RESEARCH ARTICLE

Exploring the pre-Newtonian sustainable development meta-power of African totems in the age of Anthropocene

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Abstract

African totem regimes enact a holistic pre-Newtonian ontology and hence are bound to be dismissed as "unscientific". As such they have not been accorded the same level of epistemic importance as scientific conceptualisations in the quest for the United Nations (UN) Sustainable Development Goals (SDGs), which are dominantly framed by a Cartesian methodology and plot methods that do not easily accommodate mysterious and ambiguous worldviews. Nevertheless, this paper demonstrates that African totems are an advanced form of social organisation in that they maintain a balance between human and natural systems through their regulatory efficacy and habitual compliance. Furthermore, the SDGs, unlike the regimes of African totems, are often operationalised in economistic terms and hence tend to be subject to budgetary constraints. African totems are not hampered in the same way. It can be argued that the aspirations of the SDGs have been the norm in Africa for centuries through the regulatory effects of totem meta-governance. This paper therefore makes a case for a rethink of the ontology of (social) science. Doing so, it is argued, would accommodate the worldview of African totems in the worldview that is implicit in the aspirations expressed by SDGs.

Key words: Pre-Newtonian; sustainable development; meta-power; African totems; Anthropocene.

Introduction

This paper seeks to explore the regulatory and organisational power of African totems and demonstrate that they are, in principle, relatively more efficient in

triggering habitual humanitarian compliance with a broad notion of secular and sacred harmony with the natural world than the Newtonian science-based regimes that currently underlie the quest to attain the aspirations expressed by the UN Sustainable Development Goals (UN SDGs). The paper also argues that the non-mainstreaming of African totem regimes as part of the quest to achieve the UN SDGs can be understood in the context of the Overton Window[1], according to which the ethos expressed by Newtonian ontologies and epistemologies which are currently globally dominant and therefore tend to be exclusionary of other ontologies and the epistemic paths they define.

The paper is patterned as follows. The first section sets the stage by sketching the ontologies and praxis of Newtonian science and African totems. This is followed by a statement of methodology and method, a mapping of the foundational principle of African totems onto the UN SDGs, a statement of the paper's theoretical framework and a sketch of the ontology-action architecture of the SDGs and African totems that aims to demonstrate the efficiency of the regulatory power of African totem ontology. The paper concludes with recommendations based on the view that scholar-activists and likeminded actors should aim to disrupt the current domination of the Newtonian scientific ethos by including African totem ontological regimes and their allied epistemologies and praxis in an effective African-inspired worldview. Such an approach, it is argued, is more than academic, since combining the two approaches in a symbiotic blend would generate an ethos that can better support the quest to achieve the aspirations expressed by the UN SDGs and hence, African development.

Setting the stage: The ontology and praxis of Newtonian science

Science as a credible source of knowledge hinges on logical reasoning (mathematics), empirical knowledge (biology, physics) and empirical experience, all of which are combined through the verifiability principle: statements must be tested against a strict requirement of truth or falsehood and their meanings derived from the conditions under which they are ascertained either to be true or false. In this approach, absolute or unsubstantiated truths or falsehoods are dismissed as unscientific knowledge and thus deemed to be meaningless (Miller, 2007; Park, 2020). As noted by Alan Chalmers:

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[1] The Overton Window, a framework for ascertaining how societal or technocratic ideologies dominate and/or evolve and shape public policies, is based on the fundamental assumption that policy regimes tend to dominate (or are made to dominate) only when they come across as either ideationally fashionable or can enhance political fortunes. If so, such policies are said to be located within the Overton Window. Those that fall outside of it are therefore politically risky to adopt. See (Mackinac Center for Public Policy, 2019).

> [S]cientific knowledge is proven knowledge. Scientific theories are derived in some rigorous way from the facts of experience acquired by observation and experiment… Personal opinion or preferences and speculative imaginings have no place in science… Scientific knowledge is reliable knowledge because it is objectively proven knowledge (Chalmers, 1999, p. 1)

Knowledge is scientific if and only if it is based on empirical experience. Newtonian science and its epistemology of logical positivism have also shaped the parameters of social science. Motivated by the aspiration to attain the scientific code and so unveil the objective laws of society, the methodologies and methods of the social sciences have been infused with Newtonian principles (Durkheim, 1982; Steinmetz, 2005). To be sure, there are active epistemic countercurrents against this tendency (Nyamnjoh, 2012; Lauer, 2017; Ideland, 2018). Nevertheless these have yet to accumulate momentum to the point of disrupting the hegemony of the Newtonian epistemic "truth" (Polifroni, 2010; Heikkinen, Silvonen, & Simola, 1999).

Of all the social sciences, the discipline of economics is the most committed to this logical positivist framing. Indeed, ever since the Newton-enamored David Hume and his mentee Adam Smith (Montes, 2008; Rasmussen, 2017) as well as David Ricardo (also a Hume acolyte)[2] worked to hive off economics from its moorings in Aristotelian philosophy (Baeck, 1998), the mainstream of the discipline has employed elaborate mathematical models that seek to quantitatively encode notions in support of the transformative power of entrepreneurship, the innovative power of personal choice, personal interest, free competition, market relations, and self-regulation, recognising only a constrained role for public or state intervention (Caldwell, 2012; Blaug, 2001).

The discipline has had a powerful influence on the framing of the SDGs. Governed by the assumptions of ceteris paribus, "holding other things constant", economics frames statistically crafted policy approaches to data-based good economic governance, calibrated in terms of per capita income, gross domestic product, or gross national product (Hendry, 2009; Standard Chartered, n.d.; United Nations Global Compact/KPMG, n.d.). From this perspective, there is a positive link between forest cover, wildlife, and economic growth (Arce, 2019; Ingram & Lewandrowski, 1999).

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[2] David Hume rendered the subtitle of his book "A Treatise of Human Nature" as "being an attempt to introduce the experimental method of reasoning into moral subjects". See (Hume & edited by Selby-Bigge, 1739). Adam Smith is hailed as the "father of economics" (Norman, 2018) and David Ricardo the "father of classical economics" (Kharitonashvili, 2017).

Setting the stage: The ontology and praxis of African totems

Totems (as they relate to Africa) enact collective memories and governance regimes of "mythistory", the blending of history or historical facts with myth (Colavincenzo, 2005; Mali, 2003). According to Claude Lévi-Strauss, the term "totem" derives from the Algonquian language of the Ojibwe or Chippewa people of North America and is rooted in the collective naming expression "ototeman", meaning "he is a relative of mine". A totem therefore expresses a notion of a collective regime. Lévi-Strauss emphasises that the totemic system of the Ojibwe is not to be understood as meaning that individuals adopt particular animals as their guardian spirit (Lévi-Strauss, translated by Needham, 1962, p. 20). Relatedly, Manash Pratim Goswami has classified totem regimes as follows: (i) water animal totems (ii) land animal totems (iii) reptile totems (iii) air animal totems (iv) vegetable or plant totems and (vi) insect totems (Goswami, 2017).

Terngu S. Nomishan describes the mythistory[3] of African totem ontology as expressions of

> ...three kinds of stories, namely stories of origin, explanatory stories and didactic stories. Each of these stories is meant to explain a particular phenomenon. Myth is not an intellectual explanation or an artistic imagery but living chronicles in the minds of Africans. They contain and express the history, the culture and the inner experience of the African himself. Africans use myths to explain how things came to be through the efforts of a supernatural being. It is concrete and expresses life better than abstract thought can do" (Nomishan, 2021, p. 119).

An important dimension of African totemic praxis is a prescriptive system of social governance enacted through taboo institutions understood as sacred cultic or religious prohibitions overseen by traditional authorities; these are social regimes of moral motivation and guidance that tacitly encode knowledge and define stable paths for the transmission of such knowledge over time (Onebunne, 2021; Essel, 2018; Fortes, 1966). For example, traditional rulers or chiefs swear oaths of allegiance and fidelity to their people with reference to symbols of office that themselves represent or are etched with symbols of group totems (Agyekum, 2004; Katsande, 2015; Anizoba, 2021, pp. 351-353; Gumo, Gisege, Raballah, & Ouma, 2012, p. 535).

African totemic identity is defined through spiritual links with the founding or ancestral founders of ethnic groups (Mashige, 2011; MacGonagle, 2007, pp.

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[3] Mythistory is a rendition of history made up of facts and myths. Scholars of historiography adopt it as an approach with which to reconcile facts with myths in order to ascertain how they have evolved and affected personal as well as communal identities. See Mali, 2003.

54-57). Totems are also perceived to be divine messengers of God (Olupona, 1993; Mashige, 2011). African totems therefore constitute a sort of symbiotic commonwealth connecting the *Homo sapiens* with other (sentient) beings. In this context, *Homo sapiens* has no sense of entitled supremacy over other life forms and as a member of a totem group is held accountable for the integrity of the network of sacred-secular relationships, which must not be violated or debased for fear of spiritual or physical retribution.[4] The logic of this scheme underpins injunctions that prohibit, for example, the designation of totems as game as well as rituals of totem veneration. Together these social control systems work to negate any threat of extinction to totems: an outcome with direct risk implications to group identity in the corporate sense.

On this score, African totemic beliefs (as may be true with the experiences with other cultures) enact a pre-Newtonian consecration of semiotic power[5] based on four sacred convictions (Òkéwándé, 2017; Òkéwándé, 2019; Luyaluka, 2017): (i) belief in mystical impersonal deities; (ii) belief in spirit beings; (iii) belief in divinities and (iv) belief in a *mysterium tremendum* (an Absolute Being) that is the essence of all life forms (Smith, 1929, p. 23). Even though Africans do not explicitly profess to know the source of mystic powers, they nevertheless ascribe it to a higher deity believed to unevenly bestow spiritual potency on objects and various life forms. Objects, flora and fauna imbued with the said spiritual essence are not considered to be deities and therefore are not worshipped. This said, Africans think of bestowed spiritual potency as capable of being harnessed by priests and priestesses (Ikwuagwu, 2007; Mbiti, 2015). In this worldview, the tripartite realms of *Homo sapiens*, the spirits of the departed (ancestors), and the supreme deity encode a communal and cultural association between lineages and objects, natural phenomena and animals, and are therefore structurally fused (Makgopa, 2019; Halverson, 1998). In this respect, African totemic ontology is an organic structure that perceives the world as a complex system of interconnected elements, whose relationships and characteristics are influenced by their respective roles in the larger system (Steyne, 1989, p. 58).

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[4] For example, S. M. Kilonzo *et al* have identified about 26 plant and animal totems of the Isukha people and noted the calamities that occur when they are violated. The said totems are part of the ecological system of the Kakamega forest, Kenya's only rainforest (Kilonzo, Kurgat, & Omare, 2009, pp. 44-45).

[5] "Semiotics" derives from the Greek word sēmeiōtikós, meaning "observant of signs" and refers to any activity, conduct or process involving signs, with a sign defined as anything that communicates (an expected) code of conduct, i.e. "meaning", to the sign's translator and therefore constitutes a foundation of belief. See (Sannikov, 2017; Tomaselli & Shepperson, 1993; Prior, 2014)

The sketched ontology of African totems enacts a praxis of "meaning", perception, evaluation as a basis for collective and individual action that can hardly be decoded within positivism, given that as a methodology in social science research, it requires the chopping up and simplification of reality into stylised facts that can be evaluated with the mechanistic principles of Newtonian science analysis. Hence, the dominant epistemic culture of precise scientific calibration and technical packaging of SDG discourse with its emphasis on closed-system-generated data, has the tendency to displace non-Newtonian ontologies capable of accommodating the crude complexities of open system-generated data.

I argue that firstly, we need to rethink the ontology of (social) science in a manner that can enable an understanding of this dominant African world view and, secondly, that this approach could also usefully inform African efforts to mobilise these enduring social realities in the continent's quest to achieve the targets set by the SDGs. The next section outlines the paper's methodology.

Methodology: Ecological humanism and its ontological architecture

Ecological humanism grapples with the question of what it means to be human in the context of nature and its implied ethical imperatives. Adherents of ecological humanism uphold the belief that humans have the power to change society in ways that are beneficial to both people and the environment. At its core, ecological humanism enacts a communitarian perspective of cultural practices. It is based on the conviction that humans have consistently sought to efficiently integrate individuals within the context of community through the search for convivial values and beliefs to enhance empathy and that this constitutes a developmental ideal (Peterson, 2001, pp. 1-22; Kirkham, 2016; Sandler, 2007). This paper adopts these environmentalist convictions.

This paper is based on qualitative secondary and primary ethnographic data drawn primarily from West Africa in general and Ghana in particular. This approach is assumed to represent an adequate illustration of the real influence of totemic regimes in the broad context of the African continent, but it is recognised that this approach should be supplemented by further research.

The science of 'knowing' reality and 'doing praxis': The action ontology architecture of the SDGs and African totems

It is arguable that the SDGs and African totem frameworks share a similar philosophical orientation rooted in harmony and coexistence. For example, the terms of the UN 2030 Agenda for Sustainable Development – which the UN has profiled as a blueprint for "peace and prosperity" (United Nations, 2015) – are

reflected in Article 7 of the 13th-century Charter of Kurukan Fuga[6] which encodes a totem peace pact among groups of the Mandinka people (Camara, n.d., p. 7). Additionally, it might be observed that SDG Goal 15, on ecosystem conservation, quite closely mirrors the views of totem-based identity groups.[7]

Nevertheless, the UN SDGs and African totem regimes are ontologically and epistemically distinct as frameworks for guiding action or policy. Fifty years after the publication of the Rome Report, which recognised the existence of an ecological crisis and stimulated the notion of sustainable development (SD), it has become obvious that the risks identified at the time were not so much about resource depletion as they were about human-induced environmental pressures exerted through overproduction, excessive consumption and acute pollution, which have stretched Earth's resilience to its limits. This point seems to have been breached at the beginning of the 21st century with the increased use of Anthropocene as the buzzword capturing human-induced environmental crises (Crutzen, 2006).

However, the Newtonian, closed-positivist approach within which SD was stimulated into existence by the Club of Rome, has cast a long ontological and epistemically constraining shadow over the concept of ecological sustainability. Due to this legacy, the crisis of the anthropogenic age is ontologically envisioned in terms of what technical instrumentations (such as Spectrasonics (Asner & Martin, 2016)) can detect, anticipate, measure, and illustrate. This tendency has subsequently defined various courses of action aimed at addressing the crisis. For instance, SDG 15: Life on Land is articulated as a matter of sustaining "space-related assets" through the use of remote sensing, geolocation and other emerging technologies (Profitiliotis, 2021). This approach to "governing" the anthropogenic crises through technologically defined policy options counts as a humanoid technosystem[8] based on logical positivism (Ray, 2017).

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[6] Following a 13th-century military victory, Mansa Sundiata Keita the founder of the Mandingo Empire, led the proclamation of the Manden Charter in Kurukan Fuga (between modern-day Guinea and Mali in West Africa). The charter, despite being primarily oral in nature, has a preamble made up of seven chapters that support social harmony in diversity, human inviolability, education, the integrity of the motherland, food security, the abolition of slavery and freedom of speech and trade. The charter's codes and associated rites survived the dissolution of the empire and are still in effect under the aegis of traditional rulers and is also orally transmitted from fathers to sons. See (UNESCO, 2009; Kouyaté, 1998).

[7] For example the Akan people of Ghana have about eight totem-based groups (Morgan, 2020, p. 55). See also (MacGonagle, 2007, pp. 54-57) for the case of the Shona in Zimbabwe and Mozambique and (Ndubisi, 2001) for that of the Igbo of Nigeria.

[8] A technosystem is a unique social structure that operates according to the logic of technical disciplines, is built and manned by technically certified persons, and shapes the modes of life and living (Feenberg, 2017).

With the SDGs predominantly framed by scientific economics[9], the dominant policy discourse is either couched in or shadowed by market-compliant norms. Progress toward their attainment is assessed based on whether funds are available for investment in the goals. This implies that the outcome of the SDGs will ultimately be decided by a cost-benefit analysis of free-market actors and forces. For example,[10] Standard Chartered bank notes that its model for private investment related to the SDGs in developing countries focuses on opportunities for investors (Standard Chartered, n.d., p. 3). Going by the logic implied in this investment model, if the investment costs of meeting an SDG target exceeds the economic profits/benefits, then projects relating to that SDG are likely to be starved of funds.

The focus on investment opportunities could also ignore the imperatives entailed by the SDGs. For example, the International Seabed Authority (ISA)[11] has issued 30 exploration permits to contractors from countries in Europe, Asia, Cuba and the Russian Federation. This is in addition to Pacific Island countries that have also issued more than 300 permits for seabed mining. Intriguingly, said permits are being issued at a time when the ISA is yet to establish a governance regime for seabed mining (Krutilla, Good, Toman, & Arin, 2020, p. 2). The licences are presumably being issued in response to anticipated increased demand for minerals needed for such items as electric cars and renewable energy batteries (International Energy Agency, 2021), and (I add), with an eye to shareholder value. Against this background, the question of how SDG 14[12] will be impacted by the corporate thinking of the ISA and likeminded states is anyone's guess.

Theoretical note: Meta-power and its modalities

Tom Burns echoing Strange notes that "all of social life involves some form of influence, molding, direction or compulsion", hence "power and control phenomena are ubiquitous as well as being multiple and diverse in social relationships" (Burns, 2013, p. 7). Nevertheless, he notes that there is a relatively obscure form of power: meta-power (power-over-power or transformative power), which when considered holds the promise of clarifying the intricacies of human systems. It is based on the idea of causation (understood as manipulation

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[9] (Japan Security Dealers Association, n.d.)

[10] (Goldman Sachs, n.d.)

[11] ISA was set up under the 1982 UN Convention on the Law of the Sea and is mandated to organise, regulate and control all seabed mining-related activities for the benefit of humanity as a whole (International Seabed Authority, n.d.)

[12] SDG 14 seeks to conserve and sustainably use the oceans, seas and marine resources for sustainable development.

(Burns, 2013, p. 26)), human action procedures, and social construction (Burns, 2013, p. 7). Unlike the well-known conceptions of power which focus on the direct strategies actors use to achieve their ends, meta-power has to do with regimes that indirectly control the social options of actors. The modality of meta-power works through social systems with customised institutional and cultural structures encoded with control mechanisms that define the language, action capabilities, "reality" and its interpretation, and annotate the regimes of life and living.

Concretely, meta-power manifests through diffused social mechanisms such as rule regimes (taboos), role-play relationships, rights of control, access and obligations, belief/myths systems, as well as "structures of opportunity". As such, meta-power is coterminous with "structural power" which simultaneously constrains or enables agency, and as such frames collective identifications, social bearings and consensus. It defines what is neutral and normal in society. Meta-power also involves the ecological dimensions of nature, which shape the options of human systems, human conditions and the possibilities of populations to act (and indeed those of all life forms) (Burns, 2013, pp. 43-44). The force of nature has structural consequences, both as a threat to and a source of life support systems (Burns, 2013, pp. 12-13). Nevertheless, *Homo sapiens'* interaction with nature ranges from a lack of exploitation to conscious exploitation and the secondary effects of conscious exploitation (Burns, 2013, p. 24). Meta-power is contextual, informed by temporal experience, and encodes human learning/ knowledge, regime formation, social rights and obligations, and the imperatives of collective survival. These properties, individually and in tandem, constitute the sediments of local history.

Empirical note: Stylised facts of the meta-powering modalities of African totems

The ontology and epistemic path(s) of African totems model meta-power frameworks geared toward holistic harmony. As noted by Afisi, echoing Unah: "African society is a world where everything interpenetrates, where the physical and spiritual conflate. There exists an extraordinary harmony in African society, one of synthetic unity and compatibility among all things" (Afisi, 2016, p. 68). The holistic dimensions of this harmony suggest that the "wholeness" of African society extends beyond the sum of its parts (Ralston, 2015, p. 1).[13]

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[13] For deeper insights on how holism in African metaphysical thought shapes the day-to-day social context of contemporary life see for example Gyekye, 1997; Behrens, 2010; Masolo, 2004.

General the Right Hon. Jan Smuts's thoughts on holism are worthy of note at this juncture. By his account, holistic regimes are the central formative energy of the universe, and encompass the known and unknown, space and time and the material and immaterial, as well as the profane and the sacred. They are expressed in the mental and mystical realms and understood as the dynamic energy of Evolution[14] that tends toward perfection. The ontology of African holism entails a radar-like worldview trained on a future in which the living, the departed (ancestors) and the yet to be born have a stake (Smuts, 1936). This line of thinking is implied in Meyer Fortes' observation that:

> "[T]otemism stands for a variety of institutions in which selected portions of nature serve as material objects by reference to which segments of a society express their respective unity and individuality, on the one hand, and their interdependence in a wider structure on the other, in terms of ritual attitudes, observances and myths. These have a moral value exhibited in the associated taboos and a symbolic significance reflecting the notion of the incorporation of nature in society, by the creative acts of primordial ancestors that are reaffirmed periodically in totemic ritual; and this is the basic premise of the whole complex" (Fortes, 1966, p. 7)

"Institutions"; "selected portions of nature"; "segments of society"; "moral value"; "incorporation of nature in society"; "primordial ancestors"; "interdependence": these concepts speak to an ontology of a complex of conjoined fates: none can do without the other. Thus, totems are "fate-control" institutions rooted in worlds beyond the immediate material needs of the living. Note that totems, as support systems, have nothing to do with financial or economic inputs. Indeed, in the illustrative examples below, there are instances where economic imperatives are discounted relative to the integrity of totem-based institutions.

The concert of African totems and human-nature harmony: Matters arising

This section explores ethnographic studies of the totems of various peoples in West Africa.

Bebelibe people, Northwestern Benin and Upper East Region, Ghana

The Bebelibe people have an ontology of *tikedimɔmɔnte*. It involves true totem(s): humankind and animals live in harmony until the death of one of *Uwienu*'s (Creator of the Universe) beings, which require sacrificial meat and hence the need for hunting; this imperative leads animals to seek protection in the wilderness (*dikpaade*). This historical view of animal-human relations is

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[14] Upper case E is his emphasis. See for example (Smuts, 1936, p. 19)

contrary to empirical scientific accounts, according to which animals belong to the wild before they are domesticated (Huṭu, Oldenbroek, & van derWaaij, 2020; Zeder, 2012). For the Bebelibe, humankind is not superior but equal in rank to other life forms.

> Humans and animals are equal. Uwienu created humans to look after everything, that's where there's a difference and why we are more capable than animals. But we are equal. Uwienu put us ahead of the animals so that we would know that it was Uwienu who created all beings to be like him (Merz, 2021, p. 134).

Every community in the Bebelibe nation has at least a single animal *tikedimɔmɔnte*, while others have several, including plants and trees. The *tikedimɔmɔnte* of the Bɛbidibɛ and Bɛnammucaabɛ includes the crocodile, and that of the Bɛhotuubɛ and Bɛhodukpadibɛ includes the python. According to Merz, in the mythologies of these communities, the connection between their founding ancestors and their totems is expressed through origin stories that explain the emergence of permanent taboos that prohibit the harming, killing, or consumption of designated totems. These taboos can have trans-community governance effects, since alliances or mutual respect can extend group-specific edicts to other groups.

The human-animal harmony depicted in the totemic ontology of the Bebelibe nation is concretely demonstrated in the several sacred crocodile ponds in Paga located (for 91 Days, 2019) in the Upper East Region of Ghana and inhabited mainly by the Kassena people (Africa 101 Last Tribes, 2022) who consider the crocodile as an embodiment of the soul of their nation (Amenuveve, 2021). They recount their association with their totem as being the result of a chance encounter when the founder's ancestor, Nave, was saved from dying by a crocodile while on a hunting trip. He subsequently decreed that crocodiles were not to be harmed or killed for any reason. As indicated in Plate 1 below, the human bond with the reptiles is cordial.
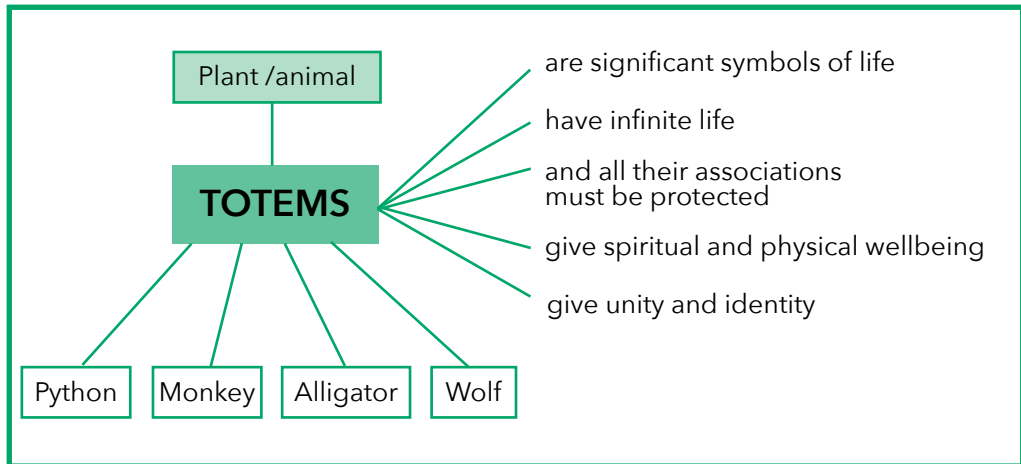
PLATE 1: HUMAN INTERACTION WITH THE TOTEM CROCODILES OF PAGA IN GHANA

Source: Brand Elmina, 2022.

Sheilla Anao's study of the community in Paga yielded a simplified totem ontology specific to the Kayoro traditional area, as outlined in Figure 1 below.

FIGURE 1: STYLISED TOTEM ONTOLOGY OF THE KAYORO PEOPLE IN GHANA

Source: Anao, 2014, p. 112.

Anao records one respondent as testifying that having a totem is about more than connection with a symbolic entity: it is about looking after it. "For every a particular totem, whether animal or plant, its welfare is equally your welfare. I don't eat the fish from the dam. [Not only that], I have to look after the water, the plants and surroundings and everything to do with that fish" (Anao, 2014, p. 114). Community life centres on a regime that governs the local river system: a river and five of seven streams are sacred and thus not available for economic activities (Anao, 2014, pp. 102-103). Anao's study also revealed some interesting nuances in the ontology of the Kayoro people. She reports that women have many totems relative to men. They revere the totems of their own families, and also hold in high esteem the totems of their husbands and those of the families their children marry in to. Furthermore, the Kayoro people uphold their reverence for their totem animals anywhere they encounter them in the world.

The Tanchara and Malshegu, Upper West Region, Ghana

The case of the sacred groves of the Tanchara and Malshegu communities, located in Lawra, in the Upper West Region of Ghana, along the border with Burkina Faso (Ofoegbu, 2021) is also worthy of note. The Tanchara community fought off efforts by a multinational corporation and *galamsey* (illegal artisanal miners) to exploit the area; their activities were perceived as disrespectful of the sacred groves, where deities are believed to permanently reside (see Yangmaadome,

Faabelangne, Derbile, Hiemstra, & Verschuuren, 2022; Ghanaweb, 2021). The resistance was led by a male divisional chief, the *Pognaa* (the female equal of a divisional chief), the *Tindana* (a non-political spiritual owner of Tanchara lands, who has no clearly defined political mandate), and a non-governmental organisation, the Centre for Indigenous Knowledge and Organizational Development.

The community's resistance to exploitative incursions stimulated the development of a neo-traditional based community that formalised its approach to maintaining traditionally regulated relations with the environment in a document, the Biocultural Community Protocol (BCP), which defined the customary environmental aspirations, and a management tool, the Community-driven Health Impact Assessment Tool (CHIAT), which established a tracking regime to evaluate the impact of gold mining on the sacred groves and the health status of the people who live nearby.

Like the Tanchara community, the people of Malshegu have also defended their sacred groves against galamsey in the context of rapid deforestation in Ghana (Dorm-Adzobu, Ampadu-Agyei, & Veit, 1991). As these authors note:

> The nearly one-hectare sacred grove in the Malshegu community is the largest in northern Ghana and, from a sociocultural perspective, is one of the country's most important... The community has preserved the forest for nearly 300 years by establishing and enforcing land-use rules and practices designed to safeguard the abode of the Malshegu guardian fetish. These measures restrict human interferences, limit the use of forest products, and protect against natural disasters and other events, including annual bushfires. They have enabled the grove, originally an open-canopy forest, to develop a partially closed canopy that is visually striking in the semiarid surroundings of Malshegu. The forest has become a small refuge for a large variety of fauna and flora and a repository of numerous native species found nowhere else in the region in such large concentrations. It probably maintains higher biodiversity than the original open-canopy forest. The grove is an important source of both seeds and seed dispersers vital to traditional shifting cultivation practices, and of herbs for local medicinal, social, and religious purposes. While the grove is too small to be a primary watershed, its presence ensures that the water table remains high in the immediate area (Dorm-Adzobu, Ampadu-Agyei, & Veit, 1991, p. 4;14).

The Abono, Asante Region, Ghana

The biggest and deepest natural body of fresh water in West Africa, Lake Bosomtwi, is in the Asante region of Ghana, where the Abono community live (The Planetary and Space Science Centre, 2018). The lake, which is believed to be a deity, has been under the supervision of the community's traditional council for

over three centuries on behalf of the Asantehene, the king of Asante. Legend has it that an injured antelope was being pursued by a hunter when it disappeared in the lake; the hunter took this to mean the antelope was a deity that had settled near the lake and named it "Bosomtwe", the "antelope god" and dedicated a shrine (the Taakofi Shrine) to it in which a rock, the Abrodwom stone, represents the deity.

Each village in the environment of the lake area has its own dedicated shrine to the lake to which villagers appeal for protection in times of misfortune (Amu-Mensah, *et al.*, 2019, p. 227). In 2021 a private developer who had allegedly destroyed about 600 trees along the banks of Lake Bosomtwe to establish a mango plantation, was sanctioned at the Manhyia Palace, the seat of the Ashanti king (Ghanaweb, 2021).

A spokesperson for the Asantehene is reported to have said that:

Our rules of engagement are that if you cut one of the trees planted under the auspices of the Manhyia Palace, you have to replace it with 100. So the private developer is expected to plant 59,800 trees and manage them within a period of five years before handing them over to the fringe communities. We don't set rules and just leave it like that, there will be enforcement (Abubakar, 2021).

The Asunafo, Eastern Region, Ghana

The Asunafo people in the Eastern Region of Ghana have also opposed attempts at incursion by *galamsey*, whose activities often result in ecological crises. Led by their queen mother, the Asunafo community has opposed gold mining in the area, using a customary eco-governance system. According to a 2020 research project carried out by the University of Ghana and the University of York, respondents testified that they oppose (and will always oppose) gold mining of any form because their ancestors despise greed. Since in their view gold mining would surely lead to that outcome, they prefer to maintain their small-scale farming activities. According to the queen mother, when members of the community are approached by gold mining entrepreneurs for permits to operate, their ancestors warn them against the temptation to yield to such overtures through bad dreams. The community has also opposed all efforts by the government of Ghana to include them in its Community Mining Programme. [15]

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[15] Focus group discussion testimony during University of Ghana/University of York fieldwork on February 13 2021 at Asunafo in the Eastern Region of Ghana. The Community Mining Programme is a government initiative to set up sustainable community-managed small-scale mining enclaves. See (Minerals Commission, 2021).

The pristine water bodies of Asunafo as compared to the desecrated environment of its adjoining village, Kwabeng (see Plates 2 and 3 below), are evidence of the environmental dividend from this approach. According to the research cited above, residents from the latter community steal water from the unpolluted Esubone River under cover of darkness because the Birim River has been polluted by *galamsey* activities. The Esubune and Birim rivers are both tributaries of the river Pra. The sharp contrast in the environmental conditions of the Asunafo and Kwabeng amply illustrates the regulatory efficiency of totem governance regimes. While Asunafo is completely free from the environmental ravages of gold mining and can be said to have upheld SDGs 11, 14, 15, 16 and 17[16], Kwabeng, where totemic governance has no effect, is reeling from the negative environmental consequences of mining.

PLATES 2 AND 3: THE ESUBONE RIVER IN ASUNAFO AND THE BIRIM RIVER IN KWABENG

Source: Author.

The Ga-Mashie, Accra, Ghana

Totemic beliefs do not always survive vigorously enough to prevent the negative influences of modernisation. For example, the Ga-Mashie people in Accra, the capital of Ghana, believe that the ultimate owners of their lands are gods who live in three lagoons: (i) the Sea Nai lagoon, (ii) the Sakumo lagoon and (iii) the Kole lagoon. The said deities are believed to grant allodial rights on behalf of ancestors to in-groups and families. Furthermore, the Ga-Mashie believe the Sea Nai lagoon is the abode of the lead deity of a pantheon of deities whose representative is the Nai Wulomo, the high priest of the Ga-Mashie people. In

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[16] SDG 11 seeks to make human settlements inclusive, safe, resilient and sustainable; SDG 15 aims at protecting, restoring and promoting sustainable use of terrestrial ecosystems; SDG 16 seeks accountable and inclusive institutions; SDG 17 helps strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development. In the case of Asunafo the partnership is not global but based on localised solidarity.

addition, the Ga-Mashie believe the Sakumo lagoon is inhabited by two deities, the Sakumo fio and Sakumo nukpa, who are jointly represented by a priest, the Sakumo Wulomo. Even though the totemic regimes are intact and have been incorporated into the Ramsar site[17] ecological management protocols for the two lagoons, they have come under acute strain from rapid urbanisation. Among the three lagoons, however, the Korle is the most polluted. Believed to be a female deity with a taboo rendered in the Ga language as "akɛ gbonyo efooo Korle", meaning "it is forbidden for anyone to ferry a corpse across the Korle lagoon", the people of Ga-Mashie used to bathe in the lagoon to cleanse themselves of malevolent influences and believed that anyone who crossed the lagoon with a corpse or introduced dirt or stench into it would be permanently cursed. In the face of worsening urban-induced pollution due to failed government management efforts, the people of Ga-Mashie now believe that the Korle deity has moved out of the lagoon (Squire, 2018; Adjei, 2014).

Discussion

The cases of Kwabeng and Asunafo, as well as that of the Ga-Mashie, illustrate my argument that disruptions of totemic governance regimes can result in environmental crises, which are followed by acute restoration challenges for central government. True, African totemic frameworks are pre-Newtonian and not scientific in the Newtonian sense. And indeed, they cannot easily withstand external disruptions (e.g. the demand for gold in Kwabeng) and urbanisation pressures, as the case of Ga-Mashie attests. Nevertheless, as evidenced by the other cases, it can be argued that their regulatory capacities are capable of enforcing habitual compliance to environmental norms and perhaps more so than the governmental institutions associated with the SDGs currently. In the African context, totemic regimes are imbued with more structural power to encourage and even enforce compliance with environmental norms than institutions that frame their approach according to Newtonian, science-designed ontologies and their associated epistemic paths.

This observation has profound implications for full-spectrum social mobilisation in the quest for the SDGs in Africa, since discussions on environmental degradation will most likely strike a chord when presented from a perspective that ontologically coordinates with the worldview of Africans. As attested to by the understanding of the Ga-Mashie about the polluted Korle lagoon, the belief that the lagoon's resident deity has moved out may be as important as the polluted state of the lagoon. Indeed, seen this way, it may be the

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17 The lagoons are Ramsar sites. See (Ramsar Sites Information Service, 2015)

case that restoring ecological integrity may not be an end in itself but a means to make the Korle deity inhabit the lagoon again.

African totemic regimes have deeper ontological origins in African social experience than the institutions associated with the SDGs and therefore possess greater meta-power capacities in the African context than the latter. The ontology of African totems emerged from cognitive processes that recognised and mimicked the holistic harmony/conviviality of nature, and it is significant that they encompass sacred as well as secular realms. Moreover, the effectiveness of totemic frameworks is independent of economic costs and benefits and their regulatory power is therefore pitched at a higher and more inclusive philosophical level than the philosophy that underpins the SDGs, which tend to be framed and promoted in economistic terms. Questions have been raised about the solidarity and commitment of developed governments regarding their aid to developing countries as regards achieving these targets (Langford, 2016, p. 168). African totemic regimes can have a deeper mobilisational capacity than those of the institutions associated with the SDGs, whose outcomes are dependent on promises of foreign funding in support of their goals.

As illustrated by some of the cases explored in this paper, African totem regimes can be insulated from disruption from approaches to the environment that are philosophically antithetical to their ambiguous combination of sacred and secular integrity because they are based in a worldview that recognises the deep mysterious essence of nature. Where this is the case, the environment is not exposed to rationalities of environmental exploitation which may be justified as materially rewarding and which are frequently associated with social and economic exploitation. Meanwhile, it can be argued that the ontological and epistemic framework of Cartesian Newtonian science is implicated in the crisis of the Anthropocene (Lövbrand *et al.*, 2015; Inkpen & DesRoches, 2019). It is therefore questionable whether its disruption of the balance between human systems and nature in the age of Anthropocene can be restored within a capitalist framework.

Conclusion and recommendations

As David Hookes notes, the Cartesian assumption of the essential divide between mind and matter, and therefore of physical and mental processes, motivates an understanding of reality in terms of discoverable physical and mechanical laws. This suggests an "unbridgeable gulf between human beings and the physical world" and perceptions of nature wholly as "other" than ourselves, and as something to be "conquered and used" (Hookes, 2009, p. 2). In this worldview, ambiguity is an enemy. As regards human agency, the metaphor of mechanism

stresses hierarchy, fixed role-playing and rigid bureaucracy expertise. These, in turn, depend on "the modern cult of the expert", the detached individual who is "knowledgeable about isolated bits of information or experience but ignorant of the whole of which these bits are a part" and therefore alienated from the situation or community in which s/he practises her/his expertise (Hookes, 2009, p. 2).

Social science, too, depends on experts whose areas of specialised training, methodology and methods are framed by Cartesian-Newtonian science and operationalised through academic provincialism (specialisation). This epistemic approach cannot accommodate the holism ontology of African totemic regimes and the cognitive support systems of their adherents and often dismisses them as irrational, uninformed and unscientific. SDG social scientists and activists are ontologically embedded in the said "artificial capitalist programmed parallel universe of fractured nature" and epistemically attuned to the precepts of Cartesian-Newtonian science. This outlook can alienate them from communities with localised insights that can be leveraged in the quest for the SDGs.

In a post-event review survey carried out for a project cited earlier in this paper, a respondent had this to say[18]:

> Know that there is a difference between book knowledge and home [indigenous] knowledge. The problem of Ghana is too much book knowledge. We have thrown away the wisdom our ancestors left us and we are copying the knowledge of [white people] … What will we gain from all this? Do we go to tell the [white people] to do what our ancestors teach? My brother, we are lost and all the book people [scholars or academics] are confused. Indeed we have sinned against our ancestors. It is about time we learn wisdom again. Do you think our fathers were stupid? God help us!

This response is surely an invitation to social scientists to recognise the efficacy of worldviews that are not necessarily "scientific" but which may encode effective indigenous knowledge frameworks and strategies that can contribute to resolving challenges in our pursuit of the SDG targets. To dismiss such regimes because they are not scientific in the positivist sense undermines or negates effective strategies of mobilisation in Africa based in indigenous modes of knowledge. Moreover, in so doing, opportunities to enhance mutual learning and gain fresh insights are lost. The African totemic regimes have stood the test of time, are cheap to manage, and more capable of regulating compliance with environmental norms and practices than the institutions that are associated with the SDGs.

Social scientists can draw inspiration from the research paradigms now available, including constructivism, which recognises multiple ontologies, and

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[18] Transcribed from Twi, a local dialect.

post-positivism, which embraces pluralist epistemologies and methodologies. These approaches to knowledge can allow researchers to innovate by leveraging indigenous ontologies and epistemologies in the framing of methodologies that can sympathetically accommodate indigenous knowledge frameworks such as the African totemic regimes. Including them in mainstream research activities constitutes an important recognition that they are real and effective knowledge paradigms in their own right, and also, imbued with regulatory power as they are, that they can prove as effective as regulatory regimes. Doing so will enable more effective mobilisation of environmental practices conducive to the aims and practices of the SDGs in an intrinsically humane and inclusive manner.

Newtonian science has contributed to immensely to human progress, but it has also led *Homo sapiens* to acquire an arrogant sense of entitlement that has ruptured the bonds of communality, particularly through the normalisation of inequality, and thus damaged the solidarity regimes of *Homo sapiens* with nature (Gruss & Skinner, 1997, pp. 13-26). The aim should be a synergistic accommodation of the pre-Newtonian knowledge implicit in African totemic regimes with strategies of knowledge that are implicit in various post-positivist approaches to social science.

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