Journal of Government Science (GovSci), 2026, Vol. 7 (1): 111-122
ISSN: 2722-2853. Homepage: govsci.fisip-unmul.ac.id

Submitted : 24 April 2026
Published : 30 June 2026

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DOI:
https://doi.org/10.54144/govsci.v7i1.149

RESEARCH ARTICLE

Waste Management Model Analysis

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Abstract: The problem of waste is becoming an increasingly complex environmental issue due to increasing population, economic activity, and consumption patterns of society. This study aims to analyze the impact, scope, and models of waste management through a review of the scientific literature. The method used is Systematic Literature Review (SLR) with a bibliometric approach using scientific article data from the Scopus database, period 2015-2025. The process of identifying and selecting literature is carried out using the PRISMA protocol to ensure the research is conducted in a systematic, structured, and transparent manner. A total of 711 articles were declared eligible for analysis in this review. Data analysis was conducted using Biblioshiny in RStudio to map the relevance of research themes. The results showed that waste management has a significant impact on improving environmental quality, controlling soil, water, and air pollution, and protecting public health. The scope of waste management includes source reduction, sorting, collection, transportation, processing, and final disposal, as well as technological and policy aspects. Effective waste management models are integrated and aligned with the principles of sustainability and the circular economy, thereby supporting reduced waste generation and more efficient resource use.

Keywords:
Waste Management, Management Model, Sustainability, Environment, Systematic Literature Review, Bibliometric Analysis.

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1. Introduction

Waste has become one of the most serious environmental problems facing society today (Dewi & Kusnita, 2023). Along with increases in population, economic activity, and household consumption, the volume of waste continues to rise, demanding a waste management system that is more adaptive, efficient, and participatory (Dewi, 2025). Waste is a solid residue from human activities that is no longer used by humans (Wijayanti et al., 2023). According to Law No. 18 of 2008 on Waste Management, Article 1, Paragraph (1), waste is defined as solid residues from daily human activities and/or natural processes. Article 1, paragraph (5) of Law No. 18 of 2008 on Waste Management states that waste management is a systematic, comprehensive, and sustainable activity that includes waste reduction and handling (Bpk.go.id, accessed 2026). In line with this definition, it is important to understand that the types of waste generated by human activities can be categorized into three types: organic waste, such as food scraps, leaves, and twigs; inorganic waste, such as plastic, metal, and glass; and hazardous waste (B3), such as used batteries and expired medications (Ardianti et al., 2024). Waste reduction begins at the source through community efforts, while waste management involves sorting, collection, transportation, processing, and final disposal. Thus, waste management is not solely the government's responsibility but also requires the active involvement of the community, the primary stakeholders at the local level.

Population growth, changes in consumption patterns, and shifts in people's lifestyles have increased the volume, types, and diversity of waste (Masruroh, 2021). Waste is an inseparable part of human life; it is always present during daily activities and generated by various actions, making sustainable management essential for the environment (Elly et al., 2022; Irwan Siagian et al., 2022). The increase in waste volume is not always accompanied by increased public knowledge about the right Waste Management model. Many people still consider waste a minor problem, so handling is done without considering the long-term impact. The issue of waste management becomes increasingly complex when the public still holds many inappropriate habits and mindsets regarding waste disposal. For example, many people believe that burning waste is the easiest and quickest method (Midhan et al., 2024). However, this practice can actually lead to air and soil pollution, as well as health risks for the public, particularly vulnerable groups such as children, pregnant women, and the elderly. Additionally, the practice of burning waste can degrade soil quality and increase emissions of hazardous gases that negatively impact the environment.

Many people are still unaware of the impact of waste, so many do not care about waste management (Atin et al., 2022). People generally view waste as something useless that holds no economic value for them (Arifin & Adam, 2024). In reality, the practice of littering ultimately leads to pollution, which also has negative consequences for humans themselves (Ishak et al., 2022). This situation is exacerbated by the perception that waste management is solely the government's responsibility, not a shared one. This perspective reflects a low level of awareness regarding the importance of community participation in managing their living environment. Better waste management can begin with self-sorting by communities, although this effort takes a long time to be implemented consistently (Angin et al., 2024). Given that society is the largest producer of waste, behavioral change is a fundamental factor in determining the success of a management model. Addressing the problem of waste from the source will make this problem simpler, cheaper, and more controlled (Dwiyanto & Ramdani, 2024).

A waste management crisis is also occurring in a number of major cities, characterized by the mounting volume of waste entering Final Disposal Sites (FDS) and these sites reaching maximum capacity at an increasingly rapid pace. The old paradigm of waste management, which relies solely on an "end-of-pipe" approach—namely, collecting, transporting, and disposing of waste at Landfills—needs to be abandoned now (Puspita, 2023). For example, the Bantar Gebang Landfill is projected to reach its maximum capacity within the next few years if the management model remains unchanged. Although simple and easy to implement, this model has proven unsustainable because it leads to increasingly severe waste accumulation at the landfill, incurs high operational costs, and poses growing environmental risks due to the buildup of waste.

Therefore, an in-depth analysis of the waste management models currently implemented or previously implemented in various regions is necessary to evaluate their effectiveness, sustainability, and alignment with community needs. Modern waste management emphasizes the application of the 3R principles: reduce, reuse, and recycle (Antriyandarti et al., 2025). These principles highlight the importance of behavioral changes in consumption and waste management. However, 3R initiatives cannot function optimally without public awareness and comprehensive government policies. The importance of participation in waste management lies in the community's involvement in the activities carried out (Nainggolan et al., 2023). However, in reality, waste management still faces various challenges, such as low public awareness and limited supporting infrastructure, which often pose significant obstacles. The inability to manage waste properly can trigger classic problems such as flooding, unpleasant odors, water, soil, and air pollution, as well as health issues like diarrhea and respiratory infections among residents (Norina et al., 2025). These issues underscore that waste management requires synergy between the government, the community, the private sector, and relevant institutions.

Based on the various issues and situations described above, the researcher aims to analyze the impact of waste management on the environment, health, and socioeconomic conditions; examine the scope of waste management from source to disposal; and assess the characteristics and effectiveness of various waste management models based on a review of the scientific literature. This study aims to analyze the scope and models of waste management based on a literature review; identify the impacts of waste management on the environment, health, and socioeconomic aspects; and compare the effectiveness of each model. It is hoped that the findings of this study will serve as a reference for the government, the public, academics, and relevant institutions in developing more effective, inclusive, sustainable, and environmentally friendly waste management policies and practices.

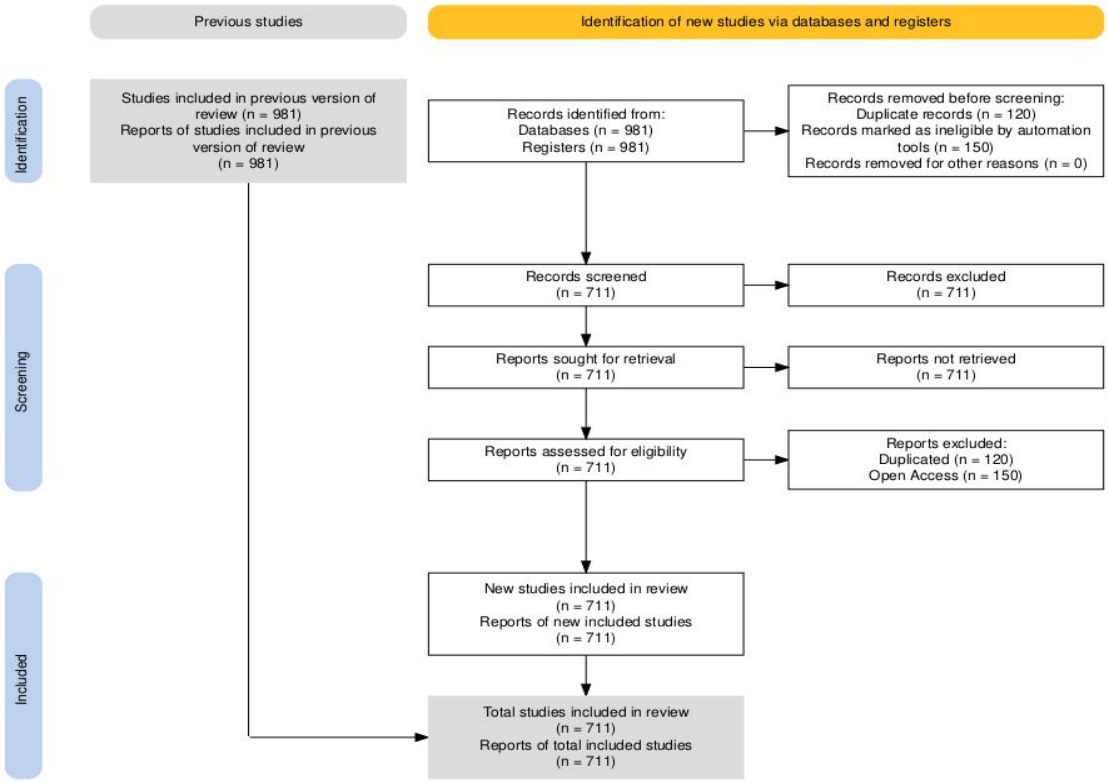
2. Methods

This study employs a systematic literature review (SLR) as the primary research method. Following the principles outlined by Yasmin et al. (2023), the SLR method involves collecting data from reputable scientific journals published between 2015 and 2025. Through this approach, researchers systematically identify, assess, and synthesize relevant studies (Nungki Anditiasari et al., 2021). The application of SLR in this study is specifically aimed at understanding various waste management strategies, enabling the researchers to obtain comprehensive and reliable knowledge on the topic. Data collection was conducted using secondary data from previous literature, specifically scientific articles relevant to the main focus of this study. Sources were retrieved from Scopus with the assistance of Mendeley reference manager (Mardiana & Hajron, 2024).

The data collection process takes place systematically with the determination of certain relevant keywords, with data selection criteria based on suitability for the following keywords; (TITLE-ABS-KEY (waste AND management) OR TITLE-ABS-KEY (waste AND disposal) OR TITLE-ABS-KEY (waste AND treatment) OR TITLE-ABS-KEY (waste AND recycling) AND TITLE-ABS-KEY (model) OR TITLE-ABS-KEY (framework) OR TITLE-ABS-KEY (system) OR TITLE-ABS-KEY (approach) AND TITLE-ABS-KEY (sustainability) OR TITLE-ABS-KEY (environment) OR TITLE-ABS-KEY (pollution AND control) OR TITLE-ABS-KEY (resource AND recovery) AND TITLE-ABS-KEY (efficiency) OR TITLE-ABS-KEY (optimization) OR TITLE-ABS-KEY (performance) OR TITLE-ABS-KEY (cost-effectiveness) AND TITLE-ABS-KEY (solid AND waste) OR TITLE-ABS-KEY (hazardous AND waste) OR TITLE-ABS-KEY (municipal AND waste) OR TITLE-ABS-KEY (industrial AND waste).

In this study, the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) protocol was used to determine the stages of literature identification and selection so that the literature review process takes place in a structured, systematic, and transparent manner (Page et al., 2021). The PRISMA framework guided the identification and selection stages of the literature, which also helped improve the methodological quality and minimize potential bias in the review process.

Figure 1 PRISMA Reporting Protocol



Source: Author's data analysis, 2026

Figure 1 presents the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow chart, illustrating the article selection and screening process in this Systematic Literature Review (SLR). The diagram shows how researchers identify, filter, select, and determine the articles ultimately included in the study. At the identification stage, the researchers obtained 981 articles from various databases and research registers. All documents are then checked to identify duplicate and irrelevant articles. In this process, 120 duplicate articles were removed. In addition, 150 articles were excluded because they did not meet the research criteria or were not relevant to the research objectives. After the identification stage is completed, the remaining 711 articles proceed to the screening stage. The screening stage involves reviewing the article's title, abstract, and keywords to determine its relevance to the research topic. Articles deemed relevant are then moved to the retrieval stage to obtain the full text of the document. Based on the diagram, all reports were successfully retrieved, indicating that none of the articles could not be accessed.

The eligibility stage was conducted by thoroughly reading the full text of each article to ensure compliance with the inclusion and exclusion criteria, a critical step for verifying that the selected articles were truly relevant, of high quality, and supportive of the research objectives. In the final phase, all 711 studies were declared eligible and included in the research review. This result shows that the literature selection process is structured to maintain the validity and quality of research sources. The data analysis in this study employed the Systematic Literature Review (SLR) method, using RStudio-based bibliometric analysis tools to explore the knowledge structure, research trends, and patterns of interconnections among scientific documents. The analysis process involved comparing reference journals from previous studies, then aligning the findings reported in each article with the study's conceptual framework, particularly regarding waste management models. After data collection, the retrieved literature was screened based on predefined inclusion and exclusion criteria. Subsequently, the selected data was analyzed using Biblioshiny, a feature within the R Studio software (Wardhana & Ratnasari, 2022). Biblioshiny is a web-based application that provides a user-friendly graphical interface for conducting bibliometric analysis using the R package

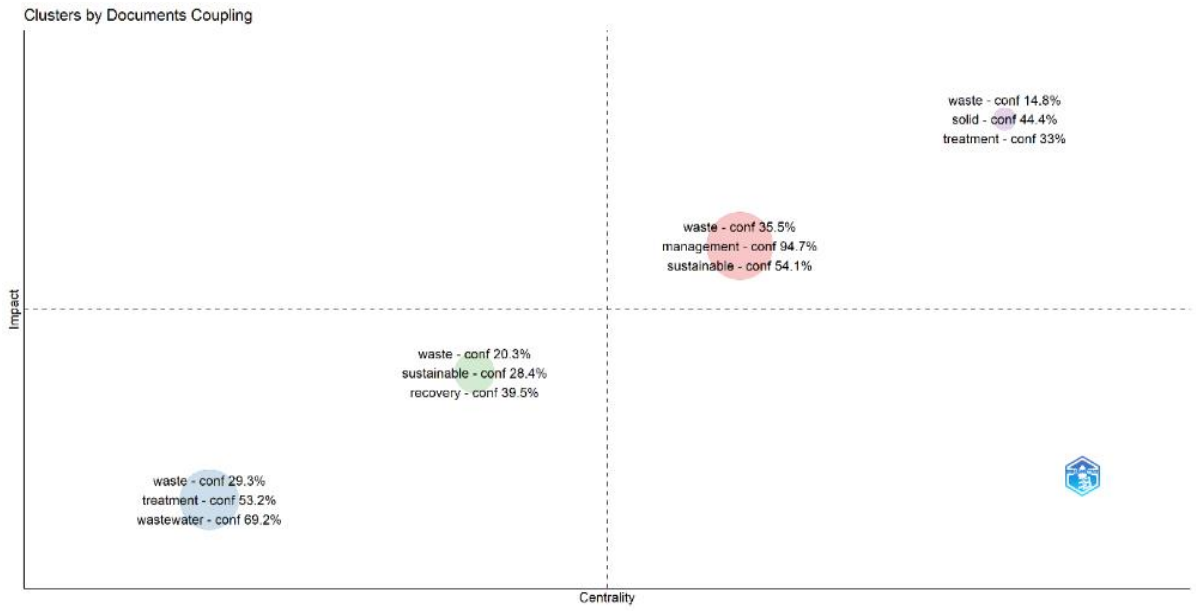
Bibliometrix efficiently and systematically (Mondal, 2025). The selected articles are publications from the past decade, specifically the 2015–2025 period, to ensure that the analysis results remain relevant to current conditions and developments.

3. Results and Discussion

The Impact of Waste Management

The results of the "Clusters by Documents Coupling" visualization in Figure 2 and Table 1 show a mapping of research themes related to waste management. This visualization maps keywords based on two indicators: Impact and Centrality. Impact describes the extent to which a cluster influences the development of science or waste management practices, while centrality indicates the role of the topic in connecting various studies or waste management models as a whole. This clustering indicates that waste management has a broad and diverse impact, depending on the approach and focus of its management.

Figure 2. Clusters by Documents Coupling



Source: RStudio, 2025

The presence of themes such as waste, solid, and treatment in the upper right quadrant, with high centrality and impact, indicates that solid waste management and waste treatment are significant and a primary focus in waste management studies. This impact is reflected in the growing attention to solid waste management as a strategic issue that directly affects environmental quality, public health, and urban governance. Effective solid waste management reduces waste volume at landfills, improves environmental cleanliness, and controls soil and air pollution, while also promoting the adoption of more environmentally friendly and sustainable waste treatment technologies. On the other hand, themes such as waste, management, and sustainability which have high centrality and moderate impact indicate that sustainability-based waste management is strongly interconnected with various other themes and makes a significant contribution to the discourse on waste management. The impact demonstrated is the development of waste management approaches that are not only oriented toward final disposal but also emphasize long-term sustainability. Waste management is increasingly understood as an integral part of sustainable development strategies that encompass resource efficiency, reduced environmental impacts, and efforts to maintain a balance between human needs and ecosystem conservation.

Meanwhile, themes such as wastewater, treatment, and waste, located in the lower-left quadrant with

relatively low centrality and impact, represent the more specific, technical aspects of wastewater management. The impacts shown indicate that wastewater management plays a crucial role in preventing water pollution and protecting public health; however, its connection to the broader theme of solid waste management remains limited. This suggests that the impacts of wastewater management tend to be concentrated in specific sectors, such as industry and sanitation, rather than the systemic impacts of solid waste management.

Table 1. Clusters by Documents Coupling

Label	Group	Frequency	Centrality	Impact	Color
waste - conf 35.5%, management - conf 94.7%, sustainable - conf 54.1%	1	86	0,425	2,597	Red
waste - conf 29.3% treatment - conf 53.2% wastewater - conf 69.2%	2	75	0,362	2,179	Blue
waste - conf 20.3% sustainable - conf 28.4% recovery - conf 39.5%	3	52	0,366	2,533	Green
waste - conf 14.8%, solid - conf 44.4%, treatment - conf 33%	4	37	0,466	2,718	Purple

Source: Rstudio, 2025

In addition, themes such as recovery and sustainability in the middle impact position show the impact of waste management in the form of resource recovery. This impact is reflected in efforts to reuse waste through recycling, composting, and waste-to-energy processes, which contribute to reducing the exploitation of natural resources, reducing the generation of waste that ends up in landfills, as well as improving the efficiency of the overall waste management system and supporting the application of circular economy principles. The findings showed that the themes on the treatment of sewage and wastewater (Cluster 2) and on some solid waste treatment (Cluster 4) focus on Waste Management. This condition is seen as a trend in waste management, which initially made waste disposal seem as a residue that must be disposed of Ghisellini et al. (2016) developed into a circular economy. From the perspective of ecological modernization Arthur PJ Mol & Gert Spaargaren (2000), environmental problems are considered to be overcome through technological innovation, production efficiency, and institutional modernization. However, with population growth leading to increased waste volumes, technological solutions have failed to address changes in social behavior and consumption patterns. So it takes a waste management model that considers aspects of sustainability and resource recovery.

Table 2. Comparison of theories and theoretical focus in waste management

Author	Theory	Primary Focus	Advantages	Limitations
Arthur PJ Mol &Gert Spaargaren (2000)	Ecological Modernization	Technology	Environmental efficiency	Ignoring social factors
Brundtland, G. H (1987)	Sustainable Development	Social and environmental economic balance	Comprehensive	Diffficult to measure
Kirchherr, J. Rieke, D. Hekker, M (2017)	Circular economy	Resource utilization	Economic value of waste	Less attention to governance
McDougall, F., White P., Franke, M., & Hindle, P. (2001)	Integrated Solid Waste Management (ISWM)	Waste management system integration	Operational and practical	Less explains the collaboration of actors
Ansell, C,. & Gash, A, (2008)	Collaborative Governance	Multi-party collaboration	Explain policy implementation	Less emphasis on technological innovation

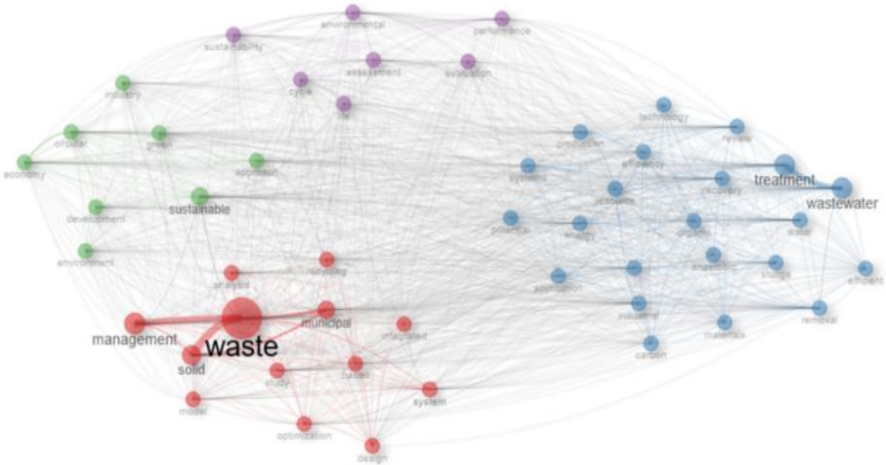
Source: Author's data analysis, 2026

The concept of Sustainability has become the dominant paradigm in waste management research (Brundtland, 1987). That development must meet the needs of the present without reducing the ability of future generations to meet their needs. In the context of waste management, success is no longer measured solely by reduced waste volume but also by its contributions to environmental protection, social welfare, and economic growth. Economic growth can be an aspect of waste management, serving as the next paradigm for achieving social welfare. The circular economy theory views that waste management can be converted to energy, industrial raw materials, new products, and organic fertilizers that have economic value (Kirchherr, 2017). As shown in Table 1, cluster resource efficiency is the core of the circular economy. Critical analysis in waste management research there are differences between theories that explain the development of waste management. As shown in Table 2, the theory of circular economy has implications that it can improve social welfare, but it has weaknesses in waste management governance, so that collaboration with the theory of integrated solid waste management is necessary.

Scope of Waste Management

In Figure 3, the co-occurrence Network visualization results show that the scope of waste management covers all stages from upstream to downstream, from source reduction efforts to final processing, with the main goal of minimizing negative impacts on the environment and public health, while maximizing the economic potential of waste. Topics such as waste, management, solid, and municipal underscore that waste management begins with basic activities at the source level, namely waste reduction, sorting, collection, and transportation. At this stage, the scope of waste management is closely linked to the logistics system, which includes the provision of a transportation fleet, the determination of efficient transport routes, and the capacity and distribution of processing facilities. Operational efficiency is a primary focus because delays or irregularities in waste transport can lead to accumulation, environmental pollution, and social and public health disruptions.

Figure 3 Co-occurrence Network



Source: Rstudio, 2025

Furthermore, topics such as treatment, wastewater, sludge, and removal indicate that the scope of waste management also encompasses aspects of treatment technology. Organic waste processed through a digester including animal manure can produce biogas energy (Nurmalasari et al., 2023), while inorganic waste such as plastic, paper, and metal is recycled into industrial raw materials. Additionally, the application of advanced technologies such as incineration, pyrolysis, and Refuse-Derived Fuel (RDF) expands the scope of waste management by converting waste into alternative energy sources. Liquid waste management is an integral part of this, particularly in urban and industrial areas, to prevent water pollution and safeguard

environmental health. Themes such as sustainability, the environment, and development underscore that waste management is not merely a technical issue but also an integral part of the sustainable development agenda. This scope includes efforts to prevent soil, water, and air pollution through the implementation of sanitary landfills, leachate control, and methane gas management. Waste management is positioned as a key instrument in achieving the Sustainable Development Goals (SDGs), particularly in the areas of health, clean energy, and sustainable urban development.

Table 3. Aspects of Waste Management

Aspects	**Community benefits**
Regulation & Financing Technology	Clear legal framework and financial support Efficient Efficient processing into compost and recycled materials
Community participation Circular Business	Direct empowerment and additional revenue Economic value of waste and management products
Continuing Education	Collective awareness and processing skills

Source: Author's data analysis, 2026

In addition, themes such as system, integrated, approach show that waste management includes policy, institutional, and community participation dimensions. Regulations such as Law No. 18 of 2008 in Indonesia are the legal basis for waste management. Governments play a role in infrastructure provision, environmental standards setting, and institutional strengthening, while public-private partnerships, economic incentives, and innovative financing encourage multi-stakeholder engagement. Community participation is a key factor, especially in sorting and reducing waste at the source. Aspects of community participation have an important role in waste management so as to achieve a good circular economy (Saez et al., 2026). Therefore, additional support is needed in waste management. As shown in Table 3, important aspects of waste management such as shown in Table 3, these aspects are used to improve waste management. This enables the implementation of the circular economy and integrated solid waste management concepts. The aspects listed in Table 3 serve as moderating variables that facilitate the integration of these two concepts.

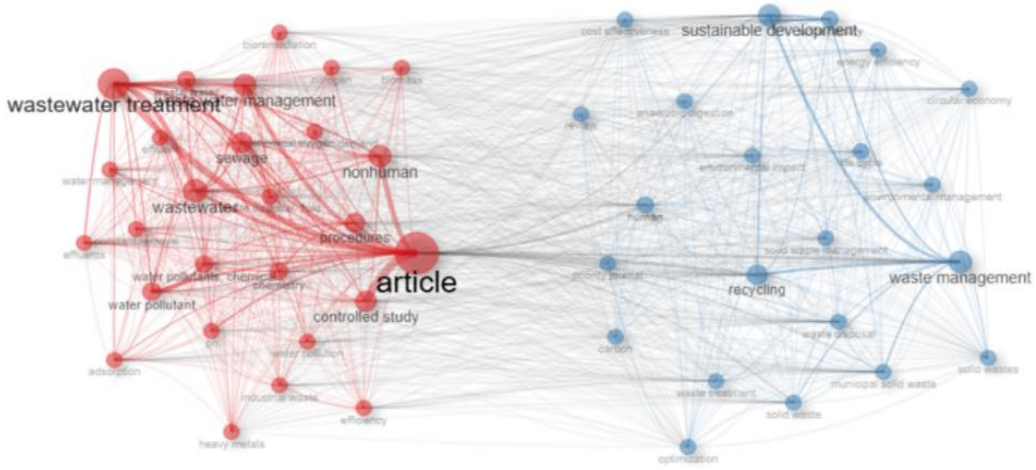
Waste Management Model

The Co-occurrence Network visualization in Figure 4 illustrates the interconnections among the waste management and wastewater treatment themes, forming an integrated system. The "article" node serves as a connector between the themes of liquid waste treatment, solid waste management, recycling, energy efficiency, and sustainability. This network structure reflects that the waste management model is multidimensional, integrating technical, scientific, and environmental sustainability approaches to address waste management challenges in an adaptive and comprehensive manner. Themes such as wastewater, wastewater treatment, and sewage indicate that waste management is not limited to solid waste but also encompasses the control of liquid waste. This model emphasizes the importance of treating waste before it is discharged into the environment, whether through physical, chemical, or biological processes. The primary objective of this process is to reduce pollutant loads to prevent water quality degradation. The connection to themes such as water pollutants, chemicals, and heavy metals underscores that liquid waste management focuses on controlling hazardous substances that have the potential to pollute aquatic ecosystems and endanger human health and other living organisms.

Furthermore, themes such as procedures, controlled studies, and efficiency underscore that waste management is based on a systematic scientific approach. This model positions research, method testing, and performance evaluation as the cornerstones of waste management. Every processing technology and procedure is evaluated through controlled studies to ensure effectiveness, efficiency, and environmental impact. Thus, waste management is not conducted solely through conventional methods but is data-driven

and grounded in scientific evidence. Furthermore, themes such as waste management, solid waste, and municipal solid waste demonstrate that waste management also encompasses solid waste management systems, particularly in urban areas. Management is carried out comprehensively, ranging from source reduction, sorting, collection, and transportation to processing and final disposal. This model emphasizes the importance of planning, governance, and institutional frameworks to ensure the sustainability of waste management systems at the city level.

Figure 4 Co-occurrence Network



Source: Rstudio, 2025

Furthermore, themes such as recycling, recovery, and resources indicate a paradigm shift in waste management, from mere disposal toward reuse. Waste is no longer viewed as worthless residue, but as a resource that can be processed into new raw materials or energy. This approach unlocks economic value while reducing dependence on primary natural resources. This is reinforced by the themes of energy and carbon, which reflect efforts in waste management to improve energy efficiency and reduce carbon emissions as part of climate change mitigation.

Table 4. Sustainable Waste Management Models

Theory	Aspect	Explanation
Circular Economy	Circular Business	Obtain economic value as an improvement in community welfare.
	Regulation & Financing	Optimization of regulations is necessary for waste management in each region. Then, given financing for the implementation of waste management as operating capital.
	Technology	Implementation of technology for waste treatment in a sustainable and environmentally friendly.
Integrated Solid Waste Management	Continuing education	Providing information on how to treat waste that is good for the community by promoting waste management integration system with the community.
	Community participation	Increasing community involvement in waste treatment by prioritizing economic value and Environmental Protection.

Source: Author's data analysis, 2026

Furthermore, themes such as environmental management, environmental impact, and sustainability reflect the long-term goals of waste management, which prioritize environmental protection and ecosystem sustainability. Every waste management activity is evaluated for its impact on environmental quality, making ecological considerations a primary consideration in the planning, implementation, and decision-making for sustainable waste management policies. In addition, themes such as sustainable development and the circular

economy indicate that waste management is geared toward supporting sustainable development by integrating waste into the production and consumption cycle. Meanwhile, the article's central theme is that this model was developed through scientific research as the foundation for innovation, policy, and sustainable waste management practices. A waste management model can incorporate various dimensions into its governance, such as scientific approaches, resource recovery, energy efficiency, and environmental protection and sustainable development goals. So based on the analysis that has been done using the systematic literature review the best model in waste management using the circular economy paradigm Kirchherr et al. (2017) and integrated solid waste management (Forbes R. McDougall et al., 2001). By considering regulatory and financing aspects, technology, community participation, circular business models, and sustainable education, this constitutes a sound waste management model that positively impacts community well-being and enhances environmental protection (Kiatkajornphan et al., 2026).

4. Conclusion

This study aims to address research questions regarding the impacts, scope, and models of waste management based on research theme mapping through the visualization of Clusters by Documents Coupling and Co-occurrence Networks. The results of the analysis indicate that waste management is a complex, multidimensional, and integrated system with far-reaching impacts on the environment, public health, resource efficiency, urban governance, and sustainable development. Key themes such as waste, solid, and treatment have high levels of centrality and impact, indicating that solid waste management and treatment processes are the dominant focus in scientific studies and waste management practices.

Findings from the analyzed data indicate a paradigm shift from a disposal-oriented approach toward the reuse of waste through recycling, utilizing the concepts of the circular economy and Integrated Solid Waste Management, as well as waste recovery and conversion into energy, all of which support the circular economy concept. The sustainability theme (sustainable, environment, development) has broad connections with various other clusters, affirming that waste management is positioned as an integral part of sustainable development strategies. Meanwhile, liquid waste management (wastewater, sludge, treatment) demonstrates more specific and technical impacts, particularly in the protection of water quality and environmental health.

The study has a number of limitations that need to be openly recognized. First, the analysis relies entirely on bibliometric data from a single database (Scopus) without performing a qualitative in-depth reading of the full text. As a result, these findings are more of a mapping of knowledge structures than a substantive evaluation of the implementation of waste management models in the field. Second, this study does not perform empirical validation through case studies, interviews, or field observations, so that the effectiveness of the identified models cannot be ascertained under real conditions. Third, social, cultural, and political aspects that greatly affect the success or failure of community-based waste management, such as local leadership, social capital, or conflicts of interest are not mapped by bibliometric approaches.

Based on these limitations, further research is recommended to: (1) Combine bibliometric analysis with multi-site empirical case studies to test the validity of the model found; (2) expand the scope of the database to include national and gray literature such as regional policy reports; (3) strengthen community participation studies, institutional dynamics, and public policy analysis using qualitative approaches such as institutional analysis and development (IAD); and (4) developing a circular economy-based waste management model specific to the Indonesian context, including innovative financing schemes and extended producer responsibility (EPR) mechanisms.

References

Angin, S. P., Manik, E. K., Manulu, S. H., Nasution, S. B., & Tanjung, N. (2024). Pengabdian masyarakat dalam pengelolaan sampah berbasis 3R (reduce, reuse, recycle) di Desa Kutai Bangun Dusun III

Kecamatan Tiga Binanga Kabupaten Karo 2024. *BESIRU: Jurnal Pengabdian Masyarakat*, *1*(10), 791–798. https://doi.org/10.62335/2wh4d956

Ansell, C., & Gash, A. (2008). Collaborative governance in theory and practice. *Journal of Public Administration Research and Theory*, *18*(4), 543–571. https://doi.org/10.1093/jopart/mum032

Antriyandarti, E., Ilham, H. M., Savitri, N., Maharani, H., Mahmudah, K. I., Putra, I. E. A., Triyusopin, H. D., Al Fajri, H., Dwijayanti, J. G., Fauzi, M. A., & Rusamsi, L. P. (2025). Penguatan peran komunitas dalam pengelolaan sampah berkelanjutan melalui edukasi dan inovasi kreatif di Desa Senden. *PengabdianMu: Jurnal Ilmiah Pengabdian Kepada Masyarakat*, *10*(Suppl-1), 273–278. https://doi.org/10.33084/pengabdianmu.v10isuppl-1.8690

Ardianti, Y. R., Amizera, S., & Susanti, R. (2024). Partisipasi peserta didik pada program Adiwiyata melalui kegiatan pengelolaan sampah di sekolah. *Bioscientist: Jurnal Ilmiah Biologi*, *12*(1), 712–721. https://doi.org/10.33394/bioscientist.v12i1.10605

Arifin Basyah, E. F., & Al Fajar, A. H. (2024). Pelatihan pengelolaan sampah melalui program bank sampah pada masyarakat Kelurahan Cikini. *Educivilia: Jurnal Pengabdian Pada Masyarakat*, *5*(1), 50–69. https://doi.org/10.30997/ejpm.v5i1.11683

Mol, A. P. J., & Spaargaren, G. (2000). Ecological modernisation theory in debate: A review. *Environmental Politics*, *9*(1), 17–49. https://doi.org/10.1080/09644010008414511

Atin, S., Mutia, S., Widayanti, A., Yatawa, H. S., Rafdhi, A. A., & Afrianto, I. (2022). Perancangan sistem informasi bank sampah berbasis website. *IJIS – Indonesian Journal on Information System*, *7*(1), 59–70. https://doi.org/10.36549/ijis.v7i1.194

Brundtland, G. H. (1987). Our common future: Call for action. *Environmental Conservation*, *14*(4), 291–294. https://doi.org/10.1017/S0376892900016805

Dewi, L. W. Y., & Kusnita, K. L. (2023). Edukasi pemilahan sampah sejak dini di SDN 1 Wongaya Gede. *Jurnal Mandala Pengabdian Masyarakat*, *4*(1), 166–170. https://doi.org/10.35311/jmpm.v4i1.189

Dewi, Y. S. (2025). Analisis arah kebijakan baru dalam pengelolaan sampah di Kota Pekanbaru menuju swakelola berbasis komunitas. *PUBLIKAUMA: Jurnal Ilmu Administrasi Publik UMA*, *13*(1), 76–87. https://doi.org/10.31289/publika.v13i1.15117

Dwiyanto, P. B., & Ramdani, E. (2024). Analisis strategi pengelolaan sampah berbasis masyarakat di Desa Labuhan Sumbawa. *Jurnal Ekonomi dan Bisnis*, *12*(3), 321–331. https://doi.org/10.58406/jeb.v12i3.1756

Elly Kristiani Purwendah,Rusito, A. P. (2022). Kewajiban Masyarakat dalam Pemeliharaan Kelestarian Lingkungan Hidup Melalui Pengelolaan Sampah Berbasis Masyarakat. *Jurnal Locus Delicti*, *3*(2723–7427), 121–134. https://doi.org/10.23887/jld.v3i2.1609

Ghisellini, P., Cialani, C., & Ulgiati, S. (2016). A review on circular economy: The expected transition to a balanced interplay of environmental and economic systems. *Journal of Cleaner Production*, *114*, 11–32. https://doi.org/10.1016/j.jclepro.2015.09.007

Ishak, M., Tutuarima, F., & Gaite, T. (2022). Upaya pemerintah desa untuk meningkatkan kesadaran masyarakat dalam membuang sampah di Kali Batumerah. *Ideas: Jurnal Pendidikan, Sosial, dan Budaya*, *8*(2), 531–538. https://jurnal.ideaspublishing.co.id/index.php/ideas/article/view/748

Kiatkajornphan, N., Yucharoen, M., & Kittitornkool, J. (2026). Challenges in promoting coral reef management through community involvement: A case study of Kham Island in the Gulf of Thailand. *Social Sciences & Humanities Open*, *13*, Artikel 102663. https://doi.org/10.1016/j.ssaho.2026.102663

Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling*, *127*, 221–232. https://doi.org/10.1016/j.resconrec.2017.09.005

Mardiana, T., & Hajron, K. H. (2024). Efektivitas teknologi pendidikan dalam pembelajaran matematika: A systematic literature review. *Jurnal Ilmiah Edutic: Pendidikan dan Informatika*, *10*(2), 102–116. https://doi.org/10.21107/edutic.v10i2.22242

Masruroh. (2021). Bank sampah solusi mengurangi sampah rumah tangga. *Jurnal Kajian Islam dan*

Pengembangan Masyarakat, *6*(2), 48–69. https://doi.org/10.24014/jmm.v6i2.14779

McDougall, F. R., White, P. R., Franke, M., & Hindle, P. (2001). Integrated solid waste management: A life cycle inventory (2nd ed.). *Blackwell Science*.

Midhan, F. A., Adesti, D. T., Amalina, H., Khaira, N. U., & Laily, N. (2024). SAMTAMA (sampah tanggung jawab bersama) di RT 06 Desa Bunglai Kecamatan Aranio Kabupaten Banjar. *Inovasi Jurnal Pengabdian Masyarakat*, *2*(2), 193–200. https://doi.org/10.54082/ijpm.422

Mondal, H. (2025). A technical note on bibliometric analysis by Biblioshiny and VOSviewer. *Indian Journal of Radiology and Imaging*, *36*(2), 167–174. https://doi.org/10.1055/s-0045-1810060

Nainggolan, E. L., Lodan, K. T., & Salsabila, L. (2023). Menuju keberlanjutan lingkungan: Keterlibatan masyarakat dalam pengelolaan sampah Kota Batam. *PUBLIKA: Jurnal Ilmu Administrasi Publik*, *9*(2), 179–188. https://doi.org/10.25299/jiap.2023.13584

Norina, R., Fauziah, A., & Islam, S. N. (2025). Penyuluhan cara mengelola limbah sampah rumah tangga kepada masyarakat Kelurahan Kebon Kangkung Kota Bandung. *Jurnal Abdimas Kartika Wijayakusuma*, *6*(2), 875–880. https://doi.org/10.26874/jakw.v6i2.615

Nungki Anditiasari, Emi Pujiastuti, & Seno, B. E. (2021). Systematic literature review: Pengaruh motivasi terhadap kemampuan berpikir kreatif matematis siswa. *Aksioma: Jurnal Matematika dan Pendidikan Matematika*, *12*(2), 236–248. https://doi.org/10.26877/aks.v12i2.8884

Nurmalasari, R., Sutadji, E., Aji, N., & Viona, G. (2023). Teknologi komposter dan digester untuk optimasi pengolahan sampah organik bagi warga Desa Tempursari Kecamatan Donomulyo Kabupaten Malang. *IRA Jurnal Pengabdian Kepada Masyarakat (IRAJPKM)*, *1*(3), 8–13. https://doi.org/10.56862/irajpkm.v1i3.78

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., … Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, *372*, n71. https://doi.org/10.1136/bmj.n71

Puspita, M. (2023). Strategi keberhasilan pengelolaan sampah Kota Bandung melalui bank sampah. *Jurnal Digital Bisnis, Modal Manusia, Marketing, Entrepreneurship, Finance, & Strategi Bisnis (Dimmensi)*, *3*(2), 85–90. https://doi.org/10.32897/dimmensi.v3i2.2772

Saez, J. L. F. P., Rasskin-Gutman, I., Bermudez, N. M., & Pérez-del-Campo, A. (2026). Living knowledge labs: Creating community and inclusive nature-based solutions. *Buildings & Cities*, *7*(1), 58–74. https://doi.org/10.5334/bc.647

Undang-Undang Nomor 18 Tahun 2008 tentang Pengelolaan Sampah. (2008). *Badan Pemeriksa Keuangan Republik Indonesia*. https://peraturan.bpk.go.id/Details/39067/uu-no-18-tahun-2008

Wardhana, A. K., & Ratnasari, R. T. (2022). Analisis sitasi publikasi tentang repositori bidang studi perpustakaan pada Web of Science selama pandemi. *Daluang: Journal of Library and Information Science*, *2*(1), 53–61. https://doi.org/10.21580/daluang.v2i1.2022.10987

Wijayanti, A. N., Dhokhikah, Y., & Rohman, A. (2023). Analisis partisipasi masyarakat terhadap pengelolaan sampah di Kecamatan Sumbersari, Kabupaten Jember, Provinsi Jawa Timur. *Jurnal Pengelolaan Lingkungan Berkelanjutan (Journal of Environmental Sustainability Management)*, *7*(1), 28–45. https://doi.org/10.36813/jplb.7.1.28-45

Yasmin, A. F., Sudikan, S. Y., & Hendratno, H. (2023). Model guide discovery learning terhadap kemampuan komunikasi matematis. *Ideguru: Jurnal Karya Ilmiah Guru*, *9*(1), 249–255. https://doi.org/10.51169/ideguru.v9i1.806