Contents lists available at openscie.com
E-ISSN: 2961-7952
Open Global Scientific Journal
DOI: 10.70110/ogsj.v4i1.54
Journal homepage: https://openglobalsci.com

Development of Sustainability Instruments for Waste Alms Program (Sedekah Sampah) for Community Based Solid Waste Management in Sleman Regency, Yogyakarta

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ARTICLE INFO

Article History:
Received 11 July 2025
Revised 17 August 2025
Accepted 18 August 2025
Published 21 August 2025

Keywords:
Community based solid waste management,
Sustainability instruments,
Sedekah sampah,
Waste alms.

ABSTRACT

Background: Community-Based Waste Management Programs have been carried out in various regions in Indonesia, including Waste Alms (sedekah sampah). However, some waste management in Indonesia is no longer active without knowing the cause. Therefore, it is necessary to conduct a sustainability assessment to identify areas for improvement. To carry out the assessment, a sustainability instrument is needed as an assessment tool.

Aims & Methods: This research aims to compile sustainability instruments and conduct trials of these instruments. Sustainability instruments are based on five aspects of community-based waste management and consist of 18 assessment indicators and assessment parameters. The instrument is compiled based on several references obtained. The locations used for the trial of this sustainability instrument are six waste alms locations in Sleman Regency. The calculation method used to determine the sustainability class and calculate the total value is the weighting method.

Results: The results of the sustainability instrument trial were obtained. The Sido Rukun Waste Alms scored 74%, the Taruna Bakti Waste Alms scored 75%, and the Sedyo Luhur Waste Alms scored 71%. The three waste alms are included in the sustainable class. Meanwhile, the Rukun Makmur Waste Alms, the Rukun Lestari Waste Alms, and the Permata Waste Alms all receive scores of 83%. These three waste alms are included in the very sustainable class. The results of the sustainability instrument trial indicate that the sustainability instrument prepared can be used for the assessment of waste alarms in the future.

To cite this article: Ali, A. R., Putra, H. P. (2025). Development of sustainability instruments for waste alms program (sedekah sampah) for community based solid waste management in Sleman Regency, Yogyakarta. *Open Global Scientific Journal*, 4(1), 42–54.

1. Introduction

The waste problem in Indonesia is currently severe (Fau *et al.,* 2020). In 2024, Indonesia generated approximately 34,6 million tons of municipal solid waste annually, with more than 52,9% of this waste remaining unmanaged or disposed of in open dumping sites (SIPSN, 2025). Every year, waste increases in terms of production volume. This is due to the increasing population and public facilities (Kahfi, 2017). The increase in waste volume occurs in all districts and cities in Indonesia. The increase in waste volume will affect the target for waste reduction and handling. Based on data from the National Waste Management Information System (SIPSN), the achievement of waste reduction and handling in 2023 is 14.99% for reduction, 51.05% for handling, and 33.96% for unmanaged waste. This does not align with the target of Presidential Regulation No. 97 of 2017 concerning the National Policy and Strategy for Household and Similar Waste Management, which aims for a 27% reduction in waste generation and a 72% increase in waste handling by 2023. The failure to achieve the waste management target is due to several factors, including insufficient budget for implementing the waste management policy, the absence of regional regulations on waste management, and the weak role of the community in managing waste (Krisnawansyah, 2021).

In overcoming these issues, the role of universities is vital to provide knowledge about effective waste management, also known as Community-Based Waste Management Programs (Ermavitalin *et al.,* 2019). Community-Based Waste Management Programs are waste management programs based on the needs and demands of the community, controlled, planned, and evaluated together with the community. Has been implemented in various waste management locations throughout Indonesia. One example of a community-based waste management program is the waste alms program (Lattana, 2023). The waste alms program helps the community in managing waste before it goes to final disposal, similar to zero-waste community initiatives observed internationally (Fagerholm *et al.,* 2025).

Beyond Indonesia, sustainability assessment instruments for community-based waste management have been developed in various contexts. For instance, zero-waste community frameworks in Europe and North America often emphasize household-level segregation, extended producer responsibility, and local governance structures (Fagerholm *et al.,* 2025). In Southeast Asia, participatory waste bank systems and cooperative models provide insights into financial and institutional sustainability (Amponsem, 2023). Compared with these approaches, the "Sedekah Sampah" model introduces a unique integration of social-religious values, where waste management is directly linked to community solidarity and almsgiving practices. This comparative perspective clarifies the novelty of our instrument, which adapts both technical and cultural considerations.

Waste Alms is a program that sells waste and donates the proceeds. This waste alms is carried out by the entire community and coordinated by the waste alms administrators. The program educates residents to donate their waste to the waste alms place. The type of waste that is donated is waste that still has a selling value (Saputra *et al.,* 2023). The money from the sale empowers the community through a program prepared by the waste management administrators. The waste alms program is a Community-Based Waste Management program that uses a health and religious approach (Tasminatun & Makiyah, 2021).

The purpose of the waste alms is to reduce the volume of waste. Waste alms are expected to mobilize the community to care more about the surrounding environment, especially the problem of waste. In addition, the existence of the waste alms program can increase community alms by donating their waste (Makiyah & Tasmiatun, 2020).

Several districts or cities in Indonesia already have waste alms programs, but some are no longer active for unknown reasons. The waste alms program that is still active in several districts needs to be assessed for its sustainability level to identify areas that are no longer relevant or are not running well. Sustainability aims to meet human needs and aspirations. Sustainability is aimed at equitable

development between generations. In assessing the sustainability level of the waste alms program, an instrument must be used to determine the sustainability of the program. However, until now, there has been no definite information or reference regarding the sustainability instrument used for assessment of community-based waste management programs, especially waste alms and simulations of the sustainability instrument, despite several studies emphasizing the importance of circular community waste models for long-term sustainability (Amponsem, 2023).

Based on the problems explained above related to the community-based waste management program, namely waste alms that are no longer active without known causes and the absence of sustainability instruments for assessing community-based waste management programs in Sleman Regency. This research was conducted to compile a sustainability instrument. The sustainability instrument consists of assessment indicators, assessment parameters, and assessment scale weights. In addition to compiling sustainability instruments, simulations or assessment trials were also carried out to determine the final results of the assessment of the waste alms program.

2. Methods

2.1 Research location

The location of the research is in the Special Region of Yogyakarta Province, more precisely in Sleman Regency. The locations were only used for testing the sustainability instrument that had been prepared, not for sample fulfillment.

Table 1. Location Waste Alms

Class	Waste Alms	Address
Large	Rukun Makmur Waste Alms	Gancahan 6, Sidomulyo, Godean, Sleman
	Taruna Bakti Waste Alms	Dusun Kadipiro, Margodadi, Seyegan, Sleman
Medium	Rukun Lestari Waste Alms	Leles, Ngringin, Condong Catur, Depok, Sleman
	Permata Waste Alms	Pakem RT04/RW02, Tamanmartani, Kalasan, Sleman,
Small	Sedyo Luhur Waste Alms	Kranggan 2, Jogotirto, Berbah, Sleman
	Sido Rukun Waste Alms	Glagah Malang 1, Glagaharjo, Cangkringan, Sleman

The classification of waste alms locations into large, medium, and small categories was determined based on the scale of operations, including the number of households served, volume of waste managed per month, and organizational capacity. For instance, large-scale programs such as Rukun Makmur and Taruna Bakti serve more than 100 households and manage above 1 ton of waste per month, supported by a structured organizational team. Medium-scale programs typically serve 50–100 households with waste volumes between 300–800 kg per month. Small-scale programs, such as Sedyo Luhur and Sido Rukun, operate at the neighborhood level with fewer than 50 households and manage less than 300 kg of waste per month. This classification allows for assessing how program size and operational complexity influence sustainability outcomes.

2.2 Sampling methods

The data used for this study consists of two types of data, namely primary data and secondary data. For primary data, it is the result of an assessment obtained from interviews and direct assessments of the waste alms program. Secondary data consists of assessment indicators, assessment parameters, assessment scale values, and the number of waste management programs in the Special Region of Yogyakarta Province, which come from literature studies, technical instructions, and regulations that support this study.

Table 2. Colleting Data Method

No	Types of Data	Data	Method of Colleting Data
1	Primary Data	Sustainability assessment of the waste alms program	Field interviews and observations
2	Secondary Data	The number of waste alms programs in the Special Region of Yogyakarta Province	Website of the National Waste Management Information System (SIPSN) and the DIY Provincial Environmental Agency
3		Indicators and parameters for assessing the sustainability instrument of the waste alms program	Literature Study, PUPR Regulation No. 13 of 2013, Technical Guidelines for TPS 3R, Technical Guidelines for Waste Bank, dan Waste Alms Books
4		Rating scale for the waste alms program	

2.3 Measurement methods

Data analysis of the sustainability assessment instrument comes from the results of the sustainability instrument trial on the waste alms program. The sustainability instrument trial was conducted by means of direct assessment and interviews on the waste alms program. The results of the assessment are in the form of a total score derived from the assessment scale. The assessment scale is found in the assessment parameters on the sustainability instrument, the following is the assessment scale on the sustainability instrument

Table 3. Rating Scale

Scale Value	Information
4	Very Good
3	Good
2	Sufficient
1	Insufficcient
0	Bad

Source : Krisnawansyah, 2021

2.4 Calculation of data analysis

In using the weighting method, there are several stages, including:

a) Sustainability weighting

The weighting method uses weights for calculating each indicator. Therefore, it is necessary to determine the weight of the suitability value to differentiate the level of suitability, which can be calculated using the scoring method. To determine the suitability weight, it is based on how many times the indicator is found in several sources that have been searched.

The selection of indicators was informed not only by their frequency in existing guidelines and literature but also by their relevance to local priorities in Sleman Regency. For instance, the inclusion of community participation and religious-based motivations reflects cultural and behavioral drivers specific to Indonesian contexts. The weighting was further refined through stakeholder consultations with waste alms administrators and local government representatives, ensuring that the instrument captures both technical feasibility and socio-cultural significance. Thus, higher weights were assigned to indicators such as community participation and organizational structure, which local stakeholders identified as critical for long-term sustainability.

Table 4. Sustainability Weighting

Weight	Information
20	Used for indicators that appear **four** or more times in different references.

15	Used for indicators that appear **three** or more times in different references.
10	Used for indicators that appear **two** or more times in different references.
5	Used for indicators that appear **one** or more times in different references.

Source : Alfianto, 2017

b) Parameter weighting
Each parameter has a different role in supporting sustainability. This sustainability instrument provides a scale for each parameter, as shown in Table 3 above.

c) Scoring weighting
After obtaining the weight value for the indicator and the assessment scale for each parameter, a trial assessment of the sustainability instrument was conducted. The results of the values obtained from the trial assessment were then weighted by scoring using the following formula:

$$Relative\ Value = (Scale\ Value_1 x\ Weight_1) + \cdots + (Scale\ Value\ _n x\ Weight_n)$$

d) Scoring conformity
The results of the scoring weighting are then adjusted for each aspect against the suitability of the scoring at different levels. In this scoring, suitability is determined using a percentage scale. The use of this percentage scale is to make it easy to compare the final value for each waste amount because this percentage scale creates the same standard.

Table 5. Ordinal Scale of Sustainability

Class	Sustainability Range	Sustainability Range (%)
Very Unsustainable	0-145	0-20%
Not Sustainable	>145-290	> 20-40%
Moderately Sustainable	>290-435	> 40-60%
Sustainable	>435-580	> 60-80%
Very Sustainable	>580-725	> 80-100%

3. Results and Dicussion

3.1 Sustainability instruments

This sustainability instrument is used for collecting primary data in the field and for analysis. In the sustainability instrument, there are indicators, parameters, and assessment weights that are useful for facilitating assessment. Table 6 presents the detailed structure of the sustainability instrument, which consists of five main aspects—operational technical, policy/regulation, community participation, financing, and institutional. Each aspect is broken down into specific indicators, with corresponding parameters and assigned weights. These weights indicate the relative importance of each indicator in determining the overall sustainability score, while the parameters provide measurable benchmarks for assessment in the field. By combining these components, the instrument enables a systematic and comparable evaluation across different Waste Alms programs.

Table 6. Sustainability Instruments

No	Aspect	Kode	Indicator	Parameters	Value	Weight
1.	Operational Tehnical	1A	Quantity of Waste	The weight of waste managed is 80% of the service area	3	15
				The weight of waste managed is > 30% and < 80% of the service area	2	

No	Aspect	Kode	Indicator	Parameters	Value	Weight
		2A	Sorting by Officers	The weight of waste managed is < 30% of the service area	1	15
				No trash input	0	
				There is a waste sorting process according to the waste composition, and the sorting is carried out in more detail.	4	
				There is a waste sorting process according to the waste composition.	3	
				There is no waste sorting process	1	
		3A	Waste Sales	The waste sold is according to the waste composition, and in more detail, sales results increase every month.	3	15
				The waste sold is based on the waste composition, and the sales results are stable every month.	2	
				The waste sold is according to the waste composition, and sales results decrease every month.	1	
		4A	Environmental Management	The management has carried out environmental management by implementing 3R (Reduce, Reuse, Recycle) and not burning residual waste.	3	5
				The management has carried out environmental management by implementing 3R (Reduce, Reuse, Recycle) and not burning residual waste.	2	
				The management does not carry out environmental management by implementing 3R (Reduce, Reuse, Recycle) and burning residual waste.	0	
		5A	Condition of Facilities and Infrastructure	There are facilities and infrastructure to manage waste, and they function 100%	3	5
				There are facilities and infrastructure to manage waste, and they function > 50% and < 100%	2	
				There are facilities and infrastructure to manage waste, and they function <50%	0	
2.	Policy or Regulation	1B	Village Regulations regarding Waste Management	There are already village regulations regarding waste, and these have been implemented	3	10
				There are already village regulations regarding waste alms,	2	

No	Aspect	Kode	Indicator	Parameters	Value	Weight
				but they have not been implemented		
				There are no village regulations regarding waste alms	0	
		2B	Guidelines / Regulations on Waste Management	The management already knows about the guidelines/regulations related to waste management and has implemented them.	3	5
				The management already knows about the guidelines/regulations related to waste management, but has not implemented them.	2	
				The management is not yet aware of the guidelines/regulations regarding waste management and has not implemented them.	0	
3.	Community Participation	1C	Public Knowledge Regarding Waste Management	There is socialization regarding waste management between the management and the community, and the community is already familiar with waste management	3	20
				There is socialization regarding waste management from the management, but the community does not yet understand waste management.	2	
				There has been no socialization regarding waste management from the management.	1	
		2C	Sorting At Source	There is waste sorting according to its composition	3	15
				There is waste sorting, but only organic and inorganic waste sorting.	2	
				There is no waste sorting, only waste that is fit for sale is deposited	1	
4.	Financing	1D	Waste Alms Income	Income comes from external financial assistance, additional customers for waste alms and existing customers.	4	15
				Income comes from additional waste, from external financial assistance, and existing customers.	3	
				There is no external financial assistance or additions from customers; income only comes from existing customers	2	

No	Aspect	Kode	Indicator	Parameters	Value	Weight
				There are operational costs such as (facility maintenance, vehicle fuel costs, etc.), and these costs do not exceed income.	3	
		2D	Operational Costs of Waste Alms	There are operational costs such as (facility maintenance, vehicle fuel costs, etc.), and the costs are the same as the income.	2	15
				There are operational costs such as (facility maintenance, vehicle fuel costs, etc.) and costs exceeding income.	0	
				There is a complete organizational structure, and the management is still active.	3	
		1E	Organizational structure	There is a complete organizational structure, but the management is less active	2	20
				There is no organizational structure	0	
				There is an agreement with the collector regarding the selling price of the waste and the waste collection schedule.	3	
		2E	Cooperation with External Parties/Collectors	There is no agreement with the collectors regarding the selling price of the waste, and there is no agreement on the waste collection schedule.	1	20
5.	Institutional			There is training in waste management for administrators and comparative studies with other waste management organizations.	3	
		3E	Human Resources	There is training in waste alms management for administrators or comparative studies to other waste alms organizations.	2	15
				There is no training in waste alms management for administrators, and comparative studies with other waste alms organizations	1	
				There are already operational standards for implementation. They have been socialized and implemented by the management.	3	
		4E	Implementation Operational Standards	There are already operational standards for implementation. They have been socialized but have not yet been implemented by the management.	2	15
				There are no operational standards for implementation	0	

No	Aspect	Kode	Indicator	Parameters	Value	Weight
		5E	Administration Management	There is bookkeeping of sales results and periodic reporting regarding expenditure and income from waste alms.	3	15
				There is no bookkeeping of sales results and no periodic reporting of expenditure and income from waste alms.	0	
		6E	Sales Result Management	There is management of sales results, such as distributing funds for social activities, and there is a savings and loan program for the community.	3	5
				There is management of sales results, such as distributing funds for social activities, or there is a savings and loan program for the community.	2	
				There is no management of sales results, such as distributing funds for social activities. Additionally, there is no savings and loan program for the community.	1	
		7E	Join the Waste Alms Community	Join an organization or community for waste alms in the Special Region of Yogyakarta Province.	3	5
				Not affiliated with an organization or community for waste alms in the Yogyakarta Special Region Province	0	

3.2 Results of the assessment of sustainability instruments and the sustainability status of waste alms

The results of the sustainability assessment that has been carried out on the six Waste Alms in Sleman Regency have the following values:

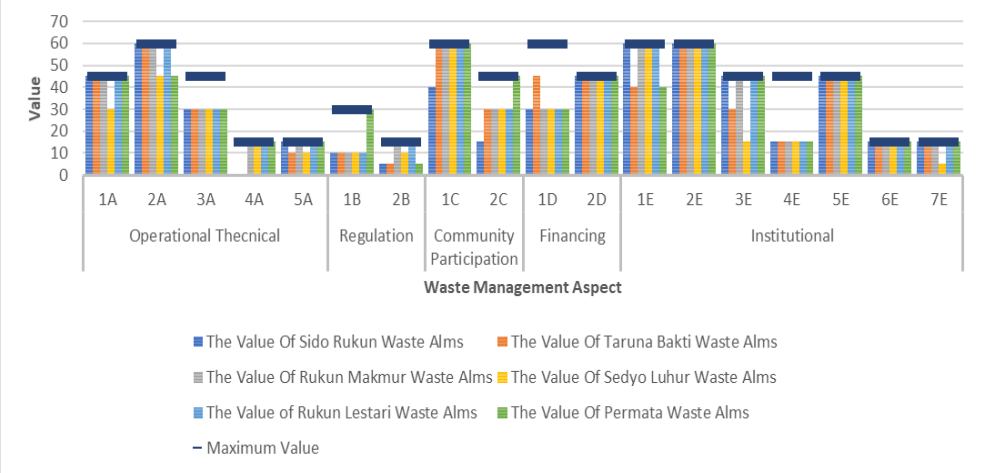

Figure 1. Results of The Assessment of All Waste Alms

The assessment results of each waste item yielded different total values. The total value is the sum of all indicators, calculated by multiplying the scores obtained by the weight of each indicator.

Table 7. Total Value of Each Waste Alms

Waste Alms	Total Value	Persentage (%)
Sido Rukun Waste Alms	530	74%
Taruna Bakti Waste Alms	540	75%
Rukun Makmur Waste Alms	595	83%
Sedyo Luhur Waste Alms	510	71%
Rukun Lestari Waste Alms	595	83%
Permata Waste Alms	580	81%

From the total value of each waste alms, it is then adjusted to the sustainability range to determine the sustainability class of each waste alms.

Table 8. Percentage Compliance of Each Waste Alms with Sustainability Range

Waste Alms	Percentage (%)	Sustainability Range
Sido Rukun Waste Alms	74%	Sustainable
Taruna Bakti Waste Alms	75%	Sustainable
Rukun Makmur Waste Alms	83%	Very Sustainable
Sedyo Luhur Waste Alms	71%	Sustainable
Rukun Lestari Waste Alms	83%	Very Sustainable
Permata Waste Alms	81%	Very Sustainable

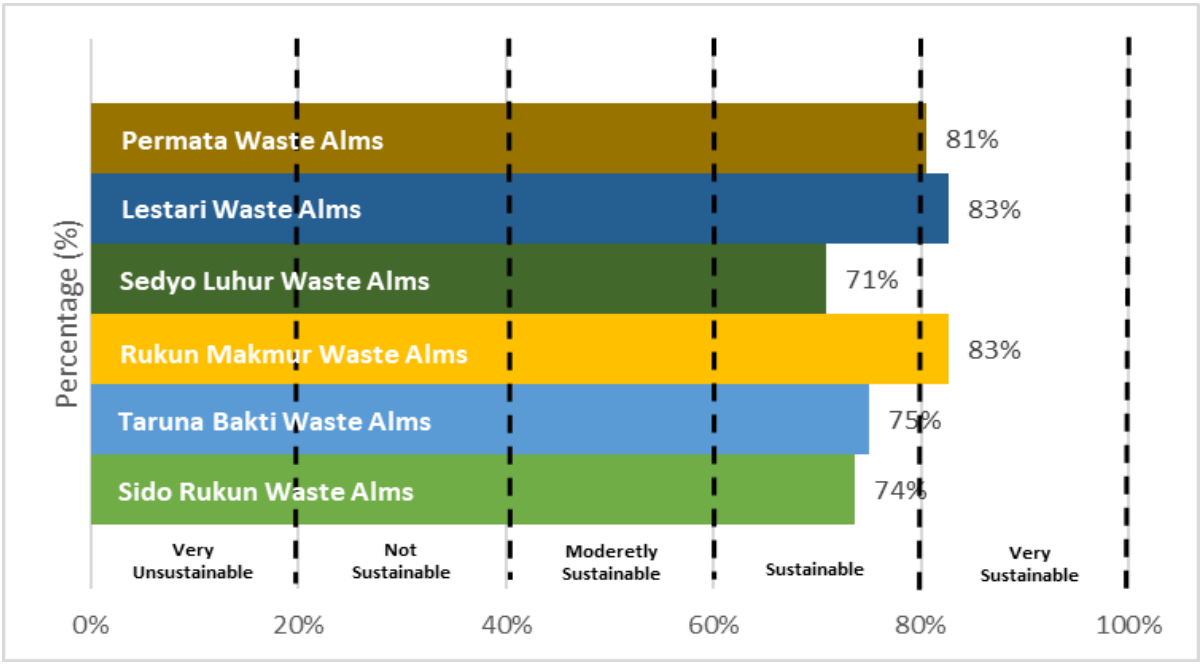

Figure 2. Sustainability Status Mapping

Three waste alms programs that are classified as sustainable (60-80%) include Sido Rukun Waste Alms, Taruna Bakti Waste Alms, and Sedyo Luhur Waste Alms. Meanwhile, three other programs, namely Rukun Makmur Waste Alms, Rukun Lestari Waste Alms, and Permata Waste Alms, are in the very sustainable category (80-100%). This difference in level of sustainability emerged after adjustments were made to the total value of each waste item based on the sustainability classification range. This total value is greatly influenced by the score obtained from each sustainability indicator. Some of these indicators are still not implemented optimally or have not even been implemented in several waste alms programs, which causes low scores in these aspects. These low scores then have an impact on the overall value of each program. Examples of indicators that are still weakly implemented include Environmental Management, Village Policy on Waste Management, Waste Management Regulations, and the availability and capacity of Human Resources. Therefore, waste management managers need to improve management and operational aspects, especially on indicators that are not yet running optimally, in order to improve overall performance.

The differences between high-performing (very sustainable) and lower-performing (sustainable) programs can be linked to variations in operational practices and institutional support. For example, Rukun Makmur and Rukun Lestari benefited from clear village regulations, structured financial mechanisms, and active collaboration with external collectors, which strengthened both governance and economic stability. Conversely, programs such as Sedyo Luhur scored lower due to irregular sorting practices, weak enforcement of village regulations, and limited human resource capacity. These findings underscore the importance of aligning technical processes with consistent policy enforcement and active community engagement. Socio-economic conditions also play a role; communities with stronger economic bases tend to maintain program continuity more effectively, while financially weaker communities face greater challenges in sustaining operations.

The findings of this study are consistent with previous research highlighting that strong institutional frameworks and community engagement are critical drivers of sustainability in community-based waste management. For example, (Lattana, 2023) emphasized the importance of governance structures in ensuring program continuity in Makassar, which aligns with the higher performance observed in Rukun Makmur and Rukun Lestari that had clear village regulations and active management. Similarly, (Amponsem, 2023) demonstrated that circular waste management models thrive when communities integrate financial mechanisms with social objectives, a pattern also evident in the financial stability of high-scoring programs. Conversely, the lower sustainability scores in Sedyo Luhur and Sido Rukun reflect challenges documented by (Pandey, 2025), where limited community knowledge and weak training opportunities reduced the effectiveness of waste sorting and composting initiatives. These parallels reinforce the validity of our sustainability instrument and highlight its applicability across different community contexts.

3.3 Operational inhibiting factors and general problems in waste alms

After conducting instrument trials at six waste alms locations, relatively similar general problems were found in each location. These problems are caused by various factors that can hinder the operation of the waste alms program. One of the main issues faced is the suboptimal environmental management, especially in handling residues from the waste sorting process. Residues that are not appropriately managed require managers to take further action, including burning the residue. This practice has the potential to pollute the air and harm the environment. The ineffectiveness of environmental management is generally caused by the lack of knowledge and skills of the administrators, which is a result of the lack of training and opportunities for comparative studies between waste management programs. Similar findings were reported in community-based waste education programs that improved sorting and composting behaviors (Pandey, 2025).

In addition, another problem that often arises is the ineffectiveness of the organizational structure of the waste management that has been formed. Some members of the management are no longer active for various reasons, thus disrupting the smooth operation. For example, in the waste sorting process, even though there are members assigned, over time, some of them stop trying. This causes the sorting process to be slower and less efficient due to the limited number of human resources available.

4. Conclusions

The sustainability instrument compiled in this research is based on five aspects of waste management. The indicators used for the assessment are 18. The determination of indicators and parameters in the sustainability instrument refers to several sources obtained.

The trial of the sustainability instrument obtained the following results, in Sido Rukun Waste Alms got a score of 74% in the sustainable class, Taruna Bakti Waste Alms got a score of 75% in the sustainable class, Rukun Makmur Waste Alms got a score of 83% in the very sustainable class, Sedyo Luhur Waste Alms got a score of 71% in the sustainable class, Rukun Lestari Waste Alms got a score of 83% in the very sustainable class, and Permata Waste Alms got a score of 81% in the sustainable class. The results of the overall trial are that the sustainability instrument compiled in this study can be used for sustainability assessments in waste management in the future.

To strengthen the sustainability of community-based waste alms programs, several recommendations can be proposed. For programs scoring lower, targeted capacity-building interventions such as training modules on waste sorting, financial literacy, and environmental management are crucial. Financial incentives or micro-funding schemes could also help stabilize operational costs and reduce reliance on irregular income streams. Policy interventions at the village level, including mandatory waste sorting regulations and formal recognition of waste alms groups, would provide stronger institutional backing. Meanwhile, high-performing programs should focus on scaling up through inter-community collaborations, developing savings-and-loan initiatives, and establishing partnerships with private recyclers or NGOs. These measures can not only sustain current achievements but also replicate success in other regions, contributing to national waste reduction targets.

In further research, it can be more detailed regarding the sustainability instruments that have been prepared in this study, integrating insights from community governance frameworks and circular economy models. Such as being able to reduce or add indicators to the sustainability instrument after an assessment is carried out, because several indicators are not relevant to conditions in the field. In further research, the data analysis method used can use a modification of the Multi-Dimensional Scaling method to determine the level of sustainability at the waste alms location.

5. Acknowledgment

The author would like to express his gratitude to all parties involved and assisted in this research, so that this research can run smoothly and without any obstacles, especially the Environmental Engineering Department of the Islamic University of Indonesia, the Independent Waste Management Network (Jejaring Pengelola Sampah Mandiri = JPSM) of Sleman Regency, Yogyakarta and the Waste Alms Program Managers in the Sleman Regency area, especially those who were used as respondents for this instrument measurement.

6. Authors Note

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

7. References

Alfianto, F. (2017). Analisa Kesesuaian Lahan Untuk Lokasi Pengembangan Permukiman Menggunakan Metode Scoring (Studi Kasus: Surabaya Timur). Institut Teknologi sepuluh November Surabaya, Surabaya

Amponsem, J. (2023). GAYO's Sustainable Community Waste Management Model: Impacts And Lessons For Circular Futures. Sustainability. https://www.researchgate.net/publication/373288968

Ermavitalin, D., Jadid, N., Muslihatin, W., Saputro, T. B., & Shovitri, M. (2019). Pelatihan Komposting Sampah Skala Rumah Tangga Dalam Pengelolaan Sampah Berbasis Masyarakat Desa Ketegan Tanggulangin Sidoarjo. *Jurnal Abdi : Media Pengabdian Kepada Masyarakat,* 5(1), 39–43.

Fagerholm, A.-S., Haller, H., Warell, A., & Hedvall, P.-O. (2025). Zero Waste For All? Sustainable Practices In A Small-Scale Zero Waste Community From A Universal Design Perspective. *Sustainability*, 17 (9), 4092. https://doi.org/10.3390/su17094092

Fau, A., Sarumaha, P. C., Manaraja, D. M., & Nias Selatan, S. (2020). Pengelolaan Sampah di TPA Telukdalam Kabupaten Nias Selatan Menjadi Pupuk Organik (Merk Multi-Vit). *Jurnal Education and Development*, 8(3), 92-94.

Kahfi, A. (2017). Tinjauan Terhadap Pengelolaan Sampah. *Jurnal Jurisprudentie*, 4(1), 12–25.

Krisnawansyah, Y. (2021). Implementasi Kebijakan Pengelolaan Sampah Melalui Pengolahan dengan Sistem Reduce Reuse Recycle Berbasis Masyarakat di Kabupaten Solok. *Jurnal Ensiklopedia*, 4(1), 261–268.

Latanna, M. D. (2023). Governance Assessment Of Community-Based Waste Management In Makassar. Sustainability, 15(19), 14371. https://doi.org/10.3390/su151914371

Makiyah, S. N. N., & Tasmiatun, S. (2020). Pemberdayaan Ibu-Ibu Aisyiyah dalam Pengelolaan Sampah Rumah Tangga dan Pembentukan Kelompok Sedekah Sampah. *Jurnal Abdimas Mahakam*, 4(2), 251–260.

Pandey, D. (2025). Community-Based Waste Management Education To Promote Environmental Sustainability. *Assoeltan: Indonesian Journal Of Community Research And Engagement*, 3(1), 45–54.

SIPSN (2025). Sistem Informasi Pengelolaan Sampah Nasional, https://sipsn.kemenlh.go.id/sipsn/

Tasminatun, S., & Makiyah, S. N. N. (2021). Pembentukan Kelompok Sedekah Sampah Ibu-Ibu PKK RW 09 Kwarasan Nogotirto Gamping Sleman Yogyakarta. Prosiding Seminar Nasional Program Pengabdian Masyarakat, Universitas Muhammadiyah Yogyakarta