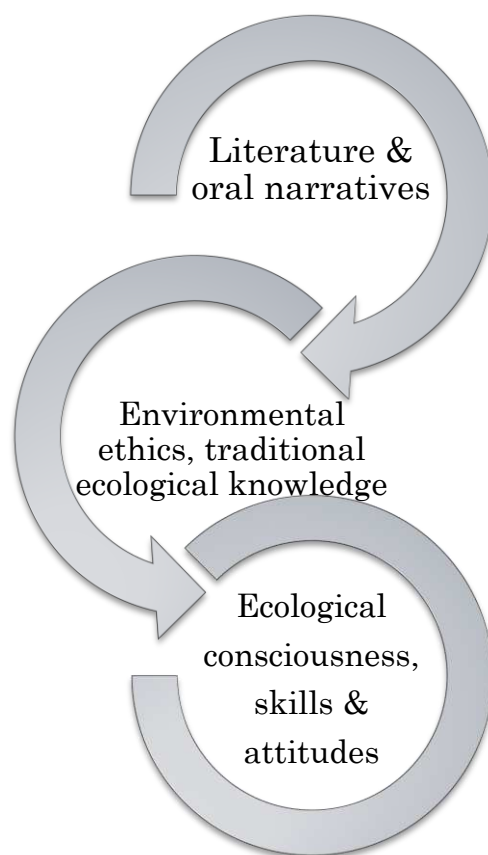
185   sustainability and its ethical dimensions can be a good platform for engaging society in the

186   development of solutions, and also as a means of demystifying sustainability jargons and ideas.

187

188   The main argument of the present study is that environmental ethics found in literary work and

189   other narratives can be used to address multiple sustainability threats

190   through grassroots informed actions and attitudes that contribute towards a transformation to

191   sustainability. Indeed, in sub-Saharan Africa, some of the key threats to sustainability include

192   biodiversity loss, climate change, environmental education, municipal waste, social inequality

193   and urban degradation (e.g. Maconachie, 2014; Stringer et al., 2009). Considering the cost and

194   the apparent dearth of innovative sustainable technologies in developing countries if the needs of

195   future generations in developing countries are to be secured, it would need a strong code of

196   environmental ethics to support transformation to sustainability.

197

198   The 2014 United Nations Population Fund UNFPA's State of World Population report described

199   the African population as 'youthening' because in many sub-Saharan African countries the

200   largest proportion of the population is less than 18 years (UNFPA, 2014). However, the study's

201   conceptual framework shown in Figure 2 can be used to engage not just schoolchildren and

202   young adults, but also individuals within businesses, industry, media practitioners, education,

203   and the policymaking community in the inherent environmental ethics in oral and written

204   narratives.

Literature &
oral narratives

Environmental
ethics, traditional
ecological knowledge

Ecological
consciousness,
skills &
attitudes

205
206   **Figure 2:** Literature is a source of environmental ethics and societal values with high potetials for
207   achieving transformation to sustainability
208

209

210   This study's conceptual framework can be understood further in light of Soini and Birkeland's

211   (2014) argument that 'storyline' can be used to demonstrate the role of culture in advancing

212   sustainability and eco-cultural resilience discourse. Again, this is further demonstrated by the

213   trending ecocriticism theories and notions such as the 'post-carbon social theory' and its variants

214   such as 'post-carbon English' which some critical scholars believe should be incorporated into

215   schools' curricula as a means of engaging and inspiring younger generations towards achieving

216   future-oriented sustainability (Matthewman and Morgan, 2013). However, long before the

217   emergence of these theories, scholars have tried to explain how the classical European literature

218   is replete with the sense of ecophobia – hate of nature (Estok, 2011). Conversely, Moe (2011)

219   observed that in American societies the sense of ecophobia and ecophilia – love of nature - exist

220   side by side. Some commentators have explored the inherent ecophilia and ecophobia in some of

221   Africa's award-winning novels, including Chinua Achebe's Things Fall Apart (Barau, 2008) and

222   J. M. Coetzee's Life & Times of Michael K (Vital, 2008).

223

224   As far as reaching out to stakeholders is concerned, it is important to recognise gender

225   dimensions of ecocriticism. Some ecofeminists have accused the Western classical literature of

226   undervaluing environmental rights and privileges of women (Gaard, 2015). In contrast, El-Nour

227   (2011) observed that women in Africa have played a leading role in folklore creation and

228   storytelling, and that they use this outlet to counter patriarchal society by creating narratives that

229   always make 'women' appear as self-sufficient, pretty, and resourceful. These assertions

230   strengthen the argument for social scientists to engage scholarly, literary, and artistic viewpoints

231   in order to achieve a good understanding of the human dimensions of

232   the Anthropocene (Palsson et al. 2013).

233

234   **Methods**

235

236   This study analysed fictional narratives in the Hausa literature as well as selected academic

237   works that explored ecological dimensions of narratives to determine elements of environmental

238   ethics, indigenous and local knowledge in Hausaland. As there are countless Hausa prose and

239   oral narratives, we applied some filters or criteria that helped us in selecting a sample of books

240   and narratives for analysis. First, the selected books are among those recommended by the West

241   African Examinations Council (WAEC) for Hausa literature (prose) test. Second, the chosen

242   books are also used for Hausa language tests for national and state common entrance

243   examinations for primary school pupils. Examination bodies have maintained most of these

244   books for more than four decades. We cross-checked this information with six school teachers

245   drawn from three primary and three secondary schools respectively. The teachers interviewed

246   (via phone) were from three predominantly Hausa speaking states in Nigeria (namely Jigawa,

247   Kano and Katsina). All six confirmed the selected books were being used for teaching in their

248   schools and others. Given the 'youthening' population trend in Africa and the importance of the

249   'next generation' in tackling sustainability, use of narratives is vital for entrenching

250   sustainability. The details of the books selected and used in this study are given in Table 1.

251

252 **Table 1:** Hausa literature books used in Northern Nigerian primary and secondary schools

	Story title	Book title	Author/Year/Publisher
1	*"Yammata Masu 'Diban 'Baure"* (Girls Collecting Fig Fruit)	Labarun Gargajiya (Native stories)	Ibrahim Yaro Yahaya, Oxford University Press, 1974
2	Zanzaro Ishara Ga Mai Lura (Insect that Gives Insights to its Observer)	Hikayoyin Kaifafa Zukata (Heart Sharpening Tales) book 1&2	Benchmark Publishers, 1979, reprint (Mambayya House, 2003)
3	Ji ta Daga Dabbobbi (Listen to the Animals)and Borin Tinke Da Borin Tsuntsaye	Hikayoyin Kaifafa Zukata (Heart Sharpening Tales) Volume 1&2	Benchmark Publishers, 1979, reprint (Mambayya House, 2003)
4	Ruwan Bagaja (The Water of Cure)	Ruwan Bagaja (The Water of Cure)	Abubakar Imam, Northern Nigeria Publishing Company, 1971
5	Gwi-Da-Yara (name)	Labarun Gargajiya (Book1)	Ibrahim Yaro Yahaya, Oxford University Press, 1974
6	Shaihu Umar (name)	Shaihu Umar	Sir Abubakar Tafawa Balewa, Longmans, 1967
7	Spider and Fig Fruit (Gizo Da 'Baure)	Tatsuniyoyi Da Wasanni (Folklore and plays) Book 1	Ibrahim Yaro Yahaya, Oxford University Press, 1976
8	Hausa Customs	Hausa Customs	Madauci, Ibrahim; Isa, Yahaya; Daura, Bello. Northern Nigeria Publishing Company, Zaria, 1980

253

254 The stories in the selected books were cast in the fashion of people and landscapes of Hausaland,

255 however, somewere based on adaptation of European and Arabian classical literature

256 (Adamu, 2004). Apart from the published books listed in Table 1, we also relied on the definition

257 of narratives by Webster (1997) to include undocumented oral narratives. Thus, following

258 principles of autoethnography (Butz and Sebio, 2009), we identified and used what we know of

259 the commonly used but usually undocumented narratives embedded with environmental ethics

260 and myths such as those mentioned in Barau et al. (2013). At the same time, we searched for

261 relevant academic literature on local knowledge and environmental change in Northern Nigeria

262 (which is predominantly Hausa speaking area) order to identify some relevant narratives.

263

264 **Results:**

265

266 **Environmental Ethics and Related Narratives on Municipal Waste**

267

268 An ecocritcal reading of some stories unlocks some ideas, knowledge and concepts of

269 sustainability. For instance, in the story of Ruwan Bagaja – the Water of Cure - by Imam

270 (1971), a good example of waste recycling into wealth and benefits is presented. This story

271 narrated how an outcast girl (Bora) was forced by her father to embark on an expedition to

272 search for the mysterious Ruwan Bagaja. She walked alone into the wilderness. The helpless,

273 intrepid, and hungry girl eventually reached an isolated hut where she found a dog and a

274 severed human leg. The dog asked the girl to collect rice and bones from a nearby dumping

275 site, wash them, and prepare some food. She did and cooked some food that nourished.

276

277 Another example is given in the story of Gwi-Da-Yara by Yahaya (1974) in

278 his Labarun Gargajiya . Here, the story is about a polygamous family where two of the three

279 wives were favoured and the other wife was sidelined. Since none of the three wives could be

280 pregnant their husband sought a fertility concoction for his favoured wives and denied the

281 other. Seeing this, the outcast wife who also yearned to bear a child resorted to scavenging.

282 She collected the concoction already used and discarded by other wives. She used it,

283 conceived and delivered a girl called Gwi-Da-Yara, who also became an outcast daughter but

284 who ultimately emerged as benefactor of her parents after she married a wealthy man. In a

285 way, Gwi-Da-Yara is an example of wealth from waste recycling. Another story -

286 Gizo Da ꞌBaure - Spider and Fig Fruit by Yahaya (1976) shows that the price of and the prize

287 of managing waste using innovative means could be high. In this story, the King wanted his

288 fig orchard to be rid of rotten fig fruit in order to curb wastage. Since this task was required

289 to be attended to in an innovative way, the King offered to marry off his daughter to any one

290 that accomplished the task.

291

292 **Narratives on Management of Land Degradation in Drylands**

293 Orally-transmitted narratives can provide useful insights into the communication of

294 environmental problems and sustainability challenges. For example, traditional ecological

295 knowledge is indispensable because it is through this medium that vital knowledge on resource

296 use can be passed across the generations. In the case of drylands, some of the oral narratives are

297 useful for understanding physical characteristics of agricultural landscape changes associated

298 with desertification, erosion, and soil quality degradation. Maconachie (2014) documented

299 personal communications with farmers in peri-urban Kano. Their use of selected lexicons

300 demonstrated a good understanding of ecosystem services of local trees such

301 as kuka (Adansonia digitata), gawo (Faidherbia albida), tsamiya (Tamarindis indica), and

302 marke (Anogeissus schimperii). Maconachie (2014) noted a respondent who mentioned that:

303 The Kuka is excellent because it doesn't have too many leaves. But the
304 Tsamiya has very broad leaves and it will make too much shade on the plot, so
305 it is not as good for the crops. The Gawo tree produces fruits that animals love.
306 So under the Gawo, you will see lots of animals, and they will drop their taki
307 and make the soil rich. When you see the Marke tree, you know the land is not
308 rich. The land around this tree becomes very hot and dry, even in the rainy
309 season.
310
311 The above-cited also offers insights into local knowedge on land and soil quality and connections

312 of all these to vegetation:

313 [T]here is a kind of grass called Rai-rai, which means long life. At all times of the
314 year that grass will remain green, and its presence is a good sign. There are many types
315 of grasses that are good, like Kiri-kiri, Yadiya, Dodandawa, Tofa, Tsidau, and Yawo. If
316 you see these grasses growing, the soil must be strong and fertile.
317
318 …some grasses are bad.. If you see them, it signifies that the place is not good and it is
319 degraded. Also, where there is too much Gogamasu it indicates that the land is bad, and
320 crops will not grow well. If you see Burruku and Duman Rafi growing, it means that the
321 land is too sandy and not good for crops. Where ever you see those grasses, the land is
322 infertile because those grasses like a cold, waterlogged environment.
323

324 Policymakers and scientists need to pay attention to these kinds of narratives in designing land

325 degradation and food security projects and policies in dryland areas. According to Abdulhamid

326 (2006), farmers in Hausaland use certain lexicons to define the state of land with some

327 representation of ecosystem. For instance, when they refer to soil condition as hancin kare (dog's

328 nose) they simply mean a waterlogged soil.

329

330 **Using Local Knowledge for Understanding Local Environmental Conditions**

331

332 One of the most critical aspects of narratives is that they serve as repositories of local knowledge

333 on environmental systems. This is partially documented in the academic literature. For example,

334 Abdulhamid (2006) observed that farmers rely on migration of birds - Abdim Stork (Ciconia

335 abdimi) in particular, to predict the beginning and cessation of the rainy season in Hausaland. He

336 also highlighted the connections between biodiversity, climate and land management, noting that

337 the rural Hausa people predict bumper harvests when they notice the presence of many ants in

338 their farmlands. Farmers and herdsmen could also understand if their farmlands and grazing

339 areas were infected by pests and diseases by simply sprinkling butter on a piece of land. When

340 they cannot observe ants around the butter, they conclude that the area is not suitable for grazing.

341 A good example of the synthesis of science, local ecological knowledge, lexicons and

342 sociocultural narratives is given by Ahmed (1998:150):

343   [O]n August, 28th 1996 the crops were stressed and farmers visited mosque to pray for
344   rains…luckily it rained the next day for about an hour. The highest soil moisture increase
345   at depth of was 5cm was recorded at sites. The farmers explained that this is bad for crops
346   because the higher moisture level at 5cm would trap heat…this raises soil temperature
347   and adversely affects plant growth. The farmers describe this as soil fever (zazzabi in
348   Hausa).

349 Returning to the analysis of the books in our sample, the story of Shaihu Umar by Tafawa

350 Balewa (1967) reports the journey of its principal character who travelled within diverse

351 bioclimatic and sociocultural environments. This 'travelogue' started in towns such as Kagara,

352 Makarfi and Zaria in the relatively wet Guinea savanna and continued into the Sudan Savanna

353 city of Kano, moving to Kukawa village in the Sahel and eventually ended in Murzuk and Ber

354 Kufa in the North African desert. This story is useful for engaging society in the challenges of

355 desertification, forced migration, vulnerability and to some extent urbanisation. The depiction of

356 the environment, towns and cities in this story (written over five decades ago) gives a window

357 for comparison with current the situation and some insightful thoughts about the future.

358 **Ecosystem Services, Biodiversity Knowledge and Conservation**

359 Urbanisation and land degradation are among the key drivers of ecosystem and biodiversity loss

360 in Africa. Language barriers, policy and academic jargon may inhibit public understanding of

361 some of these challenges. Public understanding of these issues may improve when they are

362 presented within storylines. As an example, the story of *Yar' Bora* (the outcast girl) by Yahaya

363 (1974), narrates a storyline of a young girl forced by her father to go fishing in the river. The girl

364 could not catch any fish after many attempts. By sheer luck, she eventually caught a big female

365 fish. The mother fish appealed to the girl to release it because it has babies to take care of. The

366 girl obliged and let it go. Because of this gesture, the girl and mother fish became good friends

367 and the girl always received some gifts from the mother fish. Eventually, the girl's father

368 planned to marry off the girl to a mentally challenged prince who had previously killed his

369 wives. Upon hearing about this plan, the girl visited the mother fish for advice. The mother fish

370 gave the girl a medicine that the girl used to cure the prince, and the girl eventually became a

371 princess. The lesson from this story is that there is great reward in protecting key species.

372 Knowledge of the interconnectedness of ecosystems can also be understood from Yahaya's

373 (1974) story: *Yammata Masu 'Diban 'Baure* (the Girls Collecting Fig Fruit). In this story, a girl

374 and her friends go to the bush to get some figs in order to help relieve her mother who was

375 undergoing birth labour . However, the girls realised that in order to get the fruit, they would

376 have to search for the rain (ruwa) in order to grow a grain (tsaba), which would grow to become

377 a stalk (karmami), which a cow would (saniya) eat to produce droppings (kashin saniya) which

378 fertilise the fig tree (bishiyar baure) in order for it to bear the fig fruit (baure). The story

379 illustrates an ecosystem and demonstrates the importance of flows, food-webs and the different

380 roles of different components of the system.

381 Folk tales can also be used in educating children and young adults (including those residing in

382 slums and rapidly urbanising towns in developing countries) about bird species that they no

383 longer see in cities and towns. As an example, the two volumes of Hikayoyin

384 Kaifafa Zukata (Heart Sharpening Tales) by Aminu-Kano (2003) illustrate a vibrant community

385 of many bird species in Hausaland. The sheer number of birds' names can be used to help

386 sensitise people about endangered and lost species. Similarly, the personification of birds in

387 these stories also shows that they are also communities that live life in a similar way to humans.

388 **Traditional   Environmental Etiquette and normative dimensions of sustainability**

389 Normative dimensions of sustainability emphasize what individuals, groups and institutions

390 ought to do to support and strengthen sustainability. Some of the Hausa narratives and traditional

391 beliefs and superstitions have supported sustainable resource use. Some etiquettes, taboos, ethos

392 and superstitions are narratives that continue to make some impacts in traditional societies of the

393 global south and also shape their institutions of sustainability. Such narratives in Hausaland help

394 to restrain human excesses within communities. For example, it is widely believed that some

395   trees like baobab (kuka), Tamarindis indica (tsamiya) serve as abodes for spirits (aljanu/iska).

396   Hence, people in rural areas believing in such narratives let these trees grow, both for their

397   economic uses and the fear of their supernatural powers. Other environmentally-conscious

398   common superstitions in Hausaland documented by Madauchi et al., (1980) in a compliation

399   book of Hausa customs include:

400   • If you spit on the ground and fail to cover the spit, should someone walk over it, you will
401   suffer from a sore throat;

402   • Groundnut shells must not be left lying around the house; if they are, they will attract
403   scorpions to the house;

404   • A person who touches the eggs of a vulture will be bitten by a snake;

405   • Standing under a baobab tree at midday will bring about madness.

406

Integration of Environmental Ethics into Social Culture: reflections on our experiences

408   In our literature review, we raised the issue of changing consumption patterns and resource use

409   due to colonisation, urbanisation and the increasing number of African middle class.

410   Environmental ethics inherent in the narratives of Hausaland can play an important role in

411   nurturing a sense of responsibility through elements of ecophobia and ecophilia. For instance, a

412   typical format for greeting in Hausaland when rainstorm wreaks havoc is yaya ruwa? (how was

413   the rain?) and the typical response is ruwa yayi gyara (the rain has fixed everything). People do

414   not refer to the work of nature as 'destruction' but rather they see it positively, as an act of

415   construction. Our experience has shown that when some women spill hot water they cry out:

416   "sorry to the people of the underground". This implies an apology to either spirits or the dead. It

417   is not a mere apology per se but more of a fear of scalding invisible beings that can decide to

418   take revenge. We also recall some of the repeated narratives told to children. For example, they

419   are not to sit on doorsteps for fear of the invisible beings that may want to pass. Another

420   common story in Hausaland is about a child that urinated under the shade of a tree, and an

421   invisible baby cried out to his mother for help, who in turn paralysed the boy. These kinds of

422   stories instill fear in children and people who believe in such narratives. Such fears could be

423   advantageous to trees and other elements of the ecosystem, either directly or indirectly.

424   **Discussion**

425   The discussion section revisits the study research question This section therefore moves beyond

426   our analysis of the narratives to examine how they may be used to inform transformation to

427   sustainability in developing countries.

428   **Integrating environmental ethics and traditional knowledge narratives in the sustainability**

429   **agenda**

430   The stories we have analysed are well-known to schoolchildren and adults that have attended

431   either primary or secondary schools in the last four to five decades. Our study has contextualized

432   and explored ecological and ethical dimensions of local narratives and stories. Since, such

433   narratives originate and thrive in local communities the greening of such narratives and their

434   integration into formal sustainability agenda enhances chances of community engagement. In

435   order to widen the scope of public engagement and participation in promoting sustainability, it is

436   crucial to find the means of mainstreaming the pro-sustainability messages present in the

437   narratives. Indeed, folklore and storytelling is one area where African women excel their male

438   counterparts (El-Nour, 2011). As such, greening of stories is an important opportunity for

439   enhancing women's and children's participation in national and local sustainability programmes

440   in many other countries.

441   By revealing the unlimited ecological significance of narratives and environmental ethics, this

442   study is contributing reorienting some of the views held by international development institutions

443   about traditional resource use practices in developing countries. For instance, there are

444   researchers that accuse certain indigenous agricultural practices in Asia as being responsible for

445   deforestation and land degradation (Voss, 2007). Such notion is disputed by many studies that

446   found that indigenous and small scale agricultural land use practices support have inherent pro-

447   environmental ethics and benign adaptive skills for long-term fair, inclusive and socially sound

448   resource (Mortimore and Adam, 2001; Stringer et al. 2009). Besides, the experiences of some

449   communities has shown that environmental narratives are part of institutions bridge between

450   society, ecosystems, rights to access to natural resources (Barau and Stringer, 2015). As such, it

451   is high time for policymakers and decision-makers to increase means of capacity building for

452   documentation of such practices as a means of expediting transformation to sustainability.

453   **Environmental ethics and transformation to sustainability**

454   Most of the current sustainability challenges emerge from inactions and careless exploitation of

455   natural resources by individuals or groups. Most of the works analysed in this study point to the

456   timeless dimensions of narratives and their intergenerational influences on public behavior and

457   attitudes. Hence, it is possible to say that such narratives can be used by formal environmental

458   institutions and organizations to support streamlining environmental ethics as basis for

459   transformation to sustainability. Environmental ethics offers alternative thoughts and ideas for

460   addressing the 21st century environmental challenges (Oliveira de Paula and Cavalcanti 2000).

461   Indeed, environmental ethics is not an option but necessary in informing transformations to

462   sustainability. According to Berkes (2008), environmental ethics emanating from narratives and

463   traditional knowledge systems help to foster transformation to sustainability through

464   reintegrating humans back into ecosystem and restoring of unity of mind and nature. The

465   consequences of the restoration of human and nature relationships can enhance love and respect

466   for the nature and human wellbeing.

467

468   Fortunately, more researchers are making clarion calls for prioritising the normative dimensions

469   of sustainability, including issues relating to equity and fairness in society (Moldan et al. 2012;

470   Schroeder, 2014; Pattberg and Widerberg, 2015). However, equity and fairness can only be

471   established within society when principles of justice and fair play are nurtured through the notion

472   of environmental ethics. In other words, and supported by our findings, equality, equity and

473   fairness are components of environmental ethics derivable from narratives of traditional societies

474   and local knowledge systems.

475

476   In regards to how narratives facilitate transformation to sustainability, it is important to stress that

477   greening of literature and extracting of environmental ethics is only one level of action. According

478   to the UN General Assembly Report on the post-2015 development agenda, the transformational

479   approach plays a key role where the target is employing technological innovations to drive

480   sustainability (United Nations, 2014). Indeed, Willis (2012) noted there is enough technical

481   information on what to do to address global environmental crises. Hence, environmental narratives

482   should be seen as one of the core social science innovations that can support, improve and

483   transform the environmental ethics and sustainability understandings of individuals engaged in

484   policy-making, business and academic sectors. This is in view of the success of some recent

485   works that applied folklore and other creative narratives to advance critical and strategic thinking

486   in business administration and social justice theory (Sen, 2009; Govindarajan and Trimble, 2013).

487

488   Although the focus of this paper is on the narratives of Hausa literature, it is important to note that

489   the lessons or messages of sustainability inherent in the stories used for this study are of global

490   relevance and importance. Indeed, some scholars consider that some of the narratives of Hausaland

491   originated from other parts of Africa, Arabia and Europe (Adamu, 2004; Alidou, 2012). What this

492   means is that narratives have universal appeal and transcendent values and by linking the origin of

493   Hausa literature resources to other cultures and geography, Webster's (1996) notion that narratives

494   are transnational, transcultural and transhistorical is justified. In other words, policymakers and

495   educators are challenged to explore any stories or narratives with some potential values to foster

496   ecological consciousness and environmental ethics. in view of the current fragmented nature of

497   global and regional sustainable development strategies (Rauschmayer et al. 2015), the

498   transformation to sustainability will thus benefit significantly from exploring environmental ethics

499   from narratives including those used by generation of farmers in managing agricultural landscapes.

500

501   The future of global sustainable development governance lies on attitudes and skills available to

502   children and youths in all countries and global regions. Given the 'youthening' population of sub-

503   Saharan Africa, any attempt to improve public attitudes and awareness on sustainability should

504   principally target youths (UNFPA, 2014). Another important target group is that of the youthful

505   entrepreneurs who are transitioning into middle class stratum in many African emerging

506   economies (McEwan et al. 2015). According to Chapman and Sharma (2001), youths and

507   schoolchildren in particular have inherent readiness to engage in pro-sustainability behaviours

508   when they are exposed to environmental education. Therefore, narratives in all their genres and

509   forms can be utilised to engage and motivate the younger generations to support normative

510   dimensions of sustainability.

511

512 **Conclusion**

513 So much time and so many resources are being expended on convening meetings and drafting

514 policies to support sustainable development. On the other hand, technologies, innovations, and

515 institutions that support effective implementation of policies have continued to be weak or

516 ineffective in most developing countries. This study stresses the need to seek alternative ways to

517 diversify the means of strengthening and mainstreaming environmental ethics. In many countries

518 and cultures, ethics are associated with informal settings, although applied ethics such as corporate

519 ethics do exist and contribute towards sustainability. Environmental ethics is one platform that

520 transcends public, private, individuals, community, and gender dimensions of sustainability. This

521 study has identified many examples of environmental ethics, which in many instances are

522 intricately intertwined with indigenous and local knowledge. One of the main challenges for this

523 study is the way it views environmental ethics as a holistic term that covers morals and values. The

524 study also views narratives as vehicles that drive social values, moral, and ethics. Certainly, this

525 assumption is contestable by those with different interpretations of norms and morals. It is further

526 important to add that not all stories and narratives in Hausaland and other places promote

527 environnmental ethcs and consciousness. For example, most folklores in Hausaland portray hyena

528 as untrustworthy and there is a common narrative among Hausa children that when lizards nod

529 their heads they are insulting God. Nonetheless, on average there are more stories promoting

530 environmental ethics and consciousness, suggesting that it remains pertinent that creative literary

531 works will continue be good sources from which environmental ethics can be shared.

532

533 Considering the overarching local and global sustainability crises, it is imperative for

534 intergovernmental and national agencies (including civil society groups) to consider using

535 environmental ethics as tool for building enduring transformative pathways to sustainability. This

536 study has made a strong case for environmental ethics as a moral obligation and has provided

537 examples from analysis of both key examination books and the academic literature that

538 demonstrate how environmental ethics guided pre-industrial generations' interactions with the

539 environment. At the same time, with the use of innovative approaches going forward, it offers

540 largely untapped potential to guide the current generation to tackle the current sustainability

541 challenges in the interest of future generations. Finally, it is important to add that in many African

542 societies, narratives in history, culture, creative stories, knowledge, myths and beliefs are part of

543 the institutional arrangements that have guided the past generations' benign interactions with the

544 environment. As such, it is critical to integrate indigenous and local knowledge into the

545 mainstream sustainability policies, ideas and initiatives. We live in a world of shared literary

546 works where translated creative works are consumed across cultures and generations. Although

547 this study has used environmental ethics narratives from Africa, however, in the context of

548 environmental education, such narratives are capable of influencing and transforming thoughts,

549 and attitudes of people to align themselves towards transformation to sustainability.

550

551

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