

## ARTICLE

# Yoruba Ecosophy and the Doctrine of the Mean: A Philosophical Response to Environmental Degradation

Adewale Oluwaseun Motadegbe \* and Ridwan Ishola Mogaji 

Department of Philosophy, Lagos State University, Ojo, Lagos, Nigeria.

\*Corresponding author. Email: amotadegbe@gmail.com

\*Second author's email: mogajiolayide22@gmail.com

(Received 15th April MMXXV; | First published online 27th June MMXXVI)

### Abstract

The growing environmental degradation unfolding throughout the world has sparked substantial debates as it affects ecological well-being. While recent scholarship has increasingly begun to explore indigenous perspectives in addressing environmental crises, there remains a significant lack of focused analysis on Yoruba environmental thought, particularly through the lens of semiotic interpretation of proverbs as a repository of ecological wisdom. This paper fills that gap by examining Yoruba environmental thought (Ecosophy) as a panacea to ecological crises such as land pollution resulting from extractive activities and improper waste disposal. This paper examines the philosophical foundation that guides human-human and human-nature relationships within Yoruba culture, built on a spiritual and reciprocal ideology, which has its roots in a shared communal relationship. This study employs the method of semiotics to interpret Yoruba proverbs in which environmental wisdom is codified, alongside philosophical analysis to explore the Yoruba notion of the environment. It aligns with the views of Lynn White Jr., John Passmore, and Philomena Ojomo that a philosophical or ideological flaw underpins environmental crises and must be corrected to achieve lasting solutions. This paper argues from a virtue standpoint, using the Aristotelian doctrine of the mean as a medium to affirm the tenability of the Yoruba environmental perspective as a viable framework, considering its balanced approach in framing the human-nature relationship. The paper concludes that Yoruba Ecosophy presents a unique model for environmental stewardship that reconciles both anthropocentric and ecocentric ethical concerns..

**Keywords:** Yoruba; Environmental Crisis; Environment; Virtue Ethics; Semiotic

## 1. Introduction

Environmental pollution is at the forefront of global concern in the 21st century, as its effects on humans and the ecosystem are alarming. It has increased mortality rates, thereby deteriorating human and animal health (Landrigan et al. 2007). Environmental pollution refers to the release of harmful substances into the air, water, and land, which alters the natural balance of the ecosystem and threatens living organisms. Factors such as deforestation, bush burning, agricultural and household waste dumped in water bodies, chemical harvesting of aquatic animals, and improper disposal of electronic waste contribute to various forms of pollution (Ukaogo et al. 2020, 419). Air pollution, for instance, results primarily from industrial and automobile emissions that release harmful substances into the atmosphere, thereby making it unhealthy for both human and animal respiration. Deforestation, also contributes significantly to ecological degradation and accounts for between 12 and 20% of the world's pollution, as it leads to the release of stored carbon dioxide when trees are felled (see London School of Economics and Political Science 2023; Climate Council 2024). Hence, whether through land-use changes or direct emissions, all kinds of pollution are injurious to human and ecological well-being.

Over the years, policies and laws have been put in place by diverse governmental agencies to halt pollution in the environment (see Ukaogo et al. 2020). However, these efforts have not yielded complete success. Some philosophers have noted that this is due to the premise that people do what they do based on certain thought processes which influence individual and collective behavior, informed by cultural, religious, and social factors (See Passmore, 1974; Obi, 2024; Mogaji, 2025a). Thus, laws alone may not suffice without examining the deeper ideational frameworks that drive human engagement with the environment. H. S. Staniland, while defining 'philosophy', alluded to the idea that thoughts or ideologies shape human behavior (see Nault 1993). This implies that each person's actions are underpinned by a philosophy, whether consciously or unconsciously adopted. No one acts without this underlying philosophy. For example, a man who beats up his wife has a set of beliefs or justifications that gives credence to his action. The duty of philosophy, therefore, is to critically examine and evaluate such underlying assumptions. Building on this, studies have revealed that certain prevailing ideologies inform how humans relate to one another and to nature (see White 1969; Passmore 1974; Ojomo 2024), or in some cases, biases (Mogaji, 2025a). One such thought is capitalism: the idea that individuals may act freely within the limits of their economic capacity, which has been implicated in the environmental crises experienced worldwide (Passmore 1974; Ojomo 2024). On the other hand, Lynn White (1969) argued that the worldview of dominance, referred to as anthropocentrism, avowed by the Christian God as presented in the book of Genesis, is more or less responsible for the imbalanced relationship between humans and the environment, ultimately contributing to environmental decline. Considering all damages caused with this belief in dominance, aligning human action with more ecologically conscious philosophies is thus essential to halting environmental degradation (see Passmore 1974; Bookchin 1990).

Against this backdrop, this discourse aims to examine the underpinning philosophy that governs the relationship between the Yoruba and their environment, and how its adoption might contribute to addressing the global challenge of environmental degradation. The paper is structured into five parts. The first discusses environmental ethics. The second part concerns itself with Yoruba environmental philosophy through semiotic interpretation. The third section justifies Yoruba environmental philosophy through the lens of Nicomachean ethics, while the last part is the concluding section.

## 2. Environmental Ethics

The environment is the complex interplay of biotic, chemical, and physical elements that affect an organism or an ecological community and ultimately shape its form and chances of survival (see Kehoe et al. 2021). The environment includes both aquatic and terrestrial ecosystems, such as

grasslands, forests, and deserts. It also contains a wide variety of species that live in these ecosystems, including humans (Gana and Toba 2015). According to Nwanne (2013, 23), the environment includes all the resources found in nature as well as those made by people to improve the quality of life and well-being; humans and all factors that affect humans, including land, water, air, flora, and infrastructure.

Ethics on the other hand addresses the problem of what constitutes good and bad, right and wrong actions. It is the moral philosophy that examines the ideologies/thoughts and laws that regulate interactions and relationships among humans. Ethics, broadly, is the philosophical inquiry into what constitutes right and wrong, and how moral decisions should guide human conduct. A subfield of Ethics known as environmental ethics studies environmental issues and tries to proffer ethical solutions to them. As an applied branch, it goes beyond descriptive observation to prescribe moral obligations regarding human interaction with nature. According to Aldo Leopold (1949), environmental ethics serves as guidance for navigating ecological situations. It critically examines the philosophical ideologies that underlie human–environment relations, thereby identifying those that foster sustainability versus those that promote ecological degradation.

Environmental ethics started as an academic discipline in the 20th century with the intellectual work of Rachel Carson's (1962) "Silent Spring" noting the implication of pesticides on the land and the works of Lynn White Jr. (1967), that averred the root cause of an imbalanced relationship between humans and nature as the anthropocentric ideology inherent in Western Christianity. Both works studied environmental problems and human–nature relations and aimed to proffer a better ideology that should guide or govern human–nature relations. The work of Leopold (1949) titled 'Land Ethic' also played a central role in shaping the field and advocated for an ethical relationship between humans and the land. Leopold (1949) narrated the transition in the notion of ethics, noting the need for it to include the land as an ethical part of the community. Based on Leopold's observation of the imbalanced relationship between humans and the environment, Leopold dethroned man as the king and lord of the community by positing humans as members of the community (ecosystem). He argues that humans are not rulers over nature but members of an ecological community, thus calling for humility and responsibility.

In essence, environmental ethics; as far as this study is concerned, is responsible for investigating the ethics that bring about environmental crises, and their causes and finding plausible philosophies that best address the issues. Therefore, this paper treats environmental ethics as the evaluative tool for uncovering ideological flaws in human–nature relations, while proposing culturally grounded alternatives. Thus, the next section is focused to examine and explore Yoruba environmental ethics.

### 3. Yoruba Environmental Thought

Environmental philosophy is the branch of philosophy concerned with human–nature relationships. It examines the underlying worldviews that shape how humans relate with nature, seeking alternative frameworks that promote ecological balance. Environmental philosophy is a philosophical discipline that examines the moral, metaphysical, and epistemological aspects of how humans interact with the natural world. It critically analyses the connection between people and the environment, exploring important concerns like the ethical standing of non-human things, the inherent worth of nature, and the ethical consequences of environmental conservation and sustainability activities (Mathews, 2014). Studies have shown that engaging in a balanced relationship between humans and the environment is crucial to healthy living both now and in the future (see Passmore 1974; Bookchin 1990). Several theories have been examined and noted as the root cause of environmental crises, while some were advocated by environmental ethicists as remedials to environmental crises. However, many of these theories either privilege nature to the point of human erasure or present humanity as inherently destructive. These theories are anthropocentrism, ecofeminism, land ethics, ecocentrism, eco-socialism, earth-eco-socialism, and so on. These perspectives are broadly classified

into Anthropocentrism and ecocentrism (Callicott 1999; see Tete 2022). The Yoruba environmental thought tries to maintain equilibrium by not diminishing the place of humans in society while agitating for environmental sustainability.

The Yorubas are predominantly people of culture whose aboriginal home is Nigeria (Motadegbe Ibidapo, 2025; Mogaji, 2025b). History shows that the Yorubas have an Egyptian origin and occupied southwest Nigeria, and can be found in Cotonou, Brazil, and some other parts of the world (see Dasaolu and Ofuasia 2020; Motadegbe Ibidapo 2025). Professor J. A. Atanda (1990, 1) harps that “The Yorùbá constitutes one of the major ethnic groups of modern Nigeria.” They are predominantly found in Ogun, Ondo, Oyo, Ekiti, and Lagos States, as well as a significant portion of Kwara State. Historically, Lagos state was originally the homeland of the Aworis (Yoruba), and is one of the ten biggest Yoruba states in Nigeria. Before the early 1990s, Lagos state had a clean environment with trees; however, as the state came under military leadership, the reverse became the case, as the state became congested and polluted (see Onwuanyi 2019), which was also the reality of other states. The State sold public properties for commercialization, such as the waterfront and Public Park (Onwuanyi 2019), among others. The commercialization of properties and individual gains became not just the military government goals but spread widely and became the objectives of various individuals. This became a key factor that ushered in environmental pollution in Lagos state and across the Yoruba lands in Nigeria, which was, however, not the case prior to this time. In the view of Segun Ogungbemi (1997), it is the desire to catch up with the development of that time that propels Africans towards environmental destruction.

Originally, the Yoruba acknowledged nature, for they believe that “man is a tenant on God’s earth” (Idowu, 1978, 206). They understood that they are stewards of the earth and are not the only inhabitants of it (Awolalu and Dopamu, 1979). Spirits, in their view, reside in the world; some in the sea, on rock, in the forest, and so on (see Awolalu and Dopamu, 1979). For example, *igbó èwòdò*, which denotes the forbidden forest, is a sacred place forbidden to be accessed (see Aliyu, 2022). These are areas where trees freely grow without anyone cutting them off without some sacrifice. This is also evident in the position of Ogungbemi (1997) that Africans believe that what has a physical dimension also has the spiritual in it; due to this, Africans do not take more than what they need from nature, by implication, relating respectively with the environment.

The Yoruba believe that every entity on earth has a purpose. Emmanuel Ofuasia (2024) argues along the same line. Ofuasia holds that entities are of different grades possessing ori, spirit, and body, such as possessed by humans according to Yoruba ontology. Therefore, the Yoruba perceive their environment as a living thing. This thought governs their relationship with nature, as the Yoruba have a philosophy that shapes their interaction with the environment; since the thought of every group is always encapsulated in its culture, the same holds for the Yoruba people, whose culture serves as the key element that differentiates them from other groups. The Yorubas are people of a peculiar culture who exhibit a way of life that is consistent with their philosophies (see Motadegbe Ibidapo 2025). Their environmental thought can be pinpointed by examining their proverbs through semiotic interpretation.

Proverbs are “short sayings, full of sense which come into common and recognized use” (Ikenga-Metuh, 1987, 12). As such, they are a genuine indicator of what a people consider to be true and interpretive of their principles of life and conduct, as they originate from the people themselves (see Ikenga-Metuh, 1987). Semiotics, on the other hand, is the philosophical study of signs. Afisi, inferring from Sanders Peirce, noted that “Meaning is nonexistent if there is no sign pointing to another sign. Meaning generates signs from signs, in long teleological chains distributed over time in a certain direction (semiosis)” (Afisi 2020, 272). Hence, semiotics or Sign Theory could be defined as a sort of representation, reference, and meaning that enables scholars to decode and analyze the underlying patterns of meaning in communication systems, from language to visual arts, and beyond. According to Peirce (1977), a sign only has meaning when it is understood, because the

meaning of a sign is expressed through the interpretation that it elicits in sign users. Semiotics is a theory that allows for sign interpretations. This paper will hence employ semiotics to interpret Yoruba environmental thought.

To start with, the Yoruba are communal beings (Bwaji 2018), who see the well-being of their fellow as crucial to fostering happy living; thus, in their relationship with nature, they show deep reverence by acknowledging that certain principles govern the human-nature relationship in order to truly benefit from it. The Yoruba phrase “*ewe ti sun*” (the leaves have slept) reflects a Yoruba belief that leaves, like humans, have a time of rest. Cutting them at night is considered inappropriate because it is believed to disturb their natural rhythm. This illustration reveals the Yoruba people’s respect for nature by recognizing that even plants deserve care, respect and consideration. It also exposes their philosophy of mutual benefit; by respecting nature’s time and processes, humans ensure continued harmony and benefit from the natural world, because cutting such leaves for usage at that time is likely not to give the desired result.

Another crucial saying goes thus:

*Òkò tí a bá sọ ságbọ̀n làgbọ̀n ńsọ síní.*

Meaning: The stone one throws at a coconut palm is the same as that the coconut palm throws back. (One’s evil deeds are likely to recoil on one). Semiotically and contextually, *ságbọ̀n* (coconut palm) represents nature; the environment, biosphere, hemisphere, and lithosphere, among others. It is believed by the Yorubas that whatever humans throw at nature is what it will throw back at humans. This philosophy governs human-nature relationships in Yoruba settings. The Yoruba people believed that every tree has a purpose or usefulness. On this basis, they do not permit deforestation, as it releases stored carbon dioxide and reduces the number of trees that absorb carbon. Also, they intentionally refrain from littering or dumping waste in drainage and seas, recognizing its negative impact on their well-being.

Another saying goes thus:

*adie to shu si isasun, ibusu re lo baje*

Meaning: A hen that defecates in a cooking pot destroys its burial ground. Semiotically, *adie* denotes humans, *isasun* represents the environment, and *shu* (defecate) represents pollution or destruction. So, a man who pollutes or destroys his environment pollutes or destroys his resting place. Land pollution is something frowned upon within the Yoruba thought. This is done by fostering a thought about the importance of the land to humans, while maintaining the dignity of human identity without rendering it inferior to nature. Thus, it can be inferred from the above that for the Yoruba, the harm done to the environment is harm done to oneself, and how we treat nature determines its response to us as humans. So, beyond the environmental stewardship that Passmore envisages, Yoruba’s environmental thought moves further to accentuate that it is how we treat the environment that determines how the environment will thus treat us in return, thereby advocating for a balance or mean relationship.

This is not only evident in the case of the Yoruba, as Tangwa (2004) noted in his eco-bio-communitarianism, that the idea of live and let live is evident in Africa’s metaphysical view when it comes to human-environment relations. This is based on African’s knowledge that they are interconnected with other elements in the environment and need them to survive. This, however, fosters a balanced interaction by Africans with their environment. Research into Native American land ethics shows a strongly held belief that the land is sacred, interrelated, and that acts harming it inevitably harm the community itself; tribal elders and scholars assert this ethic of reciprocity as foundational to land stewardship (Jostad et al. 1996). Although the claim of Jostad et al. (1996) is not embraced or affirmed as truth for all Americans.

Together, these parallels affirm that Yoruba ecosophy, while culturally unique, shares a philosophical kinship with traditions that insist on balance, ethical reciprocity, and a moral accountability in human–nature relations. The following section explores Aristotle’s doctrine of the mean as a complementary lens through which Yoruba environmental thought can be viewed as balanced rather than extreme.

#### 4. Balancing Yoruba Environmental Thought Through Aristotelian Doctrine of Mean

The quest for a balanced relationship between humans and the environment is pivotal to addressing environmental crises. Aristotle noticed the need to maintain a certain level of disposition in addressing every situation. Aina Akande (2020, 55) portrays this claim as he averred that “every practical engagement ... is done on the basis of certain virtues... and there is a virtue necessary in achieving every goal”. In other words to achieve environmental balance, a certain amount of virtue is required, which is the position of Aristotle on doctrine of ‘The Mean.’ In expression, he avers for a middle ground in every situation, by emphasizing the place of the mean in human dispositions (see Akande 2020). According to Aristotle’s doctrine of mean, goodness is a moderate position between two extremes: deficiency and excess. For example, courage might be understood as the middle ground, which is the mean between the excessive behavior of rashness and the deficient behavior of cowardice. Similarly, moderation is the middle ground between self-indulgence and insensibility. To the above, the mean is not a pure mathematical average but seeks a lenient ground between two extremes, which in the context of human–nature demands practical insight to identify it. Thus, the relationship between humans and the environment calls for a balanced interaction, as the environment’s well-being is directly linked to human well-being; therefore, over-exploitation of any part of the ecosystem will eventually result in consequences that negatively impact healthy living. Also, inappropriate waste disposal and oil spillage on land and water not only impair environmental health but also threaten the sustainability of natural resources essential for human survival. In essence, the theory of mean does not intimidate or prevent humans from doing the needful, but rather emphasizes the balance that Yoruba environmental philosophy stands for. That is to say, the Yoruba environmental thought or Yoruba ‘ecosophy; which signifies the Yoruba ecological wisdom, as we may we have it, is to be inculcated and taught in schools, and in society, as it emphasizes a mean use of natural resources by standing against environmental pollution. It stands to sensitize humans on the effects of their relationship with the environment, for whatever approach comes with its consequence.

#### 5. Conclusion

Having engaged with various assertions and positions on the issues and crises facing the environment as a result of human excesses, this study has introduced Yoruba environmental philosophy as a means to understand a better way of interacting with the environment. It deviates from the popular two camps, the anthropocentric camp and the ecocentric camp—by presenting the Yoruba perspective, which finds solace in equilibrium. While both camps tend toward the extremes of their positions, Yoruba environmental thought argues for a middle ground by recognizing the importance of building a balanced interaction with the environment, without diminishing the identity of humans or portraying them as inferior or subject to the superiority of the ecosystem. Thus, by drawing from the Aristotelian doctrine of the mean, the study argues that Yoruba environmental thought, or ecosophy, promotes a balanced and reciprocal relationship between humans and the ecosystem. This relationship is built on a principle that discourages both excess and deficiency in human interaction with nature. This paper affirms that Yoruba thought aligns with Aristotle’s doctrine of the mean while also offering a more tenable and culturally grounded framework for fostering an eco-conscious relationship with nature in an era where environmental challenges prevail globally.

## References

- Afisi, O.T. 2020. "The Concept of Semiotics in Charles Sanders Peirce's Pragmatism." *Trends in Semantics and Pragmatics*. ResearchGate.
- Akande, M.A. 2020. "Artificial Intelligence and the Limits of Epistemic Justification." *LASU Journal of Philosophy* 3 (1), October.
- Aristotle. 2002. *Nicomachean Ethics*. Translated by C. Rowe. Oxford: Oxford University Press. (Originally published ca. 350 B.C.E.)
- Atanda, J.A. 1990. *An Introduction to Yoruba History*. Ibadan: Ibadan University Press.
- Awolalu, J.O., and P.A. Dopamu. 1979. *West African Traditional Religion*. Ibadan: Onibonoje Publishers.
- Bwaji, J.A.I. 2018. "Yorùbá Values and the Environment." *Yoruba Studies Review* 3 (1): 1–21.
- Bookchin, M. 1990. *The Philosophy of Social Ecology*. Montreal: Black Rose Books.
- Callicott, J.B. 1999. *Beyond the Land Ethic: More Essays in Environmental Philosophy*. Albany: SUNY Press.
- Carson, R. 1963. *Silent Spring*. London: Hamish Hamilton.
- Climate Council. 2024. "Deforestation and Climate Change." <https://www.climatecouncil.org.au/deforestation/#:~:text=Forests%20store%20large%20amounts%20of,unlikely%20to%20reach%20the%20atmosphere>. Accessed December 26, 2024.
- Dasaolu, B.O.P., and E. Ofuasia. 2020. "On the Origin, Migration and Identity of the Yorùbá People: A Philological Account." In *Yoruba Nation and Politics since the Nineteenth Century: Essays in Honour of Professor J.A. Atanda*, edited by T. Falola and D. Olubomehin, 261–273. Austin, TX: Pan African University Press.
- Gana, J., and P. Toba. 2015. "Environmental Pollution and Sustainability." *Journal of Research in Environmental Science and Toxicology* 4 (1): 1–9.
- Idowu, E.B. 1978. *African Traditional Religion – A Definition*. London: SCM Press Ltd.
- Ikenga-Metuh, E.E. 1987. *Comparative Studies of African Traditional Religion*. Onitsha: IMICO Publishers.
- Jostad, Patricia M., Leo H. McAvoy, and Daniel McDonald. 1996. "Native American Land Ethics: Implications for Natural Resource Management." *Society Natural Resources* 9 (6): 565–581. <https://doi.org/10.1080/08941929609380996>.
- Kehoe, R., E. Frago, and D. Sanders. 2021. "Cascading Extinctions as a Hidden Driver of Insect Decline." *Ecological Entomology* 46 (4): 743–756.
- Landrigan, P.J., R. Fuller, N.J.R. Acosta, O. Adeyi, R. Arnold, N. Basu, et al. 2017. "The Lancet Commission on Pollution and Health." *The Lancet* 391 (10119): 462–512. [https://doi.org/10.1016/S0140-6736\(17\)32345-0](https://doi.org/10.1016/S0140-6736(17)32345-0).
- Leopold, A. 1949. *A Sand County Almanac*. Oxford: Oxford University Press.
- London School of Economics and Political Science. 2023. "What Is the Role of Deforestation in Climate Change and How Can 'Reducing Emissions from Deforestation and Degradation' (REDD+) Help?" <https://www.lse.ac.uk/granthaminstitute/explainers/whats-redd-and-will-it-help-tackle-climate-change/>
- Mathews, F. 2014. "Environmental Philosophy." *History of Philosophy*. Australia and New Zealand 6: 543–591.
- Mogaji, R. I. 2025a. "An Ubuntu Remedy for Cognitive Decolonization of Environmental Degradation." *Shanlax International Journal of Arts, Science and Humanities* 12 (4): 43–52. <https://doi.org/10.34293/sijash.v12i4.8722>.
- Mogaji, R. I. 2025b. "Assessing the Yoruba Conservation Approach in Addressing Contemporary Environmental Crises." *Crowther Journal of Arts and Humanities* 2 (4): 119–132.
- Motadegbe, A. O., and Ibiyemi, S. O. 2025. "Globalization and the Transformation of Indigenous Morality: A Philosophical Study of the Yoruba Concept of Omoluabi." *Àgídígbo: Abuad Journal*

of the Humanities 13 (1): 17–27.

Naess, A. 1973. “The Shallow and the Deep, Long-Range Ecology Movement.” *Inquiry* 16: 151–155. Reprinted in Sessions 1995.

Nault, W.H., ed. 1993. *The World Book Encyclopedia*, Vol. 15. London: World Book Inc.

Nwanne, B. 2013. “Media, Environmental Sustainability and National Development in Nigeria.” *New Media and Mass Communication* 18: 14–30.

Obi, O.A. 2024. “Muslims Getting It Right with Nature for Environmental Sustainability.” *INTELLECTUS: The African Journal of Philosophy* 2 (1): 35–41. <https://www.researchgate.net/publication/382657493>.

Ofuasia, E. 2024. *Ìwà: The Process-Relational Dimension to African Metaphysics*. Cham: Springer.

Ofuasia, E. 2018. “On the Interests of Non-Human Animals in Traditional Yorùbá Culture: A Critique of Ọrúnmilà.” *Bangladesh Journal of Bioethics* 9 (2): 6–21.

Ogungbemi, S., 1997. “An African perspective on the environmental crisis.” *Environmental ethics: Readings in theory and application*, pp.330–337.

Ojomo, P.A. 2024. “Thinking Sustainability through the Earth-Eco-Socialist Paradigm.” *International Journal of Research and Innovation in Social Science* 8 (4): 237–247.

Onwuanyi, N. 2019. “Lagos Was an Orderly City until 1991 – Then Town Planners Left for Abuja.” <https://www.theafricareport.com/17906/lagos-was-an-orderly-city-until-1991-then-city-planners-left-for-abuja/>. Accessed December 27, 2024.

Passmore, J. 1974. *Man's Responsibility for Nature*. 2nd ed. London: Duckworth.

Peirce, C. 1977. *Semiotics and Significs*. Edited by C. Hardwick. Bloomington, IN: Indiana University Press.

Pew Research Center. 2018. “Majorities See Government Efforts to Protect the Environment as Insufficient.” May 14. <https://www.pewresearch.org/>.

Rawat, G., and S. Mishra. 2021. “Spirituality and Environment: Significance of Indigenous Knowledge Systems in Africa and Challenges.” *Literary Endeavour* 12 (1).

Tangwa, G.B., 2005. “Some African reflections on biomedical and environmental ethics”. *A Companion to African philosophy*, pp.387–395.

Tete, F. 2022. “Ecocentrism as Theoretical Framework for Environmental Ethics.” *J. Sos.* 9 (2): 103–112.

Ukaogo, P.O., U. Ewuzie, and C.V. Onwuka. 2020. “Environmental Pollution: Causes, Effects, and the Remedies.” In *Microorganisms for Sustainable Environment and Health*, 419–429. Amsterdam: Elsevier.

White, L. 1967. “The Historical Roots of Our Ecological Crisis.” *Science* 155: 1203–1207. Reprinted in Schmidt and Willott 2002.