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Problems of Household Waste Management in Banyumas Regency, Central Java

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Abstract

The increase in population, changes in consumption patterns, and lifestyle changes have led to an increase in the amount, type, and variety of waste characteristics. Therefore, a good and appropriate waste management system is needed but not only regarding technical matters but also needs consideration through various existing disciplines. Thus, this article contains two crucial issues concerning the problem of household waste management and the factors that influence the collective awareness of Banyumas community members through the sociological empirical research method which collects, processes, and analyzes secondary data from interviews with informants from various circles in a prescriptive evaluative nature. Finally, through the results of the research, it is concluded that the commitment of the government apparatus in Banyumas Regency must continue to be improved, so it is necessary for the Banyumas Regional Government's policy to include long-term and short-term programs.

Keywords: Household, Waste Management, Central Java, Banyumas

1. Introduction

The increase in population, changes in consumption patterns, and lifestyle changes have led to an increase in the amount, type, and variety of waste characteristics. The increasing purchasing power of people towards various staples and technological products, as well as the increasing activities that support economic growth in an area, also contribute significantly to the amount and quality of waste generated (Tangga, M. N. P. L. R., 2015). The increasing volume of waste generated requires proper handling. Waste handling that is not environmentally friendly not only has the potential to adversely affect health but also seriously disrupt environmental sustainability, including in residential areas, forests, rice fields, rivers, and the sea. Increasingly large waste generation will reduce space and disrupt human activities, thereby reducing the quality of human life due to waste generation problems. Therefore, a good and appropriate waste management system is needed. Landfills are one of the basic needs in waste management, so their existence is very necessary. The efforts made by Indonesia in the form of Agenda 21 Indonesia, this agenda provides a series of views and inspiration for development planning in Indonesia. Agenda 21 Indonesia also provides advice and strategies for realizing

sustainable development so that it can be used as a reference for the preparation of GBHN (State Policy Guidelines), Repelita VII and subsequent Repelita. One of the agendas is waste management which includes Protection of the atmosphere, Management of toxic and hazardous materials, Management of toxic and hazardous waste, Management of radioactive waste, Management of solid and liquid waste.

Community participation is the most important thing in managing waste. This participation will increase if people realize the benefits and advantages they get if they independently manage waste. Environmental management activities, especially in terms of waste, will not work well if they only rely on the role of the government (Ristya, T. O., 2020).

Each region must have efforts in managing its own waste, but the development of an area means that the need for land to support human activities is getting higher, causing land functions in various regions to change. This results in the difficulty of obtaining landfill land, especially in urban areas due to the limited land available. This condition makes the addition of land an expensive thing, so a good and proper waste management system is a wise choice. In addition to waste generated by households, companies/institutions also produce a large amount of domestic waste in their activities.

It is not only about technical matters but also needs consideration through various existing disciplines such as understanding how the impact on the environment, financial and economic calculations, social and cultural issues, as well as aspects of public policy and institutions that can support processing. The waste management system itself consists of five sub-systems, namely regulations / laws, institutions / organizations, operational techniques, financing / retribution, and community participation, but in reviewing waste management, not only reviewing from five aspects but must consider other aspects as discussed in Law Number 18 of 2018 based on nine (9) principles with the aim of improving public health, environmental quality and making waste a resource. (Erin Damanhuri & Tri Padmi., 2019)

There are various aspects of good waste management according to Wilson, especially political, institutional, social, financial, economic, and technical aspects. The same thing was stated by Zurbrugg that things that need to be considered in the waste management process include institutions and regulations, understanding and participation, know-how and capacity, environmental protection, technical aspects, financial and economic aspects. In addition to the aspects that must be considered in waste management, there is an integrated waste management concept that must be considered through 3 dimensions of sustainability that require validity between stakeholders, system elements, and influential aspects.

National waste in 2022 is food waste with a proportion of 41.55%. Followed by plastic waste with a proportion of 18.55%. Then there is waste in the form of wood / framing (13.27%), paper / cardboard (11.04%), metal (2.86%), cloth (2.54%), glass (1.96%), rubber / leather (1.68%), and other types of waste (6.55%). As for the source, the majority or 39.63% of national waste generation last year came from households. The next source of national waste generation came from commerce as much as 21.07%, 16.08% from markets, 7.14% from commercial/industrial/other areas, 6.82% from public facilities, 5.96% from offices, and 3.3% from other sources. In terms of waste composition, the majority of municipal waste in Indonesia is classified as biological waste, or commonly known as organic waste. This biological waste for big cities can reach 70% of the total waste, and around 28% is non-biological waste which is a potential object of scavenger activity, starting from the source of waste (from houses) to the landfill. The rest (about 2%) is classified as hazardous waste that needs to be managed separately. (Annur, CMA,2023) In addition, it is hoped that with this integrated waste management site, there will be cooperation between communities around the company/institution environment in maintaining cleanliness.

Based on its composition, waste can be divided into several types, namely 60% organic waste, 15% plastic, 10% paper, and 15% metal, glass, cloth, leather (KLHK, 2015). Organic waste mainly consists of food waste (both from animals and plants), vegetables, fruits, fish waste, agricultural and plantation waste, wood waste, leaves, twigs, and animal and human waste. If organic waste is not managed properly, it can cause disease, unpleasant odors, damage the aesthetics of the city, and reflect the government and community's indifference to

environmental cleanliness and health. In addition, organic waste can also be a source of pollution by producing liquid waste (leachate) that pollutes groundwater and methane gas that pollutes the air, which is a cause of global warming (Amin, A. A., Nugraha, A., & Sutjahjo, S. H., 2018).

Current legal regulations starting from the 1945 Constitution of the Republic of Indonesia Article 28H paragraph (1) provide the right to a good and healthy environment. The government is responsible for public services in waste management, can partner with business entities, and involve community organizations and groups. This is regulated in the fourth part of article 9 paragraph 1 which explains the government's authority in determining the location, policy and authority of the government in handling waste. An important process that should be carried out to maintain the stability of a clean environment is the waste management process which includes waste reduction and processing (Article 19). The government also facilitates every waste management activity regulated in Article 24.

Law No. 18 Year 2008 on Waste Management. The rapid growth of the population in Indonesia increases the volume of waste, influenced by people's consumption patterns and the difficulty of recycling packaging waste. Many still consider waste useless and manage it only at the final stage, leading to potential methane gas from landfills. Waste management needs a new approach that sees waste as an economic resource, with a comprehensive strategy from source to waste handling. Also, the Regulation of the Minister of Public Works of the Republic of Indonesia No. 3 of 2013 fully regulates the Implementation of Waste Infrastructure and Facilities for Handling Household Waste and Waste Similar to Household Waste. Within Banyumas Regency itself, Regional Regulation No. 18/2014 on Environmental Protection and Management, Regional Regulation No. 6/2012 on waste management, Banyumas Regent Decree No. 050/53/Year 2021 on Self-Help Groups and various other provisions apply.

Real cooperation in realizing the regulations that have been formed by the government between the community and the government in managing waste can be found in Banyumas, which is currently processing waste worldwide, presenting its waste management methods at the COP 27 International Conference in Egypt and being able to attract other countries to want to learn from Banyumas. This achievement is the reason for the writing team to research the waste management process.

2. Problem Formulation

With regard to the explanation above, the Research Team intends to study and conduct research on the following problems:

1. What problems arise in household waste management in Banyumas district?
2. What factors influence the development of collective awareness among Banyumas Regency community members in household waste management?

3. Research Methods

The type of method that will be used in this research is sociological empirical legal research based on efforts to collect, process, and analyze secondary data from interviews with informants from various circles such as Government Officials (village officials), The approach taken by the team in conducting research using a qualitative approach to understand the symptoms studied. Meanwhile, the nature of the research is prescriptive evaluative as a basis for providing solutions to the problems studied. All data obtained, both regarding document studies and interviews and observations, are subjected to a process of checking and cross-checking (data triangulation) to ensure the validity of the data that will be presented in the research report and articles that will be produced and published in scientific journals.

All data collected was processed and analyzed qualitatively using Anton F. Susanto's analysis model, which is as follows:

1. Data Reduction
2. Focusing on Simplification

3. Abstracting
4. Data transformation.

The data analysis technique used by researchers according to the Miles and Huberman analysis model which consists of 3 (three) kinds of qualitative analysis activities, namely:

1. Data Reduction
2. Data Model (data analysis)
3. Withdrawal/Verification
4. Conclusion. (Milles & Huberman., 1992)

The data reduction process is carried out by selecting, focusing, simplifying, abstracting and transforming the data that has been collected. Furthermore, the data model is made and processed in such a way as to become a narrative sentence and practical in drawing conclusions. Drawing conclusions from data reduction and data models that have been made, and verifying the data again in order to get sufficient validity. (Emzir., 2010)

4. Analysis and Discussion

Waste management must not only be carried out by a government agency but also the importance of the community managing it themselves because the existence of independent waste management can reduce waste that is scattered everywhere so that a clean, healthy and comfortable village can be created, build public awareness about environmental and natural awareness, solve self-created waste problems and create jobs. There are 3 types of waste that need to be known by the community, namely, organic waste, non-organic waste, and hazardous waste. Organic waste is waste that comes from the remains of living things that are easily decomposed or decomposed naturally. Example: Food scraps, fruit and vegetable scraps, tea/coffee grounds, leaves and tree branches. Organic waste such as fruits and vegetables which if disposed of just like that to the TPS will produce leachate which is a liquid produced from anaerobic decomposition will be washed away by water from outside and carried into groundwater (Erin Damanhuri and Tri Padmi. 2019), so that the need for organic waste processing can be done in various ways, namely composting, organic waste as animal feed, and utilizing living things such as the use of magot or *Black Sholdier Fly* (BSF). (Interview with the Head of Bumdes, Pancasan Village, December 14, 2023) Various aspects of good waste management according to Wilson, especially political, institutional, social, financial, economic, and technical aspects. The same thing was stated by Zurbrugg that things that need to be considered in the waste management process include institutions and regulations, understanding and participation, *know-how and capacity*, environmental protection, technical aspects, financial and economic aspects (Erin Damanhuri and Tri Padmi, Op. cit, p.17). In addition to the aspects that must be considered in waste management, there is an integrated waste management concept that must be considered through 3 dimensions of sustainability that require validity between stakeholders, system elements, and influential aspects.

4.1. Problems of Waste Management in Banyumas

Through the problem that arose, namely the *over capacity of the landfill in Kaliori Village, Banyumas*, the residents and the local village head held a demonstration to voice their concerns regarding the adverse impacts of the *over capacity*. The quick action taken by the Regent of Banyumas in handling the demonstration at the Kaliori landfill in 2016 showed that the Regent as the head of the region and head of the government had accommodated the aspirations of the community members who objected to the impact of the landfill in Kaliori village that had polluted 5.5 hectares of community rice fields and caused a strong stench as a manifestation of the strong leadership spirit of the Regent in carrying out his duties as head of the region and as head of the government. This step was then followed up with the construction of TPSTs in several villages in Banyumas district and continues to this day down to the village level. The government and citizens of Banyumas continue to innovate and be creative in utilizing and processing household waste into products that have economic value such as paving blocks, asphalt, magot cultivation, and so on. At TPST Gunung Tugel, the Regent of Banyumas stated that the *Zero Waste* program, which is the goal of the Banyumas government, has reached 90% (Mojokdotco., 2023).

In addition to the *over capacity* problem that occurs in Kaliori, one of the villages in Banyumas also feels the same way, namely Kedungrindu village where there is a KSM Randu Makmur which is trying to overcome the waste emergency problem. The TPST Director stated that this waste processing started from compulsion because of the waste emergency, the way it was done was by asking questions about how to process waste so that the emergency could be overcome. Through good cooperation, they were able to carry out waste management that was recognized by various parties. Processing waste from the source changes people's behavior by making it easier for people to sort waste to be purchased by the government. Revenue 130-140 million/month, operational 120 million, employee honorarium 90 million, others 30 million, daily costs 2 million. Cooperation with the health department so that all workers have BPJS and routine health checks. Processing of leachate produced into water compost (Interview with TPST director on December 14, 2024).

Currently there are 6 new TPSTs in Banyumas, but previously there were 4 TPSTs that have been established, which means that Banyumas Regency currently has 10 TPSTs that are active in the waste processing process. He said that there are 42 PDUs (Waste Recycling Centers) in Banyumas Regency, PDUs are smaller waste recycling centers from the Ministry of Environment and Forestry of the Republic of Indonesia. In relation to waste management, the community is involved in small-scale waste management. Every household waste can be processed and not continue to accumulate. Until the formation of KSM (Kelompok Swadaya Masyarakat), at the time of the formation of KSM, he had a demo because it was considered a problem. But at that time he asked for time to prove that the formation of this KSM was not a problem, he began to equip waste processing tools / machines and began to process waste, initially only 1 ton of waste was processed, then continued to grow. He asked the community whether this waste processing caused bad odors, and the community's answer was that it did not cause odors. Then as many as 30 people entered the KSM to work and after being calculated and made SDF, it turned out to generate a profit of 50 million / month, which initially they were not interested at all then because they made a profit they entered as administrators and so on. Not only that, when this KSM was running, there were people who demonstrated because of the smoke coming out of the machine. The Banyumas Regent directly handled this by modifying the chimney and monitoring it so as not to disturb the community (Mojokdotco., 2023).

In addition, there is also an effort to cultivate magot in Pancasan village, Ajibarang sub-district, which decomposes organic waste such as vegetable and fruit scraps. This is done by the Berkah Banyu Makmur village-owned enterprise, the Berkah Runtah business unit. The Berkah Runtah business is a bumdes business unit in charge of waste processing business originating from Pancasan villagers built on land in 2019 and started operating in 2020 with the vision of realizing a clean, healthy and comfortable Pancasan village and actualized in its mission, namely, protecting springs, realizing Sapta Pesona, and creating jobs. This Bumdes has several employees whose duties have been divided by the government from waste transportation, waste sorting, residual waste handling to the maintenance of BSF magot, each of which has two employees except for waste transportation which is only one. Revenues are obtained from various ways of selling or distributing, namely garbage fees or customers, which currently Bumdes berkah Runtah has around 1790, selling organic waste, selling BSF magot, and selling kasgot organic fertilizer (Interview with Mr. Sukirno, Head of Pancasan Village, on December 14, 2023).

4.2. Building Collective Awareness of Banyumas Community Citizens

The Banyumas community builds an integration, which is the process of uniting cultural and social groups in a unified territory, namely something that can unite the community (Mahfud MD,2023). The totality of beliefs and sentiments common to the majority of the population of a society forms a special system that has its own existence; this can be referred to as collective consciousness or shared consciousness. Therefore, collective consciousness is fundamentally different from individual consciousness, although it can only be understood through it (Tom Campbell. 1994).

Other parties besides the government, such as clergy, also take part in efforts to socialize with the community where people will be told how to process waste properly through the deepening of faith held since 2020. For

example, Romo Tedjo Wibowo stated that: "In 2023 we have developed a topic on the theme of ecological economy, where this theme teaches how we strive for economy and ecology from the teachings of Pope Francis how we can process the economy as well as ecology, without exploiting the plants, actually since 2007 we have proposed sorting waste, reducing Styrofoam and plastic."

The response of religious leaders starting from the Romo regarding the success of the Banyumas government in waste management to become the talk of the world is not only limited to appreciating but also needs to be criticized because for the Romo in building community character must start from the personalities of each Banyumas community so that there is a character that is formed as a culture and this needs a relatively long time so it needs to be criticized that whether this success is only an economic success or the success of the Banyumas government in shaping the character of the Banyumas community regarding its concern in fighting waste and protecting the environment. Likewise, the response of Islamic religious leaders about the global success of waste management in Banyumas, Mr. Wahyu said that good waste management is only in one point in Purwokerto which is able to process waste into other forms of goods such as paving blocks, etc (Interview with Mr. Wahyu, Administrator of the Great Nur Salaiman Mosque, on December 14, 2023). The response of Mr. Shobita, the administrator of Boen Tek Bio regarding the success of Banyumas to go global, he always supports what is an innovation from the Regent of Banyumas which is believed to be a good innovation from the government and always tries to follow all regulations made by the Regent of Banyumas (Interview with Mr. Sobita Nanda, Manager of Boentek Bio Banyumas, on December 14, 2024). In addition, the head of the Religious Harmony Forum also pays attention to the problem of people's behavior in littering in public places such as rivers. A program to clean up the river has also been designed, as a form of FKUB's support to the government. Although legally formal, it has not yet focused on environmental issues (Online interview with the Chairman of the Banyumas Religious Harmony Forum: Prof. Dr. KH. Muhammad Roqib, M.Ag.) The local natural environment has also influenced the development of regional culture (Soeharjono. I.S., 1977)

With regard to the various problems mentioned above, internalization of values related to waste utilization and processing must be carried out so that it can be sustainable by involving. In addition, it is necessary to carry out *Reward and punishment* which begins with socialization of the plan to impose sanctions for violators. Another thing that should be done is to give awards to citizens who are meritorious and obedient to regulations, especially starting from children at the pre-school level.

5. Conclusions and Suggestions

Factors that influence the development of collective consciousness include the general structure of understanding, norms and beliefs that are believed together. Banyumas Regency community members in conserving natural resources through household waste management. As an external force that influences the desires and interests of individuals, it is actually something that is inherent in the life of the Banyumas community itself with its unique value system (*ceblaka/spontaneous, mbanyol/candidate, and Semblothongan/its own scheme*) driven by strong formal leadership from the regent level to the village head who applies participatory leadership where community aspirations are heard and become the basis for various activity programs.

Although the success rate of the *Zero Waste* program in 2022 has reached 90%, it still provides an opportunity for a decrease in the level of collective awareness of community members and the commitment of government officials in the Banyumas Regency, so it is necessary for the Banyumas Regional Government's policies and long-term and short-term programs to be packaged specifically as part of the content of the primary and secondary education curriculum so that the process of internalizing values can be instilled early and structured. In addition, the Banyumas local government needs to actively involve various components of the community in the preparation of the curriculum and in the implementation of development programs in the Banyumas district, starting from the planning process to the monitoring stage.

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