

Environmental Justice for Africa: Recognising and Mainstreaming Indigenous Knowledge Systems in Biodiversity Conservation for Sustainable Development

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Abstract

This paper discusses how indigenous knowledge systems can be effectively harnessed towards sound biodiversity conservation in Africa for environmental justice and Sustainable Development. The paper observes that indigenous knowledge systems have been at the heart of biodiversity conservation in Africa for many centuries. It examines how indigenous peoples and local communities in Africa have utilised their unique knowledge systems and practices to ensure sound biodiversity conservation in the continent. Despite their crucial role in fostering harmony with nature, the paper notes that indigenous knowledge systems in Africa are usually marginalized and ignored in biodiversity conservation efforts undermining Sustainable Development efforts. Consequently, the paper argues that embracing indigenous knowledge systems in Africa is crucial towards safeguarding nature for Sustainable Development. The paper discusses how indigenous knowledge systems can be recognised and mainstreamed in biodiversity conservation for environmental justice and Sustainable Development in Africa.

1.0 Introduction

Achieving environmental justice is a key priority for Africa in light of the disproportionate impacts the continent faces from environmental threats including climate change, pollution, environmental degradation and biodiversity loss. In particular, Africa has been identified as one of the most biodiverse regions on Earth, hosting nearly a quarter of global biodiversity¹. The continent hosts critical ecosystems including mangroves, peatlands, freshwater ecosystems, coral reefs, deserts, tropical forests, grasslands, savannahs and ice-capped mountains which are crucial in biodiversity conservation efforts². Africa is also home to unique and rich plant and animal species setting the continent apart as a biodiversity hotspot³.

The abundance of biodiversity in Africa provides immense opportunities to unlock Sustainable Development. Africa's rich biodiversity is a source of food, health, energy water supply and economic growth⁴. It has been observed that Africa's biodiversity is the engine for socioeconomic development in the continent⁵. For example, most African countries are largely dependent on their natural resources including agricultural lands, forests, fisheries, water resources and wildlife for socio-economic growth⁶. Africa's biodiversity is crucial for maintaining the balance of

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¹ Biodiversity loss in Africa: A critical risk and opportunity for impact., Available at https://www.controlrisks.com/our-thinking/insights/biodiversity-loss-in-africa-a-critical-risk-and-opportunity-for-impact?utm_referrer=https://www.google.com (Accessed on 31/03/2026)

² UNEP-WCMC (2016) The State of Biodiversity in Africa: A mid-term review of progress towards the Aichi Biodiversity Targets. UNEP-WCMC, Cambridge, UK., Available at <https://www.cbd.int/gbo/gbo4/outlook-africa-en.pdf> (Accessed on 31/03/2026)

³ African Development Bank Group., 'Biodiversity' Available at <https://www.afdb.org/en/topics-and-sectors/topics/biodiversity#:~:text=Africa%20is%20one%20of%20the,%2C%20savannas%2C%20and%20coral%20reefs> (Accessed on 31/03/2026)

⁴ African Development Bank Group., 'Why Should Biodiversity be Africa's top Priority' Available at <https://blogs.afdb.org/climate-change-africa/why-should-biodiversity-be-africa%E2%80%99s-top-priority-279#:~:text=Brief%20overview%20of%20Africa's%20biodiversity,formation%2C%20and%20providing%20ecotourism%20services>. (Accessed on 31/03/2026)

⁵ Ibid

⁶ Ibid

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ecosystems and providing ecosystem services essential for human well-being including clean air, water, food, energy, climate regulation and disease control⁷. Most of Africa's rural population rely on the continent's diverse natural ecosystems for their food, water, energy, health, and secure livelihood needs⁸.

Biodiversity therefore plays a key role in unlocking Sustainable Development in Africa. However, it has been observed that Africa's biodiversity is declining with ongoing losses of species and habitats undermining Sustainable Development efforts⁹. Biodiversity loss in Africa is leading to the disappearance of vital plant and animal species, the destruction of local habitats and ecosystems that support human health, well-being and livelihoods, and the loss of critical ecosystem services such as climate regulation, pollination, water purification, disease control and food security¹⁰. The loss of biodiversity in Africa is thus a major impediment in the pursuit of Sustainable Development. It has been observed that the decline and loss of biodiversity in Africa threatens millions of livelihoods in the continent especially in rural areas, increases food and water insecurity, fuels conflicts over land and dwindling natural resources, and can lead to the transmission of zoonotic diseases undermining human health and well-being¹¹. Sound biodiversity conservation in Africa is therefore a crucial goal for environmental justice and Sustainable Development.

This paper discusses how indigenous knowledge systems can be effectively harnessed towards sound biodiversity conservation in Africa for environmental justice and Sustainable Development. The paper observes that indigenous knowledge systems have been at the heart of biodiversity conservation in Africa for many centuries. It examines how indigenous peoples and local communities in Africa have utilised their unique knowledge systems and practices to ensure sound biodiversity conservation in the continent. Despite their crucial role in fostering harmony with nature, the paper notes that indigenous knowledge systems in Africa are usually marginalized and ignored in biodiversity conservation efforts undermining Sustainable Development efforts. Consequently, the paper argues that embracing indigenous knowledge systems in Africa is crucial towards safeguarding nature for Sustainable Development. The paper discusses how indigenous knowledge systems can be recognised and mainstreamed in biodiversity conservation for environmental justice and Sustainable Development in Africa.

2.0 Indigenous Knowledge Systems and Biodiversity Conservation in Africa: Successes and Challenges

Indigenous knowledge systems is a wide term that covers the understandings, skills and philosophies developed by societies with long histories of interaction with their environment and natural surroundings¹². Indigenous knowledge systems are a cumulative, collective body of knowledge, experiences, and values held by societies with a history of subsistence¹³. It has been observed that indigenous knowledge systems entail specific skills, practices, and technologies associated with ecological resource management and human and animal health, reflecting a unique life

⁷ African Development Bank Group., 'Biodiversity' Op Cit

⁸ Africa Center for Strategic Studies., 'African Biodiversity Loss Raises Risk to Human Security' Available at <https://africacenter.org/spotlight/african-biodiversity-loss-risk-human-security/> (Accessed on 31/03/2026)

⁹ UNEP-WCMC (2016) The State of Biodiversity in Africa: A mid-term review of progress towards the Aichi Biodiversity Targets. UNEP-WCMC, Op Cit

¹⁰ Bonnor. C., 'Biodiversity loss in Africa: A critical risk and opportunity for impact' Available at https://www.controlrisks.com/our-thinking/insights/biodiversity-loss-in-africa-a-critical-risk-and-opportunity-for-impact?utm_referrer=https://www.google.com (Accessed on 31/03/2026)

¹¹ Africa Center for Strategic Studies., 'African Biodiversity Loss Raises Risk to Human Security' Op Cit

¹² United Nations Educational, Scientific and Cultural Organization., 'Local and Indigenous Knowledge Systems (LINKS)' Available at <https://en.unesco.org/links> (Accessed on 01/04/2026)

¹³ Ellis, S.C., "Meaningful consideration? A review of traditional knowledge in environmental decision making," *Arctic* (2005): 66-77, at p. 66.

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experience and cultural harmony with ecosystem services within a particular region¹⁴. This body of knowledge is usually accumulated and transmitted across generations within specific cultural contexts¹⁵.

It has been pointed out that indigenous knowledge systems are a living body of knowledge that are developed, sustained and passed on from generation to generation within an indigenous or local community, often forming part of its cultural or spiritual identity¹⁶. For indigenous peoples and local communities, indigenous knowledge systems inform decision-making about fundamental aspects of day-to-day life¹⁷. In particular, indigenous knowledge systems play a pertinent role in biodiversity conservation. For example, it has been observed that the knowledge and practices of indigenous peoples and local communities emphasize the balance between humans and the natural world thus ensuring respect for nature including through sound biodiversity conservation and ecosystem management¹⁸. The unique knowledge systems, innovations and practices of indigenous peoples and local communities, which have been passed down from generation to generation, have enabled these communities to live sustainably for many centuries¹⁹.

It has been observed that indigenous peoples and local communities occupy most of the biodiversity hotspots on the planet, utilising their knowledge systems to ensure harmony with nature²⁰. According to the United Nations Environment Programme (UNEP), areas occupied and managed by indigenous peoples are the oldest form of biodiversity conservation, and often the most effective²¹. Consequently, it has been correctly noted that the knowledge systems and practices of indigenous peoples and local communities are critical for addressing global biodiversity loss for Sustainable Development²².

Harnessing indigenous knowledge systems is therefore necessary towards bolstering biodiversity conservation in Africa. Indigenous peoples and local communities in Africa have developed flexible, adaptive and resilient practices to cope with environmental variability unique to the continent including through sustainable agricultural practices, sustainable hunting and fishing methods, sound water management and sustainable ecosystem conservation practices tailored to local needs²³. It has been observed that indigenous people in Africa have developed deep and sophisticated indigenous knowledge systems, based on their observations and interactions with the environment over generations that have enabled them to harness ecosystem services to support their livelihoods, ensure harmony with nature and

¹⁴ Indigenous Knowledge., Available at <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/indigenous-knowledge> (Accessed on 01/04/2026)

¹⁵ Jessen. T et al., 'Contributions of Indigenous Knowledge to ecological and evolutionary understanding' Available at <https://esajournals.onlinelibrary.wiley.com/doi/10.1002/fee.2435> (Accessed on 01/04/2026)

¹⁶ World Intellectual Property Organization., 'Intellectual Property and Genetic Resources, Traditional Knowledge and Traditional Cultural Expressions' Available at https://www.wipo.int/edocs/pubdocs/en/wipo_pub_933_2020.pdf (Accessed on 01/04/2026)

¹⁷ United Nations Educational, Scientific and Cultural Organization., 'Local and Indigenous Knowledge Systems (LINKS)' Op Cit

¹⁸ United Nations Development Programme., 'Indigenous knowledge is crucial in the fight against climate change – here's why' Available at <https://climatepromise.undp.org/news-and-stories/indigenous-knowledge-crucial-fight-against-climate-change-heres-why> (Accessed on 01/04/2026)

¹⁹ Ibid

²⁰ International Institute for Environment and Development., 'Indigenous knowledge and values: key for nature conservation' Available at <https://www.iied.org/20351iied> (Accessed on 01/04/2026)

²¹ United Nations Environment Programme., 'Indigenous Peoples: The unsung heroes of conservation' Available at <https://www.unep.org/news-and-stories/story/indigenous-peoples-unsung-heroes-conservation> (Accessed on 01/04/2026)

²² International Institute for Environment and Development., 'Indigenous knowledge and values: key for nature conservation' Op Cit

²³ Traditional Ecological Knowledge and Global Climate Change; A Global South Perspective on Climate Solutions., Available at <https://afo.or.tz/traditional-ecological-knowledge-and-global-climate-change-a-global-south-perspective-on-climate-solutions/> (Accessed on 01/04/2026)

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survive socioecological changes including climate change²⁴. Indigenous knowledge systems and practices have enabled communities in Africa to live in harmony with nature for many centuries since they hold a prevailing view that nature is sacred²⁵. Knowledge about traditional medicines, indigenous crops, traditional hunting and fishing techniques, animal migration patterns and water management have been utilised by indigenous and local communities in Africa for many centuries to ensure sound biodiversity conservation for people and planet²⁶.

Indigenous knowledge is therefore crucial for biodiversity conservation in Africa. It has been observed that Africa's rich indigenous knowledge systems support deep understanding of the intrinsic value of nature and provide local and context-specific solutions on biodiversity conservation²⁷. For indigenous peoples and local communities in Africa, biodiversity conservation is not merely a practice, but a way of life and a source of spiritual and cultural well-being²⁸.

Despite playing a key role in biodiversity conservation both globally and in Africa, indigenous knowledge systems are yet to be fully harnessed undermining conservation efforts. In particular, it has been observed that indigenous knowledge systems in Africa and the Global are usually ignored, disregarded and marginalized in biodiversity conservation efforts since they are considered as '*unscientific*'²⁹. Further, since indigenous knowledge systems are usually passed down orally from generation to generation, there is a threat of being lost without appropriate preservation³⁰. Human right violations against indigenous peoples also undermine the role of indigenous knowledge systems in biodiversity conservation. For example, land injustices, including displacement of indigenous peoples from their lands and territories, undermines their livelihoods and cultural practices including the use of indigenous knowledge systems in biodiversity conservation³¹.

In light of the foregoing concerns, it is imperative to recognise and mainstream indigenous knowledge systems in biodiversity conservation in Africa for Sustainable Development.

3.0 Recognising and Mainstreaming Indigenous Knowledge Systems in Biodiversity Conservation in Africa

The abundance of biodiversity in Africa offers opportunities to unlock Sustainable Development. However, ongoing loss of Africa's biodiversity threatens human and ecosystem health while also undermining peace and security due to conflicts over dwindling natural resources³². Biodiversity conservation in Africa is therefore a key goal for people

²⁴ Zougmore. R., Segnon. A., & Thornton. P., 'Harnessing Indigenous Knowledge and Practices for Effective Adaptation in the Sahel' Available at <https://doi.org/10.1016/j.cosust.2023.101389> (Accessed on 01/04/2026)

²⁵ Naamwintome. B.A., & Millar. D., 'Indigenous Knowledge and the African Way Forward: Challenges and Opportunities' Available at <https://www.scirp.org/journal/paperinformation?paperid=68164> (Accessed on 01/04/2026)

²⁶ World Intellectual Property Organization., 'Intellectual Property and Genetic Resources, Traditional Knowledge and Traditional Cultural Expressions' Op Cit

²⁷ United Nations Educational, Scientific and Cultural Organization., 'Indigenous knowledge and traditional practices guiding nature and climate conservation In the Virunga National Park' Available at <https://www.unesco.org/en/articles/indigenous-knowledge-and-traditional-practices-guiding-nature-and-climate-conservation-virunga> (Accessed on 01/04/2026)

²⁸ Ibid

²⁹ The African Manifesto for Science, Technology and Innovation., Available at https://atpsnet.org/wp-content/uploads/2017/05/the_african_manifesto_for_sti.pdf (Accessed on 01/04/2026)

³⁰ Owusu-Ansah. F., & Mji. G., 'African indigenous knowledge and research' Available at <https://pmc.ncbi.nlm.nih.gov/articles/PMC5442578/#:~:text=Indigenous%20knowledge%20or%20African%20knowledge,is%20collective%20and%20community%20oriented> (Accessed on 01/04/2026)

³¹ United Nations Environment Programme., 'Indigenous Peoples and the nature they protect' Available at <https://www.unep.org/news-and-stories/story/indigenous-peoples-and-nature-they-protect> (Accessed on 01/04/2026)

³² Africa Center for Strategic Studies., 'African Biodiversity Loss Raises Risk to Human Security' Op Cit

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and planet towards Sustainable Development. It has been observed that strengthening conservation efforts in Africa is necessary in order to prevent the loss of biodiversity and ensure the sustainable use of natural resources for present and future generations³³.

Indigenous knowledge systems in Africa provide valuable solutions towards fostering sound biodiversity conservation for environmental justice and Sustainable Development. Africa's indigenous knowledge systems emphasize harmony with nature and have enabled communities in the continent to live sustainably for many centuries³⁴. The role of indigenous knowledge systems in biodiversity conservation is recognised under the *Convention on Biological Diversity*³⁵. The Convention requires each contracting party to as far as possible and as appropriate respect, preserve and maintain *knowledge*, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such *knowledge*, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such *knowledge*, innovations and practices (Emphasis added)³⁶. In addition, the *Kunming-Montreal Global Biodiversity Framework*³⁷ acknowledges the vital contribution of indigenous peoples and local communities in biodiversity conservation. The Global Biodiversity Framework requires states to adopt a whole-of government and whole-of-society approach including through upholding the role of indigenous peoples and local communities in biodiversity conservation³⁸.

Recognising and mainstreaming indigenous knowledge systems in biodiversity conservation is therefore a key global agenda. In order to achieve this goal, it is imperative to involve indigenous peoples and local communities in the development and implementation of National Biodiversity Strategies and Action Plans (NBSAPs)³⁹. It has been observed that NBSAPs reflect national strategies, plans, or programs for the conservation and sustainable use of biodiversity as aligned with measures set out in the Convention on Biological Diversity⁴⁰. It has been argued that by involving indigenous peoples and local communities in developing and implementing NBSAPs, it is possible to ensure that their voices and knowledge systems are taken into account for sustainable outcomes⁴¹.

In addition there is need to uphold the rights of indigenous peoples and local communities in order to effectively utilise indigenous knowledge systems for sound biodiversity conservation. In particular, recognising and protecting the land rights of indigenous peoples has been identified as a key approach in bolstering their role in environmental protection, biodiversity conservation and climate action through their indigenous knowledge systems and practices⁴².

³³ African Development Bank Group., 'Biodiversity' Op Cit

³⁴ United Nations Educational, Scientific and Cultural Organization., 'Indigenous knowledge and traditional practices guiding nature and climate conservation In the Virunga National Park' Op Cit

³⁵ Convention on Biological Diversity' [1993] ATS 32 / 1760 UNTS 79 / 31 ILM 818 (1992).

³⁶ Ibid, article 8 (j)

³⁷ Convention on Biological Diversity., 'Decision Adopted by the Conference of the Parties to the Convention on Biological Diversity: 15/4. Kunming-Montreal Global Biodiversity Framework' Available at <https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-04-en.pdf> (Accessed on 01/04/2026)

³⁸ Ibid

³⁹ Secretariat of the Convention on Biological Diversity., 'Acting for biodiversity can take a diversity of forms' Available at <https://www.cbd.int/article/idb-2025-nudges#:~:text=Biodiversity%20conservation%20and%20restoration%20requires,the%20KMGBF%20and%20the%20QSDGs> (Accessed on 01/04/2026)

⁴⁰ Secretariat of the Convention on Biological Diversity., 'Guidance on Integrating Human Rights in National Biodiversity Strategy and Action Plans (NBSAPs)' Available at <https://www.cbd.int/doc/nbsap/integrating-human%20rights-in-NBSAPs.pdf> (Accessed on 01/04/2026)

⁴¹ Secretariat of the Convention on Biological Diversity., 'Acting for biodiversity can take a diversity of forms' Op Cit

⁴² United Nations Environment Programme., 'Indigenous Peoples and the nature they protect' Op Cit

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According to UNEP, when the rights of indigenous peoples are protected, especially their rights to land, territories and resources, their culture and nature thrives⁴³. Upholding land rights for indigenous peoples and local communities is therefore key towards harnessing indigenous knowledge systems for biodiversity conservation.

It is also necessary to invest in preservation of indigenous knowledge systems for posterity. It has been correctly noted that cultural preservation is key in ensuring that indigenous knowledge systems are not lost and are transmitted to future generations in order to ensure sound biodiversity conservation now and tomorrow⁴⁴. Governments have been urged to preserve indigenous knowledge systems including through strengthening indigenous education and documenting oral traditions and cultural practices in order to effectively protect the wisdom of indigenous peoples and local communities for Sustainable Development⁴⁵.

Through the foregoing, it is possible to effectively recognise and mainstream indigenous knowledge systems in biodiversity conservation for Sustainable Development.

4.0 Conclusion

Indigenous knowledge systems are central to sound biodiversity conservation in Africa. However, this valuable resource is yet to be fully harnessed undermining sound biodiversity conservation in the continent. It is therefore necessary to recognise and mainstream indigenous knowledge systems including through involving indigenous peoples and local communities in designing and implementing NBSAPs, upholding the land rights of indigenous peoples and local communities and preserving indigenous knowledge systems for posterity⁴⁶. Recognising and mainstreaming indigenous knowledge systems in Africa is a noble and achievable dream towards ensuring sound biodiversity conservation for Sustainable Development.

⁴³ Ibid

⁴⁴ United Nations., 'Indigenous People's Traditional Knowledge Must Be Preserved, Valued Globally, Speakers Stress as Permanent Forum Opens Annual Session' Available at <https://press.un.org/en/2019/hr5431.doc.htm> (Accessed on 01/04/2026)

⁴⁵ Ibid

⁴⁶ Ibid

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