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African Political Ecologies

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Abstract

This review locates African political ecologies at the intersection of the broader fields of political ecology and African studies. It focuses on African ecological thought and practices in relation to environmental challenges in Africa. Methodologically, it eschews the sectoral approach to the study of African environments by drawing together three interrelated themes of African epistemologies, African agency, and socioecological debt. It treats these themes as the bedrock of African political ecologies that are crucial for engaging and resolving socioecological challenges on the continent and for governing the African commons. These foundational themes offer avenues for appreciating African epistemologies, experiences, and actions as well as the possibilities for context-specific environmental justice within the broader frame of reparation. The review concludes by delineating the scope and agenda for the African political ecologies crucial for broadening political ecological research and African studies.

Contents

1. INTRODUCTION

Africa's natural history has attracted international attention for centuries. Among the earliest southern African plants to be recorded in Europe is the Cape *Protea neriifolia* R.Br., illustrated in *Exoticorum libri decem* (1). The exploitation of Africa's biological resources and the extensive shipment of animal and plant specimens to various major collections in Europe (2) are evidence that "colonial and environmental histories are mutually constitutive" (3, p. 93). Many of the collections bear the legacy of their time—recognizing only the European collector despite the involvement of Indigenous people in the expeditions—and, until recently, no duplicate specimens had been deposited in the source countries. A perusal of the compendium of plant collectors in South Africa, covering one of Africa's best-studied botanical regions, shows more than 2,000 collectors, of whom only 1% are Black African (4).

Attention to African environments has increased with ongoing global environmental crises, recognition of the richness of and the threats to the continent's biodiversity, and the need for securing livelihoods. Africa is home to a rich and remarkable biodiversity, featuring eight well-recognized hot spots, including the Succulent Karoo, Maputaland-Pondoland-Albany, the Cape Floristic Region, and Madagascar. Africa's diverse biomes, such as deserts, mangroves, tropical forests, grasslands, and savannas, support around 25% of global fauna and flora (5). A defining feature of the African landscape is the presence of trees, which are highly treasured, especially among rural communities, for their contributions to nutrition, good health and well-being, and livelihoods (6–7). The estimated 800–1,200 indigenous fruit trees are of diverse sizes, shapes, and colors. Globally recognized examples are the African baobab or tree of life (*Adansonia digitata* L.), African wild loquat (*Uapaca kirkiana* Müll.Arg.), black plum (*Vitex doniana* Sweet), desert date [*Balanites aegyptiaca* (L.) Delile], marula [*Sclerocarya birrea* (A.Rich.) Hochst. subsp. *affra* (Sond.) Kokwaro], and mobola plum (*Parinari curatellifolia* Planch. ex Benth.). Studies have shown that the continent is one of the most vulnerable regions in the world to environmental change, extractive industries, overfishing, and consequent pandemics. These concerns and predictions cannot be ignored, but there are gaps in analyses of African environments that require attention. Much still needs to be learned from the ways in which African societies have thought and still think about and relate to nature.

The point of departure of this review is that African environmental thought and experiences are crucial for tackling current and future environmental challenges and should be at the center of discussions on, and plans for, sustainability and the future of Earth and its inhabitants. These ideas about nature and the relationship between African people and their environment have been disrupted by major processes and events such as slavery, colonialism, and global capitalism, with dire consequences for both people and the environment. Africans have been victims of environmental violence, but they have also exercised their agency to defend their natural resources and livelihoods, to respond to pandemics such as COVID-19, to contribute to world heritage, and to demand environmental justice. They are also participants in externally driven interventions that seek to restore socioecological relations even as they have not been satisfactorily achieved.

This review parses the literature on African environmental thought, the socioecological debt to Africa, and African agency to launch an initiative under the umbrella of African political ecologies (APEs). Section 2 introduces the concept of APE. Section 3 offers a reading of African studies with an emphasis on the significance of African philosophies and how they aid our understanding of socioecological relations. Section 4 delves into socioecological debt and related discussions on reparation and distributive justice. Section 5 engages with the literature on African agency in the environmental domain to highlight interventions in, by, and for African societies. Section 6 connects African ecological thought and experiences with governance regimes to amplify the significance of governing natural resources in Africa as the commons. The review concludes in Section 7 by delineating the scope and agenda for APE to broaden political ecological research while contributing to African studies.

Environmental justice: a demand for correcting or stopping unhealthy environmental actions and practices, and for the right of all people to a clean and safe environment irrespective of class, race, gender, and nationality/ethnicity

Socioecological relations: relationships between people and their environment often mediated by national and global policies related to environmental protection of life below water and on land

Socioecological debt: the harm caused by various internal and external forces to both the ecological systems and the people depending on it

Political ecology: an open approach to understanding human-environment interactions and power dynamics

Communitarianism: a view opposed to (Western) individualism that places the interest of the collective and a duty to others at the center of social life in society

2. AFRICAN POLITICAL ECOLOGY

A literature and Google search for "Africa" and "political ecology" suggests an emphasis on the political ecology of different countries and regions, a specific species or natural resource, and so on. This review eschews such a sectoral approach to the study of African environments and instead parses literature on African epistemologies, socioecological debt, and African agency as foundational to APE in order to appreciate African epistemologies and experiences and argue for a broader conception of environmental justice. African philosophies open access to the archives that might help researchers and practitioners think about environmental challenges and solutions. Acknowledging the ways in which African people relate(d) to their biophysical environment enriches the universality of environmental knowledge. Our initiative (i.e., APE) seeks to locate political ecological work, the African experience, and practices at the intersection of the broader fields of political ecology and African studies.

In keeping with the foundational remit of the field of political ecology, APE pays attention to ecology and politics via the dual degradation of the environment and the people depending on it. It is premised on an understanding of socioecological relations as situated and expressed through African ontologies. APE centers on African communitarianism, or what is considered the ontological primacy of the community in the African worldview (8). With its grounding in postcolonial ecocritical thought and the African experience, APE reframes African environments and the colonially imposed culture–nature dichotomy by considering resources as constituted by a combination of natural resources (e.g., minerals, oil/gas, fisheries, wildlife, forests, water) and African people themselves. APE contests ontologies that are anchored in external experiences and that narrow pathways for ecological restoration and environmental justice. In other words, APE questions ontologies that constrain African-centered ecological restoration and reparation.

It seeks to reveal the socioecological debt to Africa in material and nonmaterial terms, as well as the dehumanization of Africans through environmental ideologies and practices, and to place the centrality of land in the discourse of ecological restoration, sustainability, and human well-being. The goals of APE research can be achieved by thinking about ecologies and African thought as relational, as illuminated below.

Ecological restoration: all activities aimed at repairing degraded area(s) to achieve their previous status of biological diversity, structure, and functions based on knowledge of the relationships between living organisms and their physical environment

Reparation: a kind of restitution or compensation following the acknowledgment of wrongdoing to the aggrieved by the aggressor to help the victims to readjust and to build a better future for themselves and the next generations

Colonial library: written and unwritten narratives by the colonial powers used to justify controlling and treating the colonialized unfairly

3. AFRICAN STUDIES AND ENVIRONMENTAL THOUGHT

Avenues for recovering and/or collating environmental thought abound and include reading the environment through African studies. This review emphasizes two aspects of African studies, namely what researching Africa entails and the place of the environment in African studies as the basis for APE. African studies is a contested and complex terrain for producing and reproducing knowledge to address the existential problems facing Africans on the continent and in the diaspora. Most of these problems are rooted in the African experience with enslavement, colonialism, anti-Black racism, neocolonialism, neoliberal globalization, and the condition of the postcolonial state emerging from within these interlocking forces, which have resulted in Africa as a "postcolonized continent," meaning that African states lack "the real institutions that generally characterize the modern state of Westphalian tradition" (9, p. viii; see also 10). African political elites have deepened the challenges facing the continent and have collaborated with external actors, institutions, and multinationals in the suppression and impoverishment of their own people. They therefore contribute to the persistence of economic, social, and political woes in many African societies (11–13).

The study of African environments through the lens of African studies requires attention to the positionality of the authors or interlocutors (14–16), the language of thinking about and reporting knowledge findings and knowledge claims (17–21), and what in fact counts as knowledge about Africa given the erasures of colonial violence (22) and the reality of the colonial library (23). In other words, there are hard questions to be answered in African studies concerning "the institutional location and the domain of authority, legitimacy, and power in the production of knowledge about Africa" (24, p. 93). African studies requires paying attention to the continent's ritual archives (25) to create its syllabus of knowledge (26); ignoring, momentarily, debates and issues arising from the so-called center (27); and avoiding alienating, Western-centric universalist tropes to truly make sense of the African world and realities (28). Thus, African scholarship must guard against the pitfalls of totalizing, essentializing, and stereotypical assumptions or a single story about Africa (29–30). Similarly, the goal of insider scholarship in African studies should not be to "infiltrate" or inject our ideas into the "metropolitan modes of understanding," as that approach could encourage unidimensional representations of a people (31, p. 32) or lead to a paradoxical, uncomprehending endorsement of the metropolitan episteme (32). It could also become a tragic, fruitless venture aimed at attaining global visibility in a global knowledge structure that is always rigged in favor of Western epistemic imperialism, coloniality, and racism (33–35).

African studies must rise above the narrow appellation of an alternative or Africanized body of knowledge (36), that is a body of knowledge that merely counters the dominant Western episteme for the sake of doing so, and "marking the disciplinary field" (29, p. 15). The real challenge for African studies is to envision the possibility of philosophical *poiesis*, that is, to find or create the appropriate methodology that allows the researcher to bring something that was not there before into existence (36, 29). That would, in turn, help undo the colonial canon (37) and transcend the limitations of the social sciences. Macamo (36) counsels that African studies should not be understood simply as producing knowledge about Africa or identities; rather, it must raise the question of how to develop the appropriate research methodology that allows us to study just about anything, including the environment, legitimately. It ought to be understood as "the careful reflection on the conditions under which knowledge is at all possible" and must necessarily create the "universal" conditions for studying Africa (36, p. 31). This review places African environments in African studies to emphasize the possibility of producing knowledge of APE.

African ontology: a holistic view concerning the nature of being and existence of life that treats both the physical and spiritual realms in the same way while placing communal relationships and interconnectedness above all else

Communitarian philosophy in Africa contrasts sharply with the dominant theories of the environment in the West, which are often rooted in anthropocentric chauvinism (38). Such theories flow from Western notions of rationality and individualism, which, in turn, undergird the colonial logic in which other, nonhuman beings do not deserve and cannot be accorded a moral status (39, p. 622). Conversely, the African ethics of the environment is based on Ubuntu (and its variants), which goes beyond human interdependence to embody the coexistence or planetary conviviality of humans and nonhumans. It is a "posthumanist ecological thinking. . . [and] a new type of radical ecology that shows deep affinity to nature and is equally respectful to all creatures" (3, p. 102). Like other indigenous cosmologies, African conceptions of the environment and environment–human relations include the natural environment as deserving an integral existence and moral status (40). Things have undoubtedly changed as Africa's communitarian ethos, religion, and philosophies took a beating under the weight of colonialism, aggressive anthropocentrism, and market fundamentalism (41).

The general view that the African notion of the environment is holistic, ecologically friendly, and nonanthropocentric is hotly debated in the burgeoning literature concerning African environmental ethics and their significance. Some African scholars insist that African ontology and interaction with nature, while more friendly than in the West, are in the last analysis anthropocentric (42). It has been suggested that African ontology about the environment is based more on fear of the gods and ancestral spirits than on an actual commitment to a consistent ethics of the environment (43). In contrast, many African authors seek to decenter the discourse on the environment from Western hegemonic individualism and anthropocentrism, contending that, in African ontology, vital force, energy, or dynamism permeates every reality and that there is a hierarchy of beings in a manner that does not necessarily separate objects and subjects but rather represents an endless interconnectedness and harmonious interdependence (44–49). Others propose that African religion, ontology, and ethics are ecologically friendly, biocentric, and ecocentric (50–51).

Scholars have argued that "even if one assumes that Ubuntu is soldered to anthropocentrism, the values that flow from it foster a better attitude towards the environment and protect it much more robustly than those that flow from the present dominant 'Western' individualistic system of capitalism" (52, p. 634; see also 53). Holding onto Ubuntu-backed ethics of the environment, which they variously call "psychophysical harmony" (54), "eco-bio-communitarianism" (55), "a chain of beings" (56), "harmonious monism" (57), or "*humanitatis eco* or eco humanism" (39), African scholars defend a holistic view of the environment, recognizing the intertwined nature of the material and nonmaterial, intelligible and unintelligible, animate and inanimate, and human and nonhuman elements in the universal environment. In summary, Africans' nonanthropocentric relationship with the natural environment is based on holistic values anchored in the Ubuntu community. The disruption of this environmental ethic accounts in part for socioecological debt and the resultant calls for reparation and justice.

4. SOCIOECOLOGICAL DEBT, REPARATION, AND DISTRIBUTIVE JUSTICE

Debates on reparation and restitution are informed by the need to compensate for the harm or suffering incurred because of human actions and/or the exercise of power. Drawing on perspectives on ecological debt, reparation, and distributive justice, we argue that these three processes and how they unfold(ed) in Africa are important pillars of APE.

Distributive justice: mechanisms by which resources and opportunities are transferred from one group or nation to another as a corrective action for inequalities caused by unjust policies and laws

Carbon markets: mechanisms by which state and nonstate actors trade greenhouse gas emission as credits to meet as a form of climate action

The development of the concept of ecological debt has been attributed to organically organized grassroots social movements, the growing need to accept the responsibility for colonial harms by Western nations, and the demand for environmental justice. It is founded on "biophysical accounting systems, ecological economics, environmental justice and human rights" (58, p. 21). In its initial formulation, ecological debt was limited to environmental harms; therefore, it translated into reparation costs for environmental damage. It gained traction at the Earth Summit in 1992, where nongovernmental organizations proposed a debt treaty (59) that placed ecological debt in the hands of Western nations that exploited natural resources in countries of the Global South and were therefore responsible for the social consequences of that exploitation and the structural adjustments they imposed on these countries. Thus, consideration of ecological and social degradation expanded the conception of ecological debt to include the net sum of environmental injustices. Such environmental injustices include the role played by rich countries in creating the climate crisis that affects mostly the poor in developing countries. This twofold climate debt consists of emission debt and adaptation debt. Discussions on climate debt have been preoccupied with states and groups of states but are becoming attentive to socio-environmental arrears at the local level. Two main schools of thought shape approaches to settling socioecological debt: reparation and distributive justice.

Reparation has a long history, as exemplified by the proliferation of reparation movements and restitution claims in many regions of the world. However, reparation is not limited to the debt owed to humans but also encompasses environmental damage and the need for ecological restoration. Ecological restoration is widely practiced to mitigate the effects of habitat transformation. An early definition of ecological restoration refers to "all those activities which seek to upgrade damaged land or to recreate land that has been destroyed and to bring it back into beneficial use, in a form in which the biological potential is restored" (60, p. 3). Africa has experienced localized to widespread ecological damage caused by invasive species, in both terrestrial and aquatic environments. Such invasive species were introduced intentionally—for example, the South American mesquite (*Prosopis* species) in the drylands of eastern Africa (61)—with the aim of combating desertification, but they smothered native species. Similarly, Australian *Acacia* species, including the wattle tree used in leather tanning, were introduced into Africa (62), but several of them turned out to be harmful, especially in the Cape biodiversity hot spot and other regions. Ecological restoration efforts have involved manual removal of adult plants, which offers only a short-term solution, as such invasive species regrow from the seed bank or other species take over, necessitating active restoration (63). Successful ecological restoration has been achieved through the involvement of local communities, most notably in the Ethiopian sacred groves associated with churches (64).

Global efforts to mitigate climate change have proposed planting of trees (65) to enhance carbon dioxide sequestration. Forestry carbon credit projects have emerged whereby major carbon producers pay tropical countries to grow trees to offset their carbon footprint. Several African countries have set ambitious plans to plant trees, embracing the opportunity to gain from the carbon markets (66). African open habitats, typically home to iconic fauna and flora, are some of the areas targeted for tree planting. Viewed through northern temperate lenses, such habitats appear to be anthropogenically disturbed lands that need to be reforested, yet they harbor unique shade-intolerant biodiversity (67). Importantly, such biodiversity has evolved to utilize fire and herbivores as sources of the disturbance needed for the maintenance of shade-free habitats (68). African scientists have voiced their concern about the grave damage likely to arise from misguided restoration of grasslands and other open habitats into forests (69).

Regarding socioecological debt to societies, various forms of context-specific reparation have been adopted globally, even as the purpose of reparation and how it is or should be calculated give rise to disagreement. Types of reparation, some of which have been employed in Africa, include acknowledgment of the wrongs of the past, apology, access to the truth, rehabilitation, job guarantees for designated groups, any form of compensation, *ex gratia* payment, public investment, restitution, and the creation of financial institutions (e.g., banks, trusts, funds) for specific groups (70–71). Some scholars have suggested that the West should pay its debt to Africa by canceling the debts African states owe to Western nations and financial institutions, such as the World Bank and the International Monetary Fund. Using the Warsaw Convention of 1929 as an example, others have argued that Western nations and institutions should pay monetary value to African states as compensation for damages incurred (72). The African World Reparations and Repatriation Truth Commission asked Europe and the United States to pay US$777 trillion over 5 years as reparation for slavery and colonialism (73).

Liberal thinkers are opposed to this kind of approach, favoring distributive justice as an alternative to reparation. The divide between reparation claims and theories of distributive justice "is itself a product of the history of reparation claims and its tangled relationship with Anglophone analytical liberal philosophy" (71, p. 25). Liberal philosophers of domestic and global justice have criticized reparation for underplaying the inequalities between classes in society and align with liberal scholars in arguing against financial compensation in favor of distributive justice. Thus, reparation claims are considered to be at odds with egalitarian distributive claims. Distributive politics has domestic and international dimensions. It focuses on the inequalities of classes at the domestic level but emphasizes inequalities of states and regions at the international level. In the context of cultural heritage, internationalists dismiss claims for restitution of cultural heritage on the grounds that such heritage belongs to humanity (74).

Agency: the capacity to act independently outside of the influence of social structures such as the family, class, race or status

Agroecology: the integration between farming and ecology to optimize food production with minimal inputs that would disrupt ecological systems

Conservation agriculture: farming techniques aimed at maintaining the productivity of agricultural land and rehabilitating unproductive land into usable areas

5. AFRICAN AGENCY IN THE ENVIRONMENTAL DOMAIN

Political ecological research has paid greater attention to Africans as victims of Western ideas of nature and resource extraction, but the same cannot be said about the resilience and agency of African societies. We illuminate their agency through agroecology and select interventions. As a science, agroecology studies the interactions within agroecosystems; as a practice, it aims for sustainable farming systems that optimize yields; and as a movement, it promotes social justice and economic viability in rural areas (75–76). Agroecology is a multidimensional concept that has evolved from a focus on ecological principles to include social, political, and economic dimensions. This evolution reflects the need for holistic approaches to address sustainability challenges in agriculture and food systems, to achieve food sovereignty, and to appreciate indigenous food systems (76–78). Forestry complements agroecology by providing essential ecosystem services and resources that can be categorized into more distinct groups of provisioning (water supply, renewable energy), regulating (clean air, carbon storage), cultural (recreation and spiritual connections), and supporting services (nutrient cycling and habitat for wildlife) (79). The interventions discussed below illuminate African agency in shaping socioecological relations.

5.1. Intervention 1: Farming Systems

Agroecology emphasizes natural processes and indigenous farming knowledge and promotes biodiversity, soil health, and resilience to climate change (80). A related but different concept of conservation agriculture has also emerged to promote sustainable farming practices that reduce environmental impact while ensuring increased agricultural productivity. Although agroecology and conservation agriculture are important for environmentally friendly and sustainable farming, they have different methods and practices. For instance, rather than relying on chemical inputs and monoculture farming, African smallholder farmers integrate ecological principles such as diversifying crops, using natural pest control methods, and promoting soil health through organic practices. Smallholder farmers use local biodiversity and indigenous knowledge to increase their resilience to climate change, improve food security, and enhance sustainability. Despite "the onslaught on seed and knowledge in sub-Saharan Africa," agroecological systems in the region have remained viable and environmentally sustainable (78, p. 2).

African farmers have a wealth of indigenous ecological knowledge that can be combined with scientific research to develop context-specific agroecological practices. For example, indigenous food systems in Africa are characterized by a deep, spiritual connection to the land and natural resources, and practices are based on respect, reciprocity, and a holistic view of the environment. Furthermore, planting trees alongside crops to improve soil fertility, prevent erosion, and provide shade is an indigenous practice that has been widely adopted in Africa. Other indigenous techniques, like intercropping and crop rotation, also align with agroecological principles. The increased consumer demand for organic and sustainably produced food in Africa for global markets can be explored for income generation and continued productivity. Agroecology can capitalize on this trend to create new market opportunities for farmers. Some African countries have developed policies and strategies to promote agroecological transitions, such as the Transformative Partnership Platform (TPP) (81). The TPP was developed in response to the urgent need for sustainable agricultural practices that can enhance resilience in livelihoods and landscapes. This need has become increasingly critical in the context of climate change, food insecurity, and environmental degradation.

Given technological advances, there is a need to combine agroecological farming practices on the continent with appropriate technology such as sustainable agricultural mechanization (SAM) methods, which aim to reduce the drudgery of agricultural production through environmentally, socioculturally, and economically feasible techniques (82). In sub-Saharan Africa, farmers have used SAM to reduce labor, increase land holdings, and enhance crop quality. However, the uptake of SAM has been slow (82) as a result of limited access to suitable technology and mechanization programs, incompatibility with local agroecological practices, unaffordability, and a lack of knowledge and training (83). The capital-intensive nature of the initial investments required for mechanization disadvantages the rural communities in which smallholders reside. The supply, availability, and accessibility of appropriate technology are essential because most smallholder farmers grow different crops, requiring appropriate machinery to be made available. For example, smallholder farmers may require equipment that makes the appropriate ridges for their potatoes while conserving the soil (84).

Some studies have proposed the establishment of agricultural mechanization extension (AMEX) agents to support the machinery utilization activities of smallholder farmers (85). AMEX agents would undergo specific mechanization training to equip them with support for machinery operators and farmers within the farming communities. Various economic models, such as private, public, and public–private partnership models, have been proposed to facilitate the establishment of service centers for leasing and lending machinery to smallholder farmers (83). Additionally, viable economic models, supported by stakeholder interactions, have been identified as beneficial in promoting smallholder ownership of machinery for agricultural mechanization (86). Alternative financial models like subsidies and off-taker agreements present opportunities to extend adequate financial support for smallholder agroecological farming activities. These findings underscore the critical role of skills development and financial backing in driving technology adoption within the agroecology domain.

5.2. Intervention 2: Fruit Trees

Indigenous fruit trees are prominent biological resources in African agroecological systems, offering nutritional, therapeutic, economic, and ecological benefits (7, 87, 88). For centuries, collecting indigenous fruits from the wild has been a common practice in African communities, as the fruits provide essential micronutrients, vitamins, minerals, and proteins that may be limited in common grains, legumes, and tubers. The nutritional and medicinal value of plants demonstrates a food–medicine interface. Many African communities use herbal remedies prepared from indigenous fruit trees, such as African baobab, African wild loquat, desert date, marula, and mobola plum, to treat diverse ailments, often serving as the primary accessible form of health care. Economically, the harvesting and sale of indigenous fruits significantly contribute to household income and livelihoods (7, 88, 89). In southern Africa, companies such as the EcoProducts Foundation in South Africa (90; see **https://ecoproducts.co.za**) and Bio-Innovation Zimbabwe (91; see **https://www.bio-innovation.org**) are driving the commercial use of indigenous fruit trees, transforming them into valuable commercial crops. Environmentally, the cultivation and sustainable management of indigenous fruit trees promote biodiversity conservation, reduce deforestation, and maintain ecosystem services. These trees support soil fertility, prevent erosion, and enhance carbon sequestration, contributing to climate change mitigation (87, 89).

Carbon sequestration: capturing of carbon dioxide (CO_2) from the atmosphere by plants with the goal of reducing the detrimental effects associated with climate change

The multipurpose nature of many African fruit trees remains a key selling point. Trees such as the African baobab, Kei apple, marula, and monkey orange are increasingly recognized as superfoods due to their rich phytonutrient, phytochemical, and elemental composition (87). These fruit trees provide significant medicinal benefits, such as antioxidant, anti-inflammatory, and antimicrobial properties. The rich phytochemicals in these fruits are crucial ingredients in cosmeceutical and nutraceutical products, increasing their demand. This demand has led to the commercial success of some African fruit trees, such as the African baobab and marula, which have several value-added products traded globally. The rich diversity of African fruit trees offers potential new and nutritious food sources for expanding the food base and dietary diversification (89, 92). In addition, the wide distribution and occurrence of these trees across different biomes in Africa support their geographical relevance and economic benefits (7, 87, 88, 93). For instance, African baobab and black plum are found in more than 40% of African countries, with the baobab grown in 32 nations across the continent.

Limited knowledge of indigenous uses, cultivation practices, and empirical data on the nutritional, phytochemical, and therapeutic value of many African fruit trees remains a significant concern (94, 87). This knowledge gap certainly affects the predictability of the long-term economic viability for these plants. Additionally, the habitats for many African fruit trees are under severe threat, as evidenced by their varying distributions and abundances in recent years (95). These threats inevitably heighten the concerns about their conservation and sustainability in the face of a changing climate (93).

In Africa, the geographical advantage linked to the occurrence of indigenous fruit trees can be explored as a readily available and viable source for expanding our food baskets to address food insecurity, especially hidden hunger (micronutrient deficiencies). Awareness of the importance of African fruit trees is increasing, as evidenced by research efforts from African universities and entities such as the International Tree Foundation, the African Orphan Crops Consortium, and World Agroforestry. As with other environmental resources, the vast knowledge held by Indigenous people must be harnessed through locally driven solutions that are codeveloped and implemented using a bottom-up approach (95). To unlock the potential of African indigenous fruit trees, challenges must be addressed holistically. Amplifying local voices and integrating indigenous knowledge will be crucial for achieving sustainable outcomes for nature and people (89).

Systematic documentation and use of fruit trees, aligned with the Shenzhen Declaration on Plant Sciences, should be actively pursued (94).

Community conservation: conservation largely by community and for community benefit

Conservancy: a legally defined institution to own or control wildlife in a defined rural territory

5.3. Intervention 3: Protecting African Environments

Protected areas in Africa are built on colonial disenfranchisement and the dehumanization of Africans (96–97); they are often at odds with the interests and aspirations of ordinary people (98, 96) and are regarded as sources of zoonotic and apocalyptic diseases (99) that mostly affect the poor as well as pose agricultural risks (100). Ordinary people have responded to the harm caused by conservation by, say, poaching wildlife, vandalizing infrastructure, encroaching into conservation areas, engaging in petty commodity production, and attacking conservation staff, among a suite of subversive acts (101–105, 96). Attempts have been made to transform protected areas in Africa through governance reforms to reduce state hegemony, to contain resource conflicts through community participation and resource sharing, to combat extraction models that produce unjust conditions for communities, and to realign the goals of protected areas with Indigenous communities' interests.

Two related major experiments stand out in terrestrial and marine protected areas, namely community conservation and co-management. Conservancies represent the latest embodiment of community conservation in sub-Saharan Africa and have gained traction in Kenya, Namibia, and Zimbabwe. They allow communities to legally consolidate themselves into a conservation entity. Communities within a conservancy own the natural resources under their jurisdiction, preside over the distribution of benefits, and have a strong voice in partnership with investors (106). Co-management aims to mitigate resource struggles between the state and local people, to resolve resource tenure challenges, and to improve transparency and community participation in decision-making and resource sharing (107–108). Some positive outcomes of co-management are a reduced dependence on forest resources; a turn to on-farm income; and improved health, education, and entertainment facilities (109). However, these successes are outweighed by a broad range of challenges, such as uneven partnerships and power asymmetries wherein the state continues to assume bureaucratic control over resources and influence on village management committees (110, 107, 108). Co-management processes are also often driven by foreign nongovernmental organizations whose ability to develop genuine and appropriate collaborative models has been questioned (110). Other challenges relate to the state's failure to institutionalize co-management processes in broader policy formulations (110, 111, 108), gender disparities (112), the capture of co-management initiatives by the local elite (113), and conflict related to uneven distribution of conservation gains (109).

Several interventions in African environments are driven externally, as is evident in efforts aimed at reducing emissions from deforestation and forest degradation and related activities (REDD+) and forest law enforcement, governance, and trade (FLEGT). REDD+ is a global instrument for mitigating climate change that has become part of forest governance initiatives broadly aimed at resolving animosity toward conservation goals. The success of REDD+ is more contextual that it is generalizable (107, 114–115). FLEGT is a European forest governance program that aims to address illegal logging in tropical countries that serve as sources of timber for European markets. Aside from controversies around the legitimacy of FLEGT in countries such as Cameroon, Ghana, Liberia, the Central African Republic, and the Republic of the Congo, the program has been claimed to strengthen legal frameworks, information transparency, and multistakeholder participation (116). The implementation of REDD+ and FLEGT in Africa raises the question of the appropriate modes of governing natural resources on the continent, to which we turn in the next section.

6. GOVERNING AFRICAN COMMONS

The African communitarianism referred to above has implications for governance in APE, especially because African states have been complicit in the exploitation of the continent's natural resources. Recognizing that "commons emerge and operate in resistance to enclosure and austerity spurred by an unsustainable political-economic system" (117, p. 340), we postulate that, in Africa, commons are what colonialism found operating outside of and along with the imposition of capitalism. They are ways of being in different spheres of life, ways in which many African people provide for one another outside of settler and market capitalism and that serve as an alternative form of governance. These attributes are what make African commons resilient.

Commons: public goods and services that are outside of the control of formal markets and formal governance mechanisms

Commons scholarship in Africa has examined the role of customary practices of governance, particularly regarding natural resources, including land (118). Scholars tacitly recognize the significance of such practices in the governance and management of commons, arguing that "customary authority in their various formations constitute an integral part of the governance of commons in Africa, given their embeddedness in social and cultural norms and practices of many people" (119, p. 342). Customary administration and dispute resolution over common resources take place at multiple levels of nested and layered authority (120, p. 129). Scholars also recognize that such property rights and authority systems are "relatively stable, [but] also flexible and negotiable" (121, p. 98). The fact that they are negotiable means that they can be responsive to the circumstances and needs of different social formations or communities as they arise. However, such responsiveness may also give rise to self-interested distortion and abuse by those who have the economic and sociopolitical means (120).

We postulate that African commons draw much from values, beliefs, norms, and practices surrounding provisioning and governance. For provisioning, many commons (122–123) are based on the African philosophies referred to above. Collective or communal provisioning contrasts with private or state ways of governing, as the relations are controlled by, and internal to, a self-defining community (124). Opponents to and critics of such ways of provisioning and governance cite the difficulty of such institutional arrangements as likely to deteriorate into "open access" situations. African commons have been criticized for resulting in African people holding assets worth trillions of dollars as informal property where rights are "extralegal" (125). Such criticism has led to the suggestion that the extralegal and the formal should be integrated into one property system, as happened in the West with capitalism (125).

7. CONCLUSION

In this article, we have reviewed the literature on political ecology and African studies to suggest that African environmental thought, socioecological debt, and African agency are foundational pillars of APE. A failure to pay attention to Africans' perspectives on ecology and their experiences in interacting with their environment is a form of epistemic violence, which devalues or dismisses the knowledge and experiences of Africans about land, plants, animals, and oceans as part of universal knowledge. African knowledge systems are important for understanding how and why African people relate to, live with, and care for the environment and derive their livelihoods under changing environmental, economic, social, and political conditions. Such knowledge systems are also crucial for ongoing efforts to tackle the environmental crises influencing the future of humanity and our planet. And yet, Africa and Africans carry a disproportionate and undeserved burden in the global environmental crisis because of climate change and the uneven geopolitical, socioeconomic, and racial calculations behind its escalation (126). This article has highlighted reparations, in the broad sense, as a key component of APE and as a useful frame for environmental justice in Africa. Options for reparations in the environmental context demand a deeper understanding of the socioecological debt owed to the African people. Therefore, the socioecological debt and how it ought to be settled are central features of APE.

The literature review presented in this article shows that African agency and other African-centered interventions in the environmental domain offer the possibilities for promoting appropriate and responsible human–environment interactions on the continent and beyond. We have argued that ordinary Africans have capitalized on the natural resource endowment of their continent to be resilient and innovative despite the cumulative obstacles they have faced. Such resilience is derived from their agency, which is a key component of APE. Through a robustly interdisciplinary engagement with our chosen thematic foci (e.g., African environmental thought, socioecological debt, and African agency), this review has not only provided the initial delineation of the range and scope of APE but has also inscribed critical realistic pathways for the realization of the alternative world of the much more balanced human–environment relationship we envision.

SUMMARY POINTS

1. African political ecology (APE) is not fixated on developing counternarratives to the dominant Western epistemology of socioecological relations. Rather, it seeks to reside in the "big tent" of political ecology and form part of universal knowledge.
2. Formulations of environmental justice in Africa should foreground the connection between human suffering and ecological destruction because the degradation and protection of the environment are indistinguishable from the dehumanization of Africans.
3. Environmental justice in Africa should be reframed through the broader concept of reparation, especially because reparation offers options for addressing the wrongs of the past and ongoing injustices arising from efforts to protect the planet.
4. African agency and the struggles and resilience of Africans should be at the center of research on human–environment interactions in Africa.
5. Built on communitarianism, commons constitute an alternative way of provisioning outside of market capitalism and are crucial for the field of political ecology, given their resilience as well as their centrality in environmental and resource governance systems.

FUTURE ISSUES

1. Thematic areas of APE should be explored alongside other alternative ecologies that have emerged in the Global South.
2. Political ecology and African studies should be engaged to consolidate African environmental thought and practices.
3. Questions should be asked about how African agroecology and technological advances meet and shape socioecological relations.
4. In terms of socioecological debt, we need to reframe popular phrases such as "people and parks," "benefits beyond boundaries," "just transition," and "United Nations Sustainable Development Goals" within the context of reparation to Africa.

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AUTHOR CONTRIBUTIONS

All co-authors contributed to specific sections of the paper by responding to targeted questions provided by the lead author. All co-authors reviewed and approved the final paper.

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