The Influence of Competencies and Infrastructure Facilities on the Success of Zero Waste in the Free Nutritious Meal Program at SPPG Pulang Pisau

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Abstract

The rapid expansion of the Free Nutritious Meals Program (MBG) has increased food waste at Nutrition Service Fulfillment Units (SPPG), yet what determines zero waste success in these kitchens remains unclear. This study aimed to analyze the effect of human resource competence and facilities and infrastructure on zero waste success at the SPPG in Bereng Village, Pulang Pisau. A quantitative associative survey was conducted with all 42 SPPG staff through saturated sampling and a four-point Likert questionnaire. Data were analyzed using multiple linear regression in SPSS after validity, reliability, and classical assumption tests. Competence had a positive and significant partial effect (B = 0.446; $p < 0.001$), as did facilities and infrastructure (B = 0.291; $p = 0.009$). Together, both variables significantly affected zero waste success ($F = 29.801$; $p < 0.001$), explaining 60.4% of its variation. Competence was the dominant predictor, while the facilities relationship was not fully linear. SPPG managers should prioritize staff competence development, supported by adequate waste sorting and processing facilities.

Keywords: *Food Waste Management, Human Resource Competence, Public Facilities, Nutrition Service Unit, Multiple Linear Regression.*

A. INTRODUCTION

Food security is a strategic issue at the international and national levels. FAO formulates food security as a state when everyone has physical and economic access to sufficient, safe, and nutritious food, in line with Law Number 18 of 2012 concerning Food (Republik Indonesia, 2012). Nutritious feeding programs for school children are becoming a common instrument in various countries to strengthen food security while functioning as a social safety net; studies from various countries also show that its effectiveness depends on the readiness of production kitchen governance, including environmental sustainability aspects (Surendra et al., 2026).

In Indonesia, the policy is implemented through the Free Nutritious Meal (MBG) Program starting January 6, 2025. This program is run by a network of Nutrition Fulfillment Service Units (SPPG) which functions as a production kitchen as well as a large-scale distribution center and produces organic and inorganic waste in high volumes every day. Thus, the application of the zero-waste principle is an important strategy to ensure the operational sustainability of MBG, as it has been proven to increase the effectiveness of resource management and significantly reduce waste generation (Andini et al., 2022). However, the rapid growth rate of beneficiaries

has not been followed by adequate waste management capacity at the SPPG level, so the generation of organic waste is at risk of continuing to increase (Ilmi & Syaifuddin, 2025). The national data in Table 1 confirms this need.

Table 1. National Waste Generation, Proportion of Food Waste, and Number of Government Nutrition Program Recipients in Indonesia in 2021–2026

Year	Total national waste generations (million tons)	Food waste (%)	Recipient of government nutrition programs (million people)
2021	29,46	39,85	-
2022	35,92	40,64	-
2023	43,23	39,43	-
2024	33,79	39,36	-
2025	24,8	40,77	55,1 (year-end realization)
2026 (until August)	(running data)	-	56,99 (as of August 31, 2026)

Source: Kementerian Lingkungan Hidup dan Kehutanan (KLHK), Sistem Informasi Pengelolaan Sampah Nasional (SIPSN), dan Badan Gizi Nasional (BGN).

The data in Table 1 shows that the proportion of food waste waste ranges from 39% to 41% of the total national waste volume during the period 2021 to 2025. This percentage is relatively consistent despite fluctuating waste generation volumes, making food waste the largest contributor to the national waste composition. The MBG initiative was initially planned to cover 82.9 million beneficiaries in the final quarter of 2025, but its realization only touched 55.1 million people as of December 31, 2025. Entering 2026, the reach of this program will increase to 56.99 million people by August 31, 2026, equivalent to 76.44% of the adjusted target to 74.56 million recipients after the National Nutrition Agency (BGN) revised the budget allocation and target focus. The expansion of the number of SPPG kitchens has the potential to increase the generation of kitchen waste in aggregate. In addition, MBG's operational constraints also include food safety issues: the Ministry of Health documented 446 incidents of suspected poisoning affecting 37,673 individuals in 210 districts/cities across 36 provinces as of May 10, 2026 (Kompas, 2026), a condition that reflects the capacity of human resources (HR) and existing SPPG management.

The results of interviews with SPPG officers in Bearng Village, Pulang Pisau, indicate that there is an imbalance in the provision of expertise; The officers who had received technical guidance on waste management from the Environment Agency, while the rest only relied on verbal coordination between employees without standard guidance. Even though the kitchen facilities have been functioned, the absence of an organized organic and inorganic waste sorting system, and the absence of a clear written work protocol, have made the implementation of the zero-waste principle not achieved optimally.

Previous studies have often examined aspects of human resources and supporting facilities partially. The practical handling of food in service provider organizations is considered a problem that requires strengthening and awareness of concrete actions (Dewi, 2024), where waste management facilities will not run

optimally without qualified human resources (Lutviana et al., 2025), and the fundamental problem in waste management in Indonesia lies in weak awareness and institutions (Eprianti et al., 2021). In a professional kitchen environment, employee membership has an impact on self-efficacy and the desire to reduce food waste (Lu & Ko, 2023), while the lack of understanding and collaboration between staff is often a major obstacle in efforts to reduce food waste (Way et al., 2025). The impact of competence and availability of facilities on the performance of apparatus has also been studied in government agencies (Hasanuddin et al., 2022; Yanti & Pandoyo, 2025), but the variable measured is performance in general, not the achievement of zero waste implementation. Findings from research on competence and infrastructure facilities so far still show mixed results (Rozni & Sulistyorini, 2024). Based on the existing literature, no research has been found that examines the combined influence of human resource competencies and the availability of infrastructure facilities on the success of zero waste implementation in national-scale government food programs such as MBG.

This study offers a new perspective by examining these two variables in the kitchen of SPPG, a food processing unit within the framework of government programs that still rarely receives research spotlight. The urgency of this study is to examine how competence and availability of facilities and infrastructure have an impact on achieving zero waste in the implementation of the MBG Program in SPPG Bereng Village, both through partial observation and its simultaneous influence.

B. LITERATURE REVIEW

1. Open Systems Theory and Strategic Human Resource Management

Open Systems Theory considers the organization as an entity that always interacts with the surrounding environment: the organization absorbs inputs, processes through internal mechanisms, and creates outputs that will later affect the ecosystem Katz & Kahn (1978). In this study, this point of view is used as the main theoretical framework (grand theory) that places SPPG as an open system. Personnel qualifications and the availability of infrastructure facilities are placed as inputs, kitchen waste management procedures become processes, while the achievement of zero waste functions as an output that has a direct impact on the environment. This theory is not used to attract hypotheses instantly but rather functions as a foundation for the explanatory theories that exist underneath.

For middle-range theory, Strategic Human Resource Management (SHRM) sees human resource management as an integrative element to the organization's target strategy, not just a matter of administrative governance of employees. In public service institutions, its implementation has unique characteristics considering that the organization is obliged to meet targets of public value under the corridor of government rules and accountability Ritz & Knies (2023). In this study, SHRM acts as a bridge between an open perspective system and substantive theory: efforts to improve officer competence and the provision of maintenance facilities are seen as

steps that must be harmonized so that the program's goal, namely zero waste, is truly realized.

2. Human resource competence (X1)

Competency is defined as a person's basic attributes that ensure the achievement of optimal performance in a position, which includes aspects of knowledge, skills, self-image, personality, and motivation Spencer & Spencer (1993). Within the scope of SHRM, competence plays a role as a component that bridges human resources with the realization of operations in the field. Departing from this, the success of the zero-waste initiative in SPPG is allegedly determined more by the level of competency development of the implementers than simply compliance with program rules. Research in the commercial kitchen sector reinforces this assumption: limited understanding and lack of cooperation among staff are often crucial obstacles in efforts to reduce the occurrence of food waste (Way et al., 2025).

3. Facilities and infrastructure (X2)

Facilities and infrastructure consist of all equipment and work equipment that function as the main tool and auxiliary tool in the implementation of tasks, so as to determine the effectiveness of the implementation of tasks and not just a physical complement Moenir (2010). This concept was chosen because it departs from the context of Indonesian public services and is suitable for assessing SPPG waste management facilities such as composters, waste treatment equipment, and organic-inorganic sorting containers. Referring to Moenir (2010), the researcher made five criteria: availability, feasibility, completeness, suitability, and ease of use of facilities.

4. Success of zero waste (Y)

The concept of zero waste from Palmer (2004) actually breaks the old way of looking at waste that only ends up in piles or burned. Instead, he offers a comprehensive way of recycling, where the main focus is on reusing existing materials and functions. According to Palmer, planning for resource recovery must be prepared from scratch and of course supported by adequate facilities. This idea is also in line with various previous studies: waste reduction strategies have been proven to make waste management more effective (Andini et al., 2022), optimization of food raw materials can reduce the volume of waste (Brillyantina et al., 2026), and proper management can consistently reduce residues (Priyadi et al., 2023). Initially, Palmer's idea was born from the recycling of industrial chemicals, but in this study the concept was applied to food production kitchens through five indicators, namely waste reduction from the source, separation of organic and inorganic waste, reuse, waste treatment, and finally residue reduction.

The framework of thinking is arranged in stages from the grand theory of Public Administration Science with the perspective of Open Systems Theory Katz & Kahn (1978), middle-range theory in the form of Strategic Human Resource Management Ritz & Knies (2023), to substantive theory in the form of competency

theory Spencer & Spencer (1993), Moenir infrastructure management (2010), and zero waste concept (Palmer, 2004), as visualized in Figure 1.

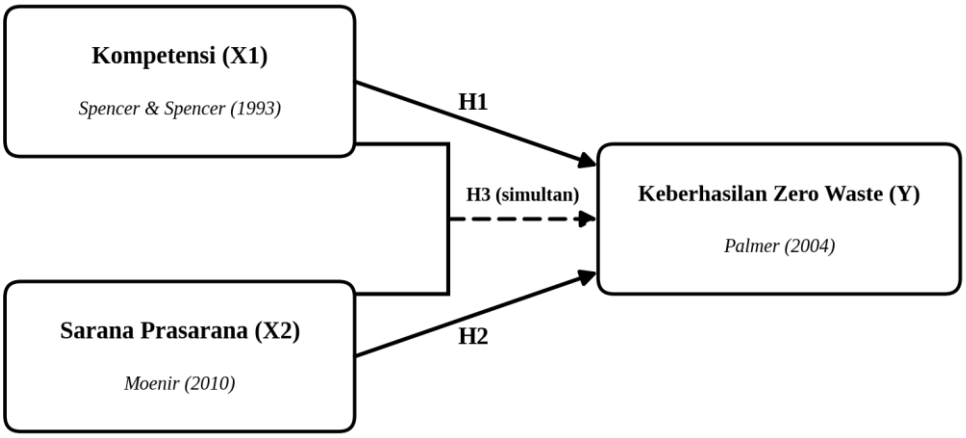


Figure 1. Conceptual Framework of the Influence of Competency (X1) and Infrastructure (X2) on the Success of Zero Waste (Y)

Source: Primary Data (2026).

The level of competence greatly determines the success of the zero-waste program, considering that individuals who are equipped with knowledge, skills, and a qualified work ethic will be more capable in sorting and managing waste in a sustainable manner. The availability of facilities and infrastructure is also a key factor in this success, because access and feasibility of infrastructure are technical needs that must be met in order for implementation to run. Simultaneously, these two aspects complement each other, as revealed in the results of the study that both have a collective influence on the performance of implementers in public sector agencies (Hasanuddin et al., 2022). The hypothesis of this research is compiled as follows.

H1: Competency has a significant effect on the success of zero waste in the MBG Program in SPPG Bergang Village.

H2: Infrastructure facilities have a significant effect on the success of zero waste in the MBG Program in SPPG Pereng Village.

H3: Competence and infrastructure facilities simultaneously have a significant effect on the success of zero waste in the MBG Program in SPPG Bereng Village.

C. METHODS

This study uses a quantitative method with an associative plan based on a survey in the SPPG environment of Bereng Village, Pulang Pisau. The quantitative method was taken to measure and explain the causal relationship between variables through a statistical test procedure, while an associative design was used considering that this study examines the impact of two independent variables on one bound variable, either partially or simultaneously (Sugiyono, 2019). This quantitative methodology through regression analysis has also previously been applied in public administration studies regarding the influence of human resource competencies and the availability of infrastructure facilities on performance (Hasanuddin et al., 2022).

The population of this study includes seven MBG Program implementing officers at SPPG Bereng Village who are directly involved in the flow of food processing, consumption distribution, and waste handling, with a total of 42 personnel: Production (10), Preparation (8), Cleaning (8), Cleaning (8), Laundry (10), Hygiene (2), and one person each for the positions of Nutritionist, Field Assistant, Head of SPPG, and Partner. Given the limited population coverage, the saturated sampling or census method is applied, in which each member of the population is included as a sample in order to achieve an optimal level of accuracy and representation (Mushofa et al., 2024), referring to similar quantitative research standards that also involve a limited population (Yanti & Pandoyo, 2025). Based on this, the total number of respondents assigned is 42 people.

Data were collected with a structured questionnaire that measured respondents' perception of competence (X1), infrastructure (X2), and zero waste success (Y) using a four-point Likert scale (1 = strongly disagree to 4 = strongly agree). The number of even points was chosen to avoid a central tendency bias, and the Likert scale effectively measured attitudes and perceptions in a structured manner (Kusmaryono et al., 2022). The questionnaire was distributed online through Google Forms and directly in print form. The validity of the item was tested by the correlation of Pearson product moment and reliability with Cronbach's Alpha coefficient (Sugiyono, 2019). The data analysis consisted of descriptive statistics (frequency and percentage) and inferential statistics in the form of multiple linear regression with the following model.

$$Y = a + b_1X_1 + b_2X_2 + e$$

Y is the success of zero waste, a constant, b1 and b2 regression coefficients, X1 competence, X2 infrastructure, and e error. Partial influences are tested with the t-test, simultaneous influences with the F test, and the contribution of free variables is measured by the coefficient of determination (R^2). Before hypothesis testing, a classical assumption test is performed that includes normality, linearity, multicollinearity, and heteroscedasticity (Glejser test). If the linearity assumption is not met in one of the relationships, Spearman correlation is used as a complementary analysis that does not require linear relationships. All data processing uses SPSS with a significance level of 0.05.

D. RESULTS AND DISCUSSION

Characteristics of respondents. There were 42 respondents, namely all implementing officers, and all questionnaires were filled out. Respondents were dominated by women (27 people; 64.3%) and men (15 people; 35.7%). The largest age group was 30–39 years old (19 people; 45.2%), followed by 21–29 years old (12 people; 28.6%), 40 years and older (10 people; 23.8%), and 20 years and below (1 person; 2.4%), so that 73.8% of respondents were 21–39 years old. Education was concentrated in high school/equivalent (27 people; 64.3%), followed by junior high school/equivalent (7 people; 16.7%), D3–S1 (6 people; 14.3%), and elementary school/equivalent and S2 and above one person each (2.4%), so that 83.3% of respondents had a high school

education/equivalent and below. All respondents (100%) had worked for more than one year, which indicates that this SPPG has passed the initial phase of operations and is in a stable operational stage. A total of 38 respondents (90.5%) came from kitchen operational lines (production, preparation, cleaning, washing, and cleaning) that are in direct contact with waste generation, so they are relevant as a source of assessment of research variables.

Validity and reliability test. With 42 respondents (degree of freedom = 40) and a significance level of 0.05, the value of the r of the table is 0.304; the item is declared valid if the r is calculated to be greater than the r of the table (Ramadhany, 2024). Table 3 shows that all 10 items of competence and 10 items of infrastructure are valid. In the zero-waste success variable, all items are valid. The value of Cronbach's Alpha of the three variables exceeds the minimum limit of 0.60 so that the instrument is declared reliable.

Table 3. Result of Instrument Validity and Reliability Test

Variable	Number of Items	Range r Calculate	Alpha	Description
Competency (X_1)	10	0,401–0,698	0,757	Valid, reliable
Infrastructure (X_2)	10	0,475–0,687	0,783	Valid, reliable
Success of *zero waste* (Y)	10	0,432–0,721	0,762	Valid; reliable

Source: Primary data, processed using SPSS.

Classical assumption test. The results of the classical assumption test are summarized in Table 4. The normally distributed residual (Sig. Kolmogorov-Smirnov 0.200 and Shapiro-Wilk 0.547; both greater than 0.05) is supported by Figure 2 which shows that most of the residual points are scattered around the diagonal line, although one point on the right side moves away from the line without changing the formal test result. The relationship of X1 to Y is linear (Sig. deviation from linearity 0.295), but the relationship of X2 to Y is not completely linear (Sig. 0.007) even though the linearity component is significant (Sig. < 0.001). Therefore, the Spearman test was used as a complementary analysis and showed a significant positive correlation between X2 and Y ($\varrho = 0.595$; Sig. < 0.001; medium category) as well as between X1 and Y ($\varrho = 0.737$; Sig. < 0.001; strong category) (Ramadhany, 2024). The scatter diagram shows a relatively sloping Y increase in low to medium X2 scores and steeper in high scores, so that the shape of the relationship is curved, but the direction remains positive and consistent with the regression results. Multiple linear regression is still used, and the X2 coefficient is interpreted as a general tendency. There is no multicollinearity (Tolerance 0.739 > 0.10; VIF 1.354 < 10) and heteroscedasticity (Sig. Glejser 0.287 and 0.519 > 0.05), so that the ordinary least squares model is suitable for use without weighting (Ramadhany, 2024).

Table 4. Result of Classical Assumption Test

Test	Variable	Value	Criteria	Decision
Normality (Kolmogorov-Smirnov)	Residual	Sig. 0,200	Sig. > 0,05	Normal
Normality (Shapiro-Wilk)	Residual	Sig. 0,547	Sig. > 0,05	Normal
Linearity (Deviation from Linearity)	$X_1 \rightarrow Y$	Sig. 0,295	Sig. > 0,05	Linear
	$X_2 \rightarrow Y$	Sig. 0,007	Sig. > 0,05	Non - Linear
Multicollinearity	X_1	Tolerance 0,739; VIF 1,354	Tolerance > 0,10; VIF < 10	No multicollinearity
	X_2	Tolerance 0,739; VIF 1,354	Tolerance > 0,10; VIF < 10	No multicollinearity
Heteroscedasticity (Glejser)	X_1	Sig. 0,287	Sig. > 0,05	Homoscedasticity
	X_2	Sig. 0,519	Sig. > 0,05	Homoscedasticity

Source: Primary Data, Processed Using SPSS (2026).

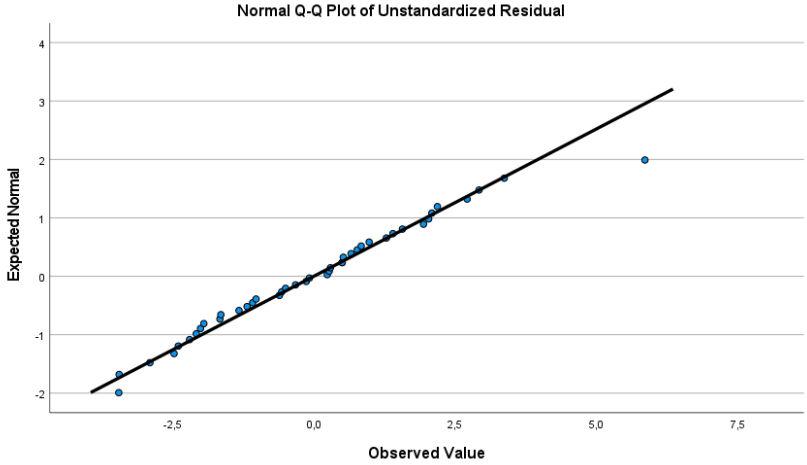


Figure 2. Normal Q-Q Non-Standardized Residual Plot

Source: Primary Data, Processed Using SPSS (2026).

Multiple linear regression, t-test, and F test. Estimation results are presented in Table 5. The regression equation obtained is Y = 5.123 + 0.446X1 + 0.291X2 (Sugiyono, 2019). The constant is insignificant (Sig. 0.121) and has no practical significance because the questionnaire score is unlikely to be zero. Each increase in one unit of competency score is followed by an increase in the zero-waste success score of 0.446 units with fixed infrastructure, and every increase in the score of one unit of infrastructure is followed by an increase of 0.291 units with fixed competence. Based on the standardized beta coefficient, competence (0.560) is more dominant than infrastructure (0.324).

Table 5. Results of Multiple Linear Regression Analysis and t-test (Partial)

Variable	B	Std. error	Beta	T-value	Sig.	Decision
Constant	5,123	3,236	-	1,583	0,121	-
Competency (X_1)	0,446	0,093	0,560	4,782	< 0,001	Significant; H1 accepted
Infrastructure and Facilities (X_2)	0,291	0,105	0,324	2,766	0,009	Significant; H2 accepted

Dependant variable: Y; t-table (df = 39; α = 0,05; two-tailed) = 2,023

Source: Primary data, processed using SPSS (2026).

The t-test was conducted with 39 degrees of freedom (n − k − 1 = 42 − 2 − 1) at a significance level of 0.05, resulting in a two-tailed t-table value of 2.023. Competency has a calculated t-value of 4.782, which is greater than the t-table value, with a significance level of less than 0.001. Therefore, H1 is accepted. Infrastructure has a calculated t-value of 2.766, which is also greater than the t-table value, with a significance level of 0.009. Thus, H2 is accepted (Ramadhany, 2024). The higher calculated t-value for competency indicates that its partial effect is stronger than that of infrastructure.

The F-test was conducted with 2 degrees of freedom for the numerator and 39 degrees of freedom for the denominator, resulting in an F-table value of 3.24 at a significance level of 0.05. Table 6 shows that the calculated F-value is 29.801, which is greater than the F-table value, with a significance level of less than 0.001. Therefore, H3 is accepted, indicating that competency and infrastructure simultaneously have a significant effect on zero-waste success, and the regression model is suitable for use. The multiple correlation coefficient (R) of 0.777 indicates a strong relationship. The coefficient of determination (R^2) of 0.604 means that 60.4% of the variation in zero-waste success is explained by competency and infrastructure, while the remaining 39.6% is explained by other factors outside the model (Ramadhany, 2024). The Adjusted R^2 value of 0.584 is relatively close to the R^2 value, while the standard error of the estimate is 2.032.

Table 6. Result of the F-Test (ANOVA)

Source of Variation	Sum of Squares	df	Mean Square	F-statistic	Critical F	p-value
Regression	246,222	2	123,111	29,801	3,24	< 0,001
Residual	161,111	39	4,131	-	-	-
Total	407,333	41	-	-	-	-

Dependant variable: Y; predictors: X_1 and X_2. R = 0.777; R^2 = 0.604; Adjusted R^2 = 0.584

Source: Primary Data, Processed Using SPSS (2026).

All hypotheses were supported: competence (H1), infrastructure and facilities (H2), and the two combined (H3) each had a significant effect on zero waste success at the SPPG in Bereng Village, with a coefficient of determination of 0.604. The following discussion compares these findings with previous studies, including those that found significant effects and those that did not.

Effect of Competence (H1). Competence had a positive and significant effect and emerged as the dominant variable (β = 0.560, compared with β = 0.324 for infrastructure and facilities). This finding is consistent with the expectation of a causal relationship between individual attributes and job performance (Spencer & Spencer, 1993), as well as with studies in kitchen settings. Professional staff expertise in minimizing food waste has been shown to strengthen self-efficacy and intentions to behave sustainably (Lu & Ko, 2023), while limited understanding and poor collaboration among staff are major obstacles to food waste reduction, particularly among newly hired workers. In contrast, a study of retail employees in Jakarta found that competence had no significant effect on performance, although it contributed to employee retention (Radista & Edalem, 2024). This discrepancy may be attributed to

what is being measured. Retail employee performance is a general parameter influenced by many variables, whereas the success of a zero-waste program encompasses concrete operational activities, such as sorting, reusing, and processing waste, which are carried out directly by staff, making the influence of individual skills more apparent. The respondents' characteristics support this interpretation: 83.3% had a high school education or lower, and all had worked for less than one year. Thus, waste management proficiency depends more on job training than on formal education or prior work experience. This condition resembles the challenges faced by new staff (Way et al., 2025) and confirms the preliminary interview findings that the training provided to staff has not been implemented evenly.

Effect of Infrastructure and Facilities (H2)**.** The availability of infrastructure and facilities also had a positive and significant effect, although its magnitude was smaller than that of competence ($\beta = 0.324$), and the Spearman test reinforced the direction of this correlation ($\varrho = 0.595$). Contextually, infrastructure and facilities are regarded as the main instruments that support the performance of work (Moenir, 2010); therefore, adequate facilities should be able to improve work outcomes. Previous studies have reported mixed findings. The availability of infrastructure and facilities was found to be associated with waste sorting behavior among market traders, which is in line with the present study (Rozni & Sulistyorini, 2024), whereas infrastructure and facilities showed no significant partial effect on waste management behavior in households (Waliki et al., 2020). This gap in findings may be explained by the scale of activity: household waste volumes tend to be small and can be handled with simple tools, while SPPG processes food in massive volumes every day, so the availability of sorting bins, processing equipment, and composters becomes essential for implementing zero waste. In this respect, the present findings are closer to the study of market traders, which focused on sorting in business activities. The less dominant effect of infrastructure and facilities is also consistent with field conditions: basic facilities were already available, but a regular sorting system was still lacking, so variation in performance among staff was likely influenced more by individual capability. The relationship also appears not to be entirely linear. The gradual increase at low to medium scores, followed by a sharp rise at high scores, suggests that the benefits of new facilities are fully felt only once the conditions are sufficiently complete. This pattern is speculative and warrants further testing on a larger sample.

Simultaneous Effect (H3). Collectively, competence and the availability of infrastructure and facilities had a significant effect ($F = 29.801$) and accounted for 60.4% of the variance in zero waste program success, while the remaining 39.6% was influenced by variables outside this study. Contextually, the two are closely interrelated: staff abilities require facility support to be put into practice, and conversely, facilities require skilled personnel to be operated optimally. This interrelationship is consistent with findings on the combined effect of infrastructure and facilities and human resource quality on employee performance (Hasanuddin et al., 2022), with the simultaneous effect of competence, infrastructure, and coordination, which reached 92.1% among employees of BPAD DKI Jakarta (Yanti &

Pandoyo, 2025) and with a simultaneous effect that remained significant even though infrastructure was not significant partially (Waliki et al., 2020). The finding that waste management infrastructure without adequately prepared human resources tends not to produce optimal results (Lutviana et al., 2025) further reinforces the consistency of these findings. The R^2 value in this study is lower than that reported for BPAD employees, but the models differ: that study included coordination as a variable and assessed employee performance in general, whereas the present study was limited to two independent variables and focused on the more specific practice of zero waste. Another factor to consider is the absence of written standard operating procedures (SOPs), as indicated by initial observations, along with leadership and supervision. Management commitment and standardized work guidelines are considered crucial for overcoming obstacles to food waste minimization (Way et al., 2025).

E. CONCLUSION

Competence and infrastructure and facilities, both partially and simultaneously, had a positive and significant effect on zero waste success in the MBG Program at the SPPG in Bereng Village, so the three research objectives were answered. The two variables explained 60.4% of the variance in zero waste success, and competence was more dominant than infrastructure and facilities. These findings extend public administration scholarship by showing that successful waste management in service units of a government food program is determined by staff capability supported by facilities, not by facilities alone. For SPPG managers, developing staff competence should be prioritized, accompanied by the provision of sorting and waste processing facilities and the formulation of written standard operating procedures. These conclusions are limited by the scope of the study, which covered a single SPPG and used a cross-sectional design. Future research is recommended to include other SPPGs, larger samples, and governance variables such as leadership and supervision.

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