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DECOLONISING WASTE MANAGEMENT PRACTICES IN AFRICAN SOCIETY: PERSPECTIVES FROM NIGERIA

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Abstract
Waste is not merely discarded material but a cultural and historical artefact that reflects the socio-economic, environmental, and political dynamics of developing nations. Using social constructivism as an analytical lens and employing orthodox historical narrative and qualitative analysis, this study examines the impact of Western influence on indigenous waste management practices in Nigeria. It argues that colonial interventions disrupted culturally embedded systems of waste disposal and management that had long promoted environmental responsibility through eco-spiritual values and socialisation from childhood. This paper highlights how colonial legacies weakened indigenous ecological knowledge while entrenching extractive hierarchies that prioritised exploitation over environmental equity. It contends that Nigeria should revitalise and adapt traditional waste management practices to contemporary realities through decolonised approaches. Drawing on Integrated Waste Management (IWM) and Circular Integrated Waste Management Systems (CIWMS), this study advocates frameworks that integrate local heritage with modern innovations, offering pathways towards equitable, sustainable, and culturally grounded environmental governance.

Keywords: Waste Management, Cultural Attitudes, Sustainability, Developing Nations, Nigeria.

Introduction

Waste management, a fundamental aspect of environmental sustainability, represents both a pressing challenge and a unique opportunity for developing nations. It encompasses historical, cultural, and socio-economic dimensions that are deeply influenced by policy frameworks and social practices. The discourse surrounding waste management therefore extends beyond its material reality to broader concerns relating to public health, societal progress, environmental justice, and economic stability. This multidimensional relationship between waste and society is rooted in evolving cultural attitudes, colonial histories, and the pressures of globalisation. Understanding these complexities is therefore essential if waste management is to contribute meaningfully to sustainable development.[1]

[1] Hyena Kim, "First as Waste, Then as Feral: The Garbological Imaginary of Korean Stories for Decolonizing a Wasted World," *The Journal of Environmental Education* 55 (January2024): 78–89, https://doi.org/10.1080/00958964.2023.2259851; Zhiyong Han, Yong Liu, Min Zhong, Guozhong Shi, Qibin Li, Dan Zeng, Yu Zhang, Yongqiang Fei, and Yanhua Xie, "Influencing Factors of Domestic Waste Characteristics in Rural Areas of Developing Countries," *Waste Management*72 (February 2018): 45–54, https://doi.org/10.1016/j.wasman.2017.11.039.

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Cultural attitudes towards waste in developing nations, for instance, are deeply rooted in historical legacies. Colonial rule frequently framed waste as a symbol of disorder, while waste management itself functioned as an extension of the colonial mission to impose control, discipline, and hierarchy.[2] Consequently, many of these perspectives persist today, as waste and environmental hazards are often relegated to marginalised communities, thereby perpetuating socio-economic inequalities. This colonial inheritance highlights the urgent need for decolonised approaches to waste management that address structural injustices and promote environmental equity. As Kim aptly observes, waste in this context represents both a tangible by-product of exploitation and a symbol of systemic inequality, thereby necessitating strategies capable of reconciling historical injustices with sustainable environmental practices.[3]

At the same time, traditional practices in many developing nations offer important insights into sustainable waste management. Indigenous cultures historically viewed waste not merely as a nuisance, but as a resource that could be reused, repurposed, or reintegrated into the ecological cycle. Practices such as composting, repurposing, and community-led waste reduction strategies reflected an ethos of environmental harmony and collective responsibility.[4] However, these sustainable traditions are increasingly threatened by modernisation, urbanisation, and the proliferation of non-biodegradable materials, all of which disrupt long-established ecological practices. The tension between traditional and modern approaches to waste management therefore underscores the importance of culturally sensitive strategies capable of integrating indigenous knowledge systems with contemporary waste management frameworks.[5]

Moreover, rapid urbanisation and industrialisation further complicate waste management in developing nations. Expanding urban centres frequently lack the infrastructure required to manage the significant volume of waste generated by growing populations and industries.[6] As a result, practices such as open dumping, indiscriminate burning of waste, and inadequate recycling continue to exacerbate environmental degradation and public health crises, particularly within densely populated urban areas. The informal waste sector, which provides livelihoods for millions of people, plays a critical role in mitigating some of these challenges through the recycling and repurposing of waste materials. Despite its contributions, however, this sector often operates under hazardous and poorly regulated conditions, thereby requiring greater recognition and integration into formal waste management systems.[7]

Equally important are the socio-economic factors that influence patterns of waste generation and management. Rising incomes and expanding consumer culture often contribute to increased waste

[2] Kim, "First as Waste," 80.
[3] Ibid, 85.
[4] Han et al., "Influencing Factors," 48.
[5] Marcio Batista et al., "A Framework for Sustainable and Integrated Municipal Solid Waste Management: Barriers and Critical Factors to Developing Countries," *Journal of Cleaner Production* 312 (2021): 127516, https://doi.org/10.1016/j.jclepro.2021.127516.
[6] Ibid.
[7] Hong Yang, Mingguo Ma, Julian Thompson, and Roger Flower, "Waste Management, Informal Recycling, Environmental Pollution and Public Health," *Journal of Epidemiology & Community Health* 72 (2018): 237–243, https://doi.org/10.1136/jech-2016-208597.

production, particularly through the growing prevalence of disposable goods and non-reusable materials.[8] Nevertheless, cultural and policy interventions can help mitigate this trend. Community-driven recycling initiatives and environmental education campaigns, for example, have demonstrated considerable potential in reducing waste generation even within regions experiencing economic growth. In addition, waste management presents important socio-economic opportunities, particularly through programmes that link waste collection and recycling to employment generation and poverty alleviation.[9] Such examples underscore the dual role of waste as both a developmental challenge and a potential driver of economic progress.

Globalisation adds another layer of complexity to waste management in developing nations. The influx of global waste, particularly electronic and hazardous materials, has transformed many developing countries into dumping grounds for developed nations, thereby intensifying local environmental challenges and exposing the inequalities embedded within the global waste trade.[10] Conversely, globalisation also facilitates the transfer of ideas, technologies, and innovations, thereby creating opportunities for the adoption of more sustainable waste management practices. Balancing these competing dynamics requires strategies that respect local cultural contexts while simultaneously leveraging global resources and technological advancements to address waste-related challenges effectively.

The public health implications of inadequate waste management are particularly severe in regions with limited access to healthcare and sanitation infrastructure. Improper waste disposal methods attract disease vectors, contaminate water sources, and contribute significantly to respiratory and skin-related illnesses among vulnerable populations.[11] Furthermore, hazardous waste, including medical and industrial refuse, poses additional risks to both human health and environmental integrity.[12] Addressing these concerns therefore requires a holistic approach that integrates public health considerations into waste management policies in order to ensure that interventions remain socially equitable and environmentally sustainable.

Ultimately, achieving the United Nations Sustainable Development Goals (SDGs) will require effective and sustainable waste management systems. Proper waste management reduces environmental degradation, improves resource efficiency, and strengthens economic resilience.[13] Achieving these outcomes, however, requires a significant shift in how waste is perceived — from an

[8] Han et al., "Influencing Factors," 50.
[9] Elesho Alade et al., "Influence of Waste Management on Environmental Health and Development," *Journal of Wastes and Biomass Management* 5, no. 2 (2023): 59–72, https://doi.org/10.26480/jwbm.02.2023.59.72.
[10] Malladi Sindhuja and Krishnan Narayanan, "Policy Interventions for Sustainable Solid Waste Management in Developing Countries," in *Advances in Finance & Applied Economics*, ed. Nanduri Bhanumurthy et al. (Singapore: Springer, 2018), 55–70, https://doi.org/10.1007/978-981-13-1696-8_5.
[11] Rinnie Mahajan, "Environment and Health Impact of Solid Waste Management in Developing Countries: A Review," *Current World Environment* 18, no. 1 (2023): 18–29, https://doi.org/10.12944/CWE.18.1.3.
[12] Mohsen Ansari et al., "Dynamic Assessment of Economic and Environmental Performance Index and Generation, Composition, Environmental and Human Health Risks of Hospital Solid Waste in Developing Countries: A State-of-the-Art Review," *Environment International* 132 (2019): 105073, https://doi.org/10.1016/j.envint.2019.105073.
[13] Meetha Ram and Enrico Bracci, "Waste Management, Waste Indicators and the Relationship with Sustainable Development Goals (SDGs): A Systematic Literature Review," *Sustainability* 16, no. 19 (2024): 8486, https://doi.org/10.3390/su16198486.

environmental burden to a valuable resource within a circular economy. By harmonising traditional practices, technological innovation, and global sustainability frameworks, developing nations can redefine their relationship with waste and transform it into a catalyst for sustainable development.

This paper examines the evolution of cultural attitudes towards waste management in developing nations, with particular emphasis on how historical, cultural, and socio-economic factors converge to shape contemporary waste management practices. Its objective is to highlight the critical need for decolonised, inclusive, and adaptive strategies capable of addressing the inequities of the past while leveraging indigenous knowledge and modern innovations for sustainable development. By exploring the intersections of colonial legacies, traditional practices, urbanisation, globalisation, and public health, this paper investigates the transformative potential of waste management as a tool for promoting environmental sustainability, social equity, and economic resilience in developing nations such as Nigeria.

Conceptual Clarifications

Concept of Waste

Waste, as both a material reality and a cultural construct, defies a single definition. It embodies the tensions between utility and neglect, progress and dispossession, as well as efficiency and excess. Scholars such as Dijkema *et al.* highlight its emergent nature, suggesting that waste is not inherently defined by its material composition, but rather emerges when materials lose their designated function.[14] Amasuomo and Baird further stress its contextual and relational dimensions, arguing that what one community discards may serve as a valuable resource for another.[15] This distinction brings to the fore two dominant schools of thought: one grounded in technical-industrial notions of value and productivity, and the other rooted in socio-cultural understandings of meaning, identity, and power. However, both perspectives risk becoming overly abstract when separated from the historical and postcolonial contexts within which waste has emerged as a visible marker of inequality.

Within developing nations such as Nigeria, waste should therefore not be viewed merely as discarded material, but also as a symbolic and material remnant of colonial and capitalist histories, particularly within what Moore conceptualises as the "Capitalocene."[16] Within this framework, waste operates as evidence of disrupted ecological cycles, the erosion of indigenous sustainability practices, and the unequal burdens imposed upon marginalised groups, especially the poor and vulnerable. Consequently, this paper regards waste as a socially constructed and politically charged category that simultaneously reveals systemic failure and latent potential: failure in exposing extractive and linear economic models rooted in colonial modernity, and potential in its reconceptualisation as a resource, a site of resistance, and an avenue through which more equitable, culturally grounded, and ecologically sustainable futures may be imagined.

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[14] Gerard Dijkema, Markus Reuter, and Ewoud Verhoef, "A New Paradigm for Waste Management," *Waste Management* 20, no. 8 (2000): 633–38, https://doi.org/10.1016/S0956-053X(00)00052-0.

[15] Ebikapade Amasuomo and Jim Baird, "The Concept of Waste and Waste Management," *Journal of Management and Sustainability* 6, no. 4 (2016): 88–96, https://doi.org/10.5539/jms.v6n4p88.

[16] Julia Moore et al., "Developing a Comprehensive Definition of Sustainability," *Implementation Science* 12, no. 110 (2017), https://doi.org/10.1186/s13012-017-0637-1.

Concept of Society

Society may be understood as a dynamic and multifaceted construct that extends beyond the mere aggregation of individual interactions to encompass the structural, cultural, and normative frameworks through which collective life is sustained and reproduced. Simmel describes society as the totality of interactions that generate the bonds of association,[17] while Devereux emphasises its patterned nature through probability and statistical mechanics.[18] Both perspectives underscore society's emergent and processual quality rather than its existence as a fixed or static entity. In contrast, structural perspectives, such as that advanced by Hellman, view society as an organised system shaped by economic conditions,[19] political institutions, and policy frameworks, while Touraine highlights society's integrative role in reconciling individualism with institutional norms.[20]

Although these schools of thought differ in orientation, particularly between interactionist and structuralist approaches, they converge in recognising society's dual character as both fluid process and organised system. Philosophical debates, ranging from Copp's critique of the conceptual vagueness[21] of society to Momdzhyan's insistence on its ontological reality,[22] further reinforce its contested yet indispensable status within social thought. In this paper, society is defined not simply as a collection of individuals or an abstract structure, but as a historically situated, adaptive, and culturally centred system that simultaneously reflects and shapes human existence. It constitutes both the material and symbolic arena within which norms, values, and power relations are reproduced, resisted, and reimagined, thereby linking social interactions to broader trajectories of development, identity, and survival. Society is therefore conceived here as a living and evolving matrix of relationality and structure, one that remains central to understanding the interconnectedness of human life and its continuous negotiation with ecological, political, and cultural realities.

Concept of Sustainability

Sustainability is best understood as a dynamic and systemic construct that embodies the interdependence of ecological integrity, social equity, and economic viability, while simultaneously functioning as both an ethical imperative and a practical framework for addressing contemporary global challenges. The widely cited definition advanced by the Brundtland Commission in 1987 emphasises intergenerational equity by describing sustainability as development that meets present

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[17] Georg Simmel, "Superiority and Subordination as Subject-Matter of Sociology," *American Journal of Sociology* 2, no. 2 (1896): 167–89, https://doi.org/10.1086/210600.

[18] George Devereux, "A Conceptual Scheme of Society," *American Journal of Sociology* 45, no. 5 (1940): 687–706, https://doi.org/10.1086/218446.

[19] Matilda Hellman, "Where Is 'Society'?," *Nordisk Alkohol- & Narkotikatidskrift* 36, no. 4 (2019): 311–13, https://doi.org/10.1177/1455072519864213.

[20] Alain Touraine, "Sociology after Sociology," *European Journal of Social Theory* 10, no. 2 (2007): 184–93, https://doi.org/10.1177/1368431007078894.

[21] David Copp, "The Concept of a Society," *Dialogue* 31, no. 2 (1992): 183–212, https://doi.org/10.1017/S0012217300038518.

[22] Karen Momdzhyan, "Society as an Institutional Form of Social Reality," *Voprosy Filosofii* 4 (2023): 18–28, https://doi.org/10.21146/0042-8744-2023-4-18-28.

needs without compromising the ability of future generations to meet their own needs.[23] However, this formulation has been criticised for privileging growth-oriented paradigms that often obscure deeper structural inequalities.[24] Ecological schools of thought emphasise biophysical limits, whereas social approaches foreground justice, equity, and inclusivity.[25] These perspectives contrast with economic approaches that continue to grapple with the challenge of reconciling growth imperatives with ecological preservation.[26]

More recent pluralist frameworks, such as those advanced by Seghezzo and Aminpour *et al.*, stress that sustainability is contextually situated rather than universally defined. Developing nations, for example, often place greater emphasis on livelihood security, inequality reduction, and resilience, in contrast to the environmental priorities that dominate many advanced economies.[27] In this study, sustainability is therefore defined as the evolving capacity of societies within developing nations to balance ecological preservation, socio-economic needs, and cultural values within the enduring legacies of colonialism and global capitalism. Sustainability is thus understood not merely as a developmental paradigm, but also as a socio-political process through which communities reimagine their relationship with waste, the environment, and future survival.

Theoretical Framework and Applicability

Social Constructivism

Social Constructivism provides a comprehensive framework for understanding the dynamic relationship between cultural attitudes, societal norms, and sustainability practices within the context of waste management in developing nations. The theory emphasises that knowledge and meaning are actively constructed through social interactions and are shaped by specific cultural and historical contexts.[28] This theoretical lens therefore draws attention to the importance of viewing waste management practices and sustainability efforts not merely as technical or economic challenges, but as deeply embedded social constructs influenced by shared beliefs, community narratives, and collective experiences.

At the centre of Social Constructivism lies the premise that cultural and social contexts fundamentally shape human understanding and behaviour. The works of Vygotsky and subsequent theorists highlight the role of social interaction in cognitive development and in the co-construction of knowledge, emphasising that understandings of concepts such as waste and sustainability emerge

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[23] Robert Deliège, "Societies, Types of," in *International Encyclopedia of the Social & Behavioral Sciences*, ed. Neil Smelser and Paul Baltes (Oxford: Pergamon, 2001), 14530–36, https://doi.org/10.1016/B0-08-043076-7/01967-7.

[24] Roefie Hueting and Lucas Reijnders, "Sustainability Is an Objective Concept," *Ecological Economics* 27, no. 2 (1998): 139–47.

[25] Efrat Eizenberg and Yosef Jabareen, "Social Sustainability: A New Conceptual Framework," *Sustainability* 9, no. 1 (2017): 68, https://doi.org/10.3390/SU9010068.

[26] Amartya Sen, "The Ends and Means of Sustainability," *Journal of Human Development and Capabilities* 14, no. 1 (2013): 6–20, https://doi.org/10.1080/19452829.2012.747492.

[27] Lucas Seghezzo, "The Five Dimensions of Sustainability," *Environmental Politics* 18, no. 4 (2009): 539–56, https://doi.org/10.1080/09644010903063669.

[28] Carlos Ruggerio, "Sustainability and Sustainable Development: A Review of Principles and Definitions," *Science of the Total Environment* 786 (2021): 147481, https://doi.org/10.1016/j.scitotenv.2021.147481.

from culturally situated practices and social dialogues.[29] This theoretical perspective aligns with the evolving attitudes towards waste in developing nations, where historical legacies, socio-political structures, and economic realities intersect to shape how waste is perceived, interpreted, and managed.[30]

The historical and cultural dimensions of waste management practices provide an important basis for analysing contemporary attitudes towards waste. The concepts of synchrony and diachrony within Historical Structuralism, as adapted within Social Constructivist analysis, reveal how colonial legacies and indigenous traditions continue to influence modern waste management behaviours. For instance, the persistence of informal recycling networks across many developing nations reflects historically rooted norms and practices that have been socially transmitted across generations.[31] These long-standing practices are often challenged by the introduction of formal waste management systems, thereby creating tensions between established cultural narratives and emerging sustainability goals.

Economic and political structures further complicate this landscape. Financial constraints and market dynamics in developing nations significantly influence waste management practices, as economic limitations frequently prioritise immediate survival over long-term environmental sustainability.[32] Social Constructivism, however, extends the discussion beyond material constraints by examining the cultural and social narratives that frame waste either as a resource or as a liability. In many parts of the global South, waste is experienced as a lived social reality, with marginalised communities actively engaged in recycling and waste valorisation practices that challenge dominant perceptions of waste as merely disposable material.[33]

The socio-political dynamics of waste management further highlight the role of governance, public policy, and collective attitudes in shaping sustainable practices. Public policies in many developing nations are often influenced by broader socio-political interests that prioritise economic development over environmental sustainability.[34] Social Constructivism provides a critical framework through which such policies may be examined, particularly by emphasising the need for inclusive governance structures that recognise and integrate indigenous cultural practices and community-level

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[29] Michelle Davis et al., "Learning Principles in CBT," in *The Science of Cognitive Behavioral Therapy*, ed. Stefan Hofmann and Gordon Asmundson (Academic Press, 2017), 51–76, https://doi.org/10.1016/B978-0-12-803457-6.00003-9.
[30] Annemarie Sullivan Palincsar, "Social Constructivist Perspectives on Teaching and Learning," *Annual Review of Psychology* 49 (1998): 345–75, https://doi.org/10.1146/ANNUREV.PSYCH.49.1.345.
[31] Richard Young and Audrey Collin, "Introduction: Constructivism and Social Constructionism in the Career Field," *Journal of Vocational Behavior* 64, no. 3 (2004): 373–88, https://doi.org/10.1016/J.JVB.2003.12.005.
[32] Yiannis Kountouris, "The Influence of Local Waste Management Culture on Individual Recycling Behavior," *Environmental Research Letters* 17, no. 7 (2022): 074017, https://doi.org/10.1088/1748-9326/ac7604; Ali Al-Otaibi et al., "Identifying the Barriers to Sustainable Management of Construction and Demolition Waste in Developed and Developing Countries," *Sustainability* 14, no. 13 (2022): 7532, https://doi.org/10.3390/su14137532.
[33] Bin Chi et al., "Construction Waste Minimization in Green Building: A Comparative Analysis of LEED-NC 2009 Certified Projects in the US and China," *Journal of Cleaner Production* 256 (2020): 120749, https://doi.org/10.1016/j.jclepro.2020.120749.
[34] Lucy Bell, "Place, People and Processes in Waste Theory: A Global South Critique," *Cultural Studies* 33, no. 1 (2019): 98–121, https://doi.org/10.1080/09502386.2017.1420810.

participation.[35] In this regard, public-private partnerships and energy recovery initiatives may offer opportunities to align local cultural norms with broader global sustainability objectives.

At the community level, social interactions and shared narratives play a pivotal role in shaping attitudes and behaviours towards waste management. Community engagement, reinforced by social capital, emerges as an essential component of sustainable waste management practices. Studies conducted in Indonesia and China illustrate how community-driven initiatives, supported by social entrepreneurship and digital connectivity, can foster collective action and improve waste management outcomes.[36] These examples underscore the importance of shared visions, collective responsibility, and socially constructed meanings in building cultures of sustainability within local communities.

Educational initiatives and the integration of digital technologies further demonstrate the role of social constructs in shaping sustainable environmental practices. In Fiji, for example, civic education initiatives reveal the potential of culturally tailored educational tools to promote pro-environmental behaviours, although challenges remain regarding implementation and long-term effectiveness.[37] Similarly, the use of Information and Communication Technology (ICT) and social networks has proven instrumental in strengthening community participation in waste management by leveraging the collaborative potential of digital technologies to advance sustainability objectives.[38]

Ultimately, the adoption of sustainable waste management practices in developing nations depends significantly on the interaction between human and social capital. The relationship between educated individuals and socially cohesive communities encourages recycling, waste separation, and environmentally responsible behaviours, as demonstrated in studies conducted in Italy and other regions characterised by strong communal ties.[39] This interaction highlights the potential of cultural norms and collective action to promote sustainability in ways that align with the broader objectives of the Sustainable Development Agenda.[40]

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[35] Musa Mohammed et al., "The Mediating Role of Policy-Related Factors in the Relationship Between Practice of Waste Generation and Sustainable Construction Waste Minimisation: PLS-SEM," *Sustainability* 14, no. 2 (2022): 656, https://doi.org/10.3390/su14020656.

[36] Batista et al., "A Framework for Sustainable," 127516; Burhanuddin Burhanuddin, "Sustainable Waste Management Practices in Indonesia," *Sinergi International Journal of Management and Business* 2, no. 1 (2024): 11–25, https://doi.org/10.61194/ijmb.v2i1.125.

[37] Robladillo Bravo et al., "The Role of Internet and Social Interactions in Advancing Waste Sorting Behaviors in Rural Communities," *Resources* 13, no. 11 (2024): 147, https://doi.org/10.3390/resources13040057.

[38] Aarti Sewak et al., "Community Perspectives and Engagement in Sustainable Solid Waste Management (SWM) in Fiji: A Socioecological Thematic Analysis," *Journal of Environmental Management* 298 (2021): 113455, https://doi.org/10.1016/j.jenvman.2021.113455.

[39] Christos Vlachokostas, "Closing the Loop Between Energy Production and Waste Management: A Conceptual Approach Towards Sustainable Development," *Sustainability* 12, no. 15 (2020): 5995, https://doi.org/10.3390/su12155995.

[40] Iacopo Odoardi, Chiara Burlina, and Alessandro Crociata, "Pro-Environmental Determinants of Waste Separation: Does the Interaction of Human and Social Capital Matter? Evidence from Italian Provinces," *Sustainability* 15, no. 6 (2023): 5112, https://doi.org/10.3390/su15065112; Jenny Gutierrez-Lopez et al., "Decision Support Frameworks in Solid Waste Management: A Systematic Review of Multi-Criteria Decision-Making with Sustainability and Social Indicators," *Sustainability* 15, no. 18 (2023): 13316, https://doi.org/10.3390/su151813316.

Through the lens of Social Constructivism, this study seeks to unravel the complex web of social, cultural, and historical factors that shape attitudes towards waste management and sustainability in developing nations. By situating waste management practices within their socio-cultural contexts, this theoretical framework provides a holistic understanding of how waste is perceived, managed, and integrated into broader sustainability goals. In doing so, it challenges purely technocratic approaches to waste management and instead advocates deeper engagement with the social realities, cultural narratives, and historical experiences that underpin waste management practices in the global South. This perspective not only enhances understanding of the relationship between waste and society, but also offers pathways for more inclusive, culturally grounded, and sustainable environmental initiatives.

Precolonial Attitudes Towards Waste Management

In precolonial societies, waste management was deeply embedded within indigenous ecological knowledge systems and formed an essential foundation for sustainable living. This approach reflected a harmonious relationship between humans and their environment, in which waste was not merely discarded but reintegrated into natural cycles in ways that supported ecological balance and resilience. Unlike many contemporary perspectives that often reduce waste to disposable refuse, precolonial societies understood waste as an integral component of a regenerative ecological process. For instance, practices such as composting organic materials to replenish soil fertility demonstrated an advanced understanding of nutrient recycling and ensured agricultural productivity without exhausting natural resources.[41] Rooted in local experiences and adapted to specific environmental conditions, these waste management practices were resilient, sustainable, and instrumental in fostering long-term ecological harmony.[42]

Building upon this ecological foundation, spiritual and social beliefs further enriched precolonial waste management practices by infusing them with cultural, ethical, and moral significance. Spiritual ecology, which combined environmental stewardship with spiritual belief systems, occupied a central place within many indigenous societies. Sacred landscapes, rivers, and forests, such as Agulu Lake and the Haba Agulu River (Mmiri Haba Agulu) in Anambra State, were protected from pollution because of their spiritual significance. Among the communities surrounding Haba Agulu, the disposal of waste into the river or any act capable of polluting it was considered taboo. Sacrifices and rituals were conducted near the riverbanks, but never within the waters themselves. Furthermore, every able-bodied member of the community participated in periodic clean-up exercises involving the river and its surrounding environment, thereby reinforcing communal responsibility for environmental preservation (Fig. 1).

In a telephone interview with Chizoba Okafor, an African Traditional Religion (ATR) practitioner and devotee of Haba Agulu, he explained that "the river is not just water; it is a living entity inhabited by ancestral spirits. To pollute it is to dishonour our forebears and invite misfortune. Our rituals at the banks are acts of gratitude and renewal, ensuring harmony between the physical and

[41] Ram and Bracci, "Waste Management," 8486.
[42] Benett Madonsela, Khomotso Semenya, and Karabo Shale, "A Review of Indigenous Knowledge Systems and Their Application in Sustainable Solid Waste Management," *World* 5, no. 2 (2024): 219–39, https://doi.org/10.3390/world5020012.

spiritual worlds."[43] Similarly, the Ubu River in Otolo Nnewi was regarded as sacred, with strict prohibitions against activities such as fishing in its waters in order to preserve its purity (Fig. 2). In a telephone interview with Chinaza Obiasogu, an indigene of Nnewi and a geophysicist, she observed that "the Ubu River's clarity and biodiversity today are a testament to ancestral wisdom. Scientific analysis confirms minimal contamination, aligning with oral histories that describe strict prohibitions against exploitation. Our elders understood ecological balance long before modern sustainability frameworks."[44]

These practices not only safeguarded ecosystems from exploitation, but also embedded environmental responsibility within the everyday social and cultural life of the people. Indigenous spiritual traditions frequently emphasised the interconnectedness of all forms of life, thereby framing waste management as a moral obligation rather than merely a practical necessity. By aligning environmental sustainability with spiritual and ethical principles, these communities minimised ecological degradation while simultaneously strengthening social cohesion through shared values of reverence, stewardship, and collective responsibility.[45]

Source: Google Images.

Fig.1: Agulu Lake, Agulu, Anambra State.[46]

Source: Author's Fieldwork.

Fig:2 Ubu River, Nnewi, Anambra State.[47]

Complementing these spiritual perspectives were practical public health considerations, which often existed alongside supernatural understandings of well-being. Communities such as those in the precolonial Gold Coast (modern Ghana) recognised the health risks associated with unmanaged waste

[43] Interview with Chizoba Okafor, trader, born 1964, telephone interview, January 27, 2025.
[44] Interview with Chinaza Obiasogu, geophysics researcher, born 1999, telephone interview, January 27, 2025.
[45] Elizabeth Allison, "The Reincarnation of Waste: A Case Study of Spiritual Ecology Activism for Household Solid Waste Management: The Samdrup Jongkhar Initiative of Rural Bhutan," *Religions* 10, no. 9 (2019): 514, https://doi.org/10.3390/rel10090514; Meaghan Weatherdon, "Indigenous Knowledge and Contested Spirituality in Canadian Nuclear Waste Management," *Journal for the Study of Religion, Nature and Culture* 11, no. 1 (2017): 86–108, https://doi.org/10.1558/JSRNC.27263.
[46] Fig. 1. Agulu Lake, Agulu, Anambra State, BN Media, Nairaland, Eastern Development: Agulu Lake Oasis In Anambra, Photograph, https://www.nairaland.com/6942787/eastern-development-agulu-lake-oasis (accessed January 20, 2025).
[47] Fig. 2. Ubu River, Nnewi, Anambra State, Taken by author during fieldwork, 27th January 2025.

and consequently implemented communal measures, including the construction and use of shared latrines, to prevent disease outbreaks.[48] These practical interventions were frequently reinforced by spiritual narratives in which improper waste disposal was believed to attract supernatural consequences or disrupt communal harmony. This dual framework, which combined empirical health practices with deeply rooted cultural beliefs, encouraged widespread compliance and reflected the holistic character of precolonial waste management systems. Through this integration of health consciousness and moral obligation, communities were able to maintain both public health and ecological integrity.

Beyond health and spirituality, waste also possessed considerable economic value and formed an important component of precolonial systems of resource management. In mining regions such as the Central African Copperbelt, by-products traditionally regarded as waste, including cobalt tailings, were repurposed to obtain secondary resources, thereby reducing dependence on primary extraction.[49] Similarly, within forestry economies, residues from timber harvesting were utilised for construction and energy production, reflecting a resource-conscious approach that maximised utility while minimising environmental degradation. These practices demonstrate the ingenuity of precolonial societies in integrating waste into broader economic systems in ways that promoted resource conservation and economic resilience without undermining ecological balance.

This pragmatic resourcefulness further extended into agriculture and artisanal production, illustrating the multifunctional value of waste within precolonial economies. Crop residues and animal manure were routinely recycled as organic fertilisers to improve soil fertility and strengthen food security.[50] In addition, waste materials were repurposed into household items and artisanal crafts, thereby reducing environmental pressure while simultaneously supporting local economies. Such practices encapsulate the pre-colonial understanding of waste as a resource rather than a burden and provide an important conceptual foundation for contemporary circular economy models. By embedding waste management within economic, cultural, and ecological systems, these societies cultivated forms of sustainability that continue to resonate with present-day aspirations for sustainable development.

Collectively, precolonial waste management reflected a holistic system that integrated environmental sustainability, cultural values, public health, and economic utility. Rooted in indigenous ecological knowledge, waste was not treated as useless material to be discarded, but rather as a component of regenerative ecological cycles that ensured environmental balance and resource renewal. Spiritual beliefs further enriched these practices by framing waste management as a moral and communal responsibility tied to environmental harmony and collective well-being. Economically, waste was repurposed to support agriculture, artisanal production, and local industries, thereby reinforcing its value as a resource rather than a liability. These interconnected practices reveal a

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[48] Akwasi Amoako-Gyampah, "Managing Waste: The Provisioning of Public Latrines and the Disposal of Night Soil in Southern Gold Coast (Ghana), c. 1878–1950," *Journal of Social History* 57, no. 2 (2024): 244–67.
[49] Glen Nwaila et al., "Valorisation of Mine Waste—Part II: Resource Evaluation for Consolidated and Mineralised Mine Waste Using the Central African Copperbelt as an Example," *Journal of Environmental Management* 299 (2021): 113553, https://doi.org/10.1016/j.jenvman.2021.113553.
[50] Vimbai Kwashirai, "Indigenous Management of Teak Woodland in Zimbabwe, 1850–1900," *Journal of Historical Geography* 33, no. 4 (2007): 816–32, https://doi.org/10.1016/J.JHG.2006.10.023.

sophisticated understanding of sustainability and offer valuable insights for addressing contemporary environmental challenges through the integration of indigenous knowledge systems and modern innovations.

Colonial Waste Management: Nigeria's Disrupted Systems and Global Parallels

The colonial era, often celebrated as a period of modernisation, carried profound hidden costs, particularly in Nigeria, where indigenous waste management systems were disrupted and replaced with centralised and industrialised models that largely ignored local ecological and cultural realities. Prior to colonial intervention, societies among the Yoruba, Igbo, Hausa, and numerous other ethnic groups had developed waste management practices rooted in sustainability, viewing waste not as useless refuse but as part of a regenerative ecological cycle. Organic materials were composted for agricultural use, while other forms of waste were repurposed and reintegrated within communal systems, reflecting a sophisticated understanding of ecological balance and resource conservation. These practices were deeply embedded within the cultural and economic structures of communities across the Niger Delta, the northern savannahs, and the forest regions of southern Nigeria. Colonial authorities, however, disrupted these systems by imposing foreign waste management frameworks that prioritised urban administrative and commercial centres such as Lagos, Kano, and Port Harcourt, while marginalising rural communities. This pattern was similarly replicated across other colonised regions, including Johannesburg and the Central African Copperbelt, where extractive economies and urban-centred policies also undermined indigenous environmental systems.[51]

This shift towards centralisation transferred control of waste management from local communities to colonial urban authorities, thereby displacing the community-based systems that had long sustained ecological harmony. In cities such as Kano, colonial administrators introduced open dumping practices that produced unsanitary environmental conditions and left many neighbourhoods overwhelmed by unmanaged waste, a legacy that remains visible in some areas today.[52] Meanwhile, rural communities that had traditionally depended on decentralised practices such as composting, recycling, and reuse were neglected, thereby intensifying the urban-rural divide. European-style waste systems implemented in Lagos and Port Harcourt were designed primarily to serve colonial commercial interests and administrative needs, while peri-urban and rural communities were left to confront increasing waste challenges without adequate infrastructure or institutional support. This disregard for indigenous systems, which had been carefully adapted to local ecological conditions, generated inefficiencies, environmental degradation, and social inequalities that persisted beyond independence. Comparable patterns emerged in regions such as India and Latin America, where colonial waste management systems similarly marginalised rural populations and disrupted long-standing indigenous environmental practices.[53]

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[51] Benett Madonsela, Machete Machete, and Karabo Shale, "Indigenous Knowledge Systems of Solid Waste Management in Bushbuckridge Rural Communities, South Africa," *Waste* 2, no. 3 (2024): 293–311, https://doi.org/10.3390/waste2030017.

[52] Iva Peša, "Toxic Coloniality and the Legacies of Resource Extraction in Africa," *International Review of Environmental History* 9, no. 2 (2024): 33–50, https://doi.org/10.22459/ireh.09.02.2023.03.

[53] Richard Stren, *African Cities in Crisis: Managing Rapid Urban Growth* (London: Routledge, 2022), https://doi.org/10.4324/9780429031182.

Compounding these challenges, colonial systems of resource extraction significantly intensified environmental degradation in Nigeria. In the Niger Delta, oil exploration and mining, which constituted major pillars of the colonial economy, generated toxic waste that polluted waterways and agricultural lands, devastating ecosystems and threatening local livelihoods. Unlike indigenous environmental systems that emphasised stewardship and sustainability, colonial economic policies prioritised extraction and profit maximisation, leaving behind contaminated soils and polluted water systems that continue to endanger communities today.[54] This experience mirrored ecological devastation in the Central African Copperbelt, where copper mining produced toxic residues, and in Johannesburg, where gold extraction severely polluted land and water resources. Similarly, in Jos, tin mining generated hazardous waste dumps, while industrial activities in Lagos introduced pollutants that degraded both air and water quality. These extractive practices, reinforced by the imposition of linear waste systems such as landfills and indiscriminate dumping, ignored long-term environmental consequences and consequently burdened postcolonial Nigeria, alongside many Global South nations, with enduring ecological crises.

Beyond environmental degradation, colonial waste management systems also generated profound cultural disruption. Cyclical indigenous systems of waste reuse and regeneration were replaced by linear disposal methods that eroded traditions integrating waste into agricultural, spiritual, and communal life. Among the Igbo, for instance, waste-related rituals connected to agricultural cycles were gradually displaced by imported colonial systems, severing communities from practices that had historically sustained both ecological balance and cultural continuity. Similar patterns were observed among indigenous populations such as the Saugeen Ojibway Nation in Canada, where colonial waste policies disrupted long-standing spiritual and ecological relationships with the environment.[55] Rural communities, already disadvantaged by urban-centred colonial policies, became increasingly vulnerable to public health crises as open dumping and inadequate infrastructure contributed to disease outbreaks and environmental contamination. Women, who had traditionally occupied central roles in household and agricultural waste management, were disproportionately affected by these collapsing systems. Despite these pressures, many women continued to sustain informal recycling, composting, and environmental protection practices in order to safeguard their families and communities, much like women in postcolonial India and Kenya who became prominent actors in grassroots waste management initiatives.[56]

Despite the oppressive nature of colonial waste systems, Nigerian communities demonstrated remarkable resilience through various forms of resistance and adaptation. In the Niger Delta, grassroots movements emerged to challenge pollution associated with oil extraction, echoing wider indigenous environmental struggles such as the resistance of the Saugeen Ojibway Nation against

[54] Leidy Ulloa-Murillo et al., "Management of the Organic Fraction of Municipal Solid Waste in the Context of a Sustainable and Circular Model: Analysis of Trends in Latin America and the Caribbean," *International Journal of Environmental Research and Public Health* 19, no. 10 (2022): 6041, https://doi.org/10.3390/ijerph19106041.
[55] Anne Runyan, "Indigenous Women's Resistances at the Start and End of the Nuclear Fuel Chain," *International Affairs* 98, no. 4 (2022): 1149–67, https://doi.org/10.1093/ia/iiac123.
[56] Anne Runyan, "Disposable Waste, Lands and Bodies under Canada's Gendered Nuclear Colonialism," *International Feminist Journal of Politics* 20, no. 1 (2018): 24–38, https://doi.org/10.1080/14616742.2017.1419824.

nuclear waste disposal and anti-mining movements in the Andes.[57] Women, in particular, played significant roles in combining indigenous cultural traditions with environmental activism, leading communal efforts to protect land and water resources from harmful waste practices.[58] At the same time, many communities continued to rely on indigenous knowledge systems and adapted traditional sustainability practices despite the absence of formal infrastructural support and the continued marginalisation of indigenous ecological approaches.[59] These efforts reveal the enduring resilience and adaptive capacity of indigenous communities confronting both colonial and postcolonial environmental challenges.

Nevertheless, the long-term consequences of colonial waste policies remain deeply embedded within Nigeria's environmental and socio-economic landscape. Air and water pollution, soil degradation, and ecological instability continue to threaten public health and environmental sustainability across many parts of the country.[60] In addition, the importation and dumping of hazardous materials, particularly electronic waste, have further intensified these challenges by exposing informal waste workers and vulnerable communities to severe environmental and health risks.[61] Although waste processing industries have generated certain economic opportunities, including employment creation, such benefits are often overshadowed by the broader environmental and public health costs associated with poorly managed waste systems.[62] Consequently, the colonial legacy of waste mismanagement continues to impede efforts by developing nations to transition towards more equitable, sustainable, and culturally responsive waste management systems.

In confronting this legacy, it becomes evident that the colonial approach to waste management, characterised by extraction, urban bias, and disregard for indigenous systems, imposed a dual burden upon Nigeria: environmental degradation and the erosion of indigenous ecological stewardship. In Kano, open dumping became institutionalised, while in Lagos, colonial-era waste infrastructure proved incapable of accommodating rapid population growth and urban expansion. These systems, designed primarily to facilitate economic exploitation rather than environmental sustainability, disrupted the regenerative practices that had previously balanced human needs with ecological stability. The result was a legacy of environmental harm, structural inequality, and cultural dislocation that continues to obstruct Nigeria's pursuit of sustainable waste management, a challenge shared by many nations across the Global South, from South Africa to Bangladesh.

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[57] Runyan, "Indigenous Women's Resistances at the Start and End of the Nuclear Fuel Chain," 1149-67.
[58] Runyan, "Disposable Waste, Lands and Bodies under Canada's Gendered Nuclear Colonialism," 24-38.
[59] Mpinane Senekane, Agnes Makhene, and Suzan Oelofse, "A Critical Analysis of Indigenous Systems and Practices of Solid Waste Management in Rural Communities: The Case of Maseru in Lesotho," *International Journal of Environmental Research and Public Health* 19, no. 18 (2022): 11654, https://doi.org/10.3390/ijerph191811654.
[60] Navarro Ferronato and Vincenzo Torretta, "Waste Mismanagement in Developing Countries: A Review of Global Issues," *International Journal of Environmental Research and Public Health* 16, no. 6 (2019): 1060, https://doi.org/10.3390/ijerph16061060.
[61] Samuel Abalansa et al., "Electronic Waste, an Environmental Problem Exported to Developing Countries: The Good, the Bad and the Ugly," *Sustainability* 13, no. 9 (2021): 5302, https://doi.org/10.3390/SU13095302.
[62] Nzalalemba Kubanza and Mulala Simatele, "Sustainable Solid Waste Management in Developing Countries: A Study of Institutional Strengthening for Solid Waste Management in Johannesburg, South Africa," *Journal of Environmental Planning and Management* 63, no. 2 (2020): 175–88, https://doi.org/10.1080/09640568.2019.1576510.

Postcolonial Attitudes toward Waste and Sustainability

In developing nations such as Nigeria, waste symbolises the enduring effects of colonial legacies, revealing the inefficiencies, environmental degradation, and social inequalities embedded within systems established during colonial rule. Postcolonial attitudes towards waste therefore require an understanding of waste not merely as discarded material, but also as both a product and symbol of continuing colonial relationships, particularly within the context of the "Capitalocene", a term used to describe the current era dominated by capitalist exploitation and its associated environmental consequences. Colonial waste management systems frequently disregarded indigenous ecological knowledge and imposed hierarchical structures that prioritised extraction and exploitation over sustainability and communal well-being. Consequently, decolonising waste management requires a reimagining of waste as an active participant within ecological and cultural narratives rather than as inert and disposable material.

For example, Korean cultural narratives challenge colonial ideologies by framing waste as a disruptive yet transformative force, with metaphors such as the "waste-child" representing its capacity to foster more inclusive environmental relationships.[63] In this regard, the integration of traditional ecological knowledge with modern technological innovations offers developing nations more holistic and context-sensitive approaches to addressing the combined pressures of urbanisation and industrialisation. Such a fusion of indigenous sustainability practices and contemporary technologies creates opportunities for constructing waste management systems that preserve cultural heritage, empower local communities, and promote resilience, sustainability, and social equity.

To confront the environmental and structural challenges inherited from colonial systems, waste management frameworks such as Integrated Waste Management (IWM) and Circular Integrated Waste Management Systems (CIWMS) provide potentially viable solutions. These frameworks combine municipal solid waste (MSW) and electronic waste treatment technologies with policies that emphasise resource circularity and sustainable environmental practices.[64] However, the implementation of these systems requires careful adaptation to the cultural, socio-economic, and environmental realities of postcolonial societies. In particular, the Sustainable and Integrated Solid Waste Management (S-ISWM) model emphasises the importance of multi-stakeholder cooperation by recognising that sustainable solutions must align with the specific historical and social realities of individual communities.[65] Such frameworks therefore underscore the importance of blending indigenous waste management practices with innovative technologies in order to address both historical and contemporary environmental challenges confronting developing nations.

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[63] Kim, "First as Waste," 83.

[64] Mahdi Ikhlayel, "An Integrated Approach to Establish E-Waste Management Systems for Developing Countries," *Journal of Cleaner Production* 170 (2018): 119–30, https://doi.org/10.1016/J.JCLEPRO.2017.09.137; Selene Cobo, Antonio Domínguez-Ramos, and Ángel Irabien, "From Linear to Circular Integrated Waste Management Systems: A Review of Methodological Approaches," *Resources, Conservation and Recycling* 135 (2018): 279–95, https://doi.org/10.1016/J.RESCONREC.2017.08.003.

[65] Batista et al., "A Framework for Sustainable," 127516.

This synthesis not only acknowledges the colonial residues embedded within contemporary waste systems, but also encourages solutions that respect local heritage while engaging modern technological possibilities. Porto Alegre in Brazil, for instance, demonstrates the effectiveness of this approach through the successful implementation of the S-ISWM model, which integrates traditional practices with modern technologies to reduce environmental impact while creating a more affordable and culturally responsive waste management system.[66]

Despite the promise of these integrated approaches, the fusion of traditional and modern waste management systems remains fraught with challenges. Cultural and socio-economic barriers continue to shape local waste practices and often create tensions between centralised, formalised waste systems and decentralised community-based approaches. Traditional practices such as composting and informal recycling, which are deeply rooted in local customs and survival strategies, are frequently marginalised in favour of modern systems that may be poorly suited to the socio-economic conditions of postcolonial societies.[67] This tension is especially evident in rural communities where formal waste management structures are either inadequate or entirely absent. Consequently, adaptive systems thinking, which emphasises the interconnectedness of waste streams with broader social, cultural, and environmental processes, becomes essential for designing solutions that respect and incorporate indigenous waste practices.[68]

In many developing and postcolonial societies, waste management is widely perceived as a major challenge due to inadequate infrastructure, rapid urbanisation, population growth, and persistent socio-economic inequalities. Attitudes towards waste management vary considerably and are influenced by demographic variables such as age, education, and income levels. There is also a widespread perception that effective sanitation services are expensive and should primarily be the responsibility of government authorities. In Nigeria, urban centres such as Lagos reveal striking contrasts in waste management realities. In informal settlements such as Ajegunle (Fig. 3), waste accumulates in open spaces because of inadequate collection services, resulting in serious environmental hazards and public health crises. In contrast, affluent districts such as Victoria Island (Fig. 4) benefit from relatively better-organised waste management systems, thereby exposing stark inequalities in infrastructural development and environmental care within the same city.

A similar pattern is observable in Onitsha, one of Nigeria's major commercial centres. In the densely populated settlement of Okpoko (Fig. 5), indiscriminate dumping of waste in markets and drainage channels intensifies pollution and creates severe environmental challenges. Conversely, other urban sections of Onitsha (Fig. 6) possess relatively more organised waste management systems, although significant gaps remain. Public perceptions of waste management within these urban environments are shaped by socio-demographic realities, with many residents regarding sanitation

[66] Paula Bortoleto and Keisuke Hanaki, "Citizen Participation as a Part of Integrated Solid Waste Management: Porto Alegre Case," *Waste Management & Research* 25, no. 3 (2007): 276–82, https://doi.org/10.1177/0734242X07079204.
[67] Rachael Marshall and Khosrow Farahbakhsh, "Systems Approaches to Integrated Solid Waste Management in Developing Countries," *Waste Management* 33, no. 4 (2013): 988–1003, https://doi.org/10.1016/j.wasman.2012.12.023.
[68] Jeffrey Seadon, "Sustainable Waste Management Systems," *Journal of Cleaner Production* 18, nos. 16–17 (2010): 1639–51, https://doi.org/10.1016/J.JCLEPRO.2010.07.009.

services as both costly and inadequately managed.[69] Comparable studies conducted in South Africa reveal that although many rural students possess limited knowledge of waste management practices, they nonetheless express willingness to participate in recycling initiatives when motivated by economic incentives.[70] These findings collectively highlight the need for context-specific public awareness campaigns, stronger environmental policies, economic incentives, and more effective enforcement mechanisms in order to encourage community participation and foster sustainable waste management practices in postcolonial societies.

Source: Google Images
Fig. 3: Ajegunle Slum, Lagos State.[71]

Source: Google Images
Fig.4: Victoria Island, Lagos State.[72]

[69] David Olukanni, Favour Pius-Imue, and Sunday Joseph, "Public Perception of Solid Waste Management Practices in Nigeria: Ogun State Experience," *Recycling* 5, no. 3 (2020): 8, https://doi.org/10.3390/recycling5020008; Chukwunonye Ezeah and Clive Roberts, "Analysis of Barriers and Success Factors Affecting the Adoption of Sustainable Management of Municipal Solid Waste in Nigeria," *Journal of Environmental Management* 103 (2012): 9–14, https://doi.org/10.1016/j.jenvman.2012.02.027.

[70] Oluwatobi Owojori, Ratshalingwa Mulaudzi, and Joshua Edokpayi, "Student's Knowledge, Attitude, and Perception (KAP) to Solid Waste Management: A Survey Towards a More Circular Economy from a Rural-Based Tertiary Institution in South Africa," *Sustainability* 13, no. 3 (2022): 1310, https://doi.org/10.3390/su14031310.

[71] Fig. 3. O. Akanle and G. Adejare, "Conceptualising megacities and mega slums in Lagos, Nigeria," Photograph, 5 no. 1 (2017): 6, DOI: 10.4102/apsdpr.v5i1.155.

[72] Fig. 4. Aerial View of Victoria Island, Unknown, Private Property, Photograph, https://www.privateproperty.com.ng/news/list-of-streets-in-victoria-island-lagos/ (accessed January 20, 2025)

Source: Google Images

Fig.5: Okpoko Slum, Anambra State.[73]

Source: Google Images

Fig.6: Akpaka G.R.A, Onitsha, Anambra State.[74]

Moreover, waste management in postcolonial societies is deeply influenced by the intersecting dynamics of gender and class. Women disproportionately bear the burden of waste management labour, often in unpaid or underpaid roles, thereby perpetuating systemic gender inequities. For instance, community-based waste systems in Greater Jakarta rely heavily on women's labour, yet their contributions are frequently undervalued and unrecognised.[75] Similarly, in European contexts, gender mainstreaming initiatives in waste management seek to dismantle gendered assumptions surrounding environmental care work, suggesting that gender-sensitive policies can significantly enhance sustainability outcomes.[76] At the intersection of class and caste, marginalized groups such as Dalits in India are often relegated to hazardous waste collection tasks, a practice that reflects deeply entrenched social hierarchies.[77] Addressing these gendered and class-based disparities is therefore imperative for achieving equitable and sustainable waste management systems in postcolonial societies.

Nevertheless, innovative approaches to waste management in these contexts have demonstrated considerable potential for addressing both environmental and social challenges. For example, organic waste buyback programmes leverage high proportions of organic waste to produce compost and biogas, thereby creating economic opportunities while simultaneously reducing waste

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[73] Fig. 5. Okpoko Slum, Unknown, Nairaland, Soludo Inspects Ongoing/Completed Projects at OkpokoOgbaru and Niger Street Fegge, Photograph, https://www.nairaland.com/8023893/soludo-gives-okpoko-onitsha-slum-face (accessed January 20, 2025)

[74] Fig. 6. Urbanized Media, "Akpaka G.R.A, Onitsha, Anambra State," X, Photograph, June 27,2022, https://x.com/Ubanized_Media/status/1541366133659471872?lang=ar (Accessed, January 20, 2023).

[75] Diana Pakasi, Anita Hardon, Irwan Hidayana, and Putri Rahmadhani, "Gendered Community-Based Waste Management and the Feminization of Environmental Responsibility in Greater Jakarta, Indonesia," *Gender, Technology and Development* 28, no. 2 (2024): 205–22, https://doi.org/10.1080/09718524.2023.2300561.

[76] Susan Buckingham, Michelle Perello, and Javier López-Murcia, "Gender Mainstreaming Urban Waste Reduction in European Cities," *Journal of Environmental Planning and Management* 64, no. 4 (2021): 671–88, https://doi.org/10.1080/09640568.2020.1781601.

[77] Advaita Rajendra and Ankur Sarin, "Challenging Invisibility: A Sensorial Exploration of Gender and Caste in Waste-Work," *Gender & Development* 31, nos. 2–3 (2023): 339–55, https://doi.org/10.1080/13552074.2023.2249766.

accumulation.[78] In Africa, AI-driven waste management systems utilise mobile applications and smart bins to optimise waste collection and enhance community engagement.[79] Similarly, Indonesia's digital innovations in waste banks demonstrate how technology can streamline operations, improve efficiency, and increase public satisfaction.[80] These innovations underscore the critical role of robust policy frameworks, stakeholder collaboration, and community participation in fostering sustainable waste management practices.[81]

The success of these systems, however, depends largely on their ability to adapt global strategies to local realities. Economic incentives, such as buyback schemes, alongside community education initiatives, have proven effective in promoting waste reduction, reuse, and recycling.[82] Additionally, the adoption of localized technologies tailored to existing infrastructure and resource availability enhances both the feasibility and sustainability of these approaches.[83] By integrating traditional knowledge systems with modern technological advancements, postcolonial societies can develop waste management systems that are resilient, inclusive, and contextually appropriate. Such adaptive approaches provide a practical blueprint for harmonising traditional and modern practices while addressing the complex environmental and social challenges of the twenty-first century.

Overall, postcolonial attitudes toward waste and sustainability reflect a dynamic interaction between tradition, modernity, and socio-cultural realities. Through the integration of traditional waste management methods with advanced technological solutions, developing nations are increasingly crafting holistic systems that address historical inequities while embracing the opportunities presented by modernization. However, the pursuit of genuine sustainability requires not only technological innovation but also a sustained commitment to social equity, particularly in relation to the gendered and class-based dimensions of waste labour. Through policies that prioritise community engagement, encourage technological adaptation, and implement effective economic incentives, postcolonial nations can develop waste management systems that respect cultural heritage while responding to the demands of a rapidly changing world. These efforts underscore the critical importance of inclusivity, innovation, and cultural sensitivity in shaping a more sustainable future.

Challenges and Reinventing Traditional Cultural Attitudes in Waste Management in Nigeria

The waste crisis in developing nations, particularly Nigeria, reveals not only infrastructural and governance shortcomings but also a deeper epistemological contradiction: the imposition of Western

[78] Hiroshan Hettiarachchi, Jay Meegoda, and Sohyeon Ryu, "Organic Waste Buyback as a Viable Method to Enhance Sustainable Municipal Solid Waste Management in Developing Countries," *International Journal of Environmental Research and Public Health* 15, no. 11 (2018): 2483, https://doi.org/10.3390/ijerph15112483.

[79] Zamathula Nwokediegwu et al., "AI-Driven Waste Management Systems: A Comparative Review of Innovations in the USA and Africa," *Engineering Science & Technology Journal* 5, no. 2 (2024): 507–16, https://doi.org/10.51594/estj.v5i2.828.

[80] Siti Hasanah and Eka Purwanda, "Waste Bank Innovation Management Using Digital Innovation System Management in Cicadas Village, Gunung Putri District, Bogor Regency," *Majalah Bisnis & IPTEK* 17, no. 1 (2024): 10–22, https://doi.org/10.55208/bistek.v17i1.534.

[81] Ezeah and Roberts, "Analysis of Barriers," 9–14.

[82] Hettiarachchi, Meegoda, and Ryu, "Organic Waste Buyback," 2483.

[83] Nwokediegwu et al., "AI-Driven Waste Management Systems," 507–16.

waste management models that disrupted indigenous systems once attuned to ecological balance and community sustainability. Contemporary urban centres, overwhelmed by rapid population growth and industrialisation, produce waste at volumes that exceed the capacity of fragile infrastructures, resulting in uncollected refuse, open dumps, and hazardous landfills that disproportionately threaten the urban poor.[84] While these problems are often attributed to weak governance structures and insufficient resources,[85] they also stem from the wholesale adoption of foreign systems that favour linear, extraction-based disposal models over circular, culturally rooted approaches. This disconnection between imposed systems and indigenous ecological understandings underscores a major structural challenge: waste management is not merely a technical issue but also a cultural one, deeply rooted in the politics of knowledge and the erosion of traditional practices.

Precolonial waste management practices in Nigeria demonstrate a radically different relationship with the environment, one in which waste was neither regarded as surplus to be concealed nor as an external burden, but rather as a resource continuously reintegrated into ecological cycles. Practices such as digging waste pits, composting organic matter for use as manure, and avoiding indiscriminate burning helped to limit carbon emissions while maintaining soil fertility. These methods exemplified the principles of a circular economy long before the term gained contemporary prominence, ensuring minimal ecological disruption and aligning human survival with natural cycles. Oral traditions further reinforced these practices through cultural maxims and songs such as "*ihe Ọ bụla na-abụghị aja, tụtụrụ ya tụfuo*" ("Any object that is not sand, pick it up and throw it away"), a rhyme taught to children during the colonial and early post-independence periods. Far from being trivial, such pedagogical tools integrated environmental consciousness into everyday life, fostering ecological responsibility as both a social and moral obligation. This indigenous ethic contrasts sharply with Western systems of open dumping, incineration, and landfill dependence, all of which externalise environmental harm and accelerate greenhouse gas emissions.

Equally important was the role of eco-spirituality and totemism in traditional Nigerian societies, both of which functioned as cultural mechanisms for conservation and waste management. Sacred groves, rivers, and forests were often protected from pollution and exploitation through processes of totemisation, thereby functioning as ecological sanctuaries and informal regulatory systems. Communities understood that desecrating these spaces through waste dumping, indiscriminate tree felling, or water pollution could attract spiritual sanctions, thereby encouraging long-term ecological preservation. By integrating environmental care into moral and spiritual values, these systems promoted not only ecological balance but also intergenerational responsibility. Such indigenous practices stood in direct contrast to the extractive logic of colonial modernity, which desacralised land and water in favour of commodification and industrial exploitation. The decline of these traditional systems, alongside the displacement of eco-spiritual values by colonial institutions, contributed significantly to the fragmentation and cultural disconnection that characterize contemporary waste management practices in Nigeria.

[84] Batista et al., "A Framework for Sustainable," 127516.
[85] Linda Godfrey et al., "Solid Waste Management in Africa: Governance Failure or Development Opportunity?," in *Regional Development in Africa* (2020), https://doi.org/10.5772/INTECHOPEN.86974.

Nevertheless, innovative and integrated solutions are increasingly emerging as important tools for addressing these challenges. Sustainable Integrated Waste Management (S-IWM) systems provide a holistic framework that combines collaboration, technology, and circular economy principles. These systems prioritise waste reduction, reuse, and resource recovery, thereby aligning economic growth with environmental sustainability.[86] Public-private partnerships have become central to such initiatives, leveraging private-sector expertise to complement public interventions. In Indonesia, for instance, waste-to-energy projects have transformed waste into a valuable economic resource, while digital waste banks in parts of South Asia incentivise community participation in recycling programmes.[87] Likewise, Brazil's transition towards regenerative waste management practices demonstrates the possibilities for achieving both environmental sustainability and economic resilience within developing contexts.[88]

Comparative insights between imposed Western frameworks and indigenous systems further illuminate the contradictions shaping Nigeria's current waste landscape. On the one hand, modern strategies such as public-private partnerships, waste-to-energy initiatives, and digital waste banks[89] demonstrate technological innovation; yet they often reproduce Western models that are poorly suited to the predominantly organic waste streams characteristic of many African societies.[90] On the other hand, the informal waste sector across Sub-Saharan Africa continues to reflect indigenous logics of recovery and reintegration, recycling materials and reinserting them into local economies at scales comparable to those in developed nations.[91] Despite these contributions, informal waste workers remain marginalized, stigmatized, and excluded from formal policy frameworks, reflecting the broader devaluation of indigenous practices within postcolonial governance systems. This contradiction reveals a deeper problem: although indigenous and locally grounded systems have historically demonstrated effectiveness and sustainability, dominant policy approaches continue to privilege imported models, thereby perpetuating ecological vulnerability and social inequality.

The way forward, therefore, does not require the wholesale rejection of modern technologies, but rather the reinvention and recontextualisation of precolonial cultural attitudes toward waste management within contemporary frameworks. Indigenous practices such as composting, organic reintegration, and eco-spiritual conservation should be adapted to modern urban realities through the integration of traditional ecological knowledge with innovations in circular economy systems and sustainable integrated waste management.[92] Reintroducing cultural pedagogies, including songs,

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[86] Navarro Ferronato et al., "Introduction of the Circular Economy within Developing Regions: A Comparative Analysis of Advantages and Opportunities for Waste Valorization," *Journal of Environmental Management* 230 (2019): 366–78, https://doi.org/10.1016/j.jenvman.2018.09.095.

[87] Hasanah and Purwanda, "Waste Bank Innovation," 10–22.

[88] Hettiarachchi, Meegoda, and Ryu, "Organic Waste Buyback," 2483.

[89] Hasanah and Purwanda, "Waste Bank Innovation," 10–22.

[90] João Aleluia and Paulo Ferrão, "Characterization of Urban Waste Management Practices in Developing Asian Countries: A New Analytical Framework Based on Waste Characteristics and Urban Dimension," *Waste Management* 58 (2016): 415–29, https://doi.org/10.1016/j.wasman.2016.05.008.

[91] David Wilson, Ljiljana Rodic, Anne Scheinberg, Costas Velis, and Graham Alabaster, "Comparative Analysis of Solid Waste Management in 20 Cities," *Waste Management & Research* 30, no. 3 (2012): 237–54, https://doi.org/10.1177/0734242X12437569.

[92] Ferronato et al., "Introduction of the Circular Economy within Developing Regions," 366–78.

proverbs, rhymes, and oral traditions that promote ecological responsibility, can help re-anchor environmental consciousness within communal value systems. Similarly, integrating eco-spiritual ethics into policy frameworks may restore respect for ecological limits while providing moral foundations for conservation practices. In this regard, the authors advocate a decolonial reconstruction of waste management in Nigeria: one that rejects the uncritical adoption of Western models, reinvents indigenous practices for present realities, and develops hybrid systems in which ecological sustainability and cultural resilience are mutually reinforcing. Such a reinvention transforms waste management from a site of systemic failure into a medium for reclaiming cultural identity, ecological balance, and sustainable futures.

Conclusion

In conclusion, the evolving cultural attitudes toward waste management and sustainability in developing nations, particularly Nigeria, reflect a complex interaction of historical legacies, socio-economic realities, and innovative responses to contemporary environmental challenges. Waste management, long shaped by colonial histories, functions both as a symbol of environmental degradation and as a byproduct of capitalist exploitation within what scholars describe as the Capitalocene. Yet, within this context, developing nations possess a unique opportunity to redefine waste management through the integration of traditional ecological knowledge with modern technological innovations. Such a synthesis enables the development of waste management systems that are not only environmentally sustainable but also culturally relevant and socially inclusive.

The decolonisation of waste narratives further reimagines waste not as disposable material but as a resource for renewal and transformation. Cultural metaphors such as the "waste-child" challenge exploitative systems and encourage more inclusive relationships between humans, waste, and the environment. Approaches such as Integrated Waste Management (IWM) and Circular Integrated Waste Management Systems (CIWMS), alongside policies that promote resource circularity and community participation, therefore provide viable pathways toward sustainable development. Furthermore, international cooperation and knowledge-sharing initiatives can accelerate progress by enabling nations to learn from one another's successes, failures, and adaptive strategies.

At the same time, achieving sustainability requires confronting persistent inequalities within waste management systems, particularly those related to gender and class. Marginalized groups, especially women, continue to bear a disproportionate burden of waste-related labour, often under exploitative and unsafe conditions. Addressing these inequalities is therefore essential to the pursuit of both social and environmental justice. By adopting a multi-dimensional approach that integrates indigenous knowledge, technological innovation, community participation, and social equity, developing nations can move beyond the limitations of colonial waste paradigms toward systems that promote resilience, dignity, and ecological sustainability. Ultimately, the transformation of waste from a symbol of disposability into a catalyst for renewal holds significant potential for creating a more equitable, culturally grounded, and sustainable future.