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Management Optimization of Waste Facilities / Infrastructure Provision in Bogor Regency

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Abstract: Bogor Regency has made efforts to create a waste management model and encourage the community to process waste at waste producing sources. However, there is still a large volume of waste disposed of in final disposal sites (TPA) which is a burden for the government which in the end is also shared with the community by collecting levies. To reduce waste thrown into landfill, it is still necessary to empower the community in managing waste at the source, including by channeling the results of waste management so that it has economic value which becomes an incentive for waste processors at the source.

This research focuses on a comprehensive study (1) Knowing the existing management of waste levies in the Bogor Regency area; (2) Know the structure and amount of levy rates regarding the procedures for calculating levy rates in waste management; (3) Propose an optimal mechanism for collecting and collecting cleaning fees in Bogor Regency. The research method used is quantitative with descriptive analysis, comparative analysis and qualitative methods through literature study approaches, field surveys and in-depth interviews. This research is a form of continued implementation of the results of research conducted by the Team Leader which focuses on IKS (Social Resilience Index) in the field of BPJS (Health Insurance Administering Agency) Health in the informal sector [1; 2; 3; 4; and 5], and research related to the Village Development Index (IDM) in Bogor Regency [6; 7 and 8].

Research Stages: 1). Recapitulation of waste data and information and waste collection mechanisms, 2). Field observations and surveys 3). In-depth interviews and technical recapitulation of waste, and 4). Formulation of an optimization model for the provision of waste facilities/infrastructure.

The research results of the three method tools above essentially show the tariff structure and waste collection systems in various regions as input to the Bogor Regency Environmental Service (DLH) by comparing the "market mechanisms" that occur. Although the determination of this tariff system in each region is very dependent on many factors in that region, such as: the distance of the transportation object to the landfill, the inflation rate, the number of fleets, the transportation system, the tariff calculation system and so on. Including a SWOT analysis which shows various: strengths, weaknesses, threats and challenges that DLH Bogor Regency has, in implementing the waste levy system, and in the future determining patterns and mechanisms that are more effective, efficient and improving calculation categories and transportation mechanisms that are not yet optimal. Furthermore, this recommendation section becomes the culmination of the entire study by narrowing down specific, effective and efficient tariff system patterns and mechanisms that are more reliable, provide convenience, and simplify structures and mechanisms.

Keywords: Management; Optimization_of Facilities/Infrastructure; Waste; Bogor_Regency

Introduction

DLH Bogor Regency has created a waste management pilot and encouraged the community to process waste at waste generating sources. However, there is still a large volume of waste thrown into landfill which is a burden for the government which in the end is shared with the community by collecting levies. To reduce waste disposed of in landfills, it is necessary to empower the community in managing waste at its source, including by channeling the results of waste management so that it has economic value which becomes an incentive for waste processors. Waste that has not been processed at its source has been disposed of at temporary storage sites (TPS) which are the responsibility of the household producing the waste. Transporting waste from households to TPS is sometimes charged based on an agreement between the waste producer and the transporter. Then the waste at the TPS is transported to the TPA by the Regional Government which is carried out by DLH. Regional governments impose waste levies in accordance with Regional Regulations.

In relation to waste management, it cannot be separated from rules or regulations, especially regarding waste levies in regional government, all of which are regulated in a constitution, where regional government is contained in the provisions of Article 18, where in Article 18 paragraph (1) The 1945 Constitution of the Republic of Indonesia states that the Unitary State of the Republic of Indonesia is divided into provincial regions and the provincial regions are divided into districts/cities, where each province, district and city has a regional government, which is regulated by law. invite. Regional government was developed based on the

principles of autonomy (decentralization) and assistance tasks [9]. The provisions of Article 18 paragraph (1) of the 1945 Constitution of the Republic of Indonesia indicate that regional government administration in Indonesia is carried out and developed in 2 (two) basic values, namely unitary values and territorial decentralization values [10].

Meanwhile, regional levies are regional levies as payment for services or the granting of certain permits which are specifically provided and/or granted by the regional government for the benefit of individuals or entities, while the equivalent is regarding the determination of procedures for collecting regional taxes and levies which are carried out based on the provisions stipulated in regional regulations [11].

Population growth and changes in people's consumption patterns have resulted in increasing volumes, types and characteristics of increasingly diverse waste. DLH Bogor Regency created a waste management pilot and encouraged the community to process waste at waste producing sources. However, there is still a large volume of waste disposed of in landfills which is a burden for the government which in the end is also shared with the community by collecting levies. To reduce waste thrown into landfill, it is still necessary to empower the community in managing waste at the source, including by distributing waste management products so that they have economic value which becomes an incentive for waste processors at the source.

Waste that has not been processed at its source has been disposed of at temporary shelters (TPS) which is the responsibility of the household producing the waste. Transporting waste from households to TPS is sometimes charged based on an agreement between the waste producer and the transporter. Then the waste at the TPS is transported to the TPA by the Regional Government which is carried out by DLH. Regional governments impose waste levies in accordance with Regional Regulations. This levy collection has a double impact. This problem needs to find a solution.

Therefore, appropriate studies and models are needed, either with the support of tools or technology, in structuring the waste management system (waste levy) and regional levies in Bogor Regency, in this case area/community based levies. Apart from local revenue, this waste cleanup levy also has a big impact on the environment.

Methodology

This research uses a qualitative approach with descriptive-exploratory research methods through descriptive analysis and comparative studies. Data was taken through data availability at the relevant department (DLH) of Bogor Regency, and through sources and results of recapitulation and secondary data processing. The steps that will be taken as stages of implementing the activities are as follows:

1. Data Collection

The data and information used are primary data and secondary data obtained from Regional Apparatus Organizations/Agencies/Institutions in the Bogor Regency Government, which are then compiled or arranged in accordance with the order of data grouping.

2. Processing and Tabulation

The data and information that has been collected is processed and tabulated into several tabulations based on the handling mechanism and waste collection categories.

3. Data Analysis

Data and information that have been processed are tabulated so that data analysis can be carried out better and in depth.

Furthermore, the analytical methods used in waste management study research and the development of waste optimization models are:

1. Descriptive Statistics

Descriptive statistics is a statistical analysis that provides a general description of the characteristics of each research variable as seen from the average (mean), maximum and minimum values. Apart from that, the data also calculates growth rates and trends which are presented in the form of cross tabulations and graphics.

2. SWOT Analysis

This analytical tool will describe various S-W-O-T indicators of the waste management system implemented by Bogor Regency, so that a comprehensive analysis can be drawn in determining various attributes that can be focused on in optimal waste management.

3. Comparative Analysis

Comparative analysis will provide an overview of the various indicators and attributes that are used as measures in the solid waste levy system, and how the implementation mechanism is in accordance with applicable regulations and laws. Furthermore, the comparison mechanism will also show comparisons between several regions regarding various attributions and categorizations of waste levy collection.

Result and Discussions

1. Descriptive Statistical Analysis

The Environmental Service (DLH) in carrying out its duties and functions in the planning sector is of course inseparable from the problems faced both internally and externally. However, the problems still being faced must be seen as a challenge and opportunity in order to improve DLH services. Therefore, there are several things that require re-development in terms of managing waste/cleaning service levy rates in Bogor Regency. This is based on qualitative analysis in the form of descriptive analysis, SWOT analysis and comparative analysis which has been carried out in several regions, both districts/cities, which are then re-analyzed and adapted to the local content of Bogor Regency. The analysis of needs and implementation in question is shown in the study results below.

No	Items	Bogor Regency			
		Residential home	Hotel/ Lodging	Restaurant	Entertainment/crowd/ events
1	Source of Calculation of Waste Levy Rates	Building area (M^2)	Distance (KM)	Waste volume (M^3)/day	Distance(KM)
2	Garbage/cleaning service levy rates for weekly waste collection, transportation and disposal	1. Non-residential (1) BA<21M^2 Rp. 6,000/bln (2) 21M^2s/d70M^2 Rp. 9,000/bln (3) 71M^2s/d200 M^2 Rp. 21,000/bln (4) 201M^2s/d300 M^2 Rp. 35,000/bln (5) >300M^2 Rp. 56,000/bln 1. Housing area a. Simple housing b. Middle housing c. Real estate	(1) s/d 15 KM Rp. 200,000 (2) >15 KM s/d 20 KM Rp. 240,000 (3) >20 KM s/d 25 KM Rp. 320,000 (4) >25 KM s/d 30 KM Rp. 400,000 (5) >30 KM s/d 35 KM Rp. 480,000 (6) >35KM Rp. 560,000	(1) <0,5 M^3/day Rp. 32,000 (2) 0,51 M^3 s/d 0,75 M^3/day Rp. 48,000 (3) >0,75 M^3/dayRp. 80,000	(1) s/d 15 KM (a) s/d 3 M^3/ritage Rp. 240,000 (b) >3 M^3 s/d 6M^3/ritage Rp. 320,000 (a) >15 KM s/d 20 KMs/d 3M^3/ritage Rp.280,000 (b) >3 M^3 s/d 6 M^3/ritageRp. 400,000 (a) >20 KM s/d 25 KMs/d 3M^3/ritage Rp. 320,000 (b) >3 M^3 s/d 6 M^3/ritageRp. 480,000 (a) >25 KM s/d 30 KMs/d 3M^3/ritage Rp. 360,000 (b) >3 M^3 s/d 6 M^3/ritage Rp. 560,000 (2) >30 KM s/d 35 KM (a) s/d 3M^3/ritage Rp. 400,000 (b) >3 M^3 s/d 6M^3/ritage Rp. 640,000 (3) >35 KM (a) s/d 3M^3/ritage Rp. 440,000 (b) >3 M^3 s/d 6 M^3/ritageRp. 720,000

2. SWOT Analysis

Apart from being based on descriptive analysis, the SWOT analysis is a study analyzing the implementation and needs for DLH Bogor Regency [12].

Table.2. SWOT Analysis of Waste/Cleaning Service Levy

SWOT Waste/Cleaning Service Levy	
Strengths	***Opportunities***
1. Bogor Regency has a large area and has a large number of sub-districts 2. Potential for high collection of waste service levies	1. Independent delivery by each industry 2. Independent processing by the community 3. Development technology
Weaknesses	***Threats***
1. The number of waste transportation fleets is still limited/inadequate 2. Condition of the waste transportation fleet 3. The levy rate determination system is not yet standardized in the field 4. The system for collecting waste service levy rates is not yet optimal	1. Many mandatory levy objects (households, industry, etc.) do not pay according to the predetermined levy rate regulations 2. Waste generation continues to increase

Strenghts:

a. The potential for receiving high waste service levies

Population is an important indicator in a country. Classical economists pioneered by Adam Smith even considered that population was a potential input that could be used as a production factor to increase a company's income. The connection in this case is assumed that as the population increases, the amount of levy income will also increase [13].

The connection with this is that Bogor Regency has many sub-districts and population. So, along with the increase in population as well as the mandatory object of levies, Bogor Regency has the potential to receive high waste service levies.

Weaknesses:

a. The number of waste transportation fleets is still inadequate

The number of waste transport fleets owned by the Bogor Regency Environmental Service is still limited and inadequate. This is supported by the data shown in Figure 3 regarding the number of waste transport fleet units in Bogor Regency.

The latest data for 2021 (Figure 3), the number of transport fleets such as dump trucks is 198 units [14] or other data states that the dump trucks owned by DLH Bogor Regency are around 200 units, which is still not ideal with the number of sub-districts in Bogor Regency and the large amount of waste generated. Data shows that of the 2,800 tons of waste produced every day, the Bogor Regency DLH's waste carrying capacity is only around 700 tons per day [15]. Meanwhile, the ideal fleet of transport trucks is 600 units.

b. Condition of the waste transportation fleet

Apart from the limited number of transport fleets, another weakness of DLH Bogor Regency is the condition of the fleet. Many fleets are in poor condition and cannot be used in waste transportation operations.

c. Standardization of levy rates

As for the rates that have been determined, in practice they are still not standardized. So the officer's withdrawal/collection of fares is still not effective.

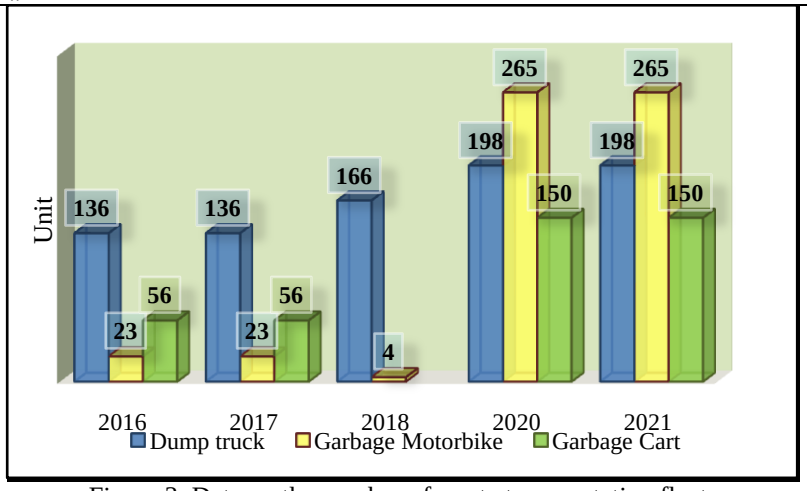

Figure 3. Data on the number of waste transportation fleets

d. The system for collecting waste service levy rates is not yet optimal

Apart from tariffs that are not yet standardized, the collection/collection of levies is still not optimal because it is still done manually. A digital system has not been implemented to make levy collection easier [16].

Opportunities

a. Independent delivery by each industry

Each large industry that has its own waste transportation fleet can send its own waste to the nearest TPS or TPA. This will help reduce the burden of waste transportation by DLH Bogor Regency.

b. Independent Processing by the Community [17]

Organic waste produced by households can provide opportunities for the community to sort and process it independently, then later it can be used by the community itself.

c. Application of technology [16; 17; 18]

The presence of technology provides opportunities for levy tariff collection systems, namely by implementing a digital system or non-cash payment, so that it can make it easier for officers to collect levies.

Apart from that, you can also apply technology to track waste fleets, so you will then know which fleets are on duty and how long they have been operating.

Threats

a. There are many objects that require retribution that do not pay according to the predetermined levy rate regulations

There is no standardization of levy rates for waste transportation services, which poses a threat that mandatory levy objects such as households and other industries will not pay according to the predetermined rates. Therefore, strict regulations are needed to regulate the obligation to pay levies for waste/cleaning services in Bogor Regency.

b. Waste generation continues to increase

As the population in Bogor Regency increases, the amount of waste generated per day can also increase. This, if not accompanied by the number of fleets provided, will become a threat to Bogor Regency with increasingly difficult waste transport capacity, due to the lack of fleets owned [19; 20].

3. Comparative Analysis

The comparison with several other regions in terms of determining waste/cleaning service levy rates is as follows.

Table 4. Comparison of Waste Retribution Rates in Several Regions Based on Calculation Sources

No	Weekly waste collection, transportation and disposal	Comparison of Garbage Retribution Rates in Several Regions Based on Calculation Sources				
		Sukabumi Regency	Bandung Barat Regency	Bandung City	Cianjur Regency	Sleman Regency
1	Residential home	Permanent and non-permanent	Building area, electrical power, land area	Building area, electrical power, land area	Use/utilization of the building	Head of family/ Number of residents
2	Hotel/Lodging	Number of rooms	Waste services (waste sources, TPS/TPST, TPA)	Index (Starred or jasmine)	Number of rooms	-
3	Restaurant	Number of visitors	Waste services (waste sources, TPS/TPST, TPA)	Index (road location and building area)	Cubication (M^3)	Cubication (M^3)
4	Entertainment/ crowd/event	Organizer/day	Waste services (waste sources, TPS/TPST, TPA)	-	Cubication (M^3)	Fleet type/Cubication (M^3)/transport

Source: processed from secondary data, 2023

Based on the table above, the comparative results of determining waste collection/collection levy rates are based on the calculation source in Bogor Regency and in several of these areas. It can be seen that the average is based on building area, electrical power and land area. It's just that in Sleman Regency, Special Region of Yogyakarta, the waste levy rate is calculated based on the criteria of the number of family heads or number of residents.

Determining rates based on the number of family heads can be a recommendation for implementing waste levy rates in Bogor Regency. Bearing in mind that the determination based on building area and land area is still considered unmeasurable because in reality on the ground, the building area and land area can change at any time. In this case, of course, so that the determination of waste levy rates can be measured more effectively, the calculation of waste levy rates can be standardized first, such as the standard calculation of 1 (one) person producing 0.3 kg/day/person of waste, which is then multiplied with the number of residents in the residence. The form of the formulation is as follows.

Residential house levy rate = 0.3 x Number of house occupants

***Notes :**

For example: Standardization of waste produced is 0.3kg/day/person

Based on the analysis and recommendations, the alternatives for implementation are:

a. Collaborating with the National Land Agency (BPN)

If the Bogor Regency DLH still applies a calculation system based on building area and/or land area, then it can collaborate with BPN to obtain community data regarding this, so that it can then be calculated and obtain results regarding the household waste transportation/collection levy rates/month.

b. Collaborating with DUKCAPIL (Directorate General of Population and Civil Registration)

Another alternative calculation based on the number of heads of families/house occupants, DLH Bogor Regency can collaborate with DUKCAPIL Bogor Regency to obtain data on the number of residents or even the number of heads of families in various sub-districts in Bogor Regency. So, from the number of family heads, a calculation is carried out and then the waste transportation levy rate for households/month is obtained.

Based on the comparative analysis of the structures and rates above, as well as recommendations regarding household calculations, there are several alternatives for implementing the determination of waste transportation/collection levy rates for Bogor Regency based on the type of industry, namely:

a. Hotel/Lodging

The system for determining the transportation/collection of waste at hotels/lodgings in Bogor Regency

was previously based on cubic capacity (M^3), but after carrying out a comparative analysis, there are recommendations for other systems that can be implemented, namely transportation/collection of waste can be done based on weekly routines. This is because the waste produced by hotels/lodgings on average does not reach the specified cubic capacity requirements. As for other provisions, if the hotel/inn's waste is full and has accumulated before the transportation schedule (before one week), then the hotel/inn can apply for incidental waste collection with several alternatives, as follows:

1) **Garbage collection by officers**
   If the waste is loaded by officers into the transport fleet (dump truck), a rate of around Rp. 7,500 up to Rp. 10,000/km, as has been implemented in Sukabumi Regency and Cianjur Regency.
2) **Waste is disposed of directly to the landfill**
   If the hotel/inn disposes of waste directly to the landfill, a tariff ranging from Rp. 10,000/km – Rp. 50,000/km. The application of this tariff is based on the tariff determination for Sukabumi Regency, Cianjur Regency and Sleman Regency.

b. Restaurant/Diner/Cafetaria

Determination of the implementation of waste transportation/collection at restaurants/restaurants/cafeterias can be done once every 3 (three) days. Taking into consideration that the waste produced in restaurants includes types of waste that rot quickly, such as organic waste, inorganic waste, liquid waste and oil, which requires acceleration in transporting the waste.

The criteria for taking rates at restaurants/restaurants/cafeterias that can be applied by Bogor Regency as another alternative are based on the average number of visitors who come. As for adapting the provisions for calculating restaurant rates in Sukabumi Regency, namely:

1) Based on the average number of visitors of more than 100 people/day at a rate of Rp. 150,000 / month.
2) Based on the average number of visitors between 50 to 100 people/day with a rate of Rp. 100,000/month.
3) Based on the average number of visitors under 50 people/day with a rate of Rp. 75,000/month.
4) Based on industrial MSMEs (catering/food services) with a rate of Rp. 75,000/month.

c. Organizing entertainment/crowds/events

Determination of waste transportation rates for organizing entertainment/crowds/events can be done by charging a fee to the organizer, which can be calculated from the number of visitors/people attending. As has been implemented in Yogyakarta, namely the tariff charged is IDR. 200 (two hundred rupiah) which is then multiplied by the number of people who come.

Another alternative is to determine the rates that have already been set by Bogor Regency regarding events, which can now be calculated based on the number of people/visitors. For example, the criteria for distance up to 15 km is Rp. 240,000/m^3, it can be calculated by estimating that the average number of visitors coming to an event is 1,000 people, so the rate charged per person/visitor is Rp. 240 (two hundred and forty rupiah).

d. Disposal of waste directly to the landfill

Recommendations for determining rates for Bogor Regency if waste disposal directly to the landfill can be done using several alternatives [21], for Bogor Regency it can be done as follows.

1) Carried out by officers, based on comparisons with Sukabumi Regency, rates ranging from Rp. 10,000-Rp. 50,000/Km.
2) If it is not carried out by officers, that is, it is carried out by the organizers directly at the TPA, then a fee is charged which ranges from Rp. 10,000 - Rp. 20,000/m^3.

4. Recommendations from the Study Results

The three results of the tools above essentially show the tariff structure and waste collection systems in various regions as input to the Bogor Regency DLH by comparing the "market mechanisms" that occur. Although the determination of this tariff system in each region is very dependent on many factors in that region, such as: the distance of the transportation object to the landfill, the inflation rate, the number of fleets, the transportation system, the tariff calculation system and so on. Including a SWOT analysis which shows various: strengths, weaknesses, threats and challenges that DLH Bogor Regency has, in implementing a waste levy system, and in the future determining patterns and mechanisms that are more effective, efficient and improving calculation categories and transportation mechanisms that are not yet optimal [22] . Furthermore, this recommendation section becomes the culmination of the entire study by narrowing down specific, effective and efficient tariff system patterns and mechanisms that are more reliable, provide convenience, and simplify structures and mechanisms. The recommendations and alternative options for reliable tariff schemes and

structures for DLH Bogor Regency are as follows:

a. Levy Rate Category for Households
   Alternative 1. Calculation mechanism based on building area
   Alternative 2. Calculation mechanism based on Family Head (KK)
b. Levy Tariff System for Industry, Manufacturing, Hospitals, Hotels and Tourism, Shopping Centers (Malls), and Markets
c. Retribution Tariff System for Offices, Shops, Modern Stores, Restaurants/Eating Houses, Workshops, Pharmacies, Transportation Businesses, and Other Commercial/Business Enterprises
d. Retribution Tariff System for Community Health Centers/Clinics/Doctor's Practices/Health Centers, Education Services, Beauty/Other Health Care Services, Notary Services/Legal Services and Other Public Service Bureaus
e. Levy Tariff System for Exhibitions/Incidental Events
f. Retribution tariff system for community groups/3rd parties/private parties who dispose of waste directly to the landfill
g. Levy Tariff System for Providing Waste Containers in Certain Communities/Objects.

Conclusion

Based on the results of this research, it can be concluded that:

1. Scientific and empirical studies of the waste management system in Bogor Regency show that the source scheme for calculating waste levy rates is measured based on: building area (M2) [for residential houses]; distance (Km) {for hotels/inns]; waste volume (M3)/day [for restaurants); and Distance (Km) [for entertainment/crowded activities and events.
2. Efforts to optimize the provision of waste facilities and infrastructure in Bogor Regency show that the tariff calculation scheme carried out by DHL Bogor Regency is considered to no longer meet the dynamics of the field. On the other hand, this measurement pattern no longer corresponds to the reality in the field. So the creation of new calculation patterns/schemes must be established and their implementation tested. Various problems in optimizing face various obstacles, such as insufficient fleet, poor fleet condition, tariff determination system that needs to be changed to follow a more dynamic pattern, such as calculating electricity tariffs used by households, type of house owned, zoning for distance. (Km) transportation, waste collection based on a certain time, calculation of cubic waste, number of insured family members, number of visitors to entertainment venues/restaurants/restaurants and hotels, as well as a more clearly differentiated scheme for the type of mandatory levy collection, and so on.

References

[1] Andria F dan N Kusnadi, 2018,"Model Alternatif Pembiayaan Jaminan Kesehatan bagi Pekerja Informal di Bogor", Pakuan Law Review, Vol. 4, Nomor 2, Juli - Desember 2018, e-ISSN: 2614-485.
[2] Andria F dan N Kusnadi, 2017,"Dampak Kepesertaan BPJS bagi Pekerja Informal di Bogor", JIMFE, Vol. 3 No. 1 tahun 2017, Hal 1-15,e-ISSN 2502-5678.
[3] Andria F., ET Tosida, N Kusnadi and S Andriani, 2019,"Prediction Model of Health Insurance Membership for Informal Workers", AJHSSR, Vol 3, Issue-4, pp 236-246, e-ISSN: 2378-703X.
[4] Andria F., Thaheer H., dan Tosida ET, 2013,"Pemetaan Pemda dalam Mendukung Persiapan BPJS Kesehatan Menuju Universal Health Coverage (UHC)", Seminar Hasil Penelitian Bersumber Dana Hibah DJSN, Jakarta, 8 Juni 2013.
[5] Salmah, F Andria and I Wahyudin, 2019,"Implementation of Big Data Concept for Variability Mapping Control of Financing Assessment of Informal Sector Workers in Bogor City", World Scientific News, Vol. 135, pp 261-282.
[6] Andria, F., Rahmi, A., dan Gunawan, A.D., Salmah., and Armadi, DA., 2023,"IDM Clustering Study Village Potensial Development Efforts in teh Developing Category", International Journal of Lates Research in Humanities and Social Science. Vol. 06 – Issue 01, pp. 249-257.
[7] Rahmi, A., Andria, F., dan Salmah, 2023,"Strategi Pengembangan Dua Desa Unggul Kateogi Mandiri Menuju Inclusive Green Economy", JIMFE. Vol 9 No.1.
[8] Salmah., Andria., F., dan Rahmi, A., 2023,"Klasterisasi Desa Melalui IDM Sebagai Fondasi Dasar Pembangunan Desa di Kabupaten Bogor", PALAR, Vol 8 No. 04. Pp 143-170.
[9] Asshiddiqie, Jimmly.,"Konstitusi dan Konstitusionalisme Indonesia", (Jakarta: Sinar Grafika, 2011), hlm 220.
[10] Sabarno, Hari.,"Untaian Pemikiran Otonomi Daerah, Memandu Otonomi Daerah Menjaga Kesatuan Bangsa", Jakarta: Sinar Grafika, 2008, hlm 3.

[11] Syarifin, Pipin dan Jubaedah, Dedah.,"Hukum Pemerintahan Daerah. Pustaka Bani Quraisy", Bandung, 2005 Hal 260-261.
[12] Wiratama, Rafi., 2019,"Strategi untuk Meningkatkan Pelayanan Persampahan Menggunakan Analisis SWOT (Strength Weakness Opportunity Threats) dan QSPM (Quantitative Strategic Planning Matrix) Studi Kasus UPT Pelayanan Persampahan Kepanjen", Universitas Brawijaya Malang.
[13] Shodikien, M., 2020,"Efektifitas Penerimaan Pendapatan Retribusi Pelayanan Persampahan di Kota Makassar", Skripsi FEB Universitas Muhammadiyah Makassar.
[14] Khatimah, H, 2023,"Dari 2.800 Ton Sampah Kabupaten Bogor, yang Terangkut Hanay 700 Ton", www.Ayobogor.com
[15] Open Data Jabar, 2023,"Jumlah Armada Pengelolaan Sampah Berdasarkan Kabupaten/Kota di Jawa Barat", opendata.jabarprov.go.id
[16] Hertomo, EYW, et al., 2018, " The Strategies for Increasing Household Waste Retribution as a Source of Bekasi City's Local Revenue", Jurnal Manajemen Pembangunan Daerah, Vol 10, No Khusus, April 2018.
[17] Kusumadinata, AA, 2016, "Community-Based Waste Management', Media Pengabdian kepada Masyarakat Qardhul Hasan, Vol. 2 No. 1, April 2016, ISSN : 2442-3726.
[18] Sa'diyah, AF., et al., 2020, "Pengelolaan Sampah dalam Impementasi Smart City di Kota Bogor', Jurnal Ilmu Pemerintahan Widya Praja, Vol. 46, No. 1, Mei 2020., p-ISSN : 0216-4019, e-ISSN : 2614-025X.
[19] Hidayat, AH., et al., 2023, Memprediksi Volume Sampah di Jawa Barat dengan Metode Regresi", Jurnal Teknik Informatika dan Sistem Informasi, Vol. 10, No. 1, Maret 2023, Hal. 590-603, ISSN : 2407-4322, e-ISSN : 2503-2933.
[20] Suciati, F and Aviantara DB, 2019, "Studi Lingkungan Tempat Pemrosesan Akhir Sampah Galuga Kecamatan Cibungbulang Kabupaten Bogor Provinsi Jawa Barat', JRL Vol. 12, No. 2, Hal. 155-174, Desember 2019, p-ISSN : 2085.38616, e-ISSN : 2580-0442.
[21] Harman, AP., et al., 2020, "Strategi Pengelolaan Tempat Pemrosesan Akhir (TPA) Sampah Batu Canai di Kelurahan Pematang Siantar Reba Indragiri Hulu', ZONA Jurnal Lingkungan, Vol. 4, No. 2, p. 78-90, Oktober 2020, ISSN : 2502-6496.
[22] Darmawan, A., 2020, "Model Optimasi Pengelolaan Sampah di TPA (Studi Kasus di Tempat Pengolahan Sampah Terpadu Bantar Gebang), Jurnal of Environment Education and Sustainable Development, Vol. 21, No. 2, 2022, p-ISSN : 1411-1829, e-ISSN : 2580-9199.

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