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Reactivating Legislation for Organic Waste Reform in Indonesia

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Abstract

Indonesia grapples with a pressing waste management crisis, generating 26.2 million tons of waste in 2023, of which 41.4% is organic, worsened by overlapping regulations and inconsistent enforcement of Law No. 18/2008 on Waste Management. This study seeks to evaluate the urgency of legislative reactivation through an Omnibus Law approach to streamline organic waste management policies and foster active participation from communities and the private sector. Using a normative juridical method, the research analyzes primary legal materials, including national laws and regulations, alongside secondary sources such as legal journals and policy reports. Findings highlight that fragmented regulations, inadequate waste processing infrastructure, and limited public awareness significantly impede effective organic waste management. The proposed Omnibus Law aims to unify disparate regulations, enhance law enforcement, and incentivize sustainable practices like composting and waste-to-energy initiatives. By addressing these challenges, the Omnibus Law can reduce environmental pollution, mitigate health risks, and support Indonesia's sustainability goals, creating a more coordinated and efficient waste management framework.

Keywords

Environmental Law, Legal Harmonization, Legislative Reactivation, Omnibus Law, Regulatory Reform.

1. Introduction

The First Part must be Introduction, written in bold. This also applies to all Indonesia faces a critical waste management challenge, generating approximately 26.2 million tons of waste in 2023, with 41.4% being organic waste, primarily from households (Damanhuri & Padmi, 2022). Poorly managed organic waste contributes to environmental pollution, health risks, and methane emissions, exacerbating climate change (Khoiriyah, 2021). Despite existing regulations, such as Law No. 18/2008 on Waste Management, Government Regulation No. 81/2012, and Minister of Environment and Forestry Regulation No. 9/2024, implementation remains suboptimal due to fragmented policies and weak enforcement (Maskun & Assidiq 2019; Maskun et al., 2022). Overcapacity landfills, frequent fires, and low community participation, as seen in cases like Bantargebang and Cipeucang, highlight the urgency of reform (Saraswati et al., 2023).

While studies have explored waste management policies, few focus on harmonizing regulations through an Omnibus Law approach to address organic waste specifically (Jatmika, 2020). This research gap underscores the need to evaluate legislative reactivation to streamline policies and enhance stakeholder engagement. The accumulation of organic waste, contributing to 68 million tons annually by 2022 and significant greenhouse gas emissions, demands immediate action to meet national targets like “Clean-from-Waste Indonesia 2025” (Herman et al., 2023). The persistent reliance on the collect-transport-dispose model, coupled with inadequate infrastructure, further exacerbates environmental degradation and hinders sustainable waste management.

This study addresses two key questions: What are the regulatory and institutional challenges in organic waste management in Indonesia? How can an Omnibus Law approach resolve these issues? The objective is to analyze the urgency of legislative reactivation through an Omnibus Law to create a cohesive legal framework, improve enforcement, and promote sustainable organic waste management practices. By integrating regulations and incentivizing private sector and community participation, this approach aims to reduce environmental burdens and support Indonesia’s sustainability goals.

The Omnibus Law approach offers a strategic solution by unifying fragmented regulations into a single, comprehensive framework, as demonstrated in other countries like Canada’s Budget Implementation Acts (Herman, 2021). Such an approach can simplify bureaucracy, enhance coordination among stakeholders, and facilitate innovations like composting and waste-to-energy initiatives. In Indonesia, where overlapping authorities and inconsistent enforcement undermine waste management, legislative reactivation could align policies with global sustainability goals, such as the Sustainable Development Goals (SDGs) for sustainable consumption and production.

This research holds significant relevance as it tackles a critical national issue waste management with broad implications for environmental health, public welfare, and climate change mitigation. The proposal to establish an Omnibus Law serves not only as a legal innovation but also as a strategic framework for harmonizing and streamlining existing, often overlapping, regulations. By offering a comprehensive approach, the study aspires to become a model for regulatory reform in other developing countries grappling with similar challenges. The research findings are expected to assist policymakers in designing effective legal instruments, encouraging public-private collaboration, and raising community awareness, ultimately contributing to a cleaner, healthier, and more sustainable Indonesia. This study aims to fill this gap by analyzing how an Omnibus Law can address regulatory fragmentation, strengthen enforcement, and promote sustainable organic waste

management in Indonesia, contributing to both national and global environmental goals.

2. Literature Review

The management of organic waste in Indonesia is deeply rooted in environmental law principles, such as the polluter pays principle and sustainable development, which emphasize the responsibility of waste producers and the need for long-term environmental protection (Maskun et al., 2022; Bell, 2017). Legal harmonization, a key concept in regulatory reform, seeks to streamline overlapping regulations to enhance policy effectiveness (Jatmika, 2020). These principles provide a theoretical foundation for addressing regulatory fragmentation in waste management, particularly through comprehensive legislative approaches like the Omnibus Law, which aims to unify disparate regulations into a cohesive framework (Hayati & Warjiyati, 2021). For instance, the integration of environmental law principles into waste management policies can foster accountability among stakeholders, ensuring that producers bear the cost of waste processing and disposal (Ambina, 2019).

Existing literature highlights significant challenges in Indonesia's waste management system. Studies note that organic waste, constituting 41.4% of the 26.2 million tons generated in 2023, is poorly managed due to inadequate infrastructure and weak enforcement of laws like Law No. 18/2008 on Waste Management (Pandana & Nuryananda, 2024). The reliance on a collect-transport-dispose model limits sustainable practices like composting or waste-to-energy conversion (Ferronato & Torretta, 2019; Maskun et al., 2022).

Furthermore, research points to low public participation and coordination issues among government agencies as persistent barriers (Tristy & Aminah, 2020; Herman et al., 2023). Community-based initiatives, such as waste banks, have shown potential in promoting recycling and organic waste processing, yet their scalability is limited by funding and awareness gaps (Astheria & Heruman, 2016). Internationally, Omnibus Laws, such as Canada's Budget Implementation Acts, have been used to address complex regulatory issues by consolidating policies, offering a model for Indonesia (Massicotte, 2021). Similarly, Singapore's integrated waste management framework demonstrates how clear regulations and public-private partnerships can enhance organic waste processing efficiency (Chin et al., 2022).

This research identifies a gap in the literature: few studies explore the application of an Omnibus Law to harmonize regulations specifically for organic waste management in Indonesia. While the Job Creation Law (Law No. 11/2020) demonstrates the potential of Omnibus Laws to simplify regulations, its application to environmental issues, particularly organic waste, remains underexplored. Comparative analyses of global waste management strategies, such as the EU's Circular Economy Action Plan, suggest that integrated regulatory frameworks can enhance sustainability (Domenech & Bahn-Walkowiak, 2019; Hayati & Warjiyati, 2021). For example, the EU's focus on resource efficiency through recycling and composting has reduced landfill dependency, offering lessons for Indonesia (Albizzati et al., 2021). Recent studies also highlight the role of digital technologies, such as waste tracking systems, in improving regulatory enforcement and public participation in waste management (Bukar et al., 2023). In Indonesia, pilot projects for organic waste-to-energy conversion, such as biodigesters in Bali, underscore the need for supportive legal frameworks to scale such innovations (Farahdiba et al., 2023).

3. Methods

This research adopts a normative juridical method to critically examine the legal framework governing organic waste management in Indonesia and to evaluate the urgency of legislative reformation through the formulation of an Omnibus Law. The normative juridical approach is appropriate for this study because it allows for a structured legal analysis based on both statutory texts and theoretical concepts. The research employs two primary approaches: the statutory approach and the conceptual approach. The statutory approach involves a detailed examination of primary legal materials, including Law No. 18 of 2008 on Waste Management, Government Regulation No. 81 of 2012 on the Management of Household Waste, Presidential Regulation No. 97 of 2017 on the National Policy and Strategy for Waste Management, and the most recent Minister of Environment and Forestry Regulation No. 9 of 2024 concerning Hazardous and Toxic Waste.

These primary sources are supplemented with secondary legal materials such as academic journals, legal textbooks, research reports, and relevant prior studies. These sources are used to provide theoretical depth, policy context, and comparative perspectives on legal reform and waste governance. Data collection is conducted through a structured literature review, focusing on regulatory documents, academic analyses, and legal commentary. The research utilizes legal interpretation techniques including systematic, historical, and teleological interpretation to uncover inconsistencies, overlapping provisions, and regulatory gaps that hinder effective organic waste management in Indonesia. By combining statutory analysis with conceptual insights, the study aims to construct a harmonized legal framework that addresses fragmentation and overlaps in existing regulations. The methodology ultimately supports the formulation of a comprehensive and unified Omnibus Law that not only streamlines waste-related legislation but also strengthens Indonesia's commitment to sustainable environmental governance and climate change mitigation.

4. Results

4.1. Regulatory Challenges

Indonesia's organic waste management is governed by an extensive yet fragmented regulatory framework, including Law No. 18/2008 on Waste Management, Government Regulation No. 81/2012 on Household Waste Management, Presidential Regulation No. 97/2017 on National Waste Management Policy, and Minister of Environment and Forestry Regulation No. 9/2024 on Hazardous Waste (Saraswati et al., 2023). These regulations, while comprehensive in scope, lack specific provisions tailored to organic waste, which constitutes 41.4% of the 26.2 million tons of waste generated in 2023 (Nugroho et al., 2023). For instance, Law No. 18/2008 mandates waste segregation at the source but provides no detailed guidelines for organic waste processing, leading to varied interpretations across regions (Marpaung et al., 2022). This ambiguity results in inconsistent practices, with some municipalities implementing segregation programs while others rely on mixed waste collection, exacerbating landfill accumulation.

Weak enforcement further undermines regulatory effectiveness. Only 20% of local governments have met the Indonesia Clean Waste 2025 Program's targets of 70% waste management and 30% reduction, largely due to insufficient monitoring and sanctions for non-compliance (Arrahma et al., 2024). For example, in Jakarta, violations of waste segregation rules are rarely penalized, allowing households and businesses to disregard regulations without consequence (Saraswati et al., 2023). Overlapping regional regulations compound the issue. In some provinces, conflicting local bylaws on waste tariffs create confusion, with rates varying from IDR 10,000

to IDR 50,000 per household, discouraging compliance (Marpaung et al., 2022). Additionally, the lack of regulatory updates to address emerging challenges, such as the increasing volume of organic waste from urban areas, hinders progress. The absence of a unified national standard for organic waste management further fragments efforts, as local governments develop ad-hoc policies that often contradict central directives (Arrahma et al., 2024). This regulatory disarray contributes to environmental degradation, including methane emissions from decomposing organic waste, and underscores the need for a streamlined legal framework.

4.2. Institutional Weaknesses

Institutional inefficiencies significantly impede organic waste management in Indonesia. Coordination between central and local governments is hampered by overlapping authorities, particularly between the Ministry of Environment and Forestry and regional environmental agencies. The central government sets national waste reduction targets, but local governments are responsible for implementation without adequate technical guidance or resources, leading to disjointed programs (Utami et al., 2024). For example, in Surabaya, conflicting priorities between public works and environmental departments stalled the development of a regional composting facility, delaying sustainable waste processing (Saraswati et al., 2023). Similarly, in Bandung, overlapping responsibilities between city and district agencies resulted in inconsistent waste collection schedules, frustrating residents (Saraswati et al., 2023).

Local government capacity is critically limited. Many municipalities lack trained personnel to manage complex waste systems, relying on underqualified staff to oversee collection and disposal (Utami et al., 2024). In rural areas, waste management is often handled by village administrations with minimal funding, leading to open dumping or burning of organic waste, which contributes to air and water pollution (Billah et al., 2024). The absence of a centralized monitoring system exacerbates these issues, as there is no consistent mechanism to evaluate local compliance with national policies like Presidential Regulation No. 97/2017 (Arrahma et al., 2024). Furthermore, inter-agency rivalry and bureaucratic delays hinder project implementation. In Makassar, for instance, a proposed waste-to-energy project was delayed for two years due to disputes over jurisdiction between provincial and city governments (Marpaung et al., 2022). These institutional weaknesses highlight the urgent need for improved coordination, capacity-building, and standardized guidelines to enhance organic waste management effectiveness across Indonesia.

4.3. Infrastructure and Technology Gaps

The lack of adequate infrastructure severely constrains Indonesia's organic waste management efforts. In 2023, 38 landfill fires were reported, triggered by methane emissions from decomposing organic waste, highlighting the dangers of outdated disposal methods (Ngurah, 2024). Major landfills, such as Bantargebang in Bekasi and Piyungan in Yogyakarta, operate beyond capacity, handling thousands of tons of waste daily without sufficient processing facilities (Saraswati et al., 2023). For example, Bantargebang receives over 7,000 tons of waste daily, with less than 10% processed through composting or recycling due to limited equipment (Saraswati et al., 2023). Investment in modern technologies, such as biodigesters, composting plants, or waste-to-energy systems, remains minimal due to high initial costs and constrained government budgets (Lasaiba, 2024).

Logistical challenges further exacerbate the problem. In urban areas like Jakarta, insufficient waste collection vehicles—only 1,200 trucks for a population of 10 million result in delayed pickups, leading to illegal dumping in public spaces (Utami et al., 2024). In rural regions, formalized collection systems are often nonexistent, with organic waste discarded in rivers or burned, contributing to environmental

pollution (Billah et al., 2024). The absence of decentralized processing facilities, such as community composting units, forces reliance on centralized landfills, increasing transportation costs and carbon emissions (Lasaiba, 2024). For instance, in Bali, waste from tourist areas is transported over 50 kilometers to the Suwung landfill, straining logistics and budget (Marpaung et al., 2022). Moreover, the lack of maintenance for existing facilities, such as broken sorting machines in Surabaya's temporary waste sites, reduces operational efficiency (Saraswati et al., 2023). These infrastructure and technology gaps underscore the critical need for substantial investment and innovative solutions to manage Indonesia's organic waste effectively.

4.4. Public and Private Sector Participation

Public and private sector participation in organic waste management in Indonesia remains limited, hindered by both systemic and behavioral challenges. On the public side, awareness and engagement are critically low, weakening the implementation of existing regulations. In major urban centers such as Jakarta, Surabaya, and Bandung, over 50% of households do not practice waste segregation due to perceived inconvenience, limited knowledge, and the absence of adequate facilities (Sari et al., 2023). Jakarta, for instance, sees only 15% of its residents involved in municipal segregation programs, largely because of the lack of access to separate organic waste bins (Saraswati et al., 2023). The situation is even more dire in rural areas, where educational outreach often fails to reach isolated communities, resulting in widespread open dumping or burning of organic waste (Wulandari et al., 2017). Although community-based solutions like waste banks have shown localized success—such as the 200 operational units in Bandung—they currently serve only around 5% of neighborhoods nationwide, with limited growth due to funding constraints and low public motivation (Saraswati et al., 2023; Utami et al., 2024).

Private sector participation in organic waste management is hindered by the absence of economic incentives and supportive policies. Without tax breaks or subsidies, businesses are reluctant to invest in sustainable practices (Hilmiawan, 2023). Small enterprises producing organic fertilizer struggle to compete with subsidized chemical fertilizers, limiting their market share to under 10% (Sari et al., 2023). Although Law No. 18/2008 mandates corporate waste management, many large firms prioritize cost savings over compliance due to weak enforcement (Saraswati et al., 2023). In Surabaya, food and beverage industries produce significant organic waste but avoid composting because of high operational costs (Marpaung et al., 2022). While pilot public-private projects in Bali show promise, their impact remains limited to tourism areas (Billah et al., 2024). Strengthening participation requires coordinated policies, financial incentives, and stronger enforcement.

4.5. Economic Constraints

Economic constraints remain a central obstacle to the advancement of sustainable organic waste management in Indonesia. Public funding is severely limited, with regional budgets allocating an average of only 0.51% of the revenue and expenditure budget for waste management—far below the 3–4% benchmark considered necessary for developing effective systems (Arrahma et al., 2024). In urban centers like Jakarta, as much as 70% of this limited budget is consumed by transportation expenses, leaving minimal resources for infrastructure upgrades or public awareness programs (Hadamuan & Tuti, 2021). The situation is even more constrained in rural areas, where annual municipal waste management budgets often fall below IDR 500 million, insufficient to build even basic collection infrastructure (Utami et al., 2024). This chronic underfunding has restricted investment in essential technologies such as composting facilities and biodigesters, reinforcing dependence on environmentally harmful landfilling practices (Saraswati et al., 2023).

Market dynamics significantly hinder the economic feasibility of organic waste processing in Indonesia. Compost from organic waste struggles to compete with heavily subsidized chemical fertilizers, which dominate over 80% of the market (Hilmiawan, 2023). Small composting businesses face high startup costs of IDR 200–500 million, deterring investment (Sari et al., 2023). Innovation in recycling and waste-to-energy is limited by the absence of financial mechanisms like carbon credits or grants (Arrahma et al., 2024). A pilot refuse-derived fuel project in Semarang, for example, stalled due to lack of operational funding despite initial government support (Billah et al., 2024). Additionally, low public compliance with waste collection fees, averaging IDR 15,000 per household, weakens local revenue (Marpaung et al., 2022). These financial and market barriers highlight the need for greater investment, incentives, and innovative financing models to support sustainable waste management.

5. Discussion

This study reveals complex challenges in Indonesia's organic waste management, including regulatory fragmentation, weak institutions, infrastructure gaps, limited stakeholder involvement, and economic barriers. These issues align with the research focus on regulatory and institutional obstacles and the potential role of an Omnibus Law in resolving them. Grounded in the principles of environmental law polluter pays and sustainable development and legal harmonization, the discussion highlights how these issues weaken waste governance (Bell, 2017; Jatmika, 2020). The Omnibus Law is evaluated as a strategic step to unify regulations, improve enforcement, and support sustainability. With organic waste comprising 41.4% of 26.2 million tons generated in 2023, legislative reactivation is urgently needed.

The fragmented regulatory framework seen in overlapping laws such as Law No. 18/2008, Government Regulation No. 81/2012, Presidential Regulation No. 97/2017, and Ministerial Regulation No. 9/2024 creates ambiguity in organic waste management (Saraswati et al., 2023). The lack of specific guidelines on segregation and processing violates legal certainty, while inconsistent local waste tariffs (IDR 10,000–50,000) reduce compliance (Marpaung et al., 2022). This contradicts the polluter pays principle, which demands clear responsibility (Maskun et al., 2022). Weak enforcement only 20% of local governments meet Clean Waste 2025 targets worsens the problem (Arrahma et al., 2024). An Omnibus Law can unify these fragmented rules, as shown by Indonesia's Job Creation Law (Law No. 11/2020) and similar international models like Canada's Budget Implementation Acts and the EU's Circular Economy Action Plan (Domenech & Bahn-Walkowiak, 2019; Hayati & Warjiyati, 2021; Herman, 2021). In Indonesia, such a law could standardize protocols, enforce segregation, and align with SDG 12 by reducing methane emissions (Herman et al., 2023). However, inclusive stakeholder engagement is crucial to avoid resistance, as seen in past reforms (Epakartika et al., 2019).

Institutional inefficiencies marked by overlapping authority and poor coordination between the Ministry of Environment and Forestry and local agencies undermine waste management efforts (Billah et al., 2024). The absence of centralized monitoring and technical guidelines further weakens policy implementation, including Presidential Regulation No. 97/2017 (Utami et al., 2024). Delays in Surabaya's composting facility and Makassar's waste-to-energy project illustrate jurisdictional disputes (Marpaung et al., 2022; Saraswati et al., 2023), contradicting principles of coordination and accountability in environmental governance (Bell, 2017). An Omnibus Law can clarify roles across government levels, as seen in Canada's streamlined multi-agency policies, and enable the formation of a national waste authority (Domenech & Bahn-Walkowiak, 2019; Herman, 2021; Utami et al., 2024). Mandating capacity-building programs for local staff and applying legal harmonization principles Jatmika (2020) would strengthen policy implementation.

However, overcoming bureaucratic resistance requires transparency and stakeholder engagement (Hayati & Warjiyati, 2021).

Indonesia's waste infrastructure deficit—evident in overcapacity landfills like Bantargebang and 38 landfill fires in 2023—highlights the system's unsustainability (Saraswati et al., 2023; Ngurah, 2024). Overreliance on centralized landfills and lack of investment in biodigesters or composting contradict resource efficiency principles (Lasaiba, 2024; Bell, 2017). Logistical issues, such as limited collection fleets in Jakarta and long-distance transport in Bali, worsen costs and emissions (Utami et al., 2024; Marpaung et al., 2022). An Omnibus Law can mandate investment in decentralized infrastructure and incentivize private waste-to-energy adoption, following models like the EU's Circular Economy Plan (Domenech & Bahn-Walkowiak, 2019). Tax incentives and PPPs, as seen in Bali, could advance infrastructure, support SDG 9 and reducing emissions (Herman et al., 2023; Billah et al., 2024). Creative financing is essential to address high costs and budget limits.

Low public awareness over 50% of households in Jakarta and Surabaya do not segregate waste and limited private investment reflect weak stakeholder engagement (Sari et al., 2023; Hilmiawan, 2023). The polluter pays principle is undermined by poor enforcement and lack of incentives (Maskun et al., 2022). Large firms in Surabaya often avoid on-site processing due to lax oversight, while waste banks reach only 5% of neighborhoods due to funding constraints (Saraswati et al., 2023). An Omnibus Law could enforce accountability through mandatory segregation and fines, provide subsidies and tax breaks for sustainable practices, and scale community initiatives like Bandung's waste banks (Wulandari et al., 2017; Hilmiawan, 2023). This supports SDG 17 on partnerships (Herman et al., 2023). However, public resistance to waste fees demands strong awareness campaigns.

Economic barriers such as regional budgets allocating only 0.51% of revenue and expenditure budget for waste, high transport costs (70%), and uncompetitive compost markets limit sustainability (Hadamuan & Tuti, 2021; Hilmiawan, 2023; Arrahma et al., 2024). The lack of grants and carbon credits discourages innovation, as seen in Semarang's stalled RDF project (Billah et al., 2024). An Omnibus Law could introduce financial tools like waste grants and carbon credits, subsidize compost, and cut tariffs for waste-to-energy to boost competitiveness (Sari et al., 2023). Reallocating budgets from transport to infrastructure, as suggested by Hadamuan and Tuti (2022), supports efficiency and job creation (Herman et al., 2023). However, resistance to fees and high investment costs require careful design (Epakartika et al., 2019). Thus, an Omnibus Law offers a holistic solution regulatory, institutional, infrastructural, participatory, and economic to achieve Clean Waste 2025 and reduce emissions, with success hinging on inclusive policymaking and enforcement.

6. Conclusion

This study highlights critical challenges in Indonesia's organic waste management, including fragmented regulations, institutional inefficiencies, inadequate infrastructure, low public and private sector participation, and severe economic constraints. With 41.4% of the 26.2 million tons of waste in 2023 being organic, the absence of specific guidelines in Law No. 18/2008, weak enforcement (only 20% of local governments meeting Indonesia Clean Waste 2025 targets), and overcapacity landfills like Bantargebang underscore systemic failures. Institutional overlaps, limited technologies, and budgets allocating only 0.51% of regional revenue and expenditure budget further exacerbate the issue. An Omnibus Law, as proposed, offers a transformative solution by harmonizing regulations, clarifying institutional roles, and promoting sustainable practices, aligning with environmental law principles like polluter pays and sustainable development.

The findings have significant practical and theoretical implications. Practically, an Omnibus Law could reduce methane emissions, mitigate landfill fires, and support Indonesia's SDG 12 commitments by fostering efficient waste management systems. It draws from international models, such as Canada's Budget Implementation Acts and the EU's Circular Economy Action Plan, to streamline policies and incentivize technologies. Theoretically, this study advances environmental law scholarship by demonstrating how legal harmonization can address regulatory fragmentation, reinforcing the polluter pays principle through enforceable accountability. It also contributes to discussions on governance reform by highlighting the need for coordinated institutional frameworks.

To operationalize these findings, policymakers should develop an Omnibus Law with clear organic waste protocols, mandatory segregation, and sanctions, supported by inclusive stakeholder consultations to avoid resistance, as seen in the Job Creation Law. Investments in decentralized composting and waste-to-energy facilities, funded through green bonds or carbon credits, are critical. Public awareness campaigns and private sector incentives, such as subsidies for compost production, should be prioritized. Future research could explore regional variations in waste management practices or assess the socio-economic impacts of an Omnibus Law implementation. This study is limited by its normative juridical approach, which focuses on legal frameworks rather than empirical field data, potentially overlooking local implementation nuances. The reliance on secondary sources may also restrict the depth of regional analyses. Despite these limitations, the findings provide a robust foundation for crafting a comprehensive Omnibus Law to enhance Indonesia's organic waste management, supporting national and global sustainability goals.

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Data Disclosure Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.



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