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From Waste to Value: Conceptualizing Haritha Karma Sena as a Social Enterprise Model for ESG and Circular Economy in Kerala

Anila P[1]*, Fathima Rabeela Pandikadavath[2]*, Dr. Abbas Vattoli [3]*, Dr. Sameera.P[4]*

[1] Research Scholar, PSMO college (Autonomous) Tirurangadi, University of Calicut, Kerala, India

[2] Research Scholar, PSMO college (Autonomous) Tirurangadi, University of Calicut, Kerala, India

[3] Associate Professor, Amal College of Advanced Studies (Autonomous) Nilambur, University of Calicut, Kerala, India

[4]Assistant Professor, PSMO college (Autonomous) Tirurangadi, University of Calicut, Kerala, India

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ABSTRACT

Waste management systems that can create economic, social, and environmental value while tackling the escalating problems of resource depletion and waste disposal are necessary for the shift from a linear to a circular economy. In this regard, the community-based waste management organization Haritha Karma Sena (HKS), which operates through Kerala's decentralized local government system, offers a crucial model for analyzing the combination of social enterprise, circular economy concepts, and sustainable waste management. The purpose of this conceptual paper is to build a Waste-to-Value framework that connects HKS operations with environmental, social, and governance (ESG) and circular economy objectives, as well as to conceptualize HKS as a viable community-based social enterprise model. With official documentation on Kerala's decentralized waste management system as support, the study employs a conceptual research design based on an integrative review and theoretical synthesis of literature on Circular Economy Theory, Social Enterprise Theory, ESG, Stakeholder Theory, and Sustainable Development Theory. The suggested framework views collection, source segregation, sorting, recovery, and recycling as essential HKS activities that can produce economic value through user fees, recyclable material value, and green enterprise opportunities; social value through women's employment, empowerment, and community involvement; and environmental value through resource recovery and waste reduction. Stakeholder coordination and governance are positioned as cross-cutting enabling variables impacting the waste-to-value process' efficacy. The connections between HKS operations, value creation, ESG, the circular economy, and sustainable development are explained by seven conceptual assertions. In order to offer HKS as a potential community-based social entrepreneurship pathway for inclusive sustainability and circular economy growth, the article integrates various viewpoints into a single Waste-to-Value paradigm. The paradigm serves as a basis for upcoming empirical studies in all local government situations in Kerala.

Keywords: Haritha Karma Sena; Waste-to-Value; Social Enterprise; Circular Economy; ESG; Women's Empowerment; Sustainable Waste Management.

INTRODUCTION

Waste management is the methodical collection, separation, movement, treatment, recycling, recovery, and safe disposal of waste to safeguard human health and the environment. As resource consumption, urbanization and waste generation increase, environmental sustainability has become an important concern for governments, businesses and communities. The classic linear economic model is based on a "take–make–use–dispose" model where natural resources are extracted, converted to products, consumed and then discarded eventually. This model puts great pressure on natural resources, and leads to pollution and degradation of the

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environment In Kerala, the Haritha Karma Sena has emerged as a vital grassroots mechanism for decentralizing waste management. Its actions connect households and communities to waste collection and resource recovery systems. The involvement of women in these activities adds a further social dimension to the model linking environmental protection with livelihood generation and empowerment. Haritha karma sena is a communitybased waste management initiative in Kerala. It is a group of workers from the kudumbashree network who serve local self-governments by collecting, sorting, and delivering inorganic waste to designated agencies for processing and final disposal. Founded in 2017 as a micro-project under the Kudumbashree initiative, within the Nava Kerala Karma Paddhathi. A circular economy is a system in which materials are never wasted and nature is not damaged. A circular economy is one where products and materials are kept in circulation thru maintenance, reuse, refurbishment, and remanufacture, recycling and composting. The circular economy addresses climate change and other global challenges, such as biodiversity loss, waste, and pollution, by decoupling economic activity from the consumption of finite resources. The concept of Environmental, Social and Governance (ESG) has developed beyond traditional corporate reporting. ESG offers a way to measure how organizations are managing their environmental impacts, social responsibilities and governance practices. While ESG has been primarily linked to corporations and investors, its principles are applicable to community-based organizations and social enterprises, too.

LITERATURE REVIEW AND THEORETICAL FOUNDATIONS

Solid Waste Management

Solid-waste management is the process of gathering, processing, and getting rid of solid trash that is thrown away because it has outlived its usefulness. When municipal solid waste is disposed of improperly, it can lead to unhygienic conditions, which can pollute the environment and cause epidemics of vector-borne diseases, which are diseases carried by insects and rodents. Solid waste management duties pose intricate technical hurdles. They also provide a wide range of social, economic, and administrative issues that need to be handled and resolved.

Solid Waste Management (SWM) refers to the systematic management of solid waste from its generation and segregation through collection, transportation, treatment, recovery, recycling and final disposal. The World Bank describes solid waste management as an essential urban service involving collection, transportation, treatment and disposal of waste **(**Kaza, S., Yao, L., Bhada-Tata, P., & Van Woerden, F. (2018)**).**

The waste hierarchy provides a preferred order for managing waste: prevention → reuse → recycling → other recovery → disposal. This approach gives priority to preventing waste generation and recovering materials before resorting to final disposal.

Social Enterprise

A form of entrepreneurship known as "social enterprises" combines' financial success with the goal of resolving environmental or social problems. According to the OECD, a social enterprise is an entity that trades goods and services to fulfil a societal objective, where the primary purpose is not profit maximization for owners, and profits are reinvested to continue achieving its social goals.

Social enterprises are organizations that combine entrepreneurial activities with a primary social or societal mission. Unlike conventional enterprises that primarily pursue profit maximization, social enterprises use market-based activities to generate revenue while directing their resources and surpluses towards achieving social or environmental objectives.

The OECD defines a social enterprise as an entity that trades goods and services to fulfil a societal objective, with profit not being the primary purpose and surpluses being reinvested to sustain its societal goals (OECD, 2022). Similarly, Defourny and Nyssens (2010) conceptualize social enterprises around economic, social and governance dimensions, highlighting the combination of entrepreneurial activity, social objectives and participatory governance.

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Environmental, Social and Governance

Environmental, social, and governance, or ESG, is a collection of criteria used to assess the social and environmental effect of a business. Although it also relates to consumers, suppliers, workers, and the broader public, it is usually employed in relation to investment.

ESG stands for Environmental, Social and Governance. It is a framework used to evaluate how an organization manages its environmental responsibilities, relationships with people and society, and systems of leadership, accountability and ethical decision-making. ESG factors are increasingly considered alongside financial factors when assessing an organization's risks, opportunities and long-term sustainability. (International Labour Organization. (2025). What is ESG and how is it related to the work of the ILO?)

Solid Waste Management in Kerala

Kerala follows a decentralized approach to solid waste management, with household-level composting through compost pits and biobins being promoted for biodegradable waste, alongside community facilities such as windrow composting, vermicomposting and biogas plants.

For non-biodegradable waste, Kerala promotes door-to-door collection through Haritha Karma Sena, a localized entrepreneurial network associated largely with the Kudumbashree system.

Haritha Karma Sena collects and segregates inorganic waste and facilitates its delivery to authorized agencies for further processing, while also supporting waste minimization, recycling and decentralized waste-management activities. **(**Local Self Government Department, Government of Kerala. Haritha Karma Sena.)

Haritha Karma Sena (HKS) is a community-based waste-management workforce in Kerala that functions as a micro-enterprise within the Kudumbashree network and works in collaboration with Local Self-Government Institutions (LSGIs). It was initiated in 2017 under the Nava Kerala Karma Paddhathi to strengthen decentralised waste management in the state.

The primary responsibility of Haritha Karma Sena is the door-to-door collection, segregation and delivery of non-biodegradable waste, particularly plastic and other recyclable materials, to authorized agencies for further processing. Local Self Government Department, Government of Kerala).

HKS as a Social Enterprise

Haritha Karma Sena can be examined as a social-enterprise model because it combines social objectives, environmental protection and income-generating activities. The Kerala Government describes HKS as a micro-enterprise within the Kudumbashree framework, while its activities simultaneously address waste-management problems and create livelihood opportunities. [Local Self Government Department, Government of Kerala. Harita Karma Sena – Solid Waste Management. Official Kerala LSGD – Haritha Karma Sena]

The model therefore creates social value through employment and community participation, environmental value through waste reduction and recycling, and economic value through the collection, recovery and sale of recyclable materials. [Local Self Government Department, Government of Kerala. Harita Karma Sena – Solid Waste Management. Official Kerala LSGD – Haritha Karma Sena]

HKS and Environmental Sustainability

Haritha Karma Sena contributes to environmental sustainability by diverting non-biodegradable materials from uncontrolled dumping and facilitating their movement towards recycling and scientific processing. The Kerala Government states that HKS plays a significant role in removing large quantities of inorganic waste from households and public spaces, thereby contributing to the protection of soil, water and air quality**.**

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HKS and Circular Economy

HKS is also closely connected with the circular economy, because its activities help move waste away from the linear model of **"**take–make–dispose**"** towards collection–recovery–recycling–reuse**.** The recovered materials can re-enter production systems instead of being immediately disposed of.

Thus, HKS can be conceptualized as a community-based circular-economy mechanism that converts waste from an environmental burden into a potential economic resource.

HKS and Environmental, Social and Governance

HKS has a strong connection with the three dimensions of Environmental, Social and Governance (ESG):

ESG dimension	**Contribution of Haritha Karma Sena**
Environmental (E)	Waste collection, segregation, recycling, resource recovery and waste minimization
Social (S)	Employment/livelihood opportunities, community participation and social recognition of waste workers
Governance (G)	Collaboration with LSGIs, digital monitoring through Haritha Mithram and formalized waste-management systems

The Kerala Government's Haritha Mithram digital platform supports monitoring of door-to-door collection and the movement of waste through MCFs and Resource Recovery Facilities, strengthening transparency and supervision in the waste-management system.

Circular economy

According to the Ellen MacArthur Foundation**,** a circular economy is based on three principles: eliminate waste and pollution, circulate products and materials, and regenerate nature**.**

Circular Economy and Solid Waste Management

Circular economy principles are closely connected with solid waste management**,** because waste materials can be treated as potential resources rather than simply being sent to landfills. Recycling, composting, reuse and resource recovery help retain materials within productive economic cycles.

The circular economy therefore changes the role of waste management from merely **"**disposing of waste" **to** "recovering value from waste.**"** This approach can reduce environmental pressure while creating opportunities for employment, innovation and new economic activities.

Circular Economy and Haritha Karma Sena

In Kerala, Haritha Karma Sena (HKS) can be connected with the circular economy because its activities involve the collection, segregation and channelization of non-biodegradable waste for recycling and resource recovery.Through these activities, materials such as plastic and other recyclable waste can be diverted from disposal and transferred to appropriate agencies for further processing, thereby supporting the circulation of materials.

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Therefore, HKS can be conceptualized as a community-level mechanism for implementing circular-economy principles**,** particularly through waste segregation, recycling, resource recovery and waste minimization.

Circular Economy and ESG

Circular economy practices also have a strong relationship with ESG. Resource efficiency, waste reduction and recycling contribute primarily to the Environmental (E) dimension, while employment generation and community participation can contribute to the Social (S) dimension. Effective institutional arrangements, monitoring and accountability for waste-management activities can further support the Governance (G) dimension of ESG.

Existing perspectives tend to examine material circularity, social mission, sustainability performance, stakeholder relationships and governance as related but relatively distinct dimensions. What remains insufficiently explained is the mechanism that connects these dimensions from the initial stage of community participation and source segregation through collection, recovery and recycling to value creation and broader sustainability outcomes. The specific theoretical gap addressed by this study is therefore the absence of an integrated process-oriented explanation of how waste-management activities generate, connect and translate environmental, social and economic value within a community-based institutional setting**.**

Objectives of the Study

1. To conceptualize Haritha Karma Sena (HKS) as a community-based social-enterprise model linking waste management with ESG and circular-economy outcomes.

2. To develop a Waste-to-Value conceptual framework explaining how HKS activities generate environmental, social and economic value.

Methodology of the Study

This study adopts a conceptual research design based on an integrative literature review and theoretical synthesis. The analysis is based on scholarly works and official Kerala government publications about the Triple Bottom Line, stakeholder theory, circular economy, social entrepreneurship, decentralized solid-waste management, Haritha Karma Sena, ESG, and sustainable development.

There are three phases to this study. First, secondary sources are used to identify the main traits and activities of HKS. Second, to find possible connections between the environment, society, economy, and governance, these traits are mapped against the chosen theoretical stances. Third, seven theoretically supported propositions are created using a Waste-to-Value conceptual framework that incorporates the found correlations.

No primary data or statistical hypothesis testing is done because the study is conceptual in nature. The suggested connections and framework are meant to offer a theoretical foundation for upcoming empirical validation in various Kerala local government contexts.

Waste to Value Framework

Haritha Karma Sena (HKS) is conceptualized in this study's garbage-to-Value framework as a means of converting garbage from an environmental burden into environmental, social, and economic value. In order to facilitate efficient HKS operations including collection, sorting, recovery, and recycling, the process starts with community involvement and source segregation. These initiatives create economic value through user fees, recyclable material value, and livelihood opportunities; social value through women's employment, empowerment, and community involvement; and environmental value through resource recovery and waste reduction. Figure 1 presents the proposed conceptual framework, while Table 1 summarizes the research propositions**.**

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Antecedents of Waste to Value Framework

Environmental Value Creation

The circular economy theory proposes to reduce waste, prolong product life cycles, and revitalize natural systems. According to Geissdoerfer et al. (2017), the circular economy is a regenerative system that reduces waste leakage and resource input by slowing, closing, and narrowing material and energy loops, including through recycling, remanufacturing, and reuse.Additionally Kirchherr, Reike, and Hekkert (2017) highlight the need for a more comprehensive systemic shift while identifying reduction, reuse, and recycling as recurrent components of circular-economy conceptualizations based on their analysis of 114 definitions.

While Haritha Karma Sena's (HKS) collection and structured segregation of sources links homes with downstream material-recovery systems, source segregation keeps recyclables recognizable and recoverable. Rather, the likelihood that rejected materials stay in productive material cycles can be increased by efficient HKS activities.

Proposition 1(P1) Effective Haritha Karma Sena collection and segregation activities are positively associated with environmental value creation through improved material recovery, recycling and reduction of unmanaged waste.

Women's Social Empowerment

HKS establishes an institutional framework that allows women to engage in ecologically focused service projects while creating chances for employment. Because women are seen as active participants and value creators, this is different from a traditional welfare strategy. Social Enterprise Theory, especially the EMES viewpoint created by Defourny and Nyssens (2010), is the main source of support for the concept of economic activity and social mission. The provision of goods or services is strongly linked to the pursuit of social goals in social businesses, which integrate economic activity with a social mission. Therefore, it is possible to understand women's involvement in waste-management services in the framework of HKS as economic engagement that concurrently creates social and environmental value. Elkington's (1997) Triple Bottom Line perspective, which highlights the integration of social, environmental, and economic aspects of organizational value, lends more credence to the idea.

Proposition 2(P2): Women's participation in Haritha Karma Sena is positively associated with social value creation through livelihood generation, economic participation, empowerment and community engagement.

Economic Value Creation

The user fees and the value of recyclable items have the potential to provide financial resources that support ongoing waste management efforts.

Recovery and recycling keep materials in productive loops instead of letting them end up as final trash, as per circular economy theory. According to Geissdoerfer et al. (2017), the circular economy is a regenerative system that aims to reduce waste and resource leakage by narrowing, delaying, and closing material and energy loops. As a result, recovered materials may assist social and environmental goals while also producing economic value. Proposition 3 (P3): Effective recovery and recycling of waste materials are positively associated with economic value creation through user-fee revenues, recyclable-material value and related livelihood opportunities.

Governance and Stakeholder Coordination

The interconnection between an organization and groups that can influence or are impacted by the accomplishment of organizational goals are highlighted by Freeman's (1984) stakeholder perspective. Waste-management outcomes are influenced by a variety of actors in the HKS ecosystem, including homes, HKS

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members, local self-government institutions, community organizations, recycling agencies, and others. Therefore, it is reasonable to assume that better coordination between these stakeholders will increase HKS operations' efficacy. The idea is also in line with the ESG viewpoint, which specifically includes governance in addition to social and environmental factors. Friede et al. (2015) evaluated a large body of ESG literature, which highlights the significance of incorporating environmental, social, and governance concerns into organizational analysis related to sustainability**.**

Proposition 4 (P4): Effective governance and stakeholder coordination positively moderate the relationship between HKS activities and environmental, social and economic sustainability outcomes.

Social Enterprise Value through ESG

Instead of considering social value as a secondary outcome of commercial action, Social Enterprise Theory proposes that economic activity might be structured around the achievement of social objectives (Defourny & Nyssens, 2010). This combination may be reflected in the HKS model since waste management initiatives can produce economic value, women's livelihood chances, and environmental advantages all at the same time. By highlighting the concurrent consideration of People, Planet, and Profit as aspects of organizational sustainability, the Triple Bottom Line perspective provides additional support for this interpretation (Elkington, 1997). Therefore, a conceptual foundation for understanding HKS as a possible community-based social-enterprise model is provided by the concurrent generation of environmental, social, and economic value.

Preposition 5(P5): The simultaneous creation of environmental, social and economic value enhances the potential of HKS to function as a community-based social-enterprise model.

- **ESG and Circular Economy Outcomes**

The foundation of this proposition is Sustainable Development Theory, which offers the broad normative framework for combining social welfare, economic growth, and environmental preservation. According to the Brundtland Report, sustainable development is defined as addressing current demands without sacrificing the capacity of future generations to address their own (WCED, 1987). This viewpoint is supported by the Circular Economy Theory, which emphasizes the maintenance of materials within production cycles as a means of reducing resource and waste leakage (Geissdoerfer et al., 2017). The integration of social, environmental, and economic aspects is further supported by the Triple Bottom Line (Elkington, 1997). Therefore, it is possible to conceptually connect the environmental, social, and economic value produced by HKS to more general circular economy and sustainable development results.

Proposition 6 (P6): Environmental, social and economic value generated through HKS activities contributes positively to circular-economy and sustainable-development outcomes.

- **Community Participation and HKS Effectiveness**

In the decentralized waste management system, households are important stakeholders. Stakeholders can influence or be impacted by the accomplishment of organizational goals, according to Freeman's (1984) paradigm. The quality of materials entering the collection and recovery system is directly impacted by household source-segregation practices in the context of HKS. Circular Economy Theory, which views recycling and resource recovery as parts of a larger systemic shift away from linear resource use, lends more credence to the idea (Kirchherr et al., 2017; Geissdoerfer et al., 2017). As a result, community involvement can be seen as a crucial prerequisite for the HKS waste-to-value process' efficacy.

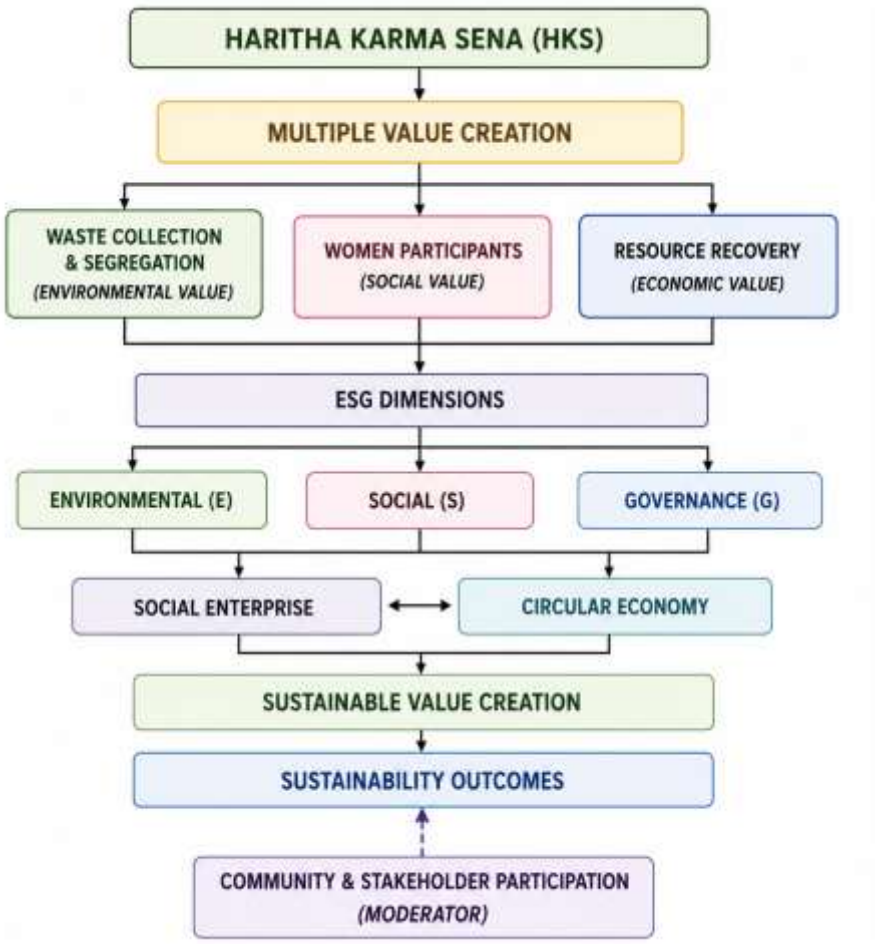
Proposition 7(P7): Community participation and source-segregation behaviour positively influence the effectiveness of the HKS waste-to-value process.

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Summary of The Framework

The Waste-to-Value framework explains how Haritha Karma Sena (HKS) converts waste management operations into environmental, social, and economic value. Effective HKS collection, recovery, and recycling are made possible by community involvement and source segregation, which helps the environment, women's livelihood and empowerment, and economic opportunities. With governance and stakeholder coordination serving as cross-cutting enablers, the integration of these principles frames HKS as a possible community-based social company that contributes to ESG, circular economy, and sustainable development goals.

FIGURE 1:



Sources: Developed by Authors

Table 1. Summary of Research Propositions

Proposition	Relationship	Expected Direction
P1	HKS collection & segregation → Environmental Value	**Positive (+)**
P2	Women's HKS participation → Social Value	**Positive (+)**
P3	Recovery & recycling → Economic Value	**Positive (+)**

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P4	Governance & stakeholder coordination → strengthens HKS → sustainability relationship	**Positive (+) Moderation**
P5	Environmental + Social + Economic Value → Social-enterprise potential	**Positive (+)**
P6	Integrated value → ESG → Circular Economy → Sustainable Development	**Positive (+)**
P7	Community participation & source segregation → HKS effectiveness	**Positive (+)**

Contributions of The Study

Theoretical Contribution:

This study contributes theoretically by developing an integrated conceptualization of Haritha Karma Sena as a grassroots social enterprise operating at the intersection of Social Enterprise, ESG and Circular Economy perspectives. Unlike conventional approaches that examine waste management primarily as an environmental or municipal service, the study conceptualizes HKS as a multiple-value-creation mechanism capable of generating social, environmental, economic and institutional value simultaneously. The study further extends ESG discourse beyond conventional corporate settings by introducing a grassroots perspective in which community-based women's participation, environmental resource recovery and local governance collectively contribute to ESG outcomes. It also advances Circular Economy theory by incorporating the social dimension of circularity, particularly women's livelihood creation, empowerment and community participation. Thus, the study provides a conceptual foundation for understanding how locally embedded social enterprises can function as agents of inclusive and sustainable circular-economy transition.

Practical Contribution:

Practically, the study provides implications for policymakers, local self-governments, HKS members, social enterprises and other stakeholders involved in sustainable waste management. It proposes the transformation of HKS from a predominantly waste-collection-oriented initiative towards a value-creating social enterprise through segregation, resource recovery, recycling, up cycling, value addition and market linkages. The study also highlights opportunities for enhancing women's economic empowerment through entrepreneurship, skill development, digital and financial literacy, and access to markets and finance. Further, the proposed ESG perspective can assist local governments in developing measurable environmental, social and governance indicators for assessing HKS performance. The framework can therefore support policies that integrate waste management, women's livelihood, circular economy, ESG objectives and local sustainable development within a single institutional framework.

Limitations of the Study

It is important to recognize the limits of the study. First, the findings may not be as applicable to other areas because the geographical scope is limited to Kerala. Second, replication in other settings is uncertain because the Haritha Karma Sena's institutional environment is strongly linked to Kerala's local self-government and community-based development system. Third, because these frameworks have distinct theoretical underpinnings, integrating Social Enterprise, ESG, and Circular Economy views presents conceptual and measurement issues. Fourth, different HKS units may have different quantitative data availability and consistency regarding trash recovery, money creation, environmental advantages, and social consequences. Fifth, response and recollection bias may be introduced if self-reported responses are used exclusively. Long-term effects and causal links cannot be definitively proven if the study uses a cross-sectional methodology. Lastly, the sustainability and applicability of the suggested HKS model may be impacted over time by changes

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in market conditions, regulation, price fluctuations for recyclable materials, and technology advancements. Future longitudinal, comparative, and multi-stakeholder research may benefit from these constraints.

Future Research Directions

By using longitudinal, comparative, and multi-stakeholder methodologies to investigate the long-term sustainability of Haritha Karma Sena as a social enterprise, future research might build on this work. Developing and validating an ESG framework tailored to HKS, evaluating the economic viability of value-added activities, measuring the environmental impact of waste recovery thru Life Cycle Assessment, and analyzing women's transition from waste-management employes to circular-economy entrepreneurs can all receive special attention. Future research can also look into customer attitudes regarding socially and recycled products, the function of digital technologies, household involvement in source segregation, and collaborations between the public, commercial, and community sectors. Comparative studies across Indian states and between rural and urban HKS units can further identify the institutional conditions necessary for scalability. Ultimately, future research could develop a Circular Social Enterprise Maturity Model that explains the transition of HKS from conventional waste collection to resource recovery, value creation and a fully integrated circular social enterprise.

CONCLUSION

Haritha Karma Sena (HKS) is presented in this conceptual paper as a possible community-based social enterprise model that might turn trash management operations into valuable social, economic, and environmental endeavors. The suggested Waste-to-Value framework illustrates how HKS collection, segregation, recovery, and recycling operations can contribute beyond traditional waste management by extending existing theoretical perspectives through a process-oriented Waste-to-Value pathway that explains how community participation, decentralized governance and waste-recovery activities interact to generate environmental, social and economic value and subsequently contribute to ESG, circular-economy and sustainable-development outcomes.

According to the framework, source segregation and community involvement facilitate efficient HKS operations, and stakeholder coordination and governance bolster the process as a whole. These initiatives create economic value thru user fees, recyclable material value, and associated livelihood opportunities; social value thru women's livelihood and empowerment; and environmental value thru resource recovery and recycling. The theoretical foundation for considering HKS as a possible social enterprise mechanism is provided by the integration of these three elements, which also links its operations with sustainable development, circular economy results, and ESG performance.

Therefore, the notion of a clear path from "Waste to Value"—from trash generation and community involvement to HKS activities, various forms of value creation, ESG and circular-economy outcomes, and eventually sustainable development—is the paper's main contribution. The study's seven hypotheses offer a basis for empirically investigating these connections in various Kerala local government contexts. Household surveys, HKS member studies, and Panchayat-level comparison analysis employing quantifiable environmental, social, economic, and governance indicators can all be used in future research to validate the framework. Therefore, HKS provides a promising framework for comprehending how decentralized waste management can concurrently promote circular economic development, women's empowerment, environmental sustainability, and the creation of livelihoods.

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