

REFORMULATING CIRCULAR ECONOMY-BASED WASTE MANAGEMENT POLICY FOR SUSTAINABLE TOURISM DEVELOPMENT IN BADUNG REGENCY BALI, INDONESIA

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Abstract

The rapid development of tourism in Badung Regency, Bali, has significantly contributed to increasing municipal solid waste generation, creating environmental challenges that threaten the sustainability of tourism destinations. Although the Regional Government of Badung has enacted Regional Regulation Number 7 of 2013 concerning Waste Management and several supporting regulations, the existing legal framework has not comprehensively incorporated the principles of the circular economy into tourism waste management. Consequently, waste management practices remain predominantly oriented toward collection and final disposal rather than waste reduction, reuse, recycling, and resource recovery. This study aims to analyze the existing waste management policy governing the tourism sector in Badung Regency and formulate an ideal legal policy based on circular economy principles to support sustainable tourism development. This research employs normative legal research using statutory and conceptual approaches. Primary legal materials consist of laws and regulations governing waste management, environmental protection, tourism, and regional government, while secondary legal materials include books, scientific journals, and official policy documents. The collected legal materials are analyzed qualitatively through descriptive and prescriptive methods. The study reveals that the current regional regulation has not specifically regulated waste management obligations for tourism businesses, nor has it established incentive mechanisms encouraging circular economy implementation. Therefore, reformulation of the regional policy is required by strengthening waste reduction at the source, extending producer responsibility, promoting collaborative governance, and integrating circular economy principles into tourism governance. Such policy reform is expected to enhance environmental sustainability while maintaining the competitiveness of Bali as a world-class tourism destination.

Keywords: Circular Economy, Public Policy, Sustainable Tourism, Waste Management.

A. INTRODUCTION

Tourism has become one of the most important economic sectors supporting regional development in Indonesia, particularly in Bali Province. As Indonesia's primary international

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tourism destination, Bali contributes significantly to national and regional economic growth through employment creation, foreign exchange earnings, and local revenue generation. Among all regencies in Bali, Badung Regency serves as the center of tourism activities, accommodating internationally recognized destinations such as Kuta, Seminyak, Nusa Dua, Canggu, Jimbaran, and Uluwatu. The rapid growth of tourism infrastructure, accommodation facilities, restaurants, shopping centers, and entertainment venues has stimulated regional economic development while simultaneously increasing environmental pressures, especially concerning municipal solid waste (UNWTO, 2018).

Waste generation in Badung Regency continues to increase annually due to population growth, urban expansion, tourism activities, and changing consumption patterns. Tourism businesses, including hotels, restaurants, cafés, beach clubs, villas, and recreational facilities, contribute substantially to daily waste production, consisting predominantly of food waste, plastic packaging, disposable products, and other commercial refuse. Increasing waste generation has exceeded the management capacity of existing facilities, causing environmental degradation and threatening the sustainability of tourism destinations.

The accumulation of waste has become one of the most significant environmental issues affecting Bali's tourism image. Several tourist attractions have experienced declining environmental quality due to unmanaged waste, particularly marine debris and plastic pollution along coastal areas. The environmental impacts extend beyond aesthetic concerns, affecting marine ecosystems, public health, and the long-term competitiveness of tourism destinations. Consequently, waste management is no longer viewed merely as a sanitation issue but as an integral component of sustainable tourism governance (United Nations, 2015).

Indonesia has established a comprehensive legal framework governing waste management through Law Number 18 of 2008 concerning Waste Management. The law emphasizes systematic, comprehensive, and sustainable waste management through waste reduction and waste handling activities. Furthermore, Government Regulation Number 81 of 2012 concerning Household Waste Management and Household-Like Waste Management provides implementing regulations emphasizing waste reduction at the source through the principles of Reduce, Reuse, and Recycle (3R). Regional governments are mandated to formulate local policies consistent with national legislation while considering regional characteristics and development priorities.

In Bali Province, waste management has received particular attention through Governor Regulation Number 47 of 2019 concerning Source-Based Waste Management. This regulation encourages waste segregation at the source, reduction of single-use plastics, community participation, and environmentally friendly waste treatment. Additionally, Bali has introduced various environmental policies supporting sustainable tourism, reflecting the provincial government's commitment to preserving environmental quality as the foundation of tourism development.

At the regional level, Badung Regency enacted Regional Regulation Number 7 of 2013 concerning Waste Management as the principal legal instrument governing waste management activities. Although this regulation establishes the legal basis for waste collection, transportation, treatment, and disposal, its provisions remain largely general and

administrative. The regulation has not specifically addressed the characteristics of waste generated by tourism industries, nor has it comprehensively incorporated circular economy principles emphasizing waste prevention, resource efficiency, material recovery, and economic value creation from waste (Ellen M, 2015).

The concept of a circular economy has recently emerged as an alternative paradigm replacing the conventional linear economy characterized by the "take-make-dispose" model. Circular economy promotes maintaining materials and products within economic cycles through reuse, repair, refurbishment, remanufacturing, and recycling. Instead of viewing waste as an inevitable by-product requiring disposal, circular economy recognizes waste as a valuable resource capable of generating economic, environmental, and social benefits. This approach aligns closely with the Sustainable Development Goals (SDGs), particularly Goal 11 (Sustainable Cities and Communities), Goal 12 (Responsible Consumption and Production), Goal 13 (Climate Action), and Goal 14 (Life Below Water).

The tourism sector represents one of the most appropriate sectors for implementing circular economy principles due to its intensive resource consumption and waste generation. Hotels, restaurants, tourist attractions, and hospitality businesses possess substantial opportunities to minimize waste through environmentally responsible procurement, reusable packaging, organic waste composting, recycling programs, and collaboration with waste management enterprises. Integrating circular economy principles into tourism governance may significantly reduce waste generation while simultaneously improving operational efficiency and destination sustainability.

Despite various regulatory initiatives, implementation challenges remain evident in Badung Regency. Existing regional regulations have yet to establish clear legal obligations requiring tourism businesses to implement waste reduction strategies or circular economy practices. Moreover, regulatory mechanisms encouraging private sector participation through economic incentives, environmental certification, or extended producer responsibility remain limited. Consequently, waste management continues to rely heavily on transportation and final disposal, placing increasing pressure on landfill capacity and public finances.

Considering these circumstances, reformulating waste management policy based on circular economy principles becomes necessary to strengthen sustainable tourism governance in Badung Regency. A revised legal framework should provide comprehensive regulatory mechanisms integrating environmental protection, economic efficiency, public participation, and tourism competitiveness within a unified policy approach.

Accordingly, this study addresses two research questions: (1) How is waste management policy in the tourism sector currently regulated in Badung Regency? (2) How should circular economy-based waste management policy be reformulated to support sustainable tourism development in Badung Regency?

B. LITERATURE REVIEW

Concept of Public Policy

Public policy refers to decisions and actions formulated by government institutions to address public problems and achieve collective welfare. Public policies provide legal direction

for governmental action while establishing rights, obligations, and institutional responsibilities. Within environmental governance, public policy functions as an instrument to regulate natural resource utilization, environmental protection, and sustainable development. Waste management policies therefore represent governmental commitments to ensuring environmental quality through legal, administrative, and institutional mechanisms (Anderson J, 2011).

Concept of Circular Economy

Circular economy is an economic system designed to minimize waste generation by maintaining products, materials, and resources within continuous production and consumption cycles. Unlike the traditional linear economic model, circular economy emphasizes waste prevention, product reuse, recycling, and resource recovery. In waste management, circular economy encourages transforming waste into valuable economic resources while simultaneously reducing environmental burdens. The implementation of circular economy has become increasingly important for tourism destinations seeking environmental sustainability and resource efficiency (Geissdoerfer et al., 2017).

Concept of Sustainable Tourism Development

Sustainable tourism development is a development approach that seeks to balance economic growth, environmental preservation, and social-cultural sustainability. The concept emphasizes that tourism activities should provide long-term benefits without causing irreversible environmental degradation or reducing the quality of life of local communities. According to the principles established by the World Tourism Organization (UNWTO), sustainable tourism requires responsible management of tourism resources by considering current and future economic, social, and environmental impacts.

In the context of waste management, sustainable tourism requires tourism industries to adopt environmentally responsible practices throughout their operational activities. Waste generation from hotels, restaurants, and tourism facilities must be managed through prevention, reduction, recycling, and recovery mechanisms rather than relying solely on disposal systems. Therefore, sustainable tourism development requires integration between tourism governance and environmental policy instruments, including circular economy-based waste management.

The relationship between sustainable tourism and circular economy demonstrates that tourism activities can shift from a consumptive model toward a regenerative system. Through efficient resource utilization, waste minimization, and stakeholder collaboration, tourism destinations can maintain environmental quality while improving economic competitiveness. This approach is particularly relevant for Badung Regency, where tourism development represents a major economic sector requiring long-term environmental protection.

Concept of Waste Management Policy

Waste management policy represents a set of governmental strategies, regulations, and institutional arrangements designed to control waste generation and ensure environmentally responsible waste handling. Effective waste management policy does not only focus on waste collection and disposal but also emphasizes prevention, reduction, segregation, recycling, and utilization of waste resources.

The modern approach to waste management has shifted from the conventional end-of-pipe model toward integrated waste management systems. The end-of-pipe approach views waste as a problem that must be transported and disposed of, whereas integrated waste management considers waste as a resource that can be processed into economic value. Therefore, waste management policy must involve various stakeholders, including government institutions, private sectors, communities, and tourism industries.

In tourism destinations, waste management policy requires specific regulatory arrangements because tourism activities generate different characteristics and volumes of waste compared to domestic waste. Tourism businesses have significant responsibility in implementing waste reduction measures due to their intensive consumption patterns. Accordingly, regional governments need to develop regulatory frameworks that encourage tourism operators to participate actively in sustainable waste management practices.

C. RESEARCH METHODOLOGY

This research applies two approaches, namely the statutory approach and the conceptual approach. The statutory approach is conducted by examining various regulations governing waste management, environmental protection, tourism development, and regional government authority, including Law Number 18 of 2008 concerning Waste Management, Government Regulation Number 81 of 2012 concerning Household Waste Management and Household-Like Waste Management, Bali Governor Regulation Number 47 of 2019 concerning Source-Based Waste Management, and Badung Regency Regional Regulation Number 7 of 2013 concerning Waste Management (Arikunto S, 2013).

The conceptual approach is conducted by analyzing theoretical concepts related to public policy, circular economy, sustainable tourism, and environmental governance from scientific literature, academic journals, and policy documents. Primary legal materials consist of legislation and official regulations, while secondary legal materials include books, scholarly articles, research reports, and other academic references relevant to the research topic.

The collected legal materials are analyzed qualitatively through descriptive and prescriptive analysis methods. The descriptive method is used to explain the existing legal framework and current waste management policy implementation, while the prescriptive method is used to formulate recommendations for legal policy reform based on circular economy principles to strengthen sustainable tourism development in Badung Regency.

D. RESULTS AND DISCUSSION

Existing Waste Management Policy Regulation in the Tourism Sector of Badung Regency

Badung Regency represents the main tourism center in Bali Province, with tourism activities contributing significantly to regional economic growth. The development of tourism infrastructure, including hotels, restaurants, villas, entertainment facilities, and commercial areas, has increased economic productivity but simultaneously created significant environmental challenges, particularly regarding waste generation.

The existing waste management policy in Badung Regency is primarily regulated through Regional Regulation Number 7 of 2013 concerning Waste Management. This regulation

provides the legal foundation for waste management activities, including waste reduction, waste handling, collection, transportation, processing, and final disposal. The regulation reflects the regional government's commitment to maintaining environmental quality and ensuring public participation in waste management.

However, the current regulatory framework remains largely oriented toward conventional waste management approaches. The regulation emphasizes administrative control over waste collection and disposal systems but has not fully adopted circular economy principles. Waste is still predominantly positioned as material requiring removal rather than as a resource capable of generating economic value.

This condition demonstrates that the effectiveness of waste management policy is not only determined by the existence of regulations but also by the capacity of legal institutions and community compliance in implementing the established legal norms (Friedman L, 2009).

The tourism sector, as the largest waste producer in Badung Regency, has not received specific regulatory treatment within the existing framework. Tourism businesses such as hotels, restaurants, and hospitality facilities generate large quantities of organic waste, plastic packaging, and other commercial waste, yet specific obligations regarding waste reduction, recycling, and resource recovery have not been comprehensively regulated.

The absence of specific obligations creates limitations in encouraging tourism businesses to implement sustainable waste management practices. Most tourism operators continue to rely on conventional waste disposal mechanisms through collection services provided by local government or private waste transport providers. Consequently, opportunities for reducing waste generation and recovering valuable materials remain underdeveloped.

Furthermore, the current policy framework has not established adequate incentive mechanisms to encourage private sector participation. Circular economy implementation requires economic instruments such as environmental incentives, certification programs, tax benefits, or recognition systems for businesses that successfully reduce and recycle waste. Without these mechanisms, tourism industries have limited motivation to transform their operational systems toward circular practices.

Reformulation of Circular Economy-Based Waste Management Policy for Sustainable Tourism Development in Badung Regency

The transformation of waste management policy in Badung Regency requires a fundamental shift from a conventional disposal-oriented system toward a circular economy-based approach. The existing policy framework, although providing a legal foundation for waste management, requires strengthening through regulatory reform that integrates environmental sustainability, economic value creation, and tourism governance. Circular economy principles should become an essential component of regional tourism policy considering the significant contribution of tourism activities to waste generation.

The reformulation of waste management policy should begin with strengthening waste reduction obligations at the source. The principle of waste reduction requires tourism businesses to minimize waste generation before waste enters the collection and disposal system. Hotels, restaurants, villas, and other tourism facilities should be legally required to implement waste prevention strategies, including reducing single-use products, applying

environmentally friendly procurement systems, utilizing reusable materials, and implementing waste segregation at operational locations.

The obligation for waste segregation at the source represents an important element in implementing a circular economy system. Waste that has been mixed from the beginning becomes more difficult and expensive to process, reducing its economic value. Therefore, regional regulations should establish clear obligations for tourism businesses to separate organic waste, recyclable materials, and residual waste. Through effective segregation, organic waste can be processed into compost or renewable energy, while recyclable materials can be returned into production cycles.

Furthermore, the regional waste management policy needs to strengthen the implementation of the Extended Producer Responsibility (EPR) principle. EPR requires producers and business actors to take responsibility for the environmental impacts of products they introduce into the market. In the tourism sector, this principle can be applied to hospitality businesses, food and beverage industries, and suppliers that generate significant amounts of packaging waste.

The application of EPR in Badung Regency can encourage tourism businesses to redesign their consumption patterns by reducing disposable products and developing environmentally responsible supply chains. For example, hotels and restaurants can collaborate with suppliers to reduce plastic packaging, use refill systems, and prioritize products with recyclable materials. This approach creates shared responsibility between government, businesses, and consumers in reducing waste generation.

Another important aspect of policy reform is strengthening collaborative governance among stakeholders. Waste management cannot be effectively implemented solely through government intervention because waste problems involve multiple actors. The Badung Regency Government needs to establish cooperation mechanisms involving tourism associations, hotel operators, restaurants, local communities, waste management enterprises, academic institutions, and environmental organizations.

Collaborative governance allows the development of integrated waste management systems based on partnership and shared responsibility. Tourism businesses can contribute through waste reduction programs, communities can participate through waste segregation and recycling activities, while government institutions provide regulatory support, supervision, and infrastructure development. Such cooperation is essential for creating a sustainable tourism ecosystem.

In addition, the regional government should develop economic incentive mechanisms to accelerate circular economy implementation. Regulatory policies that only impose obligations without providing incentives may reduce business participation. Therefore, Badung Regency should consider providing incentives for tourism businesses that successfully implement circular economy practices, such as environmental certification, public recognition, administrative support, or other forms of appreciation.

The development of a circular economy-based tourism certification system can become an effective policy instrument. Tourism businesses that meet specific environmental standards, including waste reduction targets, recycling performance, and resource efficiency indicators,

may receive recognition as sustainable tourism operators. This mechanism not only improves environmental performance but also strengthens the competitiveness of tourism businesses in responding to increasing global demand for sustainable tourism.

Moreover, digital technology should be integrated into waste management governance. Digital platforms can support monitoring, reporting, and evaluation of waste management performance among tourism businesses. The regional government can develop an integrated information system to monitor waste generation, recycling rates, and compliance levels of tourism operators. Data-based governance will improve policy effectiveness and ensure accountability among stakeholders.

The reformulation of regional waste management policy should also strengthen enforcement mechanisms. Regulations without effective supervision and sanctions will have limited impact. Therefore, revised policies should establish clear monitoring procedures, compliance indicators, and proportional administrative sanctions for tourism businesses that fail to fulfill waste management obligations.

The integration of circular economy principles into tourism governance represents an important strategy for maintaining Bali's reputation as a sustainable global tourism destination. Badung Regency, as the center of Bali tourism, requires innovative legal policies capable of balancing economic growth with environmental protection. Through regulatory reform based on circular economy principles, waste can be transformed from an environmental burden into a valuable resource supporting sustainable economic development.

E. CONCLUSION

Waste management policy in Badung Regency has been regulated through Regional Regulation Number 7 of 2013 concerning Waste Management as the primary legal instrument governing waste management activities. However, the existing regulatory framework has not specifically addressed the characteristics and impacts of waste generated by the tourism sector. The current policy approach remains predominantly oriented toward collection, transportation, and final disposal, while the principles of waste reduction, reuse, recycling, resource recovery, and circular economy integration have not been comprehensively implemented. This condition indicates that the existing waste management policy requires strengthening to respond to the challenges of sustainable tourism development.

The reformulation of circular economy-based waste management policy is necessary to create a more sustainable tourism governance system in Badung Regency. Policy reform should emphasize waste reduction at the source, strengthen the responsibility of tourism businesses through sustainable operational practices, implement extended producer responsibility mechanisms, and encourage collaborative governance among government, tourism industries, communities, and other stakeholders. Through the integration of circular economy principles into regional tourism policy, waste can be transformed from an environmental burden into an economic resource that supports environmental sustainability, community welfare, and the competitiveness of Bali as a global tourism destination.

Based on the conclusions of this study, two recommendations are proposed. First, the Regional Government of Badung should reformulate existing waste management regulations

by incorporating specific provisions concerning the obligations of tourism businesses to implement circular economy principles, including waste reduction, segregation, recycling, reuse, and resource recovery. Strengthened regulations are also required to establish effective supervision and evaluation mechanisms to ensure consistent implementation.

Second, the Regional Government of Badung should strengthen collaborative governance in waste management by involving tourism businesses, local communities, waste management institutions, academic institutions, and environmental organizations. Collaboration should be supported by incentive mechanisms that encourage tourism operators to adopt sustainable waste management practices, thereby accelerating the transition from a linear waste disposal system toward a circular economy-based waste management model that supports sustainable tourism development.

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