

Implementation of Sustainable Development Policies in Waste Management

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Abstract: *The balance between the environment and development must also be considered by the government so that the community in the future will not be affected by the development carried out. One way of implementing development is to conduct sustainable development that is environmentally sound. One of the sustainable development policy issues is waste management. Therefore, this study aims to analyze the implementation of sustainable development policies in the city of Bandung, especially in terms of waste management. This study uses qualitative methods, with data collection carried out through observation, interviews, and literature study. Data analysis includes data collection, data reduction, and presentation of analytical data with descriptive methods. The results show that the waste management policy in Bandung City refers to regulations at the central and regional levels, where in its application these policies are not in accordance with Law No. 18 of 2018 because it leads to waste as a source of regional income. Therefore, a sustainable development policy in waste management is developed by considering 4 strategic aspects, namely environmental, economic, social, and technical aspects.*

Keywords: *Implementation, Policy, Sustainable Development, Waste Management.*

Introduction

Sustainable development is development in its development that meets the needs of the present without harming the needs of future generations (Verma, 2019). The goal of sustainable development is directed at managing natural resources wisely. The concept of sustainable development arises when faced with various failures in the implementation of development. The process that takes place is monotonous, which means it is from top to bottom

(Rosana, 2018). In its implementation, the concept of sustainable development was strengthened by the leaders of the nation/country through various agreements, including the Rio Declaration at the 1992 Earth Summit (Kurniawan, 2012).

Suryono (2010) says that sustainability is a development that meets the needs of the present generation without harming future generations. The risks of any current development are not all passed on to future generations, but

must be considered fairly for present and future generations. Sutisna (2006) explained that in simple sustainable development, there are four indicators that can be used as benchmarks, which include: pro-economic welfare; pro-environment; pro-social justice; and pro-environment.

The sustainable development process can optimize the benefits of natural resources, human resources, and science and technology by harmonizing the three components so that they can be sustainable (Rasul, 2016). This sustainable development is known as sustainable development, namely: development that is oriented to meeting human needs through the wise, efficient use of natural resources and pays attention to their use for both present and future generations (Jedlinski, 2014). This means that efforts to improve the quality of human beings carried out at this time must also consider the quality of humans in the future.

In utilizing the environment as a support for development, one must also take into account its limitations, so it should not be greedy so that it does not run out at this time (Siburian et al., 2019). The important things in implementing sustainable development are: the development process is continuous; the environment has limitations; the use of non-renewable natural resources; and the development carried out increases the welfare of the current generation without reducing the welfare of future generations (Magis & Shinn, 2008; Freddy et al., 2022).

Garbage has been an actual problem for a long time for the State of Indonesia, especially for urban areas due to the social, cultural, and economic conditions of the local community. This can be seen by population growth, increased activity, and changes in people's consumption patterns, which directly lead to an increase in volume, type, and waste characteristics (Rahmawati et al., 2021). Various alternatives have been carried out in waste management both centrally and independently, but the implementation is still not optimal (Hartono et al., 2020).

Problems that will arise from waste include loss of aesthetic value in the environment, both in the form of soil, water, and air pollution to cause sources of disease and, in the long term, the potential for natural disasters such as floods and landslides. On this basis, waste has become five problems. It is a major national issue in Indonesia, but its management is still not fully realized by all parties, so that in the end, this problem has not ended even though it has been going on for a long time (Hendra, 2016; Kahfi, 2017).

Waste management can be referred to as the "entrance" to achieving sustainable development targets because this is a multi-sectoral issue that has an impact on various aspects of society and the economy (Dwinugraha, 2016). Waste management is related to health issues, climate change, poverty reduction, food and resource security, and sustainable production and consumption (Lwasa et al., 2016). However, waste management can also be considered a "system bottleneck".

Some of the factors that influence it are population distribution and density, socio-economic and physical environmental characteristics, attitudes, behavior, and culture in the community (Wilson & Velis, 2015).

According to Joga (2018), explaining that environmentally friendly city development, also known as sustainable development, has keywords including philosophy and definitions related to ecological modernization, understanding of its environmental impact, sustainable development, consumerism ethics, and ecological track record. Based on data from the National Waste Management Information System, it is revealed that there are five cities in Indonesia that produce high enough waste each year, and according to data from the Central Statistics Agency and the Ministry of Home Affairs, those five cities are in the top ranks of the cities with the most population. This supports the theory that the more If the population is high, the potential for waste will also increase (MOEF, 2018). Basically, each individual produces waste. Besides the need for land for housing, there is also an imbalance in the existence of a landfill, which is quite limited in size while the amount of waste has increased, so that awareness and management from upstream to downstream are needed (Komilis et al., 1999).

Based on Law Number 18 of 2008 concerning waste management and Government Regulation of the Republic of Indonesia Number 81 of simple, prosperous life and resilience to changes

in the traditional tragedy system, which is closely related to understanding city-scale waste management by creating wise attitudes and habits in the form of active participation in managing waste. Based on the law, the waste that is managed consists of household waste, household-like waste, and special waste. Waste that is not managed properly will cause several negative impacts. Therefore, sustainable waste management is needed to achieve various targets, especially sustainable development. Sustainable waste management is a form of responsibility for consumption and production that has been carried out (Mahyudin, 2014). Excessive consumption, of course, will produce excess waste so that it affects the area of the existing landfill. Three-quarters of the world's largest open dump is on the coast. Many beaches are littered with hazardous materials and substances as well as various types of waste, such as the remains of plastic fishing nets, cigarette butts, and plastic straws. This, of course, will affect the ecosystem in the sea (Ningsih, 2018). In addition to marine ecosystems, waste that is not managed properly will affect terrestrial ecosystems as well (Marzuki et al., 2018). An example is inorganic plastic waste that cannot be decomposed on the ground, so a lot of plastic waste clogs waterways and rivers and can be swallowed by some animals.

Problems in the implementation of waste management in the city of Bandung encourage the local government to make a policy that regulates waste management. The policies contained in the Bandung City Regional Regulation Number 9 of 2018

regarding waste management have been established by the Bandung City Government since October 16, 2018. The existence of this Regional Regulation is expected to be able to overcome the complexity of the waste problems that occur in the City of Bandung (Bandung Mayor, 2019). The Bandung City Environment and Forestry Service is also trying to implement these policies, such as providing facilities for vehicles, TPS, TPA, and janitors to deal with the increasing waste generation. Socialization regarding waste management was also carried out at the sub-district and sub-district levels regarding more disciplined waste disposal times. However, these efforts are not considered sufficient considering that there are still many areas in the city of Bandung that have not received regular services, including the level of public awareness regarding waste management.

Method

The purpose of this research can be achieved by using the descriptive analysis method, where the descriptive analysis method is a research method that uses descriptive methods, namely research conducted to describe or provide an overview of an object of research by using the object of research or the case study process as a sample and providing conclusions that apply in general without making comparisons or relationships between the variables studied (Moleong, 2010). Research with this descriptive method can describe ongoing conditions related to actual events that are happening so that they are relevant to existing

conditions. This method is considered in accordance with the nature and desired research objectives. This research is used to analyze and describe a phenomenon, event, attitude, belief, perception, and social activity individually or in groups, which is better known as a qualitative method (Sugiyono, 2016).

The considerations used as the basis of the qualitative analysis are as follows:

1. This analysis can look at the existing social reality.
2. This qualitative analysis can be used to help answer existing problems.
3. This analysis will better describe the condition of an object of research so that it gets good research.
4. This analysis can be used in complex field realities.
5. The relationship between resource people and researchers will be one of the objects of research.

Based on the selection of the method above, it can be concluded that this research focuses on the conditions that occurred when the research was carried out, which were then described in a holistic (intact), systematic, and complete manner in words, reporting the views of the informants in detail and arranged in a natural setting. Conclusions in this study are carried out from general reasoning to specific facts so that a more in-depth study of the object of research is obtained.

Results And Discussion

Existing Waste Management Policy in Bandung City

Solid waste has become a major problem faced by almost all cities in Indonesia. The problem of waste in the city of Bandung has always been in the spotlight of various parties. In fact, hundreds of temporary disposal sites (TPS) in the city of Bandung are always full of waste, and waste accumulation often occurs. The accumulation of waste that often occurs is because, apart from problems at the TPA, the pattern of transporting waste from TPS to TPA can also affect the accumulation of waste.

In waste transportation operations in Bandung City, it is divided into 4 (four operational areas, namely the West Bandung operational area with 42 TPS locations, the East Bandung operational area with 35 TPS, the North Bandung operational area with 38 TPS, and the South Bandung operational area with 39 TPS. The final disposal site (TPA) used is Sarimukti TPA, which is located in Sarimukti Village, Cipatat District, West Bandung Regency. This TPA is a Regional TPA managed by the Regional Waste Management Center of West Java Province with a distance from the center of Bandung City to the TPA of 45 km (PD Hygiene).

The city of Bandung has a waste generation of 1,500 to 1,600 tons per day, equivalent to a football field with a height of approximately 1 m. Waste transported to landfill is on average 1000-1100 tons/day, and waste used by the informal sector is either sourced or TPS through 3R (Reuse, Recovery, Recycling) as much as

200 tons/day. This proves that there is still 300 tons of waste that is not transported to the TPA or is not utilized per day.

Waste management in Bandung refers to regulations at the central and regional levels. Law Number 18 of 2008 concerning Waste Management; Law Number 32 of 2009 concerning Environmental Protection and Management; Government Regulation (PP) Number 81 of 2012 concerning Management of Household Waste and Waste Similar to Household Waste; Minister of Home Affairs Regulation (Permendagri) Number 33 of 2010 concerning Guidelines for Waste Management; and Minister of Public Works (PU) Number 03/PRT/M/2013 concerning Guidelines for Waste Management are the foundation for central level regulations. Meanwhile, regulations at the provincial level related to waste management are West Java Provincial Regulations (Perda) Number 12 of 2010 concerning Waste Management in West Java, and regulations at the city level are Bandung City Regulations Number 9 of 2018 concerning Waste Management in Bandung City.

Waste management in Bandung City is carried out by the Bandung City Cleanliness Regional Company (PD), in contrast to other cities/regencies, which are usually managed by Regional Work Units (SKPD). PD Cleanliness was established with the intent and purpose to (1) carry out a business in the form of providing (including: municipal waste management services, waste processing and utilization, cleaning services, and

other businesses determined by a decision of the board of directors with the approval of the mayor) and (2) carry out assignments from local governments in the field of waste management in order to provide cleaning services to the community and contribute to local revenue. With this mandate, the handling of waste in the city of Bandung is now under the control of PD Sanitation. The formation of the Bandung City Cleanliness PD has been around since 1985 with the stipulation of Bandung City Regional Regulation Number 02 of 1985 in conjunction with Bandung City Regulation Number 15 of 1993 concerning Regional Cleaning Companies.

However, with the issuance of Government Regulation Number 18 of 2016 concerning Regional Government and Bandung City Regional Regulation Number 8 of 2016 concerning the Formation and Composition of the Bandung City Regional Apparatus, the responsibility for city cleanliness is mandated by the Environmental and Hygiene Service (DLHK). Technically, DLHK is assigned to PD Bersih due to limited resources in waste management. The mechanism for the operation and financing of waste management will be further regulated through a mayoral regulation. The local government carries out waste management activities which include: sorting at TPS/TPS 3R; sweeping main roads and collecting them at TPS/TPS 3R; transporting waste from TPS/TPS 3R to the processing site and/or TPA/TPST (Integrated TPS); processing and final processing of waste. The

implementation of carrying out technical waste handling activities is carried out by PD Cleanliness.

The waste management policy in Bandung City before 2018 was not in accordance with Law Number 18 of 2008 concerning waste management because it led to waste as a source of regional income, which was implemented in the form of the establishment of a Regional-Owned Enterprise (BUMD) for a Cleansing Area Company (Barnadi, 2010). However, with the enactment of Bandung City Regulation Number 8 of 2018, waste management in Bandung City has been in line with the mandate of Law Number 18 of 2008. The law mandates that waste management is the duty and responsibility of the city/district government. Technically, in the field, these duties and authorities are the responsibility of the SKPD. In this case, waste is not seen as a source of income. This policy has not been followed up with the establishment of derivative rules for the implementation of waste management in the city of Bandung.

Development Policy in Waste Management.

Indonesia's efforts to support Integrated Sustainable Waste Management are proven by the participation of the State of Indonesia in one of the programs carried out by the United Nations, namely the SDGs, where the Sustainable Development Goals are. These SDGs clearly regulate and guarantee a sustainable city waste management system.

In analyzing Bandung City Waste Management based on the fulfillment in terms of Globally Sustainable Development or SDGs, it is necessary to analyze the fulfillment of sustainable aspects in municipal waste management, namely:

1. Environmental Aspect

Fulfillment of the sustainable concept of the municipal solid waste management system that has been implemented so far is in the improved but not yet optimal category. The government, through the Ministry of Environment and Forestry, is committed to creating a sustainable city by implementing policies, centrally, the Environmental Service to manage municipal waste in an integrated manner, by clearing land for TPA/TPS that are safe and far from the community, and by providing management facilities and infrastructure. sustainable municipal waste, emphasis and review of 3R, waste banks, and zero waste programs. In general, there are several negative impacts on the environment, so it is imperative that the implementation of sustainable waste management is carried out to the maximum extent possible, namely;

- Air pollution due to piles of garbage in public areas and areas;
- Groundwater pollution is due to leachate that seeps in and destroys the neutral composition of clean water and causes the mixing of chemicals in groundwater so that clean water changes smell, taste, and color. Leachate seepage comes from waste that is not treated properly and enters water bodies, as well as rainwater that

is not accommodated and drained properly so that rainwater is mixed with leachate;

- The loss of the aesthetics of a healthy, clean, safe, and comfortable environment disturbs the sustainability of human activities in general; and
- Air pollution and ARI from scattered dust and garbage and continuous burning of waste.

2. Economic Aspect

In carrying out waste management, it will not be separated from the main economic elements in terms of financing, both outgoing and incoming costs. In Indonesia, the pattern of waste management approaches currently emphasized is a labor-intensive rather than a capital-intensive approach. The cost of waste management can be seen from the amount of retribution received compared to the amount of waste that is managed due to the fact that individual waste management exceeds the total cost of managing waste that is processed. The management fee is obtained from the results of the Central Government's decision and is recommended for the consideration of the local Environmental Service in accordance with the conditions and urgency of the problem. With a distribution of 40% for the collection stage, 50% for the transportation stage, and 10% for the final processing stage. In sustainable waste management, the right scheme to implement is to increase community participation funds. APBD will reduce waste by 10%.

3. Social Aspect

The community paradigm must be shifted from an end-to-pipe culture of collecting and disposing of to a culture of restriction, recycling, waste processing, product engineering, and remediation. Socialization of environmental conservation and waste awareness must continue to be encouraged so that understanding of the importance of processing waste from all sources can touch all roles.

The habit of managing waste from sources is an advanced form of concern for the environment, which can be done simply by the habit of separating organic and inorganic waste, then improving communal waste management with more structured technical and managerial approaches and its impact on the surrounding community. The habit of using friendly products is very strong and can be used repeatedly, so that efforts to reduce waste from mobile sources significantly support the success of sustainable waste management.

4. Technical aspects

The waste management that has been widely applied in Indonesia so far refers to a reactive approach, namely the application of an end-to-pipe system with a collection-transport-disposal habit so that the land requirement for the backfill process is quite large, as well as the technology used in waste processing using 3R techniques with The level of participation is still quite low even though it has increased, as indicated by some people independently sorting waste disposal sites based on organic and

inorganic characteristics, and then, at an advanced stage, by creating processed creative works by waste banks, which is increasing, but the demand is still quite low.

Sustainable municipal waste management emphasizes a proactive approach in which the application of good housekeeping can save raw materials, fluids, and other energy used as tool propulsion and the reuse of scattered raw materials that can still be used, so that the raw materials used can be optimized as well as save energy and resources, so as to minimize the hazards resulting from the waste processing process by taking into account the following aspects:

- a. Aspects of Policy. This policy aspect strengthens the applied system when viewed from the condition of the waste management system in Indonesia, which by its nature is still quite weak. The main legal basis must be supported by the legal basis made by each region through the policies of their respective regional regulations. This is because each city or region in Indonesia has various potential and obstacles. The role of policies set in managing municipal solid waste greatly influences the effectiveness of the implementation and the achievement of success. The establishment of basic legal policies in Indonesia is considered to be weak, so sustainable municipal waste management efforts are still hampered. Because of the weakness of the existing basic policies, their implementation is not optimal. There

are still many regulations that have not been implemented. It can be seen from the high habit of mixing waste in the community so that the processing process becomes difficult. It can be seen from the high level of industrial development and development without emphasizing the AMDAL aspect that its operations disrupt and even damage the environment.

- b. Institutional Aspects. In the implementation of the waste management system, the institutional structure must be clearly delineated in order to show the flow of coordination properly, so that the operational authority contains their respective functions. The institutional aspect refers to the stakeholders in the City Waste Management System, both as regulators for the Central Government and operators for the Government Area. Regulators and operators must coordinate so that the implementation is optimal and able to influence the private sector and the community to play an active role through their participation in the municipal waste management process independently and communally.

Conclusion

Bandung City's waste management policy refers to regulations at the central and regional levels. Based on local regulations, there has been a change in responsibility for handling waste, from PD Sanitation to DLHK. The performance of waste handling in the city of Bandung has not been maximized, as can be seen from

the large amount of waste that cannot be handled. The existing policy of waste management in the city of Bandung follows the path in the previous regulations, where the policies in the regulations are not in accordance with Law No. 18 of 2008. The implementation of sustainable municipal waste management in the city of Bandung still faces many serious obstacles in terms of implementation in the city of Bandung. Sustainable consumption and production patterns as well as the fulfillment of the existing aspects of waste management whose technical implementation and impact have not been thoroughly felt. The basis of the problem of waste in the city of Bandung is in the public's view of waste, where a good understanding of waste will form a pattern of behavior in reducing and processing municipal waste. But if viewed based on data in the field and analysis carried out, the understanding of waste is still not supportive even though it has increased from last year, so that the implementation of Bandung city waste management in a sustainable manner has not been fulfilled properly.

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References

- Bandung City Regional Regulation Number 9 of 2018 concerning waste management.
- Barnadi, D. A. (2010). Analisis pelaksanaan kebijakan pengelolaan sampah sebagai upaya meningkatkan kualitas lingkungan hidup di Kota Bandung. Bogor: IPB.
- Dwinugraha, A. P. (2016). Agenda Kebijakan Lingkungan Berkelanjutan: Studi Perumusan Masalah (Konsekuensi Kemajuan Pembangunan Ekonomi Daerah Kabupaten Banyuwangi). *Dinamika Governance: Jurnal Ilmu Administrasi Negara*, 6(1).
- Freddy, H. T. R., Achmad, W., & Nasution, M. S. (2022). The Effectivity Of Public Services Based On Smart Government In Bukit Raya Distric Pekanbaru City. *Journal of Governance*, 7(1), 239-259.
- Hartono, Y., Mardhia, D., Ayu, I. W., & Masniadi, R. (2020). *Pengelolaan dan Pemanfaatan Sampah Berbasis Rumah Tangga*. Literasi Nusantara.
- Hendra, Y. (2016). Perbandingan sistem pengelolaan sampah di Indonesia dan Korea Selatan: kajian 5 aspek pengelolaan sampah. *Aspirasi: Jurnal Masalah-masalah Sosial*, 7(1), 77-91.
- Jedliński, M. (2014). The position of green logistics in sustainable development of a smart green city. *Procedia-social and behavioral sciences*, 151, 102-111.
- Joga, N. (2018). *Membangun Peradaban Kota*. Gramedia Pustaka Utama.
- Kahfi, A. (2017). Tinjauan terhadap pengelolaan sampah. *Jurisprudentie: Jurusan Ilmu Hukum Fakultas Syariah dan Hukum*, 4(1), 12-25.
- Komilis, D. P., Ham, R. K., & Stegmann, R. (1999). The effect of municipal solid waste pretreatment on landfill behavior: a literature review. *Waste Management and Research*, 17(1), 10-19.
- Kurniawan, N. I. (2012). Wacana lingkungan dan pembangunan berkelanjutan dalam lembaga swadaya masyarakat di Indonesia. *Jurnal Ilmu Sosial dan Ilmu Politik*, 16(1), 37758.
- Law No. 18 of 2008 on waste management.
- Lwasa, S., Mugagga, F., Wahab, B., Simon, D., Connors, J., & Griffith, C. (2014). Urban and peri-urban agriculture and forestry: Transcending poverty alleviation to climate change mitigation and adaptation. *Urban Climate*, 7, 92-106.
- Magis, K., & Shinn, C. (2008). Emergent principles of social sustainability. In *Understanding the social dimension of sustainability* (pp. 31-60). Routledge.
- Mahyudin, R. P. (2014). Strategi Pengelolaan Sampah Berkelanjutan. *EnviroScientiae*, 10(1), 33-40.
- Marzuki, R. D., Sugito, R., & Atmaja, T. H. W. (2018). Sampah Anorganik Sebagai Ancaman di Kawasan Ekosistem Hutan Mangrove Kuala Langsa. *Jurnal Jeumpa*, 5(2), 84-90.
- Ministry of Environment and Forestry (2018). Sistem Informasi Pengelolaan Sampah Nasional. Retrieved from <http://sipsn.menlhk.go.id>.
- Moleong, L. J. (2010). Metodologi Penelitian Kualitatif (XXVII). Bandung: Remaja Rosdakarya.

- Moleong, L. J. (2010). *Metodologi Penelitian Kualitatif (XXVII)*. Bandung: Remaja Rosdakarya.
- Ningsih, R. W. (2018). Dampak Pencemaran Air Laut Akibat Sampah Terhadap Kelestarian Laut Di Indonesia. *Jurnal Universitas Muhammadiyah Yogyakarta*, 0-12.
- Rahmawati, A. F., Amin, A., Rasminto, R., & Syamsu, F. D. (2021). Analisis Pengelolaan Sampah Berkelanjutan Pada Wilayah Perkotaan di Indonesia. *Bina Gogik: Jurnal Ilmiah Pendidikan Guru Sekolah Dasar*, 8(1).
- Rasul, G. (2016). Managing the food, water, and energy nexus for achieving the Sustainable Development Goals in South Asia. *Environmental Development*, 18, 14-25.
- Rosana, M. (2018). Kebijakan pembangunan berkelanjutan yang berwawasan lingkungan di Indonesia. *Kelola: Jurnal Sosial Politik*, 1(1), 148-163.
- Siburian, J. H., Tanjung, S., & Saragih, A. H. (2019). Pengaruh Strategi Pembelajaran Inkuiri dan Motivasi Berprestasi Terhadap Hasil Belajar Pelestarian Lingkungan Hidup. *Jurnal Teknologi Pendidikan (JTP)*, 12(1), 62-74.
- Suryono, A. (2010). *Dimensi-dimensi Prima teori pembangunan*. Universitas Brawijaya Press.
- Sutisna, N. (2006). Enam tolok ukur pembangunan berkelanjutan. *Jakarta: Regional Development Institute*.
- Verma, A. K. (2019). Sustainable development and environmental ethics. *International Journal on Environmental Sciences*, 10(1), 1-5.
- Wilson, D. C., & Velis, C. A. (2015). Waste management—still a global challenge in the 21st century: An evidence-based call for action. *Waste Management & Research*, 33(12), 1049-1051.