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Research Article

THE IMPLEMENTATION OF GOOD ENVIRONMENTAL GOVERNANCE IN WASTE MANAGEMENT IN PEKANBARU

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ABSTRACT

Waste is a national problem in Indonesia that has not found an optimal solution and tends to get worse. Effective waste management for environmental preservation and extinction is one of the principles of good environmental governance. An important part of good governance is collaboration between the private sector and the community to achieve effective, efficient, and appropriate waste management. This study aims to assess the implementation of waste management in Tuah Karya Village. This study uses a qualitative descriptive method with data collection techniques including observation, interviews, and documentation. The results of the study show the implementation of Good Environmental Governance in waste management in Pekanbaru, with a focus on the steps that have been taken by local governments to build effective waste management in their respective regions. Several areas in Pekanbaru have implemented good waste management practices, such as building waste banks, recycling waste into new products, and promoting waste reuse. This study examines the forms of implementation of Good Environmental Governance in waste management in Pekanbaru. In the case of Waste Bank management in Tuah Karya, based on the principles of good environmental governance, it turns out that one of the seven principles, namely access to information, has not been able to achieve the goal of realizing a Smart City in Pekanbaru. This is because many residents are still unaware of the existence of the Waste Bank, and many are reluctant to participate. These challenges make it difficult for the Waste Bank to contribute to the ideals of Smart City in Pekanbaru.

Keywords: *Good Environmental Governance, Waste Management*

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A. INTRODUCTION

Good environmental governance is an essential part of government policy in environmental management to ensure the sustainability of the environment. Waste management is an environmental issue that often draws public attention. The problem of waste has become a serious concern not only in Indonesia but also in major cities in several countries around the world [1].

In Pekanbaru, waste is an unavoidable problem, and the increasing volume makes it difficult for the community to carry out their activities. This is due to the accumulation of waste or indiscriminate dumping in open spaces, which leads to soil pollution, affecting both water channels and the land.

Tuah Karya sub-district and Tuah Madani sub-district are known as the **Clean & Gold** Waste Banks of Mutiara. The community established these waste banks under the supervision of PT. Pegadaian as part of their Corporate Social Responsibility (CSR) program, titled "Pegadaian Clean, Clean Administration, Clean Hearts, and also a Clean Environment." The Gade Clean & Gold Waste Bank of Mutiara was inaugurated by PT Pegadaian and the Department of Environment and Sanitation in November 2018 and began operations on December 3, 2018.

According to the Regulation of the Minister of Environment of the Republic of Indonesia Number 13 of 2012, a Waste Bank is a place for the collection and selection of waste that can be recycled and reused, thus having economic value. In concept, it is a program to encourage the community to segregate waste [2].

According to the Unilever Indonesia Foundation (2013), a Waste Bank is a

collective dry waste management system that encourages active community participation. It is an institution that collects community waste that still holds economic value, sorts, weighs, sells it, and deposits the proceeds into the waste bank's customers' accounts.

The Waste Bank program is capable of providing tangible improvements in family income and environmental preservation, and it can also make investments in the form of savings. The Waste Bank program is a component of the Smart City, which has six pillars, and the Waste Bank program falls under the Smart Environment pillar. The primary purpose of establishing Waste Banks is to aid in waste management in Indonesia, raise environmental awareness among the public, and promote a healthy, tidy, and clean environment. Waste Banks also transform waste into something more practical, such as handicrafts and economically valuable fertilizers. The benefits of Waste Banks are realized for both people and the environment, making the surroundings cleaner, raising awareness of cleanliness, and turning waste into an economic asset.

The benefits of Waste Banks for the community include increased income as they receive money in exchange for the waste they deposit, accumulating in their accounts.

Waste Banks serve as a solution for creating clean and comfortable settlements for their residents. This encourages residents to manage their waste more responsibly while providing additional income from the collected waste. The role of Waste Banks is to reduce the impact of climate change, as waste is a significant factor contributing to the increase in

greenhouse gas emissions in the atmosphere. Besides, human activities are connected to energy, forestry, agriculture, and livestock.

The establishment of Waste Banks should be done comprehensively to directly benefit the residents, not only economically but also in terms of environmental health, creating cleaner, greener, more comfortable, and healthier communities. The benefits of Waste Banks include improving the community's economy, creating a cleaner environment that enhances public health and fostering better social interactions among community members. This Waste Bank program is part of the Smart City program, focusing on creating a clean, healthy, green, safe, comfortable, peaceful, and sustainable environment.

Waste management through Waste Banks, according to the Unilever Indonesia Foundation (2013), is a waste management system to reduce waste accumulation. It involves recycling and reusing waste with economic value, known as the 3Rs (Reuse, Reduce, Recycle).

The principles of good environmental governance should guide the implementation of waste management policies. This means that effective governance cares about the sustainability and preservation of the environment [3]. The establishment of a Waste Bank aims to create a community based on environmental cleanliness, leading to prosperous and environmentally friendly communities with positive and economically valuable activities.

Governance consists of three components or pillars. The first is public governance, which refers to government institutions and can be understood as good governance within these institutions. The second is corporate governance [4]. A

crucial part of good governance is the collaboration between the private sector and the community to achieve effective, efficient, and proper waste management.

According to Article 1, number (1) of Law No. 18 of 2008 concerning solid waste management, waste can be defined as substances generated by human activities or natural processes. On the other hand, according to Article 1, number (5), waste management refers to systematic, comprehensive, and sustainable activities encompassing waste reduction and handling. Waste management is also regulated in Regional Regulation No. 3 of 2014, Article 1, number 14, which defines it as systematic, comprehensive, and sustainable activities that include planning, waste reduction, and waste handling. Therefore, urban waste management is currently facing various complex issues. This aligns with the provisions of Pekanbaru City Regional Regulation No. 8 of 2014 regarding waste management.

Table 1.1: Waste Bank Tonnage for the Year 2022

Month	Kilogram
January	32534.50
February	23274.52
March	33405.74
April	3358.26
May	18576.64
June	23095.86
July	17413.58
August	12568.04
September	14075.08
October	9960.36
November	7955.52
December	6898.55
Total	203116.63

Source: Sustainable Green Index Waste Ba

The waste volume in 2022 from January to December amounted to 2,031,116.63 kilograms, which is considered relatively high. The presence of Waste Bank is expected to help reduce the waste in Pekanbaru City.

Research conducted by firnaldi et al, found that domestic waste management has not implemented a good environmental governance model, the sectoral ego of institutions in waste management is an obstacle [5]. Good environmental governance has a significant impact on sustainable waste management. Integration and synchronization of central and regional government policies need to be improved [6]. The government has involved the community and the private sector in waste management, but transparency and accountability still need to be improved. Improving strategies in realizing integrated and inclusive waste management [7]. The fragmentation of the public sector in relation to wastewater disposal, management and productive use hinders the changes and developments needed to better utilize wastewater. Governance steps are needed to recognize farmers' rights to wastewater and encourage the implementation of bottom-up and participatory models in implementing wastewater reuse programs[8]. Good governance results in lower CO2 emissions, the use of solar energy and good governance results in a healthy ecosystem[9].

Waste management includes the process of production, storage, collection, transfer, processing and disposal of waste in maintaining public health and the environment [10]. Waste management starts from waste minimization, recycling, resource recovery, and environmentally

friendly disposal practices [11]. The accumulation of waste in areas with large populations is often not mature in management planning [12]. As a result, this becomes an obstacle in implementing waste management [13]. Waste management from a governance perspective is a technical problem that must be solved by local governments [14]. Local governments have weaknesses in waste management due to lack of financial support [15]. There are still gaps in the implementation of sustainable waste management on a large scale. The government's consistency in facing these challenges is an important perspective in complying with the principles of good environmental governance. The government's ability to build cooperation with the private sector in waste management is an important aspect for sustainable solutions. This study aims to address the gap by looking at the dynamics of good environmental governance in waste management in Pekanbaru City. Based on the background that has been presented, the author can formulate the problem: **"How is the implementation of Good Environmental Governance in waste management in Pekanbaru City?"**

B. METHODS

The research conducted in this study employs a qualitative approach. Qualitative research is chosen to uncover findings that may not be achievable through other methods. This qualitative writing also includes impressions, opinions, and viewpoints involving various methods to examine the researched issue. Using a qualitative descriptive method, this writing explains the conditions and events that occur in managing the Waste Bank in

realizing the Smart City Madani in handling waste in the Pekanbaru City community.

Good governance is part of the government's policy in managing the environment more sustainably and maintaining its sustainability. The implementation of governance must be based on the principles of good governance such as the management of natural resources and the environment. driven by a vision to protect and preserve ecosystem functions in order to support sustainable development. According to the World Bank, as quoted from Belbase, activities aimed at the sustainable use of natural resources and maintaining the quality of the environment are referred to as Good Environmental Governance. This requires a transparent institutional system in environmental issues and involves community participation in forming policies and implementing programs [16]. Environmental protection and management cannot be separated from the role of government in creating policies to create a healthy and conducive environment. This is very important considering that environmental issues continue to emerge along with the progress of development in all sectors. In other words, this emphasizes the importance of environmental sustainability. To reduce the potential for significant environmental damage and implement one of the principles of Good Governance related to the commitment to environmental protection, a new concept in environmental management known as Environmental Governance was born. Environmental Governance is a new paradigm in the environment, so it is an important part of achieving good governance. In addition, environmental governance is expected to make environmental aspects the main focus of

development in Indonesia, in addition to economic and social aspects. The concept of Environmental Governance focuses on the need to understand and manage the symbiotic relationship between social systems and ecosystems[17]. Furthermore, management of social systems must prioritize ecological values and vice versa[18]. Environmental damage is closely related to the sustainability of social interactions that occur in everyday life, both formally and informally. Environmental damage is also related to the tendency of service users to avoid responsibility. In short, environmental degradation is closely related to human behavioral problems[19]. Managing the environment in society involves controlling human behavior collectively. Thus, it can be concluded that Good Environmental Governance includes various activities organized by the government by considering the sustainability and preservation of the environment, especially natural resources, and involving all members of society.

C. RESULTS AND DISCUSSION

The Implementation of Good Environmental Governance in Waste Management

Waste management through a Waste Bank, defined by the Unilever Indonesia Foundation (2013), is a waste management system to reduce waste accumulation. It encourages various sectors of society, including the government, businesses, and the general public, to engage in activities that reduce waste accumulation, promote recycling, and reuse waste with economic value, commonly known as the 3R principle. These three components include:

- a) Reduce

The existence of a Waste Bank has significantly reduced the amount of waste in the Tuah Karya neighbourhood. When observed on the ground, waste accumulation in the Tuah Karya neighbourhood has decreased. There is little to no waste, although some residents still dispose of waste in their backyards or burn it. Many people are unaware of the Waste Bank, leading to scattered waste. The implementation of the Waste Bank has been very effective in reducing waste accumulation in Pekanbaru, ultimately preventing the increase in waste volume in the city.

b) Reuse

Reusing waste products, commonly referred to as waste reuse, involves utilizing used products again, thus generating less waste. The widespread use of single-use products contributes to the growing waste problem. Reuse reduces waste accumulation because waste often has other functions that can be harnessed. The benefits of reusing waste include conserving raw materials and energy through reused items, as well as reducing the need for waste disposal facilities and the associated costs. In the context of a Waste Bank, "reuse" does not involve reusing waste materials. Instead, the Waste Bank accepts waste delivered by residents, weighs it, and records the weight in the Waste Bank's savings book. Waste in the Tuah Karya neighbourhood is collected and distributed to the Waste Bank after it has been cleaned and sorted by residents. Waste that meets the collector sets criteria is then handed over to them.

c) Recycle

Recycling, or turning waste into raw materials for producing new products with economic and aesthetic value, is another component of waste management. The waste issue in Pekanbaru has been a persistent problem for decades. Recycling waste is one of the solutions proposed. However, in reality, there are better solutions to the ever-growing waste problem than recycling. In essence, the benefits of recycling waste can be achieved through consistent recycling activities, such as reducing the volume of waste in landfills, making waste management more manageable, and maximizing natural resource conservation. This approach helps reduce the use of waste and the intensity of incineration, which can introduce new problems like toxic gases that pollute the air when waste is burned.

In Regional Regulation No. 8 of 2014 of Pekanbaru City regarding Waste Management, waste management is defined as a comprehensive, systematic, and sustainable activity aimed at reducing and addressing waste. This waste comprises the residues of daily human activities or natural processes in solid form, including waste that is more specific or requires special management.

Environmental standards of governance as a level of decision that requires improvement or tolerates damage to environmental conditions. The direction of good environmental governance will depend on the views of stakeholders, environmentally oriented stakeholders will lead to strong conservation. Control to strong institutions will clarify the impact of participation.

Effective environmental governance is an integral part of the government's environmental management policy to preserve the environment. Waste is an environmental issue that often garners significant attention from society. The problem of waste is not just a concern in Indonesia; it is a serious issue in major cities in several countries around the world.

According to Azizy, one of the key principles of good governance is a commitment to environmental protection. This principle emphasizes the balance between using natural resources and their conservation, upholding the principles of sustainable development, minimizing pollution and environmental damage, and reducing violations of environmental protection.

Environmental governance represents a new paradigm in environmental management, and it is a crucial component of achieving effective governance. Furthermore, environmental governance aims to make environmental aspects the primary focus of development in Indonesia, alongside economic and social factors. It underscores the importance of integrating environmental considerations into mainstream development initiatives.

To strengthen the implementation of environmental governance, there is a need for representative institutions capable of performing their functions in lawmaking and effective oversight. This includes independent, clean, professional judicial institutions, government officials with integrity and professionalism, democratic decentralization, and a strong civil society that can effectively carry out political oversight tasks. Effective conflict resolution mechanisms are also essential in this regard [20]. Maximizing environmental outcomes will be beneficial to provide

stakeholders with a level of collective decision-making competence that is in line with the call for sustainability that truly empowers participatory processes [21].

The government's efforts to enforce the law in waste management are indeed a significant factor in the community. Additionally, the Langsa City Government plays a pivotal role in law enforcement in waste management, both in preventive and punitive measures. Furthermore, the legal framework in place is embodied in Regional Regulation No. 8 of 2014 of Pekanbaru City concerning Waste Management. In fact, this legal foundation is relatively sound, necessitating public awareness and education efforts by the Langsa City Government to inform the population about these regulations.

The administration of the government based on the principles of good environmental governance implies that the principles of effective state governance in environmental management are aligned with the principles of natural resources and environmental conservation.

In this research, the researcher utilizes the theory of Good Environmental Governance as presented by Belbase (2010), which consists of seven principles:

- a) Legal Framework: The implementation of waste management regulations in Pekanbaru City is governed by Mayor Regulation No. 56 of 2019. However, there are still numerous violations of these regulations, and the rule of law still needs to be fully maximized. The Waste Bank creates a clean, healthy, and comfortable environment, benefiting the residents and reducing waste.

The Waste Bank plays a vital role in environmental preservation, and this program can be further developed to

prevent an increase in waste volume in Pekanbaru. Thus far, in line with the provisions of Mayor Regulation No. 56 of 2019 on the Masterplan for Smart City Pekanbaru, the implementation of this program is in progress.

According to the Local Regulation of Pekanbaru No. 56 of 2019 on the Masterplan for Smart City Pekanbaru, environmental balance is part of efforts to protect the environment from negative impacts arising from various activities. Preserving the environment includes responsible water usage minimizing the use of hazardous chemicals in the environment.

- b) **Participation and Representation:** The collaboration between the government and the community is visible through the Waste Bank management, where the government provides guidance and support to the Waste Bank. Regarding information access, the government still relies on individuals genuinely concerned about waste management, such as Waste Bank activists.
- c) **Facilities at the Waste Bank are limited,** including one motorcycle cart for manual waste collection and one computer. Moreover, the vehicle requires maintenance as it is experiencing technical issues.
- d) **Transparency and Accountability:** The Waste Bank program aligns with the Masterplan to develop a civilized Smart City in Pekanbaru, as stipulated in Mayor Regulation No. 56 of 2019. The local Department of Environmental and Hygiene has urged citizens to maintain cleanliness and avoid indiscriminate waste disposal. The Waste Bank involves community members as customers, thus providing

them with an understanding of waste management.

- e) **Decentralization:** In Pekanbaru, decentralization grants the government total authority over waste management, from the operation of landfill sites to the establishment of Waste Banks. However, government-operated Waste Banks have faced challenges. In the case of Buah Karya Sub-District, the Waste Bank needs to be effectively managed, but waste is sorted by type. When the bins are full, the waste is collected by waste collectors or companies like PT Pegadaian, which subsequently transports the waste to factories.

The benefits of the Waste Bank program in Pekanbaru can be experienced by the residents, particularly those in the Buah Karya Sub-District. It aligns with the objectives of the Waste Bank program in the district and educates the community about the potential value of waste and its impact on savings.

- f) **Institutionalization:** The role of institutions and institutionalization is gradually developing in Pekanbaru, supporting and assisting the government in waste management.
- g) **Access to Justice:** Obstacles to the program include limited participation from the community in the Buah Karya Sub-District, resource constraints, and infrastructure limitations. These factors hinder the waste sorting program, leading to visible waste piles that cause unpleasant odours, disrupt traffic, and indicate that the waste sorting program in the Buah Karya Sub-District still needs to be operating at its full potential.

Waste Bank Management in Pekanbaru

Waste management includes all actions from initial waste production to processing and final disposal at the final disposal site (TPA). In general, waste management can be achieved through a) waste reduction and b) waste handling. Waste reduction includes minimizing waste disposal, recycling, and reusing waste, while waste handling includes sorting, collecting, transporting, and processing.

Waste reduction in Pekanbaru city is still not optimal. This can be seen from the increasing volume of waste of 1,100 tons every day. The Pekanbaru city government needs to take action to reduce this waste. Waste reduction does not only minimize disposal but also recycling. Minimizing waste disposal is done through action and socialization to the community regarding waste use. Meanwhile, waste recycling requires cooperation between the government and the private sector in carrying out good management. One of the waste banks managed by the private sector is the Tuan Di Bargana Waste Bank (TDB).

In waste management, in Pekanbaru city there are still few places that sort waste. Sorting is needed to be able to recycle waste. The process of collecting and transporting waste is still a polemic in Pekanbaru City, temporary waste storage often has problems and obstacles in transporting waste from temporary storage. The processing stage is still a challenge for the government.

Environmental governance requires direct and indirect participation of individuals, social organizations and groups with environmental interests in the environmental policy process in promoting the effects of environmental governance [22]. Community involvement in waste management is very much needed. Waste

management is not only through waste banks, the community can manage it by making biopore holes and compost. Waste that is managed properly will contribute to the reduction and utilization of waste.

Private sector participation in this management also needs to be increased. Cooperation between the government and the private sector in managing waste banks is a good alternative for management options for the community. Waste that has been collected and sorted by the community can be a source of additional income from the sale of recyclable waste. The existence of waste banks in Pekanbaru City makes it easier for the community to participate in supporting good governance for the environment.

Waste management in Pekanbaru city is divided into three zones. This zoning was formed with the aim of facilitating the government in transporting waste based on its zones. Zone 1 consists of 4 sub-districts, zone 2 consists of 8 sub-districts, and zone 3 consists of 3 sub-districts. Currently, the waste that has been managed by the Pekanbaru city government has reached 20%, this can still be said to be small considering the amount of waste has increased to 30,000 tons/month. Waste transportation in Pekanbaru city is carried out 2 times in 1 day, where this transportation is carried out by pick-up trucks or large-scale cars. Meanwhile, the high amount of waste in temporary landfills is very ineffective if transportation is carried out 2 times. Another alternative for the community in managing waste has not been done properly. All the waste that is owned is immediately thrown into the trash at the same time without selection and ends up in a temporary landfill. Realizing that some waste can be processed by itself into food scraps, leaves, and leftovers that can be

recycled. Some waste that can be recycled can be sold to waste banks as part of supporting good governance. Meanwhile, in supporting good governance, the government needs to cooperate with the private sector in transporting waste based on zones and creating new waste banks at every strategic point. Creating innovative waste banks by using waste bank machines that can be sold by the community. The existence of the private sector will make it easier for the government to manage waste properly and effectively.

Effective waste management plays an important role in creating a clean and healthy environment. In environmental health, waste management is considered successful if the waste does not become a breeding ground for disease. Several requirements must be met in waste management, such as not polluting the air, water, and soil, preventing odors, avoiding fires, and so on.

Waste management also requires legal certainty, clarity of responsibility, and division of authority. In addition, the involvement of the community and business actors in waste management can support the waste management system contained in Law Number 8 of 2014 concerning Waste Management. This law regulates waste management, division of authority, and its implementation. The basic concept of waste management focuses on prevention and utilization efforts. Waste is the remainder of daily human activities or natural processes in solid form, including certain types of waste or waste that requires special management.

Due to the increasing volume of waste in Pekanbaru City, both household waste, market waste, and roadside waste that causes unpleasant odors, the Pekanbaru

City Government initiated the Waste Bank program.

D. CONCLUSION

Good Environmental Governance represents activities carried out to ensure the sustainability of the environment, especially natural resources, involving all community members. A smart or clean environment is a concept that aims to provide support and benefits to humans by enhancing their quality of life, ensuring safety, comfort, and cleanliness. Within this framework, a smart environment includes programs like the Waste Bank, which, by promoting a clean and comfortable environment for the community, contributes to improving the quality of life. However, the Waste Bank has yet to achieve a prominent status in the realization of a smart city in Pekanbaru, and a smart environment still needs to be a pillar in the development of a smart city in Pekanbaru.

The reason why the Waste Bank has not become a significant achievement in making Pekanbaru a smart city is the limited participation of the community and private sector involvement. Community participation can help manage waste at the initial level of sorting. Sorted waste can be utilized and recycled. This awareness of participation has not gone well, due to the lack of willingness and concern of the community for the environment. Reducing waste use is also still difficult to do, people are accustomed to using a lot of plastic at every opportunity compared to using recycled bags to transport any goods. As well as the waste bank program created by the government which is not running well. The waste bank is the end of the waste sorting journey that is owned, the existence of a waste bank should be able to provide economic value to the community.

However, the existence of waste banks that are still few and lack of socialization to the community is a big challenge for all of us in the future. Large community involvement in the waste bank program to build a smart city. The existence of a Waste Bank will be an achievement in realizing a smart city and the existence of a waste bank will depend on the continuous involvement of the community.

Regarding the application of the principles of Good Environmental Governance in Pekanbaru, the principle of the rule of law, or the supremacy of the law, seems to be lacking. Law enforcement is the foundation for any waste management in Pekanbaru. Law enforcement is perceived as inadequate, with many violations occurring in the community. Furthermore, there has been insufficient action by the government against these violations per existing regulations. Waste management is influenced by several factors, including rapid technological development, improved quality of life, increased management and operational costs, operations and construction in various fields, waste management techniques, the community's ability to maintain property, final disposal site land availability, and supervision and enforcement of regulations.

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