Cultural determinants of sustainable WM practices: A review of taboos, norms, and beliefs in Ghana's rural communities

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ARTICLE INFO

ABSTRACT

This study presents a scoping review of peer-reviewed empirical and theoretical literature on the cultural determinants shaping sustainable solid waste management practices in rural Ghana. Drawing on interdisciplinary sources, the review synthesises evidence on how indigenous taboos, communal norms, and belief systems function as informal environmental governance mechanisms. Findings indicate that ritual prohibitions—such as bans on dumping in sacred groves or conducting waste activities on ancestral days—and gendered labour norms contribute to ecologically sustainable behaviours, often enforced through traditional authority structures. However, the efficacy of these systems is increasingly compromised by socio-cultural transformations, including urbanisation, religious pluralism, and declining customary leadership. The review also identifies significant gaps in the literature, notably spatial concentration in southern regions, limited gender-disaggregated analysis, and poor integration of indigenous ecological knowledge into formal waste policy frameworks. In addition, the evidence base is dominated by qualitative studies, which limits generalizability and underscores the need for mixed-methods and longitudinal research to capture the dynamic evolution of cultural practices. The study concludes that a hybrid governance model, incorporating indigenous principles within formal regulatory systems, offers a culturally contextualised pathway toward sustainable rural waste management. It recommends institutional recognition of traditional knowledge systems and participatory policy co-design as key to advancing integrated environmental governance.

Introduction

The global challenge of sustainable waste management (SWM) has garnered significant scholarly and policy attention, driven by mounting environmental, health, and socio-economic concerns associated with unhygienic waste disposal practices (Abdulfatah, 2023; Kaza et al., 2018). In the Global South, where rapid population growth and changing consumption patterns have intensified waste generation, addressing these challenges is particularly urgent (UNEP, 2024). However, dominant SWM paradigms remain largely technocentric and urban-biased, often overlooking the nuanced socio-cultural dynamics that underpin waste behaviours in rural contexts (Alam and Ahmade, 2013; Zurbrügg et al., 2012). In Ghana, as in many African countries, rural communities continue to manage waste largely outside formal systems, relying on indigenous knowledge systems (IKS) and long-standing socio-cultural structures, including taboos (in this context, as culturally sanctioned prohibitions that function as informal environmental governance tools by discouraging behaviours considered spiritually or morally impure.), norms (socially expected behaviours), and

beliefs (underlying value systems), that shape environmental management practices (Anokye & Mohammed, 2024; Boafo et al., 2016).

Cultural determinants are informal environmental regulatory mechanisms prevalent in many African societies (Akintan et al., 2018; Berkes, 2017). These culturally embedded systems—rooted in spirituality, kinship, and moral obligation—govern how communities interact with natural resources, including the generation, disposal, and repurposing of waste (Nyamekye, 2014). In rural Ghanaian contexts, where access to formal waste infrastructure is limited and institutional enforcement is weak, these traditional values often fill governance voids, influencing household- and community-level waste behaviours (Agya et al., 2024; Anokye & Mohammed, 2024; Dei, 2024). For example, taboos may prohibit the disposal of waste in sacred groves or rivers, while community norms may prescribe specific waste handling roles by gender, age, or status (Konyana & Konyana, 2021). These practices can contribute both positively and negatively to environmental sustainability, yet they remain understudied in the formal discourse of waste management (WM) policy and scholarship.

The neglect of cultural dimensions in mainstream WM frameworks

represents a critical gap in both academic and practical efforts toward sustainable development. The Sustainable Development Goals (SDGs), particularly Goals 11 (Sustainable Cities and Communities), 12 (Responsible Consumption and Production), and 15 (Life on Land), emphasise the need for inclusive, culturally sensitive strategies that acknowledge local contexts and knowledge systems (United Nations, 2024). Rural communities, which constitute approximately 43 % of Ghana's population (GSS, 2021), are particularly relevant in this discourse. They not only bear the environmental and health risks of inadequate waste systems but also possess rich cultural repertoires that could inform alternative pathways to sustainability (Awunyo-Vitor et al., 2013). Understanding the cultural determinants of waste practices is thus vital for designing context-responsive interventions, avoiding epistemic exclusion, and fostering community ownership in sustainability transitions.

Despite growing interest in indigenous knowledge and environmental management (Jessen et al., 2022; Thompson et al., 2020), there is a lack of a comprehensive synthesis of empirical and theoretical literature on how informal ecological ethics shape waste-related behaviours in rural Ghanaian settings. Existing studies are often fragmented, anecdotal, or limited to case-specific ethnographies, making it difficult to generalize findings or apply them to broader policy frameworks. Few adopt mixed-methods or longitudinal designs that could capture dynamic change (e.g., Agya et al., 2024; Nungbaso, 2020; Kosoe et al., 2019), reinforcing the need for a scoping review to synthesise these fragmented insights while identifying methodological directions for future research.

In addition, the study foregrounds the gendered dimensions of cultural waste practices, recognizing that traditional beliefs often intersect with patriarchal structures to shape women's roles, responsibilities, and exclusions in sustainable waste governance across rural Ghana. Yet, few studies employ gender-sensitive frameworks such as feminist political ecology, intersectionality, or gender-and-development approaches, which limit systematic analysis of women's agency, power relations, and intersectional exclusions. This review contributes to addressing this scholarly and practical gap by systematically analysing the empirical and conceptual literature on the cultural determinants of solid waste management in rural Ghana. Specifically, it asks: How do indigenous *culturally embedded governance mechanisms* influence sustainable waste practices and environmental outcomes across diverse rural settings in Ghana? Through this synthesis, the study aims to elevate the cultural dimensions of SWM to the centre of scholarly discourse, provide a foundation for culturally attuned policy formulation, and suggest directions for future research on indigenous contributions to sustainability.

Methodology

Ghana as a study country in the context of cultural determinants of WM

The study country, Ghana, presents a compelling context for examining the cultural dimensions of SWM, owing to its rich tapestry of ethnic diversity, enduring traditional governance systems, and pronounced rural character (Anokye & Mohammed, 2024; Mwakikagile, 2017). With over 70 % of solid waste in rural areas being organic and unmanaged by formal systems, indigenous cultural frameworks such as ritual-based waste ontologies play a crucial regulatory role (Agyepong, 2018; Robert & Reiner, 2012). These informal mechanisms are often embedded in chieftaincy institutions, ancestral reverence, and localised spiritual cosmologies, which define communal obligations, gendered labour divisions, and spatial restrictions on waste disposal (Bernard & Kumalo, 2013). The co-existence of modern state policies and customary practices, combined with challenges from urbanization, religious transformation, and environmental degradation, position Ghana as an ideal case for exploring the tensions and synergies between tradition and modernity in rural waste governance.

Review design

This study adopts a scoping review design, guided by the Arksey and O'malley (2005) framework and further refined by Levac et al. (2010). As a scoping review, this study synthesizes peer-reviewed empirical and theoretical literature rather than generating primary field data. The scoping review approach is suitable for the study's objective to explore and synthezise diverse, interdisciplinary, and often fragmented literature on cultural determinants that influence sustainable waste practices in rural Ghana. This design (Fig. 1) enables the mapping of key concepts, theoretical orientations, research methodologies, and knowledge gaps within a broad field of inquiry. Boolean-enhanced searches, thematic synthesis, and systematic data extraction were appropriate to achieve these objectives. However, the review necessarily reflects the qualitative dominance of existing studies. While some employ mixed-methods (Agya et al., 2024; Nungbaso, 2020) or longitudinal elements (Kosoe et al., 2019), these remain exceptions, further highlighting the need for more triangulated approaches in future research.

Research objectives

The primary objective of this review is to investigate how cultural elements influence solid WM behaviours and outcomes in rural Ghanaian communities. Specifically, the review aims to: (1) Identify the types and expressions of cultural beliefs and taboos related to waste handling, disposal, or reuse in rural Ghana; (2) Examine the roles these cultural determinants play in promoting or impeding sustainable waste practices; (3) Explore how existing empirical and theoretical studies conceptualize and assess cultural influences on waste behaviour; and (4) Identify methodological trends, research gaps, and opportunities for integrating cultural knowledge into WM policy and practice.

Eligibility criteria

This review applied the Population–Concept–Context (PCC) framework to determine the relevance of studies (Pollock et al., 2023). The population of interest includes rural communities in Ghana, with the flexibility to include comparable settings in West Africa where cultural practices are similar. Studies addressing gendered practices were included where available; however, gender-sensitive frameworks were rarely applied, constraining the depth of gender analysis in the evidence base. The core concept centres on cultural determinants that influence solid waste practices, including disposal, reuse, and avoidance. The context is sustainable or informal WM in rural settings, where traditional values guide behaviour in the absence of formal infrastructure. Included studies were to be published in English between 2000 and 2025 and may comprise peer-reviewed articles and theses from academic institutional repositories with sufficient methodological detail. Excluded are studies focused solely on urban environments, technical waste solutions, or those lacking a cultural dimension. This criterion ensured conceptual clarity while capturing diverse disciplinary perspectives (Table 1).

Literature search strategy

A comprehensive literature search was conducted to identify relevant studies on cultural determinants of waste practices in rural Ghana. The search included peer-reviewed literature and was conducted across academic databases, including Scopus and Web of Science. Search terms combined keywords and Boolean operators, using phrases such as ("solid WM" OR "waste practices") AND ("taboos" OR "norms" OR "beliefs" OR "traditional practices") AND ("rural Ghana" OR "Ghanaian communities" OR "indigenous knowledge"). The strategy was adapted for each database to optimise retrieval efficiency. Reference lists of selected articles were also screened to identify additional studies not captured in the database searches. All search results were exported as an Excel file to facilitate screening and removal of duplicates.
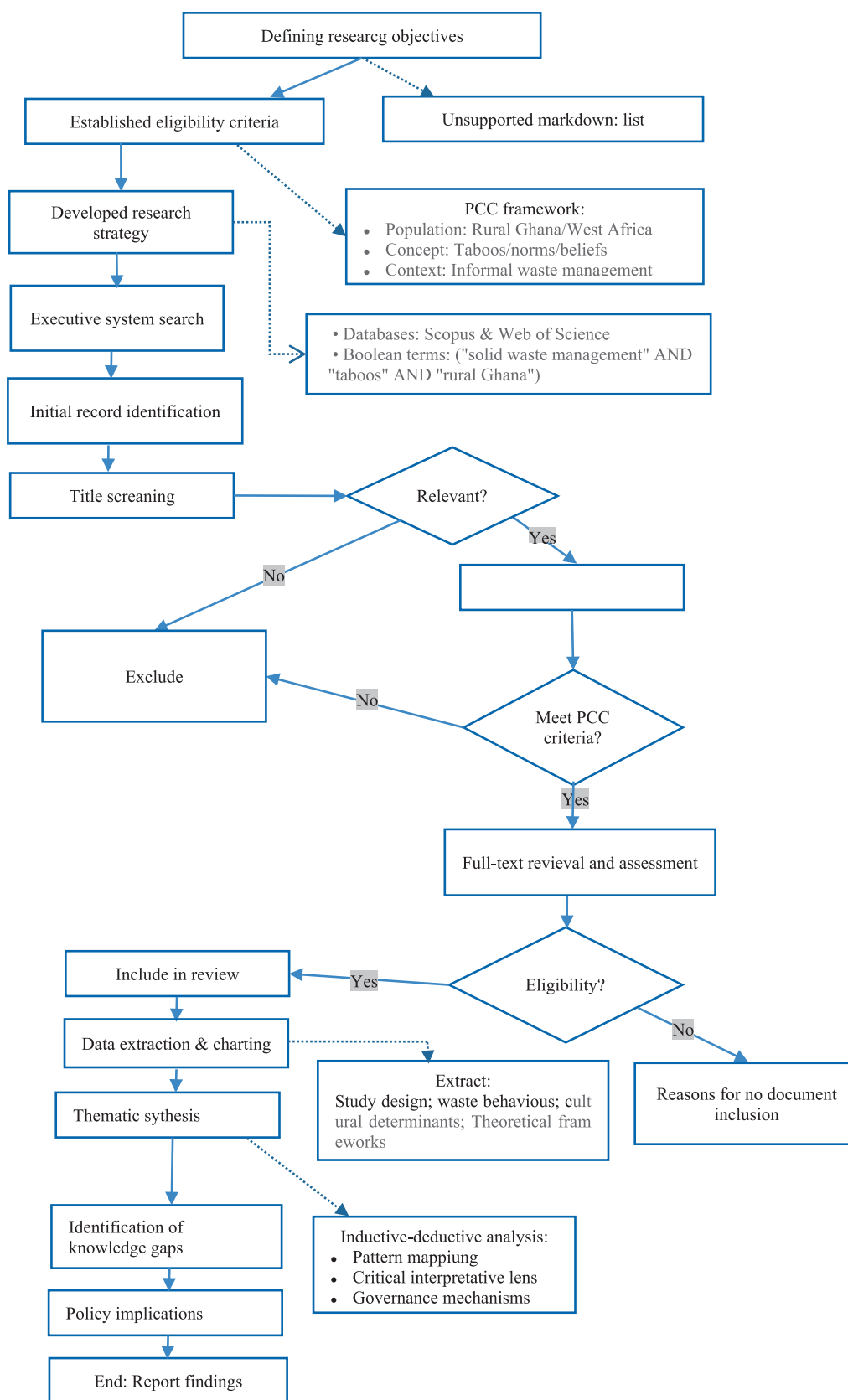
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Fig. 1. Review design for mapping norms, taboos, and beliefs in sustainable waste governance.

Table 1

The inclusion and exclusion criteria were developed using the PCC framework.

Component	Criteria
Population	Rural communities or populations in Ghana (or West Africa, where relevant to Ghanaian culture).
Concept	Cultural determinants of WM include taboos, norms, beliefs, rituals, traditional practices, or indigenous knowledge.
Context	Sustainable or informal solid WM in rural settings.

Study selection process

The study selection process followed a three-stage screening procedure (Fig. 1) to ensure relevance and methodological rigour. First, all retrieved titles were screened to exclude irrelevant studies. Next, abstracts of potentially eligible records were reviewed against the inclusion and exclusion criteria. Finally, 43 full-text articles were assessed to confirm their eligibility based on the study's focus on cultural determinants of waste practices in rural Ghana or comparable settings. Notably, while the study design sought nationwide representation, the availability of peer-reviewed literature was disproportionately skewed toward southern Ghana. The underrepresentation of studies from the northern ecological belts reflects structural limitations in the evidence base rather than exclusionary criteria in this review. This spatial imbalance was taken into account when interpreting findings and framing policy implications. The entire selection process was documented using the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) Statement as a guide (Sarkis-Onofre et al., 2021).

Data extraction and charting

Data were extracted using a structured form designed to capture key study characteristics and thematic content. The information recorded included the author and year of publication, study location, objectives, methodological approach, type of cultural determinant, waste practices addressed, theoretical frameworks used, and main findings. The form was pilot-tested and refined to ensure consistency and accuracy. The extracted data were organised thematically in Excel to facilitate synthesis. This approach enabled systematic comparison and identification of patterns in how cultural factors influence SWM practices in rural Ghana.

Data analysis and synthesis

The analysis followed a qualitative thematic synthesis approach, drawing on the methodology outlined by Thomas and Harden (2008). Full-text articles were imported into a matrix for charting, where data were extracted under pre-defined categories aligned with the study objectives (e.g., type of cultural determinant, waste practice affected, governance interface, regional focus). An inductive coding process was then applied to identify emergent sub-themes, including ritualised spatial prohibitions, communal labour norms, gendered waste roles, and belief-based compliance systems. These were iteratively refined and grouped under broader analytical domains informed by social practice theory and institutional bricolage. Whiles the forma views sustainable behaviour not as a matter of individual choice, but as a pattern of practices shaped by the interaction of materials, competences, and meanings (Shove et al., 2012), the later refers to the adaptive process by which communities creatively recombine existing norms, cultural practices, and formal rules to address new challenges in resource governance (Cleaver, 2017). Coding consistency was enhanced through repeated reviews of the thematic framework, and extracted data were compared across cases to identify patterns, contradictions, and gaps (Table 2). This multi-step synthesis process allowed for the identification of key cultural mechanisms influencing sustainable waste behaviour, while also enabling critical reflection on methodological and geographic limitations in the literature.

To assess the methodological quality of included studies, the Critical Appraisal Skills Programme checklist for qualitative research was adapted and applied. Each study was reviewed for clarity of research aim, methodological coherence, data collection transparency, ethical considerations, and validity of conclusions. While not used to exclude studies, appraisal results were considered when weighing the relative strength of findings in the synthesis.

Results and discussion

These studies spanned a range of disciplines, including environmental anthropology, rural sociology, WM, and IKS. The synthesis revealed four interrelated thematic domains: (1) taboos as informal ecological governance tools, (2) norms and communal obligations in waste handling, (3) beliefs and cosmologies influencing environmental ethics, and (4) challenges of integrating cultural practices into formal WM systems.

Table 2

Critical appraisal of selected studies on cultural determinants of waste management in rural Ghana.

Author(s) & Year	Study Region	Ecological Zone	Cultural Determinant(s)	Methodological Design	Key Limitation(s)
Adom (2016)	Ashanti Region	Southern (Forest)	Ancestral taboos, sacred days	Ethnographic fieldwork and oral history	Limited to a single ethnolinguistic group; lacks cross-regional comparison.
Agya et al. (2024)	Kwahu East District	Transitional	Gendered roles, communal labour	Household surveys, structured interviews	No behavioural validation; minimal disaggregation by age/youth participation
Kosoe et al. (2019)	Jaman South (Bono Region)	Transitional	Composting, communal rituals, taboos	Case study with interviews and participant observation	Short-duration study; limited generalizability beyond the Bono Region
Nungbaso (2020)	Savannah Region	Northern/Savanna	Menstrual taboos, waste classification	School-based mixed methods	Focused on adolescents; does not extend findings to broader community behaviour
Essel (2020)	Cape Coast Metropolis	Southern (Coastal/Urban)	Codified taboos and local bylaws	Descriptive study of traditional council actions	Urban–peri-urban context may not reflect rural dynamics
Amoah et al. (2023)	Central Region	Southern (Coastal)	Gendered WM practices	Surveys and focus groups	Insufficient exploration of men's roles; lacks intersectional gender analysis.
Madonsela et al. (2024a)	Bushbuckridge, South Africa	Comparative (Southern Africa)	Night-time taboos, reuse beliefs.	Multi-sited qualitative study	Cross-national application to Ghana may not fully account for cultural specificity.
Anokye & Mohammed (2024)	Multiple Ghanaian regions	Mixed (South & Transitional)	Indigenous norms and institutional hybridity	Literature synthesis and policy analysis	Lacks primary data; does not assess practical implementation outcomes
Osei (2023)	Volta Region	Southern (Forest)	Spiritual sanctions, sacred water bodies	Community interviews and archival review	Lacks a longitudinal perspective; focused primarily on symbolic interpretations
Barre et al. (2009)	Tallensi-Nabdam (Upper East)	Northern/Savanna	Sacred grove taboos	Participant observation and semi-structured interviews	Early study with limited recent follow-up; pre-dates contemporary governance shifts

Taboos as informal mechanisms of environmental governance

The literature indicates that ritual interdictions, deeply entrenched prohibitions rooted in spiritual belief systems, serve as potent unwritten rules regulating WM practices in rural Ghana. Commonly applied to sacred groves, water bodies, and ancestral sites, these culturally prohibited practices prohibit waste disposal activities, such as dumping or defecation, within designated areas. For example, in the Tallensi-Nabdam district, the observance of customary prohibitions against waste disposal near sacred groves reflects ritualized socio-spatial restrictions rooted in ancestral land reverence and effectively contributes to forest conservation, with non-compliance believed to invoke spiritual retribution, such as illness or infertility (Barre et al., 2009; Adjibolosoo et al., 2020; Osei, 2023). Similarly, the Akwamu region's Volta River groves are protected by culturally sanctioned sacred rules, which, despite varying adherence with religious affiliation, remain functionally effective due to the social fear of spiritual punishment (Adom et al., 2016; Osei, 2023). These empirical findings (Table 3) suggest that customary prohibitions operate analogously to informal environmental regulations, delineating physical boundaries, imposing culturally grounded sanctions, and thereby fostering ecological integrity in the absence of formal governance structures.

Beyond spatial restrictions, culturally prohibited practices in rural settings also impose temporal and material constraints on waste-related behaviours. Ritual calendars often restrict waste disposal during festivals, sacred days, or ancestral rites. At the same time, certain materials—such as menstrual cloths or charred refuse—are classified as ritually impure and are disposed of in designated areas or ritual pits outside the community's jurisdiction (Nungbaso, 2020; Nyamekye, 2014; Odoom, 2020). Such indigenous classifications effectively guide rudimentary waste segregation and disposal practices that resemble modern ecological principles.

Importantly, these taboo systems are actively sustained through traditional authority structures (chiefs, spiritual leaders, and elder councils) who serve as custodians and enforcers of these practices. Though enforcement mechanisms are moral rather than legal, communal respect for these figures, combined with fear of spiritual consequences, ensures compliance. This supports the interpretation that taboos function within a moral-ecological governance framework, where environmental regulation is socially enforced through communal norms and sacred worldviews (Gachenga, 2015; Yeleliere et al., 2023; Unit, 2008).

However, this study reveals that the effectiveness of taboo-based governance is highly susceptible to socio-cultural disruptions (Ntiamoa-Baidu, 2008). Urbanisation, migration, and the influence of organised religions, especially Christianity and Islam, have weakened traditional belief systems, eroding authority structures and causing formerly protected areas to become dumping sites (Adubofour et al., 2013; Appiah-Opoku, 2006). Yet, adaptive strategies have also emerged. In some communities, traditional leaders have institutionalised environmental taboos within formal bylaws, and development programs that engage local custodians of these traditions report higher compliance and positive environmental impacts (Adom, 2016; Essel, 2021; Osei-Tutu, 2017). This evidence suggests that taboo systems are not static relics, but rather dynamic institutions capable of being integrated into hybrid governance (referred to as the integration of customary institutions and formal state systems in co-managing public resources, often through negotiated authority-sharing and co-production of norms) models that combine customary norms with formal regulations.

It is also important to emphasise that much of the evidence synthesised here derives from southern Ghana, with limited systematic ethnographic documentation from the northern savanna regions (Table 3). Given the ecological distinctions (savanna belts are characterised by drier climates, reliance on pit disposal and open burning, and distinct cosmologies surrounding land and ancestral authority), cultural determinants of waste practices may manifest differently. The dominance of southern-focused studies therefore risks overstating homogeneity and underrepresenting the diversity of Ghana's waste governance systems.

In essence, the reviewed literature demonstrates that taboos in rural Ghana act as deeply rooted, socially embedded instruments of environmental governance. They regulate where, when, and how waste is managed by infusing spiritual reverence into ecological behaviour. Although their authority is waning in places, taboos retain potential value as participatory governance mechanisms—especially if revitalised and integrated into formal WM strategies to enhance both cultural legitimacy and ecological outcomes.

Social norms and communal obligations driving waste practices

The literature consistently demonstrates that social norms in rural Ghana (enforced through communal roles, moral expectations, and informal sanctions) significantly shape household and community WM behaviours. Participation in WM tasks often aligns with culturally prescribed roles, where women and children are primarily responsible for household waste disposal, and men engage during community-wide clean-ups (*kwuo-labour* or *nnoboa*) (Agya et al., 2024; Amoah, 2014; Amoah et al., 2023). While these studies highlight gendered divisions, few interrogate the power dynamics that underpin them. For instance, Amoah et al. (2023) show how patriarchal norms marginalise women in decision-making, and Konyana & Konyana (2021) illustrate how menstrual waste taboos reinforce exclusions. Applying feminist political

Table 3
Selected waste-related taboos in rural Ghanaian communities and their sustainability implications.

Ethnic Group / Region	Ecological Zone	Waste-Related Taboo	Cultural or Spiritual Rationale	Enforcement Mechanism	Environmental or Social Implications	Reference
Akan (Ashanti Region)	Southern (Forest)	Prohibition of sweeping or waste disposal on sacred days (Akwasidae)	Day reserved for ancestral reverence; disturbance seen as desecration	Enforced through community elders and spiritual sanctions	Prevents excessive disruption of ecosystems; fosters cyclical WM	Adom (2016)
Gonja (Savannah Region)	Northern/ Savanna	No dumping of waste in rivers or near sacred groves	Rivers are believed to house water deities/spirits.	Clan elders and traditional priests impose cleansing rituals.	Protects freshwater sources and biodiversity-rich forest zones	Nungbaso (2020)
Ewe (Volta Region)	Southern (Forest/ Coastal)	Waste must not be discarded after dusk.	Night is spiritually sensitive; spirits may be disturbed.	Peer enforcement and fear of spiritual consequences	Encourages daytime visibility of waste activities, improving accountability	Adom et al. (2016)
Dagomba (Northern Region)	Northern/ Savanna	Refuse from menstrual cloths must be buried far from homesteads.	Viewed as spiritually polluting and dangerous to harmony	Enforced by female elders and ritual norms	Minimises biohazard exposure; promotes localised containment	Boaten (1998); Nyamekye (2014)
Nzema (Western Region)	Southern (Coastal)	Burning domestic waste on certain days is forbidden	Fire is a transformative tool not to be misused on taboo days.	Sanctions include fines or ritual atonement.	Reduces uncontrolled air pollution; teaches intergenerational environmental timing.	Odoom (2020)

ecology or intersectionality would reveal how cultural authority and access differentially shape men's and women's participation in waste governance. These gendered divisions reflect deeply held beliefs about domestic responsibility and labour status, reinforcing environmental duties as normative rather than optional.

Communal clean-up events, typically coinciding with days of cultural or spiritual significance, serve dual functions: they maintain environmental hygiene and act as rituals of collective responsibility. Evidence from the Kwahu East District indicates that while 66 % of households express positive attitudes toward sustainable WM practices, meaningful participation hinges on social encouragement and structured communal activities (Agya et al., 2024). This aligns with social practice theory, which posits that behaviour is socially regulated through repeated and shared practices, rather than being purely a result of individual choice (Koutroubas & Galanakis, 2022; Kwasnicka et al., 2016).

Although evidence from studies such as Agya et al. (2024) and Amoah et al. (2023) underscores the power of gendered communal labour, few employ mixed methods or robust behavioural metrics to assess actual compliance levels. While studies such as Agya et al. (2024) and Nungbaso (2020) demonstrate the potential of integrated designs, the majority remain qualitative and cross-sectional. Consequently, the data may reflect normative expectations rather than measured practices, underscoring the importance of advancing longitudinal and mixed-methods approaches that validate behavioural outcomes over time.

However, entrenched norms can also act as barriers. In the Asunafo North District of Ghana, cultural constraints tied to gender roles limit the effective involvement of women and youth in decision-making processes, resulting in their marginalisation in collective waste governance (Mensah & Owusu, 2019). This systemic exclusion hinders the full mobilisation of community resources and limits the diversity of ideas in sustainable WM strategies.

Furthermore, the institutional void in rural Ghana, characterised by inadequate waste infrastructure and weak local governance, exacerbates reliance on communal norms (Agya et al., 2024; Amoah et al., 2023; Aladago et al., 2024; Madonsela et al., 2024). Where formal systems fail to deliver bins or regular collection services, communities resort to self-organised clean-up schemes and peer enforcement, indicating the potential for normative frameworks to compensate for institutional shortcomings (Adubofour et al., 2013; Amoah, 2014; Amoah et al., 2023; Fichtel & Duram, 2022).

Altogether, social norms and communal obligations in rural Ghana serve as powerful informal institutions that shape sustainable WM behaviours (Fig. 2). Their enforcement leverages internalised expectations and the moral weight of community coherence. Nonetheless, gendered participation and systemic infrastructural failings pose challenges that must be addressed through more inclusive and supported forms of engagement, connecting cultural practices with durable regenerative results.

Indigenous beliefs and WM practices in rural Ghana and beyond

Rural Ghanaian and wider sub-Saharan communities often view "waste" through the lens of traditional cosmologies, where nothing of value should be lost. In practice, this means household discards are reclassified as resources if possible. For example, farmers routinely feed plant waste and food waste products to livestock or compost them, reflecting a belief that organic matter must return to nature or be consumed by animals (Kosoe et al., 2019; Madonsela, 2024a). Metal, glass, or plastic containers are reused or traded (e.g., glass bottles are exchanged for bananas) rather than being discarded (Gregson & Crang, 2015; Kellenberg, 2012). Such reuse-oriented classification is not modern science, but a traditional ethic – a Nigerian saying notes that it is "taboo to waste anything that costs money" (Sambo & Wetnwan, 2021). In Ghana's Jaman South District, field interviews revealed that the main indigenous WM practices included composting, animal feeding, and even crafting useful tools from old waste materials (Kosoe et al., 2019). Across southern Africa, communities also prioritise sustainability. A study in rural Bushbuckridge found that composting and feeding food waste to pigs were common practices, while 70 % of communities forbade sweeping or dumping any waste at night due to taboo (Madonsela et al., 2024; Madonsela, 2024a). In essence, many indigenous systems define waste by its potential use – organic waste becomes fertiliser or feed, and non-biodegradable materials are retained or swapped, rather than being sent indiscriminately to landfills.

Taboos, rituals and waste disposal practices

Traditional beliefs impose strict rules on when, where, and how waste is discarded. In many rural Ghanaian societies, certain days or times are considered sacred "rest" periods for spirits; no farming or cleaning is allowed, and these days are used for communal sanitation. For instance, in some Akan areas, an official *foda* or *nkyida* day each week forbids farm work (as the gods are said to rest) (Kosoe et al., 2019). Villagers historically used these days to clean village paths and fields, believing disrespecting the taboo would invite misfortune (Madonsela, 2024a). Similarly, sweeping or dumping trash at night is widely proscribed. In Ghana and neighbouring South African nations, a common taboo is that sweeping (or taking refuse outside) after dark is believed to bring bad luck (Lissah et al., 2021). This leads people to delay disposal until daylight (often when communal bins or collection occur) (Madonsela, 2024a). Other ritual restrictions are reported: for example, waste is never thrown into sacred groves or watercourses, and
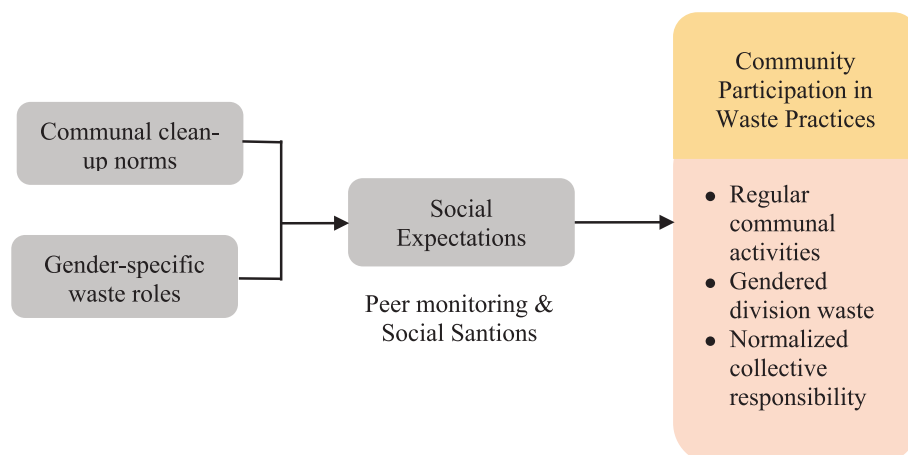
Fig. 2. Normative dynamics of communal and gendered waste practices in rural Ghanaian communities.

household refuse must be buried or burned far from ancestral shrines (to avoid offending nature spirits) (Twumasi-Ankrah & Adu-Gyamfi, 2024). In every case, the logic is spiritual: improper disposal is believed to incur curses or illness, so taboos become de facto sanitation rules (Lissah et al., 2021; Madonsela, 2024a).

Even the choice of disposal method is culturally informed. Where modern bins are absent, people often dig home pits or burn trash in backyards – practices that align with local custom (Agya et al., 2024). For example, similar studies in Ghana and South Africa noted that common indigenous disposal methods include open dumping, backyard pits, burning of refuse, and reusing food waste as animal feed (Agya et al., 2024; Madonsela, 2024a). These methods align with traditional lore that "the earth can consume organic waste" or that fire transforms "unclean matter" to ash. In Ghana's rural communities, similar practices prevail: municipal studies report many villages still burn or bury waste at home rather than rely on distant dumps (which are often considered "foreign" and not in harmony with ancestral land) (Kosoe et al., 2019; Madonsela, 2024a).

Community enforcement and social norms

Indigenous rules on waste are backed by social enforcement. In many areas, chiefs and elders formally uphold traditional sanitation laws. For example, in the Cape Coast Metropolis of Ghana, the traditional council explicitly banned indiscriminate dumping and mandated the installation of public waste bins at strategic locations (Essel, 2020). Local chiefs stressed that, by "virtue of our close-knit relationship with the people," they are uniquely positioned to fuse customary laws with modern governance and enforce them (Essel, 2020). In practice, this means that breaking a customary prohibition or improperly disposing of waste can bring not only gossip and shame but also fines or rituals to cleanse the offence. Interviews in Ghana and Lesotho confirm that villagers overwhelmingly accept these norms: one Lesotho study concluded that "tradition, culture, values, and belief" play a major role in how rural people manage waste (Senekane et al., 2022).

Community action also enforces cleanliness. Communal workdays remain common, with people gathering periodically to sweep compounds and public spaces as a collective duty (Kosoe et al., 2019; Madonsela, 2024a). These "communal labour" campaigns are more than charity; they are ritualised obligations. In Bushbuckridge, cleaning campaigns still occur to tackle problem waste (like discarded diapers) with every villager participating, while in Ghana's Jaman South District, communal clean-ups were historically used to honour local deities (Kosoe et al., 2019; Madonsela, 2024a). Importantly, "within indigenous communities, it is the responsibility of every individual to manage waste effectively" (Madonsela, 2024a). Thus, social pressure and shared ethics enforce proper disposal even without formal regulations.

Essentially, traditional environmental cosmologies in rural Ghana and similar African contexts profoundly shape waste ethics and practices. Sacred restrictions (days of rest, taboos on night dumping or polluting water) determine when and where waste can be handled (Madonsela, 2024a). Cultural values turn refuse into a resource stream (feeding animals, recycling materials) rather than mere rubbish (Kosoe et al., 2019). And community structures (chiefs, communal labour) ensure these norms are respected (Essel, 2020). As a result, indigenous belief systems provide a powerful yet often overlooked framework for sustainable WM behaviours in rural Ghana and across sub-Saharan Africa.

Tensions and synergies between indigenous and formal WM systems

The interface between indigenous waste governance and formal state-led systems in rural Ghana is characterised by both friction and potential for collaboration. While formal WM systems rely on technocratic infrastructure and centralised regulation (Ampong et al., 2024), indigenous approaches are rooted in customary authority, spiritual values, and communal enforcement (Agya et al., 2024). This divergence

has led to persistent tensions, particularly when state actors introduce externally derived WM interventions without consideration of local cultural contexts.

Several studies (Madonsela et al., 2024; Madonsela, 2024a; Oteng-Ababio & Nikoi, 2020) have revealed that formal waste governance often marginalises or overlooks indigenous practices. For example, Cobbinah et al. (2020) found that national and municipal sanitation strategies in Ghana are modelled on urban-centric planning, with minimal adaptation for rural socio-cultural realities. This results in low community ownership, non-compliance, and the frequent failure of centralised WM schemes in rural settings. Similarly, in northern Ghana, Allison (2019) documented resistance to state WM initiatives where they conflicted with local beliefs regarding sacred spaces or disposal norms. These findings align with broader critiques in the environmental governance literature, which caution that technocratic imposition often disrupts community cohesion and undermines pre-existing ecological stewardship (Agrawal, 2020).

However, this review also identifies promising synergies where indigenous and formal systems co-evolve. In several districts, traditional leaders have successfully collaborated with local governments to codify community waste taboos into bylaws, thereby giving legal weight to cultural prohibitions against indiscriminate waste disposal. Reports are that in parts of the Ashanti Region, chiefs enforce sanitation through both ritual authority and local government mandates, enhancing compliance through dual legitimacy (Anokye & Mohammed, 2024; MILGCRA, 2025). Moreover, non-governmental organisations (NGOs) and environmental agencies that engage traditional councils as partners—rather than bypassing them—tend to achieve higher participation and more sustained behavioural change (Anokye & Mohammed, 2024; Harangozó & Zilahy, 2015; Nogy, 2017). For instance, in selected districts of the Ashanti Region, chieftaincy institutions have worked with district assemblies to codify customary taboos into enforceable environmental regulations. Through co-management committees involving chiefs and district officials, culturally grounded waste norms have been formalised into local governance instruments, yielding increased waste segregation and community engagement (Anokye & Mohammed, 2024; MILGCRA, 2025).

While the Ashanti region's case demonstrates formalised institutional integration, hybrid governance may also take less codified forms. For instance, in some communities in Northern Ghana, where spiritual beliefs surrounding sacred groves remain strong, formal interventions have faced resistance unless adapted to local cosmological boundaries (Allison, 2019). These cases suggest that hybrid governance can also involve informal adaptation by formal actors to accommodate customary spatial ethics, even without codified legal mechanisms.

Nonetheless, many of these documented synergies are anecdotal or based on limited pilot programs, lacking rigorous impact assessment. There is a paucity of systematic evaluations that track environmental outcomes or behavioural change over time. Moreover, little is known about how institutional bricolage – a concept describing how actors creatively assemble and adapt diverse institutional elements (both formal and informal) to address governance challenges (Cleaver, 2017) – unfolds in less centralised governance areas, where traditional authorities may lack legitimacy or are fragmented.

These examples illustrate the potential of hybrid governance frameworks that respect cultural legitimacy while integrating technical capacity. Such approaches align with the theory of "institutional bricolage" (Cleaver, 2017), which emphasises how actors combine formal and informal norms to manage natural resources in complex social contexts. The success of these models depends on participatory policy design, recognition of customary institutions, and the development of culturally adaptive technologies (Fig. 3).

Summarily, while formal WM systems in Ghana have struggled to align with rural socio-cultural dynamics, indigenous waste governance offers valuable resources for promoting sustainable practices. Bridging these systems requires not only institutional flexibility but also a shift in
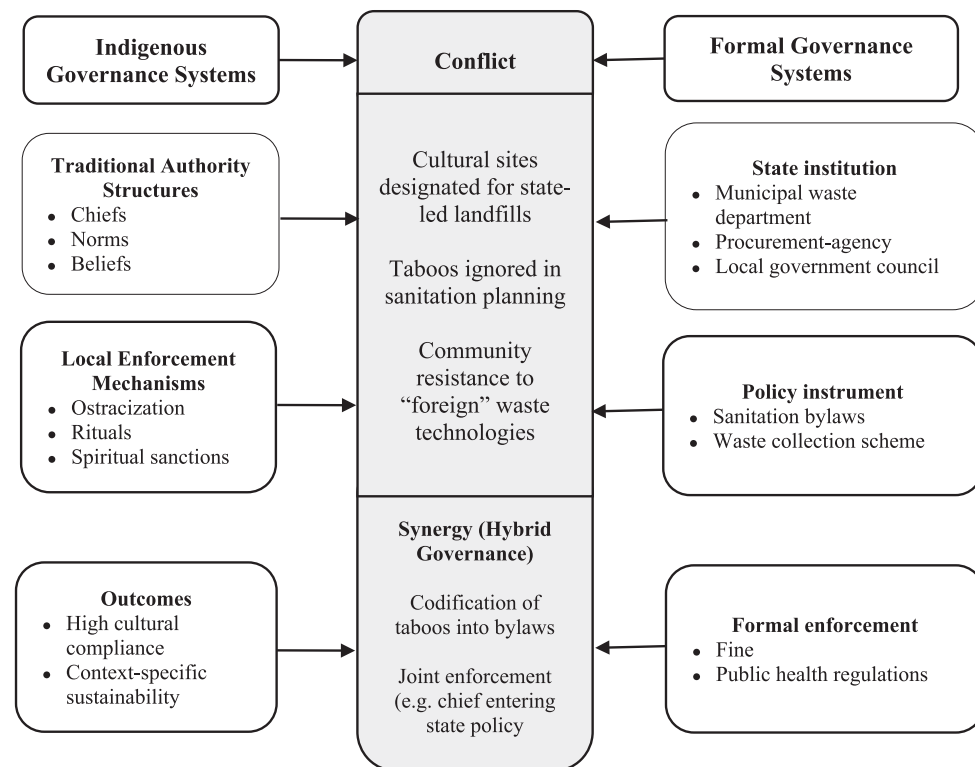
Fig. 3. A conceptual model illustrating the interaction between indigenous and formal waste governance systems in rural Ghana.

policy perspective—from viewing traditional practices as obsolete to recognising them as viable, locally rooted alternatives that can enhance environmental sustainability when integrated meaningfully (Agrawal, 1995; Berkes, 2017; Toledo, 2002).

While these practices are compelling, few studies adopt longitudinal or participatory action research designs that capture how these beliefs evolve in response to external pressures such as migration, religious conversion, or education. The comparative inclusion of similar practices in South Africa and Lesotho adds breadth, but methodological triangulation remains weak across cases, raising questions about the stability and replicability of observed behaviours over time (Madonsela et al., 2024; Oduro-Appiah et al., 2021; Senekane et al., 2021; Senekane et al., 2022).

Knowledge gaps and research implications

While the current literature affirms that culturally embedded governance mechanisms significantly influence waste practices in rural Ghana, several critical knowledge gaps persist, limiting both theoretical depth and practical application. To begin with, a critical review of the included studies reveals a marked geographical bias. The majority of empirical investigations focus on culturally dominant southern regions such as Ashanti and Volta, often at the expense of the northern savanna and transitional ecological zones. This spatial clustering creates a distorted representation of Ghana's culturally diverse waste governance landscape and obscures alternative ontologies and ontologies of waste that prevail in other ethnic regions (Brobbey et al., 2019). Such bias not only limits the ecological validity of the findings but also constrains the formulation of geographically inclusive policies.

Also, methodologically, the literature is overwhelmingly qualitative and cross-sectional, with limited deployment of triangulated or longitudinal designs capable of capturing the dynamic evolution of cultural norms. Moreover, few studies critically interrogate the positionality of researchers in the field, and many rely on self-reported attitudes or practices without observational corroboration (Anokye & Mohammed,

2024; Cleaver, 2017). This methodological insularity curtails both internal and external validity, raising concerns about the robustness of inferred behavioural patterns. The scarcity of longitudinal or mixed-methods studies—beyond a few exceptions such as Kosoe et al. (2019) and Nungbaso (2020)—underscores the need for future research that triangulates ethnography, behavioural metrics, and participatory longitudinal designs to strengthen empirical validity.

Furthermore, existing studies rarely integrate transdisciplinary frameworks that draw from environmental psychology, indigenous studies, political ecology, or behavioural economics. Such integration could enrich our understanding of how cultural logics interact with environmental behaviours, policy design, and governance systems. For instance, the concept of "environmentality", which refers to the form of governance in which individuals internalise environmental responsibilities and self-regulate their practices in line with sustainability goals (Agrawal, 2020), remains underutilised in analysing how individuals internalise environmental responsibility through cultural conditioning rather than state enforcement.

In addition, few studies critically engage with the co-production of knowledge between formal institutions and indigenous systems. This limits the evidence available to inform hybrid governance models. Nonetheless, the review highlights culturally embedded practices—such as communal labour and sacred ecological restrictions—that could be integrated into municipal frameworks through co-designed by-laws, participatory planning, and joint monitoring between traditional councils and local government structures. For instance, in Ghana, traditional authorities in Ga East and Wa Municipal have collaborated with district assemblies to enforce sanitation by-laws and mobilize communal clean-ups (Ghana News Agency, 2022; Ghana News Agency, 2024), while Kumasi chiefs have supported land allocation for waste disposal (Kosoe & Otoo, 2019; Amoah et al., 2023) (Table 4). Similarly, in Nigeria and Tanzania, traditional rulers have partnered with local governments to enforce sanitation days and community monitoring (Awojoodu, 2024; Babatunde, 2024; Safari et al., 2019). These hybrid models, though sporadic, illustrate how co-management between municipal authorities

Table 4

Illustrative Hybrid Governance Models in Waste and Sanitation Management.

Country/ Context	Collaboration Type	Role of Traditional Leaders	Outcomes/ Impacts	References
Ghana – Ga East Municipal Assembly (Accra)	"Operation Clean Your Frontage" initiative	Chiefs and traditional councils mobilised communities, supported the enforcement of sanitation by-laws.	Enhanced compliance with sanitation regulations; strengthened municipal legitimacy.	Ghana News Agency (2022)
Ghana – Ga Traditional Council (Accra)	Homowo clean-up campaign	Asafoatsemei (traditional warriors) trained to enforce sanitation by-laws alongside municipal authorities.	Improved community participation; demonstrated co-enforcement of by-laws	Ghana News Agency (2024)
Ghana – Kumasi & Wa Municipalities	Local government–chief collaboration	Chiefs supported land allocation for waste disposal and mobilised labour for communal clean-ups.	Increased availability of land for waste infrastructure; sustained communal labour practices	Kosoe and Otoo (2019); Amoah et al. (2023)

and traditional leaders can enhance compliance and legitimacy. While some examples of policy-traditional authority collaboration exist, research on institutional hybridity remains limited and largely anecdotal (Anokye & Mohammed, 2024; Demanya, 2007). This restricts the development of culturally responsive, scalable, and participatory waste governance models.

Finally, spatial bias constitutes a critical gap. The overwhelming concentration of studies in southern Ghana obscures cultural logics in the northern savanna and transitional zones, where waste practices intersect with pastoral livelihoods, Islamic traditions, and decentralised chieftaincy systems. Addressing this imbalance requires comparative, multi-sited ethnographic and participatory research designs that deliberately include underrepresented ecological belts. Such efforts would enable the construction of geographically inclusive and nationally representative waste governance frameworks.

Conclusion

This study systematically synthesises empirical and theoretical literature on the cultural determinants of solid waste management (SWM) in rural Ghana, with a focus on the regulatory functions of taboos, social norms, and belief systems. The findings demonstrate that in contexts where formal waste infrastructure is limited or absent, indigenous cultural institutions serve as vital informal governance mechanisms. These include ritual prohibitions on waste disposal in sacred landscapes, gendered communal labour expectations, and spiritual perceptions of pollution. Together, such practices contribute to ecologically significant behaviours, including waste minimisation, segregation, and ecosystem protection. Nevertheless, the findings must be interpreted with caution due to the geographical imbalance of available literature. A balanced research agenda that includes the northern savanna zones is essential to build an empirically robust and culturally inclusive foundation for national waste governance.

However, these cultural systems are increasingly challenged by structural transformations such as urbanisation, religious pluralism, migration, and the erosion of traditional authority. These dynamics have led to the reclassification of formerly protected spaces and declining adherence to ancestral environmental ethics. Despite this erosion, evidence suggests that indigenous institutions retain adaptive capacity and, if meaningfully integrated with formal governance structures, can enhance the legitimacy, compliance, and sustainability of waste management policies.

This review also identifies critical knowledge gaps in the existing literature, including spatial research bias toward southern Ghana, limited use of mixed-methods or longitudinal designs, weak gender-disaggregated analysis, and insufficient application of transdisciplinary theoretical frameworks such as environmentality or institutional bricolage. Addressing these gaps is essential for enhancing the empirical robustness and theoretical depth of future research.

The study recommends the formal recognition of indigenous knowledge systems within decentralised environmental governance frameworks, the co-design of localised bylaws anchored in cultural

legitimacy, and the establishment of hybrid co-management committees that involve traditional authorities. Future research should employ participatory and longitudinal methodologies to examine how informal ecological ethics evolve in response to socio-cultural change, thereby enhancing both empirical richness and generalizability. This must include explicit gender-sensitive approaches that elevate women's agency, account for intersectional exclusions, and ensure equitable participation in sustainable waste governance. Overall, the study affirms that culturally embedded environmental practices represent adaptive, context-specific resources that—when strategically aligned with formal systems—can contribute meaningfully to sustainable rural waste governance.

Declaration of the use of AI-assisted technologies

During the preparation of this work, the author used Grammarly to improve the readability and language of the work. The author reviewed and edited the content as needed and takes full responsibility for the content of the publication.

Data availability Statement

No primary data was used for this study. All secondary data used in this study are available in public repositories, and their sources are listed in the reference.

CRediT authorship contribution statement

Bosompem Ahunoabobirim Agya: Writing – review & editing, Writing – original draft, Validation, Methodology, Data curation, Conceptualization.

Declaration of competing interest

The author declares that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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