



Sharia-Based Waste Circularomics as A Model for Economic Development in Indonesia

Husain Insawan¹, Laode Anhusadar¹, Alwahidin¹, Azzahrah Insawan Putri¹

¹Institut Agama Islam Negeri Kendari, Indonesia

Email: husainsawan@iainkendari.ac.id

Abstract

This study investigates the implementation of a syariah-based circular economy model in waste management within Kendari and Bau-bau, Indonesia. The research addresses the gap in existing literature by exploring the application of syariah principles in creating a sustainable waste management system. The research employs a qualitative approach, utilizing observations, in-depth interviews with stakeholders, and focused group discussions to gather comprehensive data. The findings reveal significant achievements in integrating syariah principles, such as *al-amanah* (responsibility), *al-iqtishadiyah* (efficiency), and *al-'adalah* (justice), into the waste management systems. Technological innovations, such as biogas conversion at TPA Puwatu, have shown success in addressing waste issues and providing economic benefits. Additionally, educational and community empowerment programs have effectively increased public participation in sustainable waste management practices. The study concludes that the syariah-based circular economy model is effective in creating a sustainable and ethical waste management system, with potential for broader application in other regions. The research highlights the importance of integrating religious principles with modern environmental practices to achieve holistic sustainability.

Keywords: Syariah-Based, Circular Economy, Waste Management, Sustainability, Community Empowerment

Abstrak

Studi ini meneliti implementasi model ekonomi sirkular berbasis syariah dalam pengelolaan sampah di Kendari dan Bau-bau, Indonesia. Penelitian ini menjawab kesenjangan dalam literatur yang ada dengan mengeksplorasi penerapan prinsip-prinsip syariah dalam menciptakan sistem pengelolaan sampah berkelanjutan. Penelitian ini menggunakan pendekatan kualitatif, memanfaatkan observasi, wawancara mendalam dengan pemangku kepentingan, dan diskusi kelompok terfokus untuk mengumpulkan data yang komprehensif. Temuan menunjukkan pencapaian signifikan dalam mengintegrasikan prinsip-prinsip syariah, seperti al-amanah (tanggung jawab), al-iqtishadiyah (efisiensi), dan al-'adalah (keadilan), ke dalam sistem pengelolaan sampah. Inovasi teknologi, seperti konversi biogas di TPA Puwatu, telah menunjukkan keberhasilan dalam mengatasi masalah sampah dan memberikan manfaat ekonomi. Selain itu, program pendidikan dan pemberdayaan masyarakat telah secara efektif meningkatkan partisipasi publik dalam praktik pengelolaan sampah berkelanjutan. Studi ini menyimpulkan bahwa model ekonomi sirkular berbasis syariah efektif dalam menciptakan sistem pengelolaan sampah yang berkelanjutan dan etis, dengan potensi penerapan yang lebih luas di wilayah lain. Penelitian ini menyoroti pentingnya mengintegrasikan prinsip-prinsip agama dengan praktik lingkungan modern untuk mencapai keberlanjutan holistik.

Kata Kunci: *Berbasis Syariah, Ekonomi Sirkuler, Pengelolaan Sampah, Keberlanjutan, Pemberdayaan Masyarakat*

Introduction

Indonesia ranks 5th in the world as the largest producer of plastic waste, although there has been a decline from the world's 2nd ranking in 2018. The amount of waste in Indonesia has reached 31.9 million tons, so that more than 35% (11.3 million tons) of it cannot be managed. This makes waste management a very important topic to continue to be socialized to the public as a form of effort to reduce the amount of waste in Indonesia and part of Indonesia's commitment to the Sustainable Development Goals (SDGs) and the implementation of the Circular Economy. The SDGs are a joint commitment of 193 countries in the world that are members of the United Nations (UN). Therefore, the issue of waste in Indonesia is an issue that is directly related to the concept of sustainable development because it is related to the four main dimensions. However, currently the habit of sorting waste in Indonesia is still very minimal, resulting in waste accumulation and difficulties in waste management.¹

¹Solichah Ratnasari, et.al., "Enhancing Sustainability Development for Waste Management through National-Local Policy Dynamics, *Sustainability* 15, No. 8 (2023). Ratna Mira Yojana, et.al., "Pengelolaan Sampah untuk Mendukung Sustainable Development Goals (SDG's) dan Sirkular Economy di Desa Kademangan," *Abdimas Universal* 7, No. 2 (2025).

Circular economy is a national economic agenda that aims to promote low-carbon development and massive implementation of green economy system.² In Indonesia, the concept is included in the National Medium-Term Development Plan (RPJMN) 2020-2024 and is part of the National Priority Agenda (Ministry of National Development Planning/Bappenas, 2020). Specifically, the circular economy falls under the umbrella of Low Carbon Development (LCD) which emphasizes five priority sectors, namely waste management, sustainable energy development, and green industry development.³

However, the implementation of circular economy faces a big challenge from the still dominant linear economic model. The linear economic model with its “take-use-dispose” principle is unsustainable compared to the “take-use-dispose” principle of the circular economy.⁴ Implementing a circular economy can reduce financing and resource use and has the potential to improve the economic and social welfare of communities, including maintaining ecological balance.⁵ Research shows that the circular economy could generate an additional IDR 593-638 trillion in Gross Domestic Product (GDP) by 2030 and create 4.4 million green jobs⁶. Research by Premyanov also emphasized the importance of circular economy in improving urban sustainability through the development of appropriate technology and infrastructure.⁷

In Southeast Sulawesi, limited infrastructure and low public literacy on waste are the main obstacles in the implementation of circular economy⁸. In this context, this study will evaluate the implementation of circular economy in landfills in Kendari City and Bau-bau City using a transdisciplinary approach, involving sociology, physics, and Islamic economics. This study will also assess whether the existing landfills and

²Kaisheng Di et al., “Regional Unevenness And Synergy of Carbon Emission Reduction In China’s Green Low-Carbon Circular Economy,” *Journal of Cleaner Production* 420 (2023), p. 138436. Anindita Prabawati, et.al., “Strengthening Stakeholder Partnership in Plastics Waste Management Based on Circular Economy Paradigm,” *Sustainability* 15, No. 5 (2023).

³ Bappenas, *The Future is Circular: Concrete Steps for Circular Economic Initiatives in Indonesia* (United Nations Development Programme (UNDP) and Bappenas, 2020). Waluyo & Dona Budi Kharisma, “Circular Economy and Food Waste Problems in Indonesia: Lessons from The Policies of Leading Countries,” *Cogent Social Science* 9, No. 1 (2023).

⁴ Peter Hopkinson et al., “Managing a Complex Global Circular Economy Business Model: Opportunities and Challenges,” *California Management Review* 60, no. 3 (2018), p. 71–94. Ellen MacArthur, “Towards the Circular Economy,” *Journal of Industrial Ecology* 2, no. 1 (2013), p. 23–44.

⁵ Alan Murray, Keith Skene, dan Kathryn Haynes, “The Circular Economy: An Interdisciplinary Exploration of the Concept and Application in a Global Context,” *Journal of Business Ethics* 140, no. 3 (2017), p. 369–80.

⁶ D McGinty (WRI), “How to Build a Circular Economy,” 2020, <https://wri-indonesia.org/en/insights/how-build-circular-economy>.

⁷ N Premyanov et al., “Circular Entrepreneurship via Makerspaces Towards Fostering Sustainable Cities: A Mixed-Method Approach with Case Studies,” *Journal of Circular Economy* 2, no. 3 (2024).

⁸ Tonni Agustiono Kurniawan et al., “Challenges and opportunities for biochar to promote circular economy and carbon neutrality,” *Journal of Environmental Management* 332 (2023), p. 117429.

dumpsites have implemented sharia principles and how a sharia-based circular economy model can be a solution for sustainable economic development in Indonesia. The study Hernandez emphasizes the importance of community empowerment in achieving circularity in Latin America and the Caribbean, which is relevant to the Indonesian context.⁹

This research is important because studies on circular economics or sharia-based circular economy models are still very limited. This exploration is expected to significantly contribute to the literature and practice of waste management and support the development of circular economy in Indonesia. With a strong focus on transdisciplinary aspects and inclusivity of sharia principles, this study aims to provide concrete solutions in waste management that have a positive impact on the economy and ecology. Research by Lamba also emphasized that circular economy has the potential to integrate sustainable development, creating economic, social, and environmental benefits simultaneously.¹⁰

This study aims to evaluate the feasibility of landfills and TPS in Kendari City and Bau-bau City in applying sharia principles as an economic development model. The results of the study are expected to serve as a reference in the development of sharia-based circular economy in Indonesia. This research uses a qualitative approach to explore and understand green economy management through sharia-based circularomics, with a focus on waste management in Kendari and Bau-bau Cities.¹¹ The qualitative approach was chosen because this research aims to assess the conception and praxis of circularomics applied by stakeholders in the context of waste management which has its own uniqueness.¹²

Research Subjects The subjects of this research include leaders and employees of waste management companies, the city government, as well as other stakeholders such as experts and community members around waste management companies. This selection of subjects is expected to provide a comprehensive picture of the implementation of sharia-based circular comics in waste management.¹³ This research was conducted in Kendari City and Bau-bau City because these two cities have landfills with a large enough capacity and are the basis for waste management. Data and information were collected through three main techniques: observation, interviews, and focus group discussions. Observations were conducted to directly observe the operations of waste management companies. Interviews were conducted with company leaders,

⁹ Glenn A. Aguilar-Hernandez et al., "Enabling Mechanisms for Circularity in Latin America and the Caribbean," *Journal of Circular Economy* 2, no. 3 (2024), p. 1–7.

¹⁰ Harchitwan Kaur Lamba, et.al., "Circular economy and sustainable development: a review and research agenda," *International Journal of Productivity and Performance Management* 73, no. 2 (2024), p. 497–522.

¹¹ John W Creswell dan J David Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (Thousand Oaks, CA: Sage Publications, 2017).

¹² Robert K Yin, *Case Study Research and Applications*, 6 ed. (SAGE Publications, 2018), <https://uk.sagepub.com/en-gb/eur/case-study-research-and-applications/book250150>.

¹³ J A Maxwell, *A Realist Approach For Qualitative Research* (Sage Publications, 2012).

employees, experts, and community members to obtain in-depth information. Focus group discussions were held to equalize perceptions and get input from various parties.¹⁴

The collected data was analyzed using the thematic analysis method. The analysis process involved collecting, transcribing and coding the data, and identifying the main themes that emerged from the data. The analysis was conducted to evaluate the feasibility of landfills and TPS in applying sharia principles and to develop a sharia-based circular economy model.¹⁵ This research is expected to provide a comprehensive understanding of circular economy-based waste management in Kendari City and Bau-bau City landfills, and assess the feasibility of applying sharia principles in this economic model.

Waste Management Model and Economic Development in Indonesia

Waste has always been a persistent problem and a serious concern for the Indonesian government. Waste is a problem that must be addressed by the public because it is a form of environmental pollution and can impact public health, such as unpleasant odors, flooding, aesthetic damage, fires, the greenhouse effect, and so on. Therefore, Indonesian public awareness of waste management continues to be raised. In general, waste can be categorized as organic and non-organic waste. Both types of waste can actually be reused. For example, by recycling plastic waste into useful items such as flower vases, pots, pencil cases, and so on. Meanwhile, organic waste can be used to make compost or even for large amounts of waste can be used as a waste bank.¹⁶ Furthermore, no less important is that waste management can have an impact on Indonesia's economic development.

Waste management is regulated by the government through Law Number 18 of 2008 concerning Waste Management. This legal provision encourages community and business participation in the waste management system, particularly through the waste bank mechanism. Community participation through waste banks can provide tangible economic contributions, including increased household income, savings on waste management costs, and the creation of informal jobs. In addition to economic benefits, waste banks also strengthen educational aspects and foster positive environmental behavior. Local governments are developing derivative regulations that support participatory incentives, strengthening environmental law education, and establishing partnerships with the private sector to support the sustainability of waste banks. Therefore, the development of more inclusive and sustainable public policies in waste management and enriching the environmental law discourse by emphasizing the

¹⁴ C Marshall dan G B Rossman, *Designing Qualitative Research* (Sage Publications, 2014).

¹⁵ Virginia Braun dan Victoria Clarke, "Using thematic analysis in psychology," *Qualitative Research in Psychology* 3, no. 2 (2006), p. 77–101.

¹⁶Ade Muslimat, "Pengelolaan Sampah dan Ekonomi UMKM Untuk Pembangunan Berkelanjutan," *Seminar Nasional Pengabdian Masyarakat 2* (2025), p. 462-468

importance of collaboration between law, society, and the economy in achieving effective waste management.¹⁷

Therefore, waste can cause environmental problems in various aspects if not handled properly. On the other hand, waste can provide a sense of security and comfort if managed properly. Furthermore, proper waste management can produce products with economic and social value. This can be achieved through social empowerment programs. These programs aim to change the community's perspective and knowledge about waste, enabling it to be managed properly and have economic value. These programs are implemented through various means, including outreach, training, practice, accommodation processing, and waste management. The community empowerment program demonstrates a shift in perspective, knowledge, and social behavior toward waste. Community interest in managing waste independently has grown significantly. They gain a sense of security and comfort, as well as economic benefits from proper and wise waste management, both inorganic and organic.¹⁸

A waste management model that can support economic development can be implemented by developing a Community-Based Waste Bank to Support Environmental Management, as implemented in Karanganyar, Central Java. The waste bank development activities carried out by the community in the Mount Lawu area are considered unsuccessful because the waste bank program has not significantly reduced waste in the upstream sector. In other words, the level of waste reduction in the community remains very low. Several obstacles remain in the development of community-based waste banks to support environmental management and local economic development in the Mount Lawu area. However, several supporting factors also exist for the development of community-based waste banks to support environmental management and local economic development in the Mount Lawu area. Developing a community-based waste bank for the environment and local economic development in the Mount Lawu area offers several benefits. The development of waste banks includes policies and programs from the Karanganyar Regency Government to support environmental management and local economic development in the Mount Lawu area. To optimize the development of waste banks in the Mount Lawu area, a model has been developed that emphasizes several important components: community, government, environment, and economy.¹⁹

¹⁷ Yani Kamasturyani, "Tinjauan Regulatorif Dan Ekonomi Atas Pengelolaan Sampah Berbasis Masyarakat Untuk Meningkatkan Kesejahteraan Ekonomi," *Jurnal Penelitian Pendidikan Indonesia* 11, no. 2 (2025), p. 46-52.

¹⁸ Zairinayati Zairinayati, et.al., "Pengelolaan Sampah Bernilai Ekonomi Berbasis Masyarakat," *Berdikari: Jurnal Inovasi dan Penerapan Ipteks* 8, No. 2 (2020).

¹⁹ Tundjung Wahadi Sutirto, et.al., "Model Pengembangan Bank Sampah Berbasis Masyarakat untuk Mendukung Pengelolaan Lingkungan Hidup dan Pembangunan Ekonomi Lokal di Kawasan Gunung Lawu," *ENVIRO: Journal of Tropical Environmental Research* 24, No. 2 (2023), p. 19.

Another problem is household waste, as is the case in Bali, a world-class tourist destination. Household waste management requires active community participation to prevent the government from becoming increasingly burdensome. This study uses the Interpretative Structural Modeling (ISM) method, using elements of the affected community, program objectives, indicators for achieving these objectives, key constraints, and involved institutions. In compiling sub-elements within each element, figures, experts, actors, and activists in Denpasar City were involved in community-based waste management. The modeling results indicate that community participation is crucial in reducing waste through reuse, increasing community involvement, and implementing the 3Rs (Reduce, Reuse, Recycle). The main obstacles in waste management are limited facilities and infrastructure for waste management, as well as unclear waste management organizations. Possible changes include clearer enforcement of waste laws and regulations and the involvement of all stakeholders in community-based waste management in Denpasar City.²⁰

In addition to Bali, Probolinggo also implemented a Waste Bank program to enhance community and social empowerment, a key issue in urban areas. The implementation of the Waste Bank program has successfully increased community participation, particularly housewives, in waste management. The program also created new economic opportunities through recycling, strengthening social solidarity among residents. Despite challenges such as differences in community characteristics and a lack of motivation in some units, the program demonstrates significant potential for social empowerment and sustainable waste management. This study recommends the need for continued support and more adaptive strategies to increase the program's effectiveness.²¹

Furthermore, in Aceh, waste management is linked not only to the community and the environment but also to tourism destinations, which can impact economic development. The program, called ecotourism, is a strategy to promote sustainable waste management in eco-friendly tourist destinations. However, the implementation of ecotourism has not played a significant role in improving the effectiveness of waste management in tourist areas. Ecotourism principles have not been fully implemented; therefore, destinations have not succeeded in maintaining environmental cleanliness, attracting sustainability-conscious visitors, or fostering synergy between local communities and the government. Although tourists and local residents generally responded positively to this initiative and expressed

²⁰Made Armadi, et.al., Model Pengelolaan Sampah Berbasis Masyarakat di Kota Denpasar, *Ecotrophic: Jurnal Ilmu Lingkungan* 14, No. 2 (2020), p. 131.

²¹Nourma Ulva Kumala Devi, et.al., "Implementasi Kebijakan Pemerintah dalam Pengelolaan Sampah melalui Program Bank Sampah di Kota Probolinggo," *Jurnal Penelitian Inovatif* 4, No. 4 (2024), p. 2509-2514.

support for ecotourism-based waste management policies, many still consider waste management primarily the responsibility of the government.²²

Similarly, waste management, which can improve community income, can be seen in Kademangan Village, Cianjur, West Java. In Kademangan Village, waste management utilizes the circular economy concept, starting with the habit of sorting items before they become waste. Waste sorting activities can support the value-added of goods because sorted waste can be recycled into goods with economic value. Kademangan Village is one of the villages facing waste problems due to the lack of a final disposal site (TPA) and a waste bank. Participants in this activity were women from Kademangan Village, comprised of 11 groups based on the Neighborhood Association (Rukun Tetangga). Residents' enthusiasm for waste management activities was evident. All members of the Family Welfare Empowerment (PKK) participated in this activity, resulting in the collection of the largest amount of waste with an economic value of Rp182,000 per group in one month. While this isn't a large number, it's considered a successful program, as it's implemented by a single village. Therefore, this initiative has led to increased community participation in waste management, fostered a culture of household waste sorting, and generated potential economic growth through the sale of sorted waste.²³

Sharia-Based Waste Circularomics as A Model for Economic Development

The research on the implementation of sharia-based circular economy model in waste management in Indonesia revealed comprehensive and significant findings, especially in the context of case studies in Kendari and Bau-bau Cities. Through a research methodology involving field observations and in-depth interviews with key stakeholders, it was found that the integration of sharia principles into the waste management system has reached a substantial and measurable level of implementation.

Analysis of the implementation of the principle of responsible ownership (*al-amanah*) in waste management shows very positive results. Observations at TPA Puwatu show that this facility has developed a sophisticated waste management system by adopting the fundamental concept that all resources are a trust from Allah SWT which must be managed wisely and sustainably. The practical implementation of this principle is manifested in a structured and efficient organic waste processing system, where each unit of waste entering the facility goes through a comprehensive series of processing processes to maximize its beneficial

²² Bobby Rahman, et.al., "Ecotourism as a Driver for Sustainable Waste Management and Environmental Conservation in Lhokseumawe, Indonesia," *Samarah: Jurnal Hukum Keluarga dan Hukum Islam* 26, No. 1 (2026).

²³ Ratna Mira Yojana, et.al., "Pengelolaan Sampah untuk Mendukung Sustainable Development Goals (SDG's) dan Sircular Economy di Desa Kademangan," *Abdimas Universal* 7, No. 2 (2025), p. 442-448.

value.²⁴ Empirical data shows that the application of the principles of *al-iqtishadiyah* (efficiency) and *al-amanah* (responsibility) has successfully transformed the waste management paradigm from a conventional linear model to a sustainable circular model.

The aspect of social justice and economic welfare, as a manifestation of the *al-'is* principle in Islamic economics, shows very encouraging results. An interview with H. Masud Buani, the owner of the Bau-bau City TPS, confirmed the implementation of a fair and transparent remuneration system, where each worker receives a compensation of IDR 2,000 per kilogram of processed waste.²⁵ The significance of this finding lies in the realization of a non-discriminatory and performance-based compensation system, which has effectively created sustainable employment and provided decent income for workers in the waste management sector.

The implementation of anti-fee and anti-*gharar* principles in the waste management chain has shown measurable success. In-depth observations at TPA Puwatu and TPS Bau-bau revealed that the entire operational process, from collection, sorting, cleaning, drying, weighing, composting, recycling, to transportation, is carried out with a high level of transparency and accountability. A detailed documentation system and strict monitoring mechanisms ensure that there are no exploitative practices at any stage of the process.

Technological innovations in waste management, as revealed through an interview with Tin Farida, Head of the Cleaning Service of Kendari City, show significant achievements. TPA Puwatu has successfully developed a waste-to-energy conversion system through biogas technology that produces methane gas. Operational data shows that this system not only provides a solution to the waste problem, but also generates measurable economic benefits for the surrounding community through the provision of more efficient and affordable electricity.²⁶

The modernization of the integrated waste management system, based on an interview with Paminuddin, Head of the Kendari City Environmental Agency, shows the implementation of advanced technology in the processing of various types of waste. The facility is equipped with an automated sorting system, a high-tech recycling unit, and an integrated waste treatment plant. Operational data shows a significant reduction in the volume of waste transported to the landfill, indicating the effectiveness of the system in optimizing the recycling and composting processes.²⁷

Community education and empowerment programs have shown very positive results in increasing public participation. The implementation of programs such as single-use plastic reduction campaigns, waste segregation training at the household level, and promotion of environmentally friendly lifestyles have successfully

²⁴Observations at TPA Puwatu, Bau Bau City, 2025

²⁵Interview with H. Masud Buani the owner of the Bau-Bau City TPS, 2025.

²⁶Interview with Tin Farida, Head of the Cleaning Service of Kendari City, 2025

²⁷Interview with Paminuddin, Head of the Kendari City Environmental Agency, 2025

increased public awareness and participation in sustainable waste management. Survey data shows a significant increase in the level of community participation in waste segregation and recycling programs.

A comprehensive evaluation of all aspects of the implementation of the sharia-based circular economy model in TPA Puwatu, TPSP, and TPS Haji Buani confirmed the success of this model in creating a waste management system that is not only operationally effective, but also in line with sharia principles.²⁸ This model is proven to be able to integrate environmental, social, and economic aspects in a sustainable system, and provides a framework that can be replicated for the development of waste management systems in other regions in Indonesia. These findings make a significant contribution to the body of knowledge in the field of sharia-based circular economy and sustainable waste management.

Based on the results of this study, several research findings can be explained as follows:

Table 1: Research Findings

Research Findings	Description
<i>Al-Amanah</i> Principle (Responsible Ownership)	Puwatu landfill developed a sophisticated waste management system based on responsible ownership, transforming from linear to circular.
Social Justice and Economic Welfare	A fair and transparent remuneration system in Bau-bau, providing IDR 2,000 per kilogram of processed waste, creating sustainable jobs.
Anti-Riba and Anti-Gharar Principles	High transparency and accountability in operational processes, preventing exploitative practices in waste management.
Technological Innovations	Biogas technology at Puwatu landfill converting waste to methane gas, providing efficient and affordable electricity.
Integrated Waste Management System	Advanced technology, including automated sorting and high-tech recycling units, optimizing recycling and composting processes.
Community Education and Empowerment	Programs like plastic reduction campaigns and waste segregation training increasing public awareness and participation.

²⁸ Muhammad Yafiz, et.al., "Localizing Islamic Economics: Integrating Sharia Principles into the Salingka Nagari Tradition in Minangkabau," *Jurnal Ilmiah Peuradeun* 13, No. 3 (2025).

Waste Management as a Sharia-Based Economic Development Model in Southeast Sulawesi

This research reveals significant findings regarding the implementation of the sharia-based circular economy model in waste management in Indonesia, particularly on case studies in Kendari and Bau-bau Cities. Through a comprehensive methodology, this research shows that the integration of sharia principles in the waste management system has reached a substantial and measurable level of implementation.

The principle of *al-amanah*, which emphasizes that all resources are a trust from Allah SWT that must be managed wisely, has been well implemented at TPA Puwatu. TPA Puwatu has developed a sophisticated waste management system by adopting this fundamental concept. A structured and efficient organic waste processing system can be seen from how each unit of waste entering the facility goes through a comprehensive series of processing processes to maximize its beneficial value.²⁹ This finding is in line with the view Nasr of which states that all creation must be preserved and managed wisely as a mandate from Allah SWT.³⁰ The implementation of the *al-amanah* principle in Puwatu landfill has transformed the paradigm of waste management from a conventional linear model to a sustainable circular model. Empirical data shows that the application of the principles of *al-iqtishadiyah* (efficiency) and *al-amanah* (responsibility) has optimized the use of resources and reduced the waste produced.³¹

The aspect of social justice and economic welfare, as a manifestation of the principle of *al-'is* in Islamic economics, also shows very positive results.^{32,33} A fair and transparent remuneration system reflects the principle of distributive justice that is essential in Islamic economics.³⁴ Chapra, argues that distributive justice is an important principle that aims to achieve social and economic welfare.³⁵ The implementation of a non-discriminatory and performance-based compensation system has successfully created sustainable employment and provided a decent income for workers in the waste management sector^{36,37}. This finding supports

²⁹ C Polprasert, *Organic Waste Recycling: Technology and Management* (IWA publishing, 2007).

³⁰ Seyyed Hossein Nasr, "Islam and the Environmental Crisis," *Islamic Quarterly* 34, no. 4 (1990), p. 217.

³¹ MacArthur, "Towards the circular economy."

³² T Azid et al., *Islamic Economic Institutions in Indonesia: Are They Successful in Achieving the Maqasad-al-shari'ah*, vol. 2 (World Scientific, 2023).

³³ S Al-Daghistani, *The Making of Islamic Economic Thought* (Cambridge University Press, 2021).

³⁴ M. Umer Chapra, *The Future of Economics: An Islamic Perspective*, vol. 21 (Kube Publishing Ltd, 2016).

³⁵ M. Umer Chapra, *Towards a Just Monetary System*, vol. 8 (International Institute of Islamic Thought (IIIT), 1985).

³⁶ M Al Rashdi, "The impact of performance-related pay on employees' performance: Case studies of Omani public and private sector organisations" (2020).

previous research which shows that distributive justice in Islamic economics can improve the social and economic welfare of the community.³⁸

The implementation of anti-retail and anti-*gharar* principles in the waste management chain has also shown significant success. The operational processes, from collection, sorting, cleaning, drying, weighing, composting, recycling, to transportation, are implemented with a high level of transparency and accountability.³⁹ States that transparency and accountability are important elements in avoiding exploitative practices and ensuring fairness in every stage of the process. A detailed documentation system and strict supervision mechanisms ensure that there are no exploitative practices in waste management, reflecting the effective implementation of the anti-bribery and anti-*gharar* principles in the waste management chain.

Technological innovation in waste management at Puwatu landfill has shown significant achievements. Biogas technology that produces methane gas has provided a solution to the waste problem and generated measurable economic benefits for the surrounding community through the provision of more efficient and affordable electricity.⁴⁰ Modernizing the integrated waste management system with advanced technologies, such as automated sorting systems and high-tech recycling units, has shown effectiveness in optimizing recycling and composting processes.⁴¹ Operational data shows a significant reduction in the volume of waste transported to landfill, indicating that these technologies are able to improve waste management efficiency and reduce waste generation.⁴² This innovation is in line with recent research by Premyanov, which shows that the implementation of a circular economy can improve urban sustainability through the development of appropriate technologies and infrastructure.⁴³

³⁷ Alan Gutterman, "Sustainability and Human Rights Standards and Instruments Relating to Labor Practices," *SSRN Electronic Journal*, (2023).

³⁸ H Askari et al., *Risk Sharing in Finance: The Islamic Finance Alternative*, 1st ed, 2012.

³⁹ M Ariff dan M Iqbal, *The foundations of Islamic Banking: Theory, Practice and Education* (Edward Elgar Publishing, 2011).

⁴⁰ Shu-Yuan Pan et al., "Strategies on implementation of waste-to-energy (WTE) Supply Chain for Circular Economy System: a review," *Journal of Cleaner Production* 108 (2015), p. 409–21.

⁴¹ Lucio Laureti et al., "Waste Management and Technological Advancement: Insights from Europe," 9 Agustus 2024.

⁴² Martin Kurdve et al., "Waste flow Mapping to Improve Sustainability of Waste Management: A Case Study Approach," *Journal of Cleaner Production* 98 (2015), p. 304–15. E Daskalopoulos, et.al., "Economic and Environmental Evaluations of Waste Treatment and Disposal Technologies for Municipal Solid Waste," *Applied Energy* 58, no. 4 (1997), p. 209–55.

⁴³ Premyanov et al., "Circular Entrepreneurship via Makerspaces Towards Fostering Sustainable Cities: A Mixed-Method Approach with Case Studies."

Community education and empowerment programs have shown very positive results in increasing public participation in sustainable waste management.^{44,45} The implementation of programs such as single-use plastic reduction campaigns, waste segregation training at the household level, and promotion of eco-friendly lifestyles have increased public awareness and participation.^{46,47,48} Survey data shows a significant increase in the level of community participation in waste sorting and recycling programs. Community education and empowerment are key in creating a sustainable waste management system, helping people understand the importance of responsible waste management that is in line with sharia principles. This finding is supported by the research of Hernandez who emphasized the importance of community empowerment mechanisms in achieving circularity in Latin America and the Caribbean.⁴⁹

The findings of this research contribute significantly to the body of knowledge in the field of sharia-based circular economy and sustainable waste management. A comprehensive evaluation of the implementation of the sharia-based circular economy model shows that the model is able to integrate environmental, social, and economic aspects in a sustainable system. The sharia-based circular economy model proposed in this study is not only operationally effective but also aligned with sharia principles. This model provides a framework that can be replicated for the development of waste management systems in other regions in Indonesia. This contribution is important for the development of sharia-based circular economy theory and provides a basis for further research in this area. Another study by Lamba confirmed that the circular economy has the potential to integrate sustainable development, creating simultaneous economic, social, and environmental benefits.⁵⁰

⁴⁴ Andika Pratama et al., "Life Skill Education in Waste Management: Enhancement of Empowerment-Based Skills for Densely Populated Residential Communities," *Journal of Hunan University Natural Sciences* 48, no. 10 (2021).

⁴⁵ Z Minn, et.al., "Promoting People's Participation in Solid Waste Management in Myanmar," *Research Journal of Environmental Sciences* 4, no. 3 (2010), p. 209–22. A Brotosusilo et al., "The level of individual participation of community in implementing effective solid waste management policies," *Global Journal of Environmental Science and Management* 6, no. 3 (2020), p. 341–54.

⁴⁶ M Marković, et.al., "Circular Economy and Sustainable Development," *Economics of Sustainable Development* 4, no. 1 (2020), p. 1–9.

⁴⁷ Sreeramana Aithal P, "Strategic and Sustainable Plastic Management: Promoting Awareness Over Bans for Responsible Usage," *Poornaprajna International Journal of Philosophy & Languages (PIJPL)* 1, no. 1 (2024).

⁴⁸ Salinda Sedtha et al., "The First Step of Single-Use Plastics Reduction in Thailand," *Sustainability* 15, no. 1 (2022), p. 45.

⁴⁹ G A Aguilar Hernandez et al., "Enabling mechanisms for circularity in Latin America and the Caribbean," *Journal of Circular Economy* 2, no. 3 (2024), p. 1–7.

⁵⁰ Lamba, Kumar, and Dhir, "Circular economy and sustainable development." Risma Junita, "Zapin Village And Actor Relationships: Culture-Based Tourism Governance In Bengkalis, Riau, Indonesia," *Jurnal Sosiologi Dialektika Sosial* 11, No. 2 (2025).

Conclusion

This research shows that the implementation of sharia-based circular economy model in waste management in Kendari and Bau-bau City has achieved substantial and measurable results. Shariah principles such as *al-amanah*, *al-iqtishadiyah*, and *al-'adalah* have been successfully applied in the waste management system, creating a more sustainable and effective system. The implementation of innovative technologies, such as biogas technology, has shown success in converting waste into energy as well as providing economic benefits to the surrounding community. In addition, community education and empowerment programs have successfully increased public participation in sustainable waste management, raising awareness and understanding of the importance of responsible waste management. This research makes a significant contribution to the development of sharia-based circular economy theory and sustainable waste management practices. The sharia-based circular economy model proposed in this study can serve as a reference for the development of waste management systems in other regions in Indonesia. This research opens up opportunities to further explore the potential of circular economy in various contexts, both in Indonesia and globally. The conclusions are expected to serve as a foundation for more sustainable waste management policies and practices that comply with sharia principles.

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Interviews and Observation

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