



Effectiveness of Budget Realization for Waste Management Programs at the Surabaya City Environmental Agency (DLH) in 2023

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ABSTRACT

Waste management is one of the primary challenges faced by local governments, particularly in major cities like Surabaya, which experience an increasing volume of waste driven by population growth and urbanization. This study aims to analyze the level of budget realization effectiveness for the Waste Management Program at the Surabaya City Environmental Agency for Fiscal Year 2023 based on the comparison between budget targets and their realization. This research employs a quantitative approach utilizing descriptive methods. The data used consists of secondary data obtained from the Regional Expenditure Realization Report of the Surabaya City Government for Fiscal Year 2023. Data analysis techniques apply the budget effectiveness ratio by comparing budget realization against the targets established in the Regional Revenue and Expenditure Budget (APBD). The results indicate that the budget realization effectiveness rate for the capital expenditure component of waste treatment facilities reached 93.57%, while the service expenditure component for waste treatment reached 91.76%. Based on Mahmudi's effectiveness criteria, both values fall within the effective category as they range between 90% and 100% of the established budget targets. These findings demonstrate that the budget management for the Waste Management Program in Surabaya City has generally been capable of supporting the execution of activities according to planned targets. However, a tendency toward increased budget absorption toward the end of the fiscal year remains present, necessitating optimized planning and activity execution to ensure a more balanced budget utilization throughout the year.

ABSTRAK

Pengelolaan sampah merupakan salah satu tantangan utama yang dihadapi oleh pemerintah daerah, terutama di kota besar seperti Surabaya, yang mengalami peningkatan volume sampah akibat pertumbuhan penduduk dan urbanisasi. Efektivitas pemanfaatan anggaran merupakan faktor penting dalam mendukung keberhasilan program tersebut oleh pemerintah daerah. Penelitian ini bertujuan untuk menganalisis tingkat efektivitas realisasi anggaran untuk Program Pengelolaan Sampah di Dinas Lingkungan Hidup Kota Surabaya untuk Tahun Anggaran 2023 berdasarkan perbandingan antara target anggaran dan realisasinya. Penelitian ini menggunakan pendekatan kuantitatif dengan metode deskriptif. Data yang digunakan adalah data sekunder yang diperoleh dari Laporan Realisasi Belanja Daerah Pemerintah Kota Surabaya untuk Tahun Anggaran 2023. Teknik analisis data menggunakan rasio efektivitas anggaran dengan membandingkan realisasi anggaran terhadap target anggaran yang

ditetapkan dalam Anggaran Pendapatan dan Belanja Daerah (APBD). Hasil penelitian menunjukkan bahwa tingkat efektivitas realisasi anggaran untuk komponen belanja modal instalasi pengolahan sampah mencapai 93,57%, sedangkan untuk komponen belanja jasa pengolahan sampah mencapai 91,76%. Berdasarkan kriteria efektivitas menurut Mahmudi, kedua nilai tersebut termasuk dalam kategori efektif karena berada dalam rentang 90%–100% dari target anggaran yang ditetapkan. Temuan ini menunjukkan bahwa manajemen anggaran Program Pengelolaan Sampah di Kota Surabaya secara umum telah mampu mendukung pelaksanaan kegiatan sesuai rencana yang telah ditetapkan. Namun masih terdapat kecenderungan meningkatnya penyerapan anggaran pada akhir tahun anggaran, sehingga perencanaan dan pelaksanaan kegiatan perlu dioptimalkan untuk memastikan pemanfaatan anggaran yang lebih merata sepanjang tahun.

INTRODUCTION

The waste management issue is a strategic challenge continuously faced by local governments in Indonesia. Population growth and urbanization directly impact the increase in waste generation, which, if not managed effectively, can lead to environmental degradation and public health risks. Efficient waste management is a fundamental component of public services that must be provided by local governments as part of the public's right to live in a clean and healthy environment (Rahman et al., 2025).

In the context of public administration, regional budgets serve not only as fiscal instruments but also as benchmarks for policy implementation effectiveness. Optimal fund allocation and proportional expenditure realization are crucial to ensuring that waste management objectives are achieved. Evaluating budget allocation and realization serves as an important instrument for assessing local government performance in providing high-quality public services (Prasetyo & Prasetyowibowo, 2026).

Various studies have demonstrated that waste management effectiveness is influenced by budget support, facility availability, and policy implementation strategies. A case study on waste management in Bukittinggi City showed that the success of waste-related policy implementation heavily depends on adequate infrastructure and financial support (Articha & Frinaldi, 2025). This aligns with other findings indicating that altering regional waste management strategies can enhance public service effectiveness, despite ongoing challenges in budget allocation and realization (Rudi et al., 2025).

Furthermore, a systematic review of waste management policy evaluations indicates that service effectiveness is a critical aspect of assessing policy success. This type of evaluation is essential for identifying the extent to which allocated budgets yield a tangible impact on achieving waste management policy objectives.

Surabaya City, as a major metropolitan area, faces significant challenges in waste management, both in terms of volume and service quality. The Surabaya City Government, through its Environmental Agency, allocated funds via the 2023 Regional Revenue and Expenditure Budget (APBD) across two main components: Capital Expenditure for Waste Management Facilities and Service Expenditure for Waste Management. However, budget realization for these two components did not always meet the established targets, highlighting the need for further evaluation regarding the effectiveness of budget utilization in supporting waste management performance.

Based on these empirical findings, a gap exists in research specifically evaluating waste management budget effectiveness at the expenditure component level in large local governments like Surabaya. This underscores the urgency of research focused on comparing APBD targets with budget realization through December 2023 to assess how effectively the budget realization achieved the targets set within the APBD.

Although substantial funds were allocated for the waste management program budget, budget realization did not consistently reach 100% of the targets set in the Regional Revenue and Expenditure Budget (APBD). Additionally, budget utilization patterns, which tended to concentrate toward the end of the fiscal year, indicate uneven budget absorption throughout the year during regional budget execution. It is important to analyze the gap between budget allocations and realizations to assess the effectiveness level of budget utilization, particularly regarding service expenditure for waste treatment and capital expenditure for waste treatment facilities within the Surabaya City Environmental Agency for fiscal year 2023. Accordingly, this study aims to examine the level of budget realization effectiveness for the Waste Management Program by comparing designated budget targets against actual realization.

Several previous studies have discussed regional financial management effectiveness and public sector budgeting at the local government level. These studies are generally descriptive and evaluate overall effectiveness without differentiating specific expenditure components, thereby resulting in broader and less specific research scopes. However, studies specifically analyzing budget realization effectiveness within Waste Management Programs—particularly for waste treatment service expenditure and waste treatment facility capital expenditure at the city government level—remain relatively limited. Furthermore, studies focusing on the realization-to-budget ratio as an indicator of effectiveness in Surabaya City for fiscal year 2023 are scarce. Therefore, this study aims to conduct a descriptive analysis of budget realization effectiveness based on a comparison between approved budget targets and actual realizations for fiscal year 2023 in Surabaya City.

This study aims to analyze the level of effectiveness in budget realization for the Waste Management Program at the Surabaya City Environmental Agency for Fiscal Year 2023, based on the comparison between budget allocations and their realization.

This study adopts the concept of regional financial effectiveness as outlined by Mahmudi (2016), who asserts that effectiveness is the degree of achievement of targets established in the budget. In local government financial management, effectiveness is used to assess the extent to which budget realization achieves the planned targets in the Regional Revenue and Expenditure Budget (APBD).

According to Mahmudi (2016), measuring budget effectiveness can be conducted using the effectiveness ratio, which compares actual budget realization against established budget targets. The effectiveness ratio is formulated as follows:

$$\text{Rasio Efektivitas} = \left(\frac{\text{Realisasi Anggaran}}{\text{Target Anggaran}} \right) \times 100\%$$

Secara umum, kriteria rasio efektivitas sebagai berikut :

Tabel 1. Kriteria Rasio efektivitas

Presentase (%)	Kriteria
>100%	Sangat Efektif
100%	Efektif
90-99%	Cukup Efektif
75-89%	Kurang Efektif
<75%	Tidak Efektif

Sumber : Mahmudi (2016).

The higher the realization level relative to the established target, the more effective the budget execution. In the context of this study, the concept of effectiveness is applied to analyze the budget realization of the Waste Management Program at the Surabaya City Environmental Agency for Fiscal Year 2023.

RESEARCH METHODS

This study utilizes a quantitative method with a descriptive approach. This approach is employed because the study processes numerical data and analyzes it through statistical calculations to explain the phenomenon under investigation. Quantitative research uses data in the form of numbers and analyzes it through statistical techniques to test or describe the phenomenon (Hardani et al., 2020). Descriptive research is used to describe a situation systematically, factually, and accurately based on the observed facts (Hardani et al., 2020). In this study, the descriptive approach is applied to depict the level of budget realization effectiveness for waste management in Surabaya City for the year 2023.

The data used in this study is secondary data, which refers to data obtained indirectly through existing documents or reports (Hardani et al., 2020). The secondary data for this research originates from the Regional Expenditure Realization Report (*Laporan Realisasi Belanja Daerah/LRBD*) of the Surabaya City Government for Fiscal Year 2023, published on the official website of the Surabaya City Government. The object of this research is the expenditure realization data of the Waste Management Program for Fiscal Year 2023 as stated in the 2023 LRBD.

The population in this study comprises all budget and expenditure realization data within the Waste Management Program at the Surabaya City Environmental Agency for Fiscal Year 2023, as recorded in the Regional Expenditure Realization Report of the Surabaya City Government. The research sample is focused on two expenditure components within the Waste Management Program: capital expenditure for waste treatment facilities and service expenditure for waste treatment. The selection of these two components is based on the consideration that they represent the primary budget allocations supporting waste management execution.

Data was obtained by collecting official documents in the form of the 2023 LRBD, which were then categorized according to the research requirements. Although the data was

retrieved from documents, this study maintains a quantitative approach because the analyzed data is numerical and processed using simple statistical calculations.

The data analysis technique used is Budget Effectiveness Ratio Analysis. The analysis was performed by comparing actual budget realization against the APBD budget targets reported in the 2023 Regional Expenditure Realization Report. The resulting ratio was then analyzed to determine the effectiveness of the 2023 waste management budget execution. The objective of this analysis is to provide a clear picture of the extent to which the established budget targets were achieved.

RESULTS AND DISCUSSION

A. 2023 Budget Realization Data for the Waste Management Program (Capital Expenditure for Waste Storage Facilities/Installations)

Tabel 2. Anggaran Belanja Modal Instalansi Pengolahan Sampah

Uraian	Nilai (Rupiah)
Target APBD	5.039.150.046,00
Jumlah S/D Bulan <u>Lalu</u>	2.569.577.085,00
Jumlah Bulan Ini (Desember)	2.145.770.753,00
Total Jumlah	4.715.347.838,00

Sumber : Pemerintah Kota Surabaya. (2024).

Based on Table 2, Capital Expenditure Budget for Waste Treatment Facilities, the budget target established in the 2023 Regional Revenue and Expenditure Budget (*APBD*) of Surabaya City for capital expenditure on waste treatment facilities was IDR 5,039,150,046. Up to the previous month (January–November), budget realization was recorded at IDR 2,569,577,085.

Subsequently, in December 2023, budget realization increased further by IDR 2,145,770,753. Consequently, the total budget realization by the end of the year reached IDR 4,715,347,838. Compared to the designated budget target, the budget realization rate for capital expenditure on waste treatment facilities reached 93.57% of the total planned budget. This indicates that the majority of the allocated budget was successfully realized during fiscal year 2023, despite a remaining variance between the budget target and actual realization.

To determine the level of budget realization effectiveness, the calculation is performed using the budget effectiveness ratio formula. The effectiveness ratio measures the extent to which budget realization achieves the target established in the budget. The higher the realization rate relative to the budget target, the higher the effectiveness level of budget execution.

The effectiveness ratio formula is expressed as follows:

$$\text{Rasio Efektivitas} = \left(\frac{\text{Realisasi Anggaran}}{\text{Target Anggaran}} \right) \times 100\%$$

Berdasarkan rumus tersebut, maka perhitungan rasio efektivitas realisasi anggaran belanja modal instalasi pengolahan sampah adalah sebagai berikut:

$$\text{Rasio Efektivitas} = \left(\frac{4.715.347.838}{5.039.150.046} \right) \times 100\%$$

$$\text{Persentase Efektivitas} = 93,57\%$$

Based on the results of the effectiveness ratio calculation, the effectiveness level of budget realization for capital expenditure on waste treatment facilities under the 2023 Waste Management Program in Surabaya City reached 93.57%. This value was derived from the comparison between total budget realization amounting to IDR 4,715,347,838.00 and the established budget target of IDR 5,039,150,046.00. This percentage indicates that the majority of the budget planned in the APBD was successfully realized throughout fiscal year 2023. The high level of budget realization demonstrates that the implementation of construction programs for waste storage facilities or buildings proceeded relatively well in accordance with the established budget plan.

According to Mahmudi (2016), effectiveness is a metric used to assess the degree of an organization's success in achieving its set goals or targets. In the context of local government financial management, effectiveness can be measured by comparing actual budget realization against planned budget targets. Mahmudi further states that a budget execution can be categorized as **moderately effective** if its realization rate falls within the range of 90%–99% of the established target.

Based on these criteria, an effectiveness level of 93.57% indicates that the Budget Realization for Capital Expenditure on Waste Treatment Facilities under the 2023 Surabaya City Waste Management Program can be categorized as moderately effective. This shows that the Surabaya City Government was capable of executing the Waste Treatment Facility Development Program nearly in line with the designated budget target.

However, a variance between the budget target and final realization at the end of the fiscal year remains. This gap indicates that not all targeted budget allocations were fully executed. Nevertheless, with an overall execution rate of 93.57%, the budget implementation for the Surabaya City Waste Management Program can still be considered moderately effective.

B. 2023 Budget Realization Data for the Waste Management Program (Service Expenditure for Waste Treatment)

Tabel 3. Anggaran Belanja Jasa Pengolahan sampah

Uraian	Nilai (Rupiah)
Target APBD	222.112.588.998,00
Jumlah S/D. Bulan Lalu	182.437.861.555,00

Uraian	Nilai (Rupiah)
Jumlah Bulan ini (Desember)	21.365.951.060,00
Total Jumlah	203.803.812.615,00

Sumber : Pemerintah Kota Surabaya. (2024).

Based on the 2023 Budget Realization data for the Waste Management Program within the waste treatment service component, it is recorded that the Surabaya City Government set a budget target of IDR 222,112,588,998.00. This budget was allocated to support various activities related to waste treatment, such as transportation, processing, and waste management conducted by the local government. The provision of this budget represents a vital part of efforts to maintain city cleanliness and enhance the quality of urban environmental management. With this budget allocation, it was expected that the waste management program would operate optimally and support public services in the sanitation sector.

At the end of fiscal year 2023, the total budget successfully realized was recorded at IDR 203,803,812,615.00. Compared to the previously established budget target, the budget realization rate for waste treatment services reached 91.76%. This percentage indicates that the majority of the budget planned for the waste management program was utilized to support the execution of planned activities. This relatively high realization rate also reflects that the implementation of waste treatment activities in Surabaya City proceeded relatively in line with the plans outlined in the APBD. Nevertheless, a variance remains between the targeted budget and the budget realized at the end of the fiscal year.

To determine the level of success in budget realization, measurement was conducted using the budget effectiveness ratio. The effectiveness ratio is used to evaluate the extent to which budget realization achieves the target established in regional budget planning. Through this calculation, it can be determined whether budget execution by the local government was carried out optimally. Furthermore, the effectiveness ratio serves as an indicator for assessing local government financial management performance. Consequently, calculating the effectiveness ratio is essential in evaluating government budget execution.

The effectiveness ratio formula used in this study is expressed as follows:

$$\text{Rasio Efektivitas} = \left(\frac{\text{Realisasi Anggaran}}{\text{Target Anggaran}} \right) \times 100\%$$

$$\text{Rasio Efektivitas} = \left(\frac{203.803.812.615}{222.112.588.998} \right) \times 100\%$$

$$\text{Presentase Efektivitas} = 91,76\%$$

Based on the calculation results, the budget realization effectiveness level for waste management services under the 2023 Waste Management Program in Surabaya City reached 91.76%. This value indicates that the majority of the budget planned in the Regional Revenue and Expenditure Budget (APBD) was successfully realized throughout

the fiscal year. The high level of realization demonstrates that the implementation of waste treatment activities was carried out relatively well in accordance with the previously established plan. Furthermore, this achievement reflects that budget management within the waste management program was executed optimally by the local government.

According to Mahmudi, effectiveness is a metric used to assess the degree of an organization's success in achieving designated goals or targets. In the context of local government financial management, effectiveness is evaluated through the comparison between actual budget realization and previously planned budget targets. If budget realization approaches or meets the established target, the budget execution can be considered effective. Based on these effectiveness criteria, a realization rate of 91.76% falls within the **moderately effective** category as it lies within the 90%–99% range of the budget target. This indicates that budget execution for waste management services in Surabaya City was executed well and successfully supported the waste management program throughout fiscal year 2023.

C. Interpretation of Budget Effectiveness for the Waste Management Program

Based on the analysis conducted on each budget component within the 2023 Waste Management Program, a comprehensive picture of the effectiveness of budget utilization by the Surabaya City Government can be obtained. This analysis was performed by comparing the designated budget targets with the actual budget realizations at the end of the fiscal year. Through this comparison, the degree to which planned activities in the waste management program were executed in accordance with the pre-established budget plan can be determined. The calculated effectiveness results of each expenditure component then serve as the basis for evaluating the overall success of the program's implementation. Consequently, this analysis provides insights into local government performance in managing waste management program budgets.

The study results indicate that the budget realization effectiveness rate for each expenditure component in the 2023 Waste Management Program was relatively high. For the capital expenditure component on waste treatment facilities, budget realization effectiveness reached 93.57% of the established budget target. Meanwhile, for the waste treatment service expenditure component, budget realization effectiveness reached 91.76% of the total planned budget. These percentages demonstrate that the vast majority of the budget allocated to the waste management program was successfully realized during fiscal year 2023. The relatively high realization rates in both components suggest that program activity implementation proceeded fairly well according to the planned timeline.

Comparing the two components reveals that capital expenditure for waste treatment facilities had a slightly higher effectiveness level than expenditure for waste disposal services. However, the variance in effectiveness percentages between the two components is not particularly significant, as both remained above ninety percent of their respective budget targets. This condition demonstrates that both the construction of waste treatment facilities and waste disposal services were executed relatively optimally. The high budget realization rate also indicates that the local government was capable of carrying out most planned programs in the waste management domain.

Therefore, budget utilization in the 2023 Waste Management Program can be said to have performed well.

According to Mahmudi (2016), effectiveness is a metric used to assess an organization's degree of success in achieving its established goals or targets. In regional financial management, effectiveness can be measured by comparing actual budget realization against planned budget targets. Mahmudi also asserts that a budget execution can be categorized as **moderately effective** if its realization rate falls within the 90%–99% range of the established target. Based on these criteria, the effectiveness levels of both expenditure components in the 2023 Waste Management Program fall into the moderately effective category, as they lie within the specified range. This indicates that budget utilization in Surabaya City's waste management program was able to support the implementation of waste management activities quite optimally.

In addition to observing budget realization effectiveness levels, the study also highlights budget absorption patterns that tended to spike toward the end of the fiscal year. This is evident when comparing budget realization from January through November with that of December. In both expenditure components of the 2023 Waste Management Program, budget realization in December showed a significant surge compared to the preceding eleven months. This demonstrates that a major portion of the waste management program budget was realized nearing the close of the fiscal year. Concentrated budget absorption toward the end of the year serves as an evaluation point in regional financial management, indicating that activities should be executed more evenly throughout the fiscal year.

The phenomenon of increased budget realization at the end of the fiscal year frequently occurs in local government financial management. This condition can be driven by several factors, such as procurement administrative processes requiring substantial time, adjustments to activity execution schedules, or accelerated budget realization prior to fiscal year closing. Although the overall budget realization effectiveness rate in the 2023 Waste Management Program falls into the moderately effective category, the concentration of budget absorption at year-end warrants further attention. More balanced budget management throughout the year would help enhance program execution efficiency and minimize the risk of activity delays. Therefore, evaluating budget planning and execution is essential to improving the administrative quality of future waste management programs.

Based on this explanation, it can be understood that budget management within the 2023 Waste Management Program in Surabaya City generally exhibited a commendable level of achievement. This is reflected in the high budget realization across both analyzed expenditure components, demonstrating that local government execution of the waste management program can be considered effective.

CONCLUSION

Based on the analysis of budget realization for the Waste Management Program at the Surabaya City Environmental Agency for Fiscal Year 2023, it can be concluded that the effectiveness of budget utilization falls into the effective category. This is demonstrated by the effectiveness ratio of the capital expenditure component for waste treatment facilities reaching 93.57%, and the service expenditure component for waste treatment

reaching 91.76% of the target established in the Regional Revenue and Expenditure Budget (APBD). These percentages indicate that the majority of the budget allocated for the waste management program was successfully realized during fiscal year 2023.

According to the budget effectiveness criteria proposed by Mahmudi, budget realization rates ranging between 90% and 99% can be categorized as moderately effective. Consequently, budget management for the Waste Management Program in Surabaya City has generally been capable of supporting the execution of waste management activities in accordance with the plans established by the local government. This high level of budget realization also demonstrates that most of the activities planned within the program were implemented fairly effectively.

Nevertheless, the study results also reveal a tendency toward increased budget absorption at the end of the fiscal year. This condition indicates that program planning and implementation distribution still need optimization to ensure budget absorption occurs more evenly throughout the year. Therefore, enhancing the quality of activity planning and program scheduling from the beginning of the fiscal year is essential to improving budget management effectiveness for future waste management programs.

REFERENCES

- Articha, D. S., & Frinaldi, A. (2025). Efektivitas pengelolaan sampah dalam rangka mewujudkan lingkungan kota layak huni (livable city) di Kota Bukittinggi. *Jurnal Kajian Pemerintah: Journal of Government, Social and Politics*, 11(2). <https://journal.uir.ac.id/index.php/JKP/article/view/24485>
- Hardani, H., Auliya, N. H., Andriani, H., Fardani, R. A., Ustiawaty, J., Utami, E. F., Sukmana, D. J., & Istiqomah, R. R. (2020). *Metode penelitian kualitatif dan kuantitatif*. Yogyakarta: CV. Pustaka Ilmu. <https://www.researchgate.net>
- Mahmudi. (2016). *Analisis laporan keuangan pemerintah daerah*. Yogyakarta: STIM YKPN.
- Pemerintah Kota Surabaya. (2024). *Informasi realisasi belanja daerah tahun anggaran 2023*. <https://surabaya.go.id/id/page/0/22868/informasi-realisisi-belanja-daerah-tahun-anggaran-2023>
- Prasetyo, B. A., & Prasetyowibowo, R (2026). Evaluasi kebijakan pengelolaan sampah: Systematic literature review. *Jurnal Cahaya Edukasi*, 3(1), 220–226. <https://doi.org/10.63863/jce.v3i1.297>
- Rahman, A., Fikri, M., Maysha, H. M., & Adrian. (2025). Anggaran pengelolaan sampah dalam perspektif hak konstitusional masyarakat Kota Makassar. *Nomokrasi: Jurnal LeDHak Fakultas Hukum Universitas Hasanuddin*, 3(2). <https://journal.unhas.ac.id/index.php/jnomokrasi/article/view/47850>
- Rudi, R., Fadhlurrohman, M. I., Milano, C., & Alviona, V. (2025). Analisis perubahan pengelolaan sampah terhadap efektivitas dan dampaknya terhadap pelayanan publik di Dinas Lingkungan Hidup Kabupaten Garut. *Jurnal Pembangunan dan Kebijakan Publik*, 16(1), 23–28. <https://doi.org/10.36624/jpkp.v16i1.126>