

Circular Economy-Based Waste Management in Ponorogo from the Perspective of Jasser Auda's Maqāṣid al-Sharī'ah

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Article history

Submitted: 2026/09/24; Revised: 2026/10/01; Accepted: 2026/10/13

Abstract

Waste management at the regional level remains confronted with structural problems marked by high waste generation, weak sorting practices at the source, and the persistence of a linear collect-transport-dispose pattern. Ponorogo Regency has developed several instruments that reflect circular economy principles, including waste sorting facilities, organic waste processing, community-based recycling practices, and a recycling center. However, these instruments have not yet established an integrated closed material flow capable of reducing residues optimally. This article analyzes circular economy-based waste management in Ponorogo and examines its implications for public welfare from the perspective of Jasser Auda's contemporary maqāṣid al-sharī'ah. This study employs a qualitative field research approach. Data were obtained through interviews, observation, and documentation involving local waste management actors. The findings show that circular economy practices have emerged through sorting, composting, recyclable material utilization, and residue reduction, yet implementation is constrained by mixed waste, low public participation in source separation, limited technical capacity, restricted recyclable materials, and economic benefits that remain disproportionate to operational burdens. From Auda's systems-based maqāṣid perspective, the policy orientation reflects purposefulness, but wholeness, openness, and interrelated hierarchy require stronger realization. The study concludes that circular waste management in Ponorogo must be strengthened through upstream-downstream integration, institutional adaptability, public participation, and sustainable economic value creation.

Keywords

Circular Economy; Jasser Auda; Maqāṣid Al-Sharī' Ah; Waste Management



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1. INTRODUCTION

Waste management has become a critical issue in regional development because it is directly related to environmental quality, public health, resource utilization, and

local economic governance.(Soeharsono et al., 2023) Poorly managed waste not only creates sanitation problems but also generates multiple layers of ecological impacts, ranging from soil and water pollution and the degradation of public space aesthetics to increased health risks and the loss of economic value from materials that could otherwise still be utilized.((Bappenas), 2021) In this context, waste management can no longer be regarded merely as a technical matter of sanitation and cleanliness. Rather, it constitutes an integral component of the development system that determines the extent to which a region can maintain a balance between economic growth, environmental protection, and community welfare.

The dominant paradigm of waste management has traditionally been linear. Under this paradigm, materials are produced, consumed, and subsequently discarded as residual waste. This pattern is reflected in management practices that rely primarily on the mechanisms of collection, transportation, and disposal. Such a linear model is problematic because it positions final disposal sites as the primary destination for almost all waste flows.(*Undang-Undang Republik Indonesia Nomor 18 Tahun 2008 Tentang Pengelolaan Sampah*, 2008) In principle, however, final disposal sites should serve as the last resort for residual waste that can no longer be recovered or reused. When final disposal sites become the central focus of waste management, the system tends to fail to control waste volumes at the source while simultaneously missing opportunities to preserve the use value of materials throughout the production and consumption cycle.(Korhonen et al., 2017)

As a critique of the linear model, the circular economy offers a more systemic perspective. The circular economy views waste not as the end point of the consumption cycle, but as material whose value can still be retained through reduction, reuse, recycling, composting, repair, and resource recovery.(Geissdoerfer et al., 2017) In waste management, the circular economy seeks to prevent materials from immediately becoming residual waste by processing them so that they can re-enter the cycle of utilization.(Kirchherr et al., 2017) Thus, the circular economy is not limited to recycling technologies; it also entails changes in production systems, consumption patterns, community behavior, institutional arrangements, financing mechanisms, and markets for processed waste products.

Ponorogo Regency is one of the regions that has developed various waste management instruments that substantively align with the principles of the circular economy. The Environmental Agency of Ponorogo Regency serves as the technical institution responsible for waste management, covering activities ranging from collection, transportation, sorting, and processing to final disposal. In practice, waste

management is not carried out solely through final disposal sites but also through intermediate facilities such as 3R waste processing facilities (TPS 3R), waste banks, composting facilities, and Recycling Centers. The existence of these instruments indicates that, at the policy level, Ponorogo does not rely entirely on a final-disposal approach but has sought to establish pathways for material recovery before waste becomes residual waste.(Ponorogo, 2025)

However, the existence of these instruments does not automatically indicate that a fully integrated circular economy is already in operation. A significant issue instead lies in the gap between policy design and operational practice. Field findings indicate that a substantial proportion of waste entering processing facilities remains mixed. Insufficient source separation requires waste managers to undertake additional sorting, which demands additional labor, time, space, and financial resources. At the same time, not all materials possess economic value or can be further processed. Consequently, some materials still end up as residual waste. This condition demonstrates that the waste management system has not yet been fully capable of maintaining material flows within a circular system.(I1, 2026, p. Wawancara)

Within the context of Islamic economics, this issue is relevant to be examined through Jasser Auda's contemporary approach to *maqāṣid al-sharī'ah*. Auda developed a systems-based approach to *maqāṣid* that emphasizes six key features: *cognitive nature, wholeness, openness, interrelated hierarchy, multidimensionality, and purposefulness*.(Auda, 2008) Through this approach, public policies should not be assessed merely on the basis of the existence of regulations or programs, but also on the extent to which the system is capable of realizing the objectives of public welfare in practice. Waste management that appears adequate at the normative level but fails to reduce pollution, generate economic value, or foster public participation cannot yet be regarded as successful within the *maqāṣid* framework.

Previous studies on the circular economy and *maqāṣid* have generally followed two tendencies. First, some studies have examined the circular economy as a concept that is consistent with sustainability values in Islam, although their discussions remain largely conceptual.(Litriwani et al., 2026) Second, research on regional waste management has focused on policy and operational aspects but has not yet positioned *maqāṣid* as a systemic analytical framework.(Kurniawan & Suryandari, 2023) This article positions itself between these two tendencies by examining how circular economy-based waste management practices in Ponorogo can be understood through Jasser Auda's *maqāṣid al-sharī'ah*, particularly in assessing the relationship between

policy, institutional arrangements, community practices, and the achievement of public welfare.

Based on these issues, this article aims to analyze circular economy-based waste management in Ponorogo, examine the urgency of strengthening its implementation, and explain its implications for public welfare from the perspective of Jasser Auda's contemporary *maqāṣid al-sharī'ah*. The discussion seeks to demonstrate that waste management is not merely an environmental issue but also concerns the ethics of development, resource governance, economic justice, and the protection of human life. From this perspective, the circular economy is understood not simply as a waste reduction program, but as a system that must be directed toward the realization of sustainable public welfare.

2. METHODS

This study employs a qualitative approach using field research. A qualitative approach was chosen because the object of inquiry is not limited to numerical data on waste generation or quantitative achievements in residual waste reduction, but also encompasses practices, experiences, limitations, institutional relationships, and the meanings of public welfare that emerge in circular economy-based waste management. This approach enables the study to examine the realities of waste management more comprehensively, particularly where gaps exist between policy design and implementation in practice. (Syamsuddin et al., 2023)

The material object of this study is circular economy-based waste management in Ponorogo Regency. The research focuses on the role of the Environmental Agency of Ponorogo Regency, 3R waste processing facilities (TPS 3R), and Recycling Centers as key nodes in the processes of waste reduction, sorting, processing, and material recovery. These three nodes were selected because they represent the relationship between regional policy, intermediate waste processing facilities, and material recovery practices, which constitute the core of the circular economy approach to waste management.

Primary data were obtained through interviews with actors directly involved in waste management. The main informants consisted of the Head of the Waste Management Division of the Environmental Agency of Ponorogo Regency, technical staff at TPS 3R facilities, and Recycling Center managers. These informants were selected because they possess practical knowledge of waste management policies, operations, implementation challenges, and achievements. In addition to interviews, the study employed observation of waste sorting activities, organic waste processing, inorganic waste management, and the condition of waste processing facilities.

Documentation was used to supplement the field data, particularly information concerning institutional profiles, activity photographs, and records relevant to the waste management process.(Strauss, 2007)

Data were analyzed using a descriptive qualitative method. The analysis began with data reduction, involving the selection of data related to circular economy practices, implementation challenges, and their implications for public welfare. The reduced data were then presented in thematic descriptions to clarify the relationship between the field findings and the theoretical framework. The subsequent stage involved drawing conclusions through a systemic analysis based on Jasser Auda's *maqāṣid al-sharī'ah*. Accordingly, the analysis not only describes what occurs in the field but also examines the extent to which these practices demonstrate system openness, relational wholeness, a hierarchy of objectives, the multidimensionality of public welfare, and an orientation toward the ultimate objectives of waste management.(Lexy J. Moleong, 2018)

To ensure data validity, this study employed source and methodological triangulation. Source triangulation was conducted by comparing information obtained from policy actors, technical implementers, and facility managers. Methodological triangulation was conducted by comparing the results of interviews, observations, and documentation. This approach is important because waste management involves multiple actors who occupy different positions within the system. Information provided by one party therefore needs to be examined alongside other sources of data to avoid conclusions that are overly one-sided.(Miles et al., 2014)

3. FINDINGS AND DISCUSSION

The results obtained from the research must be supported by sufficient data. The research results and the discovery must be the answers, or the research hypothesis stated previously in the introduction part.

3.1. *The Circular Economy as a Policy Direction for Waste Management in Ponorogo*

The findings indicate that waste management in Ponorogo has begun to move toward a circular economy orientation. This is reflected in the existence of 3R waste processing facilities (TPS 3R) and Recycling Centers, which function as intermediate waste processing facilities. In policy design, these facilities are intended to prevent waste from entirely ending up as residual waste at final disposal sites. The underlying principle is to retain materials for as long as possible so that they can still be sorted, processed, utilized, or resold. Thus, at the normative level, waste management policy

does not rely solely on final disposal but also emphasizes waste reduction and material recovery.(Ponorogo, 2025)

TPS 3R facilities occupy a strategic position because they serve as nodes connecting waste generated by communities with initial sorting and processing activities. Organic waste can be directed toward composting, while inorganic waste with economic value can be sorted for sale or reuse. Within the circular economy framework, the function of TPS 3R is not merely to reduce waste volumes but also to slow the flow of materials so that they do not immediately become residual waste. This role is important because a circular economy cannot function effectively if all waste follows a single pathway toward final disposal sites.(*Undang-Undang Republik Indonesia Nomor 18 Tahun 2008 Tentang Pengelolaan Sampah*, 2008)

Recycling Centers also demonstrate the region's efforts to establish a material recovery system. These facilities provide space for further sorting, the management of inorganic materials, and the utilization of waste that retains economic value.(Geissdoerfer et al., 2017) The existence of Recycling Centers indicates that the local government recognizes the need to expand waste management beyond sanitation toward resource utilization. However, the effectiveness of Recycling Centers depends heavily on the quality of incoming materials. When materials have already been mixed, contaminated, or lack market value at the source, their potential for recovery is reduced.(Kirchherr et al., 2018)

These findings demonstrate that Ponorogo has established basic infrastructure for developing a circular economy but has not yet developed a fully stable system. Within Jasser Auda's framework, this condition reflects purposefulness, or an orientation toward objectives. Waste management policies are directed toward reducing residual waste, protecting the environment, and developing the economic value of waste. However, purposefulness alone is insufficient without wholeness, namely an integrated connection between the upstream, processing, and downstream stages. A system may have well-defined objectives but still fail when its constituent elements do not adequately support one another.(Auda, 2008)

At the upstream level, communities play an important role because the quality of waste entering processing facilities is largely determined by source-separation practices. At the processing level, facilities such as TPS 3R and Recycling Centers require adequate infrastructure, human resources, financing, and governance.(Salam et al., 2025) At the downstream level, processed materials require clear markets and distribution mechanisms. These three levels must be interconnected. When communities do not separate waste at the source, the burden on processing facilities

increases. When processing facilities have limited capacity, materials cannot be processed optimally.(Sapanli et al., 2023) When markets fail to absorb processed materials, their economic value cannot be fully realized. This disconnection represents a fundamental challenge to the development of a circular economy in Ponorogo.

Table 1. Linkages between Waste Management Practices, Circular Economy Principles, and Maqāṣid

Field Practice	Circular Function	Maqāṣid Interpretation	Critical Note
3R Waste Processing Facilities (TPS 3R)	Retaining waste before it becomes residual waste and providing space for initial sorting and processing	Supports environmental protection and the objectives of public welfare	Effectiveness depends on source separation and operational continuity
Organic waste processing into compost	Returning organic materials to the utilization cycle	Returning organic materials to the utilization cycle	Product quality and continuity of production still need to be strengthened
Sorting of economically valuable inorganic	Preserving material value through sale or reuse	Relates to ḥifẓ al-māl by preventing the loss of economic value	Not all materials have market value, and some ultimately become residual waste
Recycling Centers	Expanding material recovery processes at the regional level	Demonstrates purposefulness in public policy	Institutional arrangements and markets for processed materials need to become more adaptive

3.2. Implementation Barriers: The Gap between Policy Design and Operational Practice

The main barrier to the implementation of the circular economy in Ponorogo lies in the low level of waste separation at the source. A substantial proportion of waste

entering 3R waste processing facilities (TPS 3R) and other processing facilities remains mixed. This condition prevents waste from being processed directly because operators must first separate organic waste, economically valuable inorganic materials, and residual waste. (Salam et al., 2025) Re-sorting is not a simple task. It requires additional time, labor, equipment, workspace, and financial resources. As a result, facilities that should function as processing centers may instead become sites for the re-handling of mixed waste. (Sukadaryati et al., 2021)

The low level of source separation indicates that the circular economy has not yet become an established social practice. Communities may already understand the importance of waste management, but this knowledge has not yet been fully translated into routine practices. (Salam et al., 2025) In a circular system, household behavior plays a decisive role in determining its success. Organic waste mixed with plastics, diapers, or other residual materials will reduce material quality and increase the burden of processing. Conversely, waste that has been separated from the outset facilitates composting, increases the market value of inorganic materials, and reduces the burden on processing facilities. (Taufiek et al., 2024)

In addition to behavioral issues, there are technical limitations in material processing. Not all types of waste can be processed using the available facilities. Organic waste is relatively easier to process into compost, although the process still requires proper management. Certain inorganic materials, such as plastic bottles, cardboard, and metal, have economic value because they can be sold. (Kirchherr et al., 2018) However, other materials, such as multilayer plastics, contaminated packaging, and mixed residual waste, often lack sufficient market value. Such materials remain a burden on the system because they are difficult to recover and ultimately return to final disposal. (Korhonen et al., 2018)

Another limitation concerns financing and operational sustainability. Some processing facilities depend on community contributions or institutional support. When such contributions are not stable, the operation of the facilities becomes vulnerable. A circular economy requires funding for labor, equipment maintenance, transportation, processing, and the distribution of processed materials. If revenues generated from waste management are not proportional to these costs, facilities tend to operate merely in a survival mode rather than develop further. This condition explains why the economic benefits of waste management have not yet become a primary source of support for the sustainability of the system. (Yuniar et al., 2025)

These conditions demonstrate that the circular economy cannot be understood merely in terms of the provision of physical infrastructure. Facilities are important, but

they cannot function optimally without governance mechanisms that connect communities, operators, local government, and markets. In the language of a systems-based maqāṣid approach, this issue relates to wholeness and interrelated hierarchy.(Auda, 2008) Each component of the system has a position and function that mutually influence one another. The broader objectives of environmental and economic public welfare cannot be achieved if intermediate objectives, such as source separation, operational sustainability, and material markets, are not properly organized.(Yuniar et al., 2025)

The gap between policy and practice also demonstrates that the system requires openness. Openness refers to the capacity of a system to learn from realities, receive feedback, adjust strategies, and adapt to changing conditions. If a facility fails to generate sufficient economic benefits, the system needs to explore more appropriate financing models, partnerships, or product development strategies.(Auda, 2008) If communities have not yet adopted source separation, education needs to be accompanied by incentives, monitoring, and accessible services. If certain materials lack a viable market, networks with recycling businesses or upstream waste-reduction strategies need to be developed.(Auda, 2008)

3.3. Jasser Auda's Maqāṣid al-Sharī'ah as a Framework for Systemic Analysis

Jasser Auda's concept of maqāṣid al-sharī'ah provides a relevant framework for assessing waste management because it goes beyond asking whether a program appears normatively sound and instead asks whether the program actually produces public welfare. Within a systems approach, maqāṣid is not merely a list of objectives but a way of understanding the relationships among elements, processes, impacts, and objectives. Accordingly, circular economy-based waste management in Ponorogo can be assessed through six features: cognitive nature, wholeness, openness, interrelated hierarchy, multidimensionality, and purposefulness.(Kirchherr et al., 2018)

The feature of cognitive nature emphasizes that human understanding of waste-related problems is constructive and capable of development. As long as waste is understood merely as dirt that must be discarded, the system will continue to operate according to a linear pattern. However, when waste is understood as material that still possesses use value, opportunities emerge for developing a circular system.(Auda, 2008) This shift in perspective is important because policies, community behavior, and facility design are strongly influenced by how waste is conceptualized.(Kirchherr et al., 2018) In Ponorogo, the direction of policy has begun to reflect this cognitive shift, although the change at the community level has not yet been evenly realized.

The feature of wholeness requires waste management to be understood as an integrated whole. The success of the circular economy cannot be assessed solely from the existence of 3R waste processing facilities (TPS 3R) or Recycling Centers. (Auda, 2008) Success must be examined through the relationships among public education, household waste separation, collection and transportation, processing facilities, financing, labor, technology, markets, and residual waste reduction. If one element fails to function, the system as a whole will be disrupted. (Sapanli et al., 2023) The research findings indicate that weaknesses in source separation provide evidence that wholeness has not yet been fully realized.

The feature of openness concerns the capacity of a system to interact with its external environment. Waste management cannot depend solely on local government. It requires the involvement of communities, households, educational institutions, businesses, waste collectors, recycling industries, and markets for compost products. Openness also means the willingness to adjust strategies based on field constraints. (Auda, 2008) If the system is too rigid, facilities may become limited to institutional formalities without producing substantive change. Therefore, strengthening the circular economy requires more open mechanisms of collaboration. (Auda, 2008)

The feature of interrelated hierarchy indicates that waste management objectives exist at different levels that are interconnected. Practical objectives such as separating waste, processing organic materials, and selling inorganic materials must be linked to higher objectives, namely reducing residual waste, protecting the environment, safeguarding public health, and promoting community welfare. Within the maqāṣid framework, ultimate objectives cannot be achieved if intermediate objectives are neglected. Household waste separation may appear to be a simple action, but it constitutes a prerequisite for achieving broader ecological and economic benefits. (Auda, 2008)

The feature of multidimensionality rejects a single-dimensional assessment. Waste management has environmental, social, economic, institutional, health, and religious dimensions. From an environmental perspective, the circular economy helps reduce residual waste and pollution. From an economic perspective, it creates opportunities to generate value from materials. From a social perspective, it requires community participation and awareness. From an institutional perspective, it requires coordination among multiple stakeholders. From the perspective of maqāṣid, all these dimensions are related to the protection of life, wealth, progeny, intellect, and the environment as the space that sustains human life. (Auda, 2008)

The feature of purposefulness constitutes the core of Auda's approach. Each element of the system must be assessed in terms of its contribution to the intended objectives. TPS 3R facilities, Recycling Centers, waste banks, composting, and source separation should not remain merely symbolic programs. All of them must be evaluated according to the extent to which they reduce residual waste, protect the environment, create economic value, and strengthen public welfare. In the context of Ponorogo, purposefulness is evident in the direction of policy, but the realization of these objectives remains constrained because the system does not yet operate in an adequately integrated manner. (Auda, 2008)

Table 2. Analysis of Jasser Auda's System Features in Circular Waste Management in Ponorogo

System Feature	Meaning in Waste Management	Key Findings
Cognitive nature	A shift in perspective from viewing waste as discarded material to understanding it as material with potential value	Policies have begun to adopt a circular orientation, but community awareness of source separation remains uneven
Wholeness	The interconnectedness of upstream processes, processing facilities, downstream activities, and markets	The system remains fragmented because source separation and markets for processed materials are not yet sufficiently developed
Openness	The capacity to collaborate and adapt to external conditions	Broader partnerships are needed with communities, civil society groups, businesses, and recycling markets
Interrelated hierarchy	Technical objectives must be connected to broader environmental, economic, and public welfare objectives	Source separation, composting, and recycling need to be positioned as means toward higher objectives of public welfare
Multidimensionality	Waste management encompasses ecological, social, economic, health, and institutional dimensions	Environmental impacts are beginning to emerge, but the economic and social dimensions still need to be strengthened
Purposefulness	Every program should contribute to the ultimate objectives of public welfare	The policy direction is clear, but substantive outcomes have not yet been optimal

3.4. The Urgency of Strengthening the Circular Economy from the Perspective of Public Welfare

Strengthening the circular economy in Ponorogo has become increasingly urgent because a waste management system that relies excessively on final disposal cannot guarantee sustainability. Waste generation will continue to follow population growth, changes in consumption patterns, and the increasing use of packaged products. If the system remains dependent on final disposal, the environmental burden will continue to increase. In the long term, this condition may intensify the risk of pollution and further constrain the capacity to manage residual waste. Therefore, the circular economy needs to be positioned as a primary strategy rather than merely an additional program. (Kementerian Lingkungan Hidup dan Kehutanan, 2024)

The first area of urgency concerns environmental protection. Waste that is neither separated nor processed may cause soil, water, and air pollution. Decomposing organic waste can generate unpleasant odors and emissions, while non-biodegradable inorganic waste may persist in the environment for extended periods. From a maqāṣid perspective, environmental protection can be understood as part of the protection of life. Environmental degradation affects public health, productivity, and the quality of community life. Therefore, waste management capable of reducing residual waste constitutes a form of realizing ecological public welfare. (Auda, 2008)

The second area of urgency concerns the protection of life (ḥifẓ al-nafs). Accumulated and poorly managed waste can become a source of disease, a breeding ground for vectors, and a factor contributing to the deterioration of living environments. Circular economy-based waste management helps reduce these risks because waste is not allowed to accumulate in mixed form. Organic waste is processed, inorganic waste is separated, and residual waste is reduced. Although health impacts are not always immediately visible, a cleaner and more orderly waste management system is closely related to the quality of public health. (Salam et al., 2025)

The third area of urgency concerns the protection of wealth (ḥifẓ al-māl). In maqāṣid, wealth is understood not only as individual property but also as economic value that should be preserved rather than wasted. Waste that still possesses use value but is immediately discarded represents a loss of economic potential. (Auda, 2008) The circular economy seeks to prevent such losses by retaining material value. Compost, recyclable plastics with market value, cardboard, metal, and certain other inorganic materials can become sources of income when properly managed. However, for this potential to be realized, a system is needed that can effectively connect source separation, processing, and markets. (Auda, 2008)

The fourth area of urgency is strengthening community participation. A circular economy system cannot be implemented by government alone. Communities are key actors at the upstream level because they generate waste and are the first to determine its condition. When communities separate waste at the source, the system operates more efficiently and materials become easier to recover.(Geissdoerfer et al., 2017) When communities do not separate waste, management costs increase and material quality declines. Therefore, education alone is insufficient. Habits, role models, incentives, and service systems need to be developed so that source separation becomes a realistic everyday practice.(Salam et al., 2025)

The fifth area of urgency concerns intergenerational justice. Poorly managed waste affects not only the present generation but also places burdens on future generations. A linear model that disposes of residual waste without recovering materials effectively passes environmental problems and resource losses on to future generations.(Sapanli et al., 2023) By contrast, the circular economy seeks to ensure that resources are used more efficiently while environmental impacts are reduced. Within the framework of contemporary maqāṣid, public welfare is not measured solely by short-term benefits but also by the capacity of a system to safeguard the sustainability of human life.(Korhonen et al., 2018)

3.5. The Impacts of Circular Waste Management on Public Welfare

The impacts of circular economy-based waste management in Ponorogo can be examined from three main aspects: ecological, economic, and socio-institutional impacts. From an ecological perspective, the existence of 3R waste processing facilities (TPS 3R) and Recycling Centers helps reduce the amount of waste sent directly to final disposal.(Ponorogo, 2025) Organic waste processed into compost no longer entirely becomes residual waste. Separated inorganic waste can also enter pathways for reuse and material recovery. These impacts demonstrate a tangible contribution to environmental management, although their scale has not yet been sufficient to contain the entire flow of waste generated in the region.(Fatimah, 2024)

From an economic perspective, the impacts remain limited. Certain inorganic materials can be sold, while organic waste processed into compost has potential use value. However, the economic benefits have not yet been commensurate with the operational burden.(Yuniar et al., 2025) This is because management costs include labor, re-sorting, transportation, equipment maintenance, and facility management. When incoming waste remains mixed, the cost of recovering materials increases further.(Kirchherr et al., 2018) At the same time, the prices of recycled materials tend

to depend on market conditions, making revenues unstable. This condition indicates that ḥifẓ al-māl has not yet been optimally realized.

From a social perspective, circular waste management encourages the emergence of a new awareness that waste is not solely the responsibility of government. Communities are increasingly being introduced to source separation, waste banks, and material utilization practices.(Salam et al., 2025) However, this awareness remains uneven. Some community members still perceive waste management as complete once waste has been removed from the household. This perspective constitutes a barrier because the circular economy requires involvement from the point at which waste is generated at the source.(Sukadaryati et al., 2021) Therefore, the social impact remains at an early stage and requires continuous strengthening.

From an institutional perspective, the existence of the Environmental Agency of Ponorogo Regency, TPS 3R facilities, and Recycling Centers demonstrates the presence of a management structure that can serve as the foundation for a circular system. However, this structure needs to be strengthened so that it does not merely function as a formal institutional arrangement. Strong institutions must be capable of regulating the division of roles, ensuring financing, maintaining infrastructure, developing partnerships, and evaluating outcomes.(Ponorogo, 2025) Within Auda's framework, institutions that lack adaptability can hinder openness and purposefulness. Programs with sound objectives may lose their effectiveness when they lack adequate institutional capacity.(Auda, 2008)

From the maqāṣid perspective, the impacts that have emerged can be described as an initial form of realized maqāṣid. This means that some public welfare objectives have begun to materialize, particularly through residual waste reduction and environmental management. However, certain intended maqāṣid have not yet been fully realized, particularly the creation of stronger economic value, broad community participation, and system integration from upstream to downstream. The distinction between intended maqāṣid and realized maqāṣid is important for demonstrating that a program should not be assessed solely on the basis of its intentions or design, but also according to the outcomes that are actually realized in community life.(Auda, 2008)

Thus, circular economy-based waste management in Ponorogo is currently in a transitional phase. It is no longer entirely linear because it has established mechanisms for waste separation, processing, and material utilization. However, it is not yet fully circular because material flows remain insufficiently closed, source separation remains weak, and economic benefits are not yet stable. This transitional phase needs to be

understood in a balanced manner. On the one hand, there are achievements that provide a foundation for further development. On the other hand, there are systemic weaknesses that need to be addressed so that the circular economy does not remain merely a policy discourse but becomes a practice capable of generating sustainable public welfare.

3.6. Implications for System Strengthening

The findings of this study have several implications. First, strengthening the circular economy should begin upstream through household waste separation. Source separation is a critical point because it determines the quality of materials entering processing facilities. (Auda, 2008) Local government can strengthen public education, but education needs to be accompanied by clear service systems. These may include separate collection schedules, different waste containers, incentives for residents who consistently separate waste, and partnerships with local communities. Without supporting systems, source separation may remain merely a moral appeal that is difficult to sustain. (Salam et al., 2025)

Second, TPS 3R facilities and Recycling Centers need to be strengthened as adaptive processing nodes. Such strengthening may involve improving technical infrastructure, providing operator training, developing standard operating procedures, and establishing more stable financing models. Processing facilities cannot rely solely on the commitment of their managers. (Sapanli et al., 2023) They require institutional support that enables operations to continue consistently. From a maqāṣid perspective, such support is necessary to ensure that facilities genuinely serve their intended objectives rather than merely existing as symbols of policy implementation. (Yuniar et al., 2025)

Third, markets for processed materials need to be developed more systematically. A circular economy cannot be sustained if separated and processed materials lack viable channels for absorption. Compost can be connected to the agricultural sector, urban parks, schools, or greening communities. (Fatimah, 2024) Inorganic materials need to be connected with waste collectors and recycling industries. Recycled products should be developed in accordance with market demand. In this way, waste is not only reduced as an environmental burden but also transformed into a source of value capable of supporting the operational sustainability of the system. (Geissdoerfer et al., 2017)

Fourth, multi-stakeholder collaboration needs to be expanded. Waste management is not the responsibility of a single government agency. Schools, Islamic boarding schools, community groups, businesses, traditional markets, youth

communities, and religious institutions can be involved in education and source-separation practices. In communities with a strong religious foundation, maqāṣid can serve as an ethical framework for fostering awareness that protecting the environment is part of protecting life and realizing public welfare. (Kirchherr et al., 2017) In this way, the circular economy can gain cultural support in addition to administrative support.

Fifth, policy evaluation needs to be directed toward more substantive indicators. The success of waste management should not be measured merely by the existence of facilities, but by reductions in residual waste, increases in recovered materials, operational stability, increased community participation, and the economic benefits generated. Such substantive indicators are consistent with Auda's approach because they assess the system based on its objectives and impacts. A program that appears administratively active cannot necessarily be regarded as successful from a maqāṣid perspective if it fails to generate tangible public welfare. (Auda, 2008)

These implications demonstrate that circular waste management requires a gradual transformation. Such transformation is not merely technical but also cognitive, social, economic, and institutional. Technical changes without behavioral changes will remain fragile. Behavioral changes without adequate facilities will be ineffective. Facilities without markets will be unsustainable. Markets without institutional support will be unstable. Therefore, all elements need to be developed as an integrated system in which each component reinforces the others.

4. CONCLUSION

Circular economy-based waste management in Ponorogo has begun to be implemented through the establishment of 3R waste processing facilities (TPS 3R), Recycling Centers, waste separation, the processing of organic waste into compost, the utilization of economically valuable inorganic waste, and efforts to reduce residual waste before it reaches final disposal. These practices indicate that the direction of waste management policy has shifted from a linear model toward a circular orientation. However, implementation has not yet been fully optimized due to persistent challenges in source separation, mixed waste, technical limitations, limitations in the types of materials that can be recovered, dependence on operational support, and economic benefits that remain disproportionate to management costs.

From the perspective of Jasser Auda's contemporary *maqāṣid al-sharī'ah*, circular waste management in Ponorogo demonstrates *purposefulness* because it is directed toward reducing residual waste, protecting the environment, and utilizing materials. However, the principles of *wholeness*, *openness*, *interrelated hierarchy*, and

multidimensionality have not yet been fully realized. The system continues to face disconnections between upstream and downstream processes, between community awareness and facility capacity, and between material recovery processes and markets for processed products. Therefore, the public welfare generated remains partial and has not yet fully developed into sustainable public welfare.

Strengthening the circular economy in Ponorogo needs to be directed toward comprehensive system integration. Household waste separation must be strengthened as the primary foundation. TPS 3R facilities and Recycling Centers need to be supported by more adaptive infrastructure, financing, and institutional arrangements. Markets for processed materials must be developed so that the economic value of waste can support operational sustainability. Community participation needs to be fostered through education, incentives, and multi-stakeholder collaboration. Through these efforts, waste management can function not merely as a technical environmental program but also as an instrument for realizing *maqāsid* by sustainably protecting the environment, life, wealth, and public welfare.

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