



Enhancing Sustainability Through Waste Management Practices in Small Food Establishments in Tambo, Parañaque City

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Abstract- The study was conducted to find out the sustainable waste management practices among Small Food Establishments in Tambo, Parañaque City, and to identify sustainable waste management practices that can be used to improve the environmental sustainability in the local community. The research in this study was descriptive and quantitative. Data were gathered by a structured survey questionnaire eligible to owners, managers, and staff/employees of various small food establishments such as carinderias, food stalls/kiosks, coffee shops, and bakeries. The gathered data were analysed by using descriptive statistics, including frequency, percentage distribution and weighted mean. Regarding small food establishments' limitations, the findings clearly showed that these establishments have strongly adopted proper waste management practices. Respondents collected high statistical ratings in strict daily waste segregation, proper storage, systematic disposal, and deep compliance with Parañaque City's local environmental ordinances and shared green culture with establishments and staff. The study concludes that Tambo's small food establishments have established a solid standard for environmental discipline, making them capable of advanced sustainability innovations. It is recommended that local government units implement reward systems with business permit incentives, while business owners form local purchasing alliances to acquire sustainable packaging in bulk, effectively accelerating a localized green food revolution and effective sustainable waste management practices.

Keywords: Enhancing waste management, sustainable waste practices, waste management practices, small food establishment, waste segregation.

Date of Submission: 31/05/2026
Date of Review: 14/06/2026
Date of Acceptance: 18/06/2026
IJTHD / Volume 2, Issue 1, (Jan-Jun) 2026

INTRODUCTION

The major challenges in many cities are the waste collection and disposal facilities development, which can result in challenges such as illegal dumping and poor implementation of waste management. Due to the large production of waste, food businesses have an impact on the sustainability of their own communities. Few studies have investigated sustainable waste projects, and this is seen as one innovative way of processing waste.

There are very few studies that have examined sustainable waste projects, and this is regarded as one innovative approach to waste processing. Metro Manila is a rapidly urbanizing city in the Philippines in which the issue of waste management is becoming a problem. The high demand of small food businesses like the Carinderia, Food Stalls and Coffee Shops, is a big one on the community's residents, workers and commuters in Parañaque City. The growth of food businesses in Tambo, Parañaque City, faces challenges in the waste management crisis yet benefits economically.

The current state of waste management practices in the city of Parañaque has implemented a waste segregation policy such as “No segregation, no collection” under Ecological Solid Waste Management Act 2000 (RA 9003) also known as Solid Waste Management that waste must be properly segregated or sorted for collectors to collect the trash. By implementing this policy, it's crucial in the community to strictly follow the proper waste of segregation at home or business.

This study aims to investigate accurate information about the actual level of implementation of disposal methods and the adoption of innovative solutions among businesses, which is still lacking. The idea of this study is to promote transformation from traditional disposal methods to innovative and sustainable practices in small food businesses.

The purpose of this study is to offer small business owners recommendations that will help them to effectively reduce their problems in enhancing lack of waste management practices and emphasize the significance of revolution in waste management is tangible and sustainable that can turn Tambo's small food businesses into an example of urban sustainability

BACKGROUND OF THE STUDY

It has lots of people, particularly at the major transportation facility and a crowded area at Tambo, Parañaque city. Nowadays, small food businesses in Tambo use traditional methods of disposal of waste, such as mixed waste collection that lead to huge amounts of organic food waste and the single-use of plastic packaging that also face environmental challenges.

Small businesses in Tambo are important in the city, defining them as street sellers that have a huge impact on the economy. However, they also impacted the environment. They face additional waste-related difficulties in the outdoor environment as a result of their activities, the improper disposal of this waste puts the environment and public health at risk.(Maphanga et al., 2023)

In order to create management measures for food businesses like implementing waste reduction strategies within restaurants and catering sectors(Kanwa et al., 2024), the concept of this study is to suggest a more innovative and sustainable process solution for the small food businesses. The method adopted in this study was quantitative, and was used because there was a need to get a detailed understanding of the waste management practices in Tambo. The researchers are interested in determining the impact of these behaviors.

STATEMENT OF THE PROBLEM

The study aims to identify the scope of sustainable practices in operation and possible innovations in the businesses. It investigates the current state of waste disposal management innovations and sustainability level among small food businesses in Tambo, Parañaque City.

Specifically, it seeks to answer the following:

1. What is the demographic and business profile of the respondents in terms of:
 - 1.1 Age and Gender of food establishments owners/staff?
 - 1.2 Type of small food establishments (Carinderia, food stalls, coffee shops, bakeries);
 - 1.3 primary food service (Dine-in, Take-out, or delivery only)
2. How do these establishments currently manage their waste (use of waste segregation or not)?
3. Which innovative sustainable practices like disposal of waste, inventory storage and minimizing use of plastics) are presently being practiced?
4. How's the effectiveness in businesses and the environment of using waste management practices in small food establishments?

OBJECTIVES OF THE STUDY

The main goal of this study is to improve sustainability through waste management in food shops in Tambo, Parañaque City. We want to make waste management better in these food establishments.

Here are the specific things we want to find out:

- Who are the people running these food shops? We want to know their age, gender and other details.
- How old are they? What is their gender?
- What kind of food shops are they running? Are they carinderias, food stalls, coffee shops or bakeries?
- What kind of food service do they offer? Can you dine in? Do they only offer take-out or delivery?
- How do these small food shops handle waste now? Do they sort their waste properly? How do they get rid of it?
- What new and sustainable things are these shops doing to reduce waste? Are they disposing of waste properly? Do they store their inventory well? Are they using plastic?

SIGNIFICANCE OF THE STUDY

This study is important because it tackles the problem of waste management in the small food business, the community of Tambo, City of Parañaque. This research outcome can help the small business owners to grasp a better waste management system, particularly segregation, reducing the use of plastic, simple sustainable practices etc. This can also enable them to save money and keep their work area clean.

For the local government, this study can provide useful information that may support the improvement of existing waste management programs like “No segregation, No collection”. It can also help to create better policies and implementation.

This study can be used for creating awareness in the community about the appropriate disposal of garbage especially residents and customers in the community. Enhance public health, and maintain a tidy neighbourhood and cleaner environment.

Lastly, this study's results could be a source of inspiration for further research and development in the fields of sustainability and waste management. It can be used as a reference or guide to similar studies performed at other locations.

SCOPE AND LIMITATIONS

The study will focus on small food establishments such as carinderias, small stalls and/or cafés located in the municipality of Tambo, Parañaque City. It is mainly about how businesses handle waste. This includes separating waste and getting rid of it properly. They can also help make waste handling sustainable. For example they can. Reduce plastic waste.

The research will use a quantitative approach. This means the information will be gathered through surveys, from the business owners or the staff that have been chosen to take part. The study is limited only to the responses given by the participants and does not include large restaurants or businesses outside Tambo.

Moreover, this research doesn't discuss the environmental impacts or technical waste processing techniques in detail. The data also may not be complete due to time limits and some access restrictions to establishments. Although this study may have some limitations, it would provide valuable information to help improve the Waste management practices in small food businesses.

CONCEPTUAL FRAMEWORK

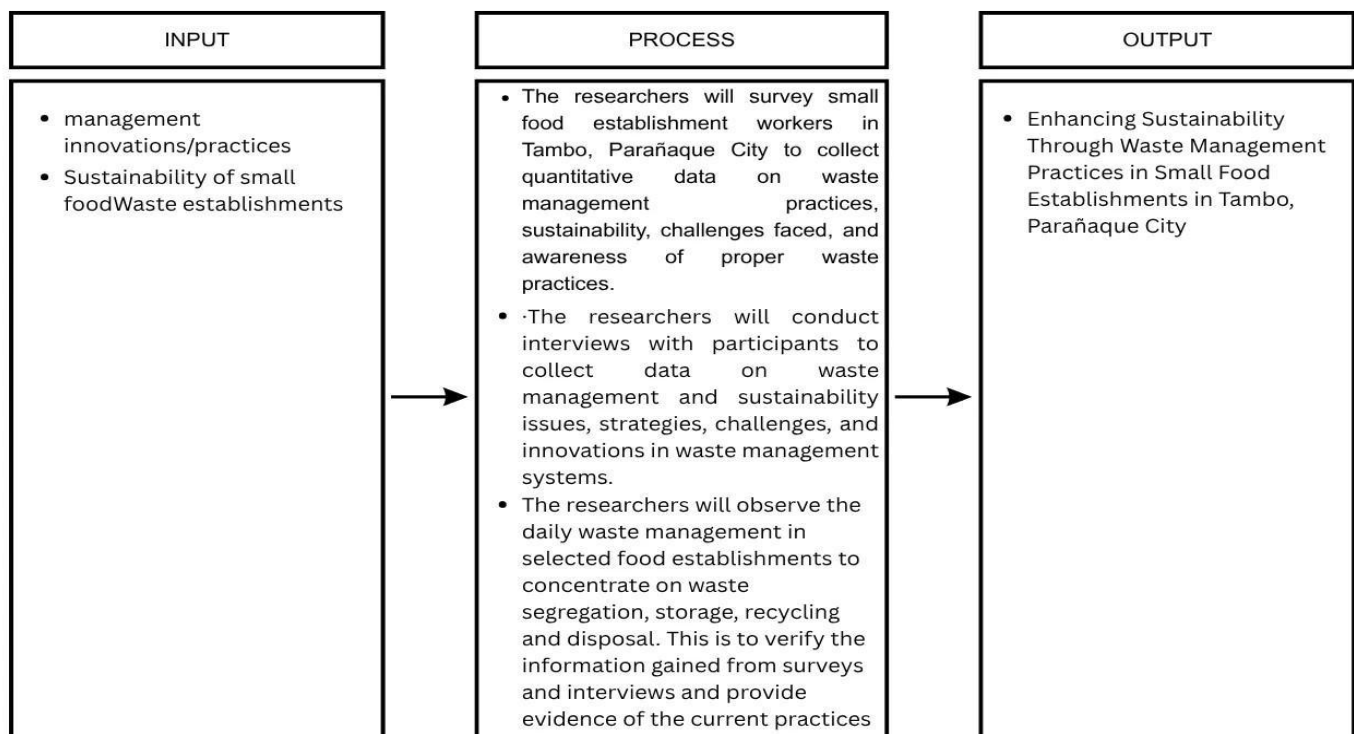


Figure 1 This figure presents the flow of the study using the IPO Model. The input includes waste management innovations, sustainability practices, and awareness of waste management regulations. The process involves data gathering, analysis, and interpretation of waste management practices among small food establishments. The output consists of the findings and the proposed Enhancing Sustainability through Waste Management Practices Action Plan aimed at improving sustainable waste management practices in Tambo, Parañaque City.

HYPOTHESES

Null Hypothesis (H₀)- There is no significant difference between the adoption of waste management practices among profile variables (such as job role and type of establishment) groups of respondents.

Alternative Hypothesis (H₁)- There is a significant difference in the level of adoption of waste management practices when respondents are grouped according to their profile variables.

DEFINITION OF TERMS

- Enhancing Sustainability:

Use of new technologies and processes that are cost effective and less impactful on the environment and are still economically viable for businesses, for example when quantifying waste, or implementing models for circular economy.

- Waste Management Practices:

A systematic change in the way and purpose of food and agriculture production, that is, how it is processed and redirected, as opposed to merely discarded, so that it can be used for human consumption, animal feed and/or industrial use. It encourages moving from the old 'dumping' mentality to new innovative approaches which seek to recover resources.

- Small Food Establishments:

Enrolled food preparation, storage and serving to humans Micro, Small and Medium Enterprises (MSMEs) identified by DTI. This includes local restaurants, carinderias, caf  s, in places, such as Tambo, Para  aque, etc.

The technical terms that are used in the waste management industry.

- Circular Economy:

A system that expects waste to be a resource and moves to recoup the material to be used again, reused or recycled within the economy.

- Waste Segregation:

Collating waste by swapping out items for biodegradable, recyclable and residual waste, making it easier to process and dispose

- Biodegradable Waste:

Food remains, mostly plant wastes, which are able to decompose by microorganisms. Fifty-six percent of all commercial wastes in Metro Manila are biodegradable.

REVIEW OF RELATED LITERATURE

Main Theory of the Study

The Environmental Kuznets Curve (EKC) theory explains that as the small food establishments have a big impact on economic growth and urbanization increases, environmental risk increases also. In Tambo, Para  aque City, small food establishments are in high demand but fail in implementing waste management practices; however, knowledge and economic compliance in innovative sustainable solutions lead to better waste management practices.

The Environment Kuznets Curve (EKC) theory aims to determine actionable strategic innovative sustainable waste management practices, environmental rules/policies, and economic growth in a city that grows every day in food service industries. The study of (Gyeduaah, C. Et al. 2025) states that effective strategic plans like education, training, monitoring, and enhancing waste management practices in food sectors eventually improve environmental and public health sustainability.

The challenges in waste management became a colossal issue in the economy's environment and safety; many problems are associated when it comes to the environment through pollution and improper disposal of waste. So, this study significantly addresses the growing challenges in waste management practices to find practical, valuable, sustainable solutions to reduce environmental pollution.

It also includes the importance of the implementation of precise rules/policy. It said that these Strategic Choice Theory and Environmental Responsible Behavior (ERB) are a success that encompasses not only internal but also external, which is included in education on shaping environmental waste management (Gyeduaah, C. Et al. 2025).

This study is determined to analyze the impact of the effectiveness of waste management action plans for innovative and sustainable food sectors by consistently monitoring appropriate disposals, the importance of following policies, and enhancing waste management. Overall, the Environment Kuznets Curve (EKC) theory provides beneficial information to promote and adopt innovative sustainable solutions in waste management and economic impact.

Supporting Theories

This study is based on basic principle, namely **Solid Waste Management (SWM)** through Circular Economy and the Use of Resources Base, which is a systematic management of solid waste starting from the time it has been produced until it has been disposed of by minimizing its use, reusing it, recycling it and recovering it. The authors of a new study published in the journal *Cleaner Waste Systems*, however, say this is because urbanisation is on the rise globally, population growth and a shift in consumer habits, especially in developing countries. This waste stream is growing and needs more efficient and sustainable waste management systems to support the traditional waste disposal system.

The study further emphasizes that good waste management is not only a technical activity but also a behavioral and systemic problem which must be carefully sorted, collected, transferred and processed waste. The authors emphasize the need to put in place a structured waste management system and the use of sustainable waste management techniques to mitigate the potential environmental issues associated with the waste such as pollution, greenhouse gas emissions, and resource depletion. It also highlights that waste systems are complex adaptive systems involving multiple actors – households, enterprises and local governments – who interact and have an impact on the efficiency of waste management and sustainability results.

This theory has the ability to understand the role of good waste management practices in achieving sustainability in a small food business (Tambo) of Parañaque City based on this study. It confirms that food businesses can contribute to the development of a circular waste system by employing appropriate segregation and recycling/reduction measures, hence decreasing dependence on landfill waste and increasing the possibilities for resource recovery.

Hence, this theory provides a guideline for the proper management of waste in local food establishments in order to ensure an environmentally-friendly approach, efficient operation of the food business and sustainability in the long run.

The **Social Practice Theory (SPT)** is used as the theoretical framework of the study, which focuses on the interplay among three key elements: materials, meanings, and competencies. Materials are technologies, tools, and waste management systems used for waste handling. Meanings are values and attitudes towards waste reduction, and competencies are knowledge and skills of waste management employees and managers in realizing sustainable waste management.

The theory is applicable in the present study titled “Enhancing Sustainability Through Waste Management Practices in Small Food Establishments in Tambo, Parañaque City” since the daily activities of small food establishments can influence the generation of waste and sustainability. It explores the innovative solutions of waste management, such as waste segregation, recycling, reduction of food waste, and proper waste disposal as part of sustainability in food businesses.

The study from an SPT point of view shows that, in addition to the technology and infrastructure, the environmental awareness, practices, and skills of the owners and employees of food establishments also contribute to effective waste management in a food establishment.

Furthermore, the abstract notes the importance of increasing the focus on waste minimisation in the kitchen and the development of management knowledge. This is directly connected with the present study, which is to find new and sustainable waste management systems that can contribute to the sustainability and efficiency of the SMBEs in Tambo, Parañaque City.

The **Stakeholder Theory (ST)** is used to support this study as waste management practices are affected by various groups including business owners, employees, customers, and local governments. According to this theory, it is important for businesses not only to be profit-maximizing, but also to take into account their duty to the environment and the

community. For small food businesses, good waste management and environmentally sustainable practices are important to ensure public health and minimize pollution of the environment.

In line with the Stakeholder Theory, food establishments should consider the demand and expectations of society and adopt the right food waste management practices. Small food vendors play a crucial role in the growth of the economy in the city of Tambo, Parañaque, but they have a huge amount of waste to produce. Due to this, the business owners are urged to adopt segregation, recycling, and waste disposal practices to ensure a clean and safe environment.

One way to express this theory is also to include cooperation and awareness by the stakeholders. Appropriate methods for disposal of waste should be followed by the employees, the customers should assist the environmentally friendly businesses and the rules and regulations of the local government should be enforced to the fullest extent. Waste management is more effective and sustainable with teamwork and participation.

Moreover, Stakeholder Theory describes how companies that have a positive environmental impact can have customers and community trust and support. Sustainable waste management practices can enhance the reputation of food establishments and promote environmental protection. This also inspires the other businesses to do the same for the benefit of society and the environment.

In conclusion, the Stakeholder Theory is applicable to this study as it demonstrates the need to take responsibility, cooperate with one another and be environmentally conscious in small food businesses to enhance innovative and sustainable waste management.

The **Theory of Planned Behavior (TPB)** in waste management practices that manage individual behavior is a key factor that influences attitude toward innovative sustainable practices. According to Wu, L. et al. (2024), some studies verify that individual waste management behavior is influenced by beliefs and attitude. However, within the expanded plan of behavior, individual waste management is not significantly connected just by having beliefs and attitudes since, through the influence of environmental awareness, environmental concern and personal norms are already essential to have the initiative for waste management practices.

Subjective norm constructs TPB by explaining to food business owners the required protocols/policy to follow, and perceived behavioral control is also constructed by TPB; when an individual does not have environmental knowledge, it simply copies the best waste management practices of successful food establishments.

The study by (Wu, L., et al. 2024), in different cultures it's either personal norms or intention when it comes to environmental concern. The Theory of Planned Behavior (TPB) is an approach to understanding pro-environment behavior as a choice, and the value-belief-norm (VBN) theory model understands pro-environment behavior as a moral behavior by being initiatively environmentally concerned.

In addition, the Theory of Planned Behavior (TPB) determines environmental behavior, such as appropriate waste disposal, emphasizing responsible and active environmental behavior to have an impact on the innovative sustainable environmental practices. The study by Michael, L. K., et al. (2024) on the Norm Activation Model (NAM) investigates that pro-environmental actions have an impact based on these 3 primary components: awareness of consequences (AOC), ascription of responsibility (AR), and personal norms (PN). The TPB-NAM model constructs environmental knowledge, initiative in waste management practices, and public health awareness.

The Theory of Planned Behavior (TPB) recommends that willingness with environmental knowledge empower less environmental risk, public health, and economic growth. However, an individual is less interested in shaping sustainability in the environment if the individual is not knowledgeable in environmental and waste management practices unless the perceived behavioral control applies.

Local Theories

According to the study by Graham, H. (2022) The two cities, Quezon City and Pasay City, are facing challenges due to poor waste management practices for their food markets; the environment and human health are at risk. The study goal is to assess the challenges in both food and organic waste management to enhance more sustainable waste management

practices. This study implemented the Ecological Solid Waste Management Act 2000 (RA 9003), a Philippine policy that addresses the increasing waste collection in every barangay in the Philippines. RA 9003 refers to waste management practices in waste segregation and Materials Recovery Facility (MRF) or composting and recycling materials.

Despite the implementation of the Ecological Solid Waste Management Act 2000 (RA 9003), the practice of segregation of waste in the food market is still being inconsistent, and waste is still being contaminated with biodegradable, non-biodegradable, and recyclable materials. In addition, the study identifies the main waste is food loss that is being discarded due to poor storage, transportation delays, and dropping/damage. The study discovered that Quezon City and Pasay City have a massive percentage of food and organic waste (vegetables, fruit peels, etc.). However, the study highlights Quezon City is monitored by the Quezon City Market Development and Administration Department (MDAD) utilizing waste management collection, and Pasay City showed the difficulty in implementing sustainable waste management practices due to being one of the major transportation hubs, and vendors often have a lack of time to segregate waste that results in rapid revenue of food markets, limited space for on-site segregation of waste, and a lack of implementation of waste management. This study includes vendors or owners of food markets required to follow RA 9003 to use appropriate waste management practices, and also the use of "no plastics" is crucial in waste management practices to reduce and promote the use of non-biodegradable waste.

In Tambo, Parañaque City, "No Segregation, No Collection" is strictly required for the community to practice the proper waste of segregation at home especially in the food sectors. However, Tambo, Parañaque City, is a growing city like Quezon City and Pasay City. Tambo is also facing challenges in implementing sustainable waste management practices due to a busy environment that results in a lack of time for segregation on-site with limited space that's burned the vendors; therefore, mixed waste collection is usual to witness in small food establishments in Tambo, Parañaque City. The study suggests that small-scale reduction, reuse, and recycling within the markets are better instead of on-site segregating edible products that are slightly damaged and must be distributed to donate before they become waste, and investing in a proper and better food storage to extend the shelf life of a food product.

The study by Baisa, B. L., et al. (2024) highlights the importance of environmental sustainability and consumer behavior within a local coffee industry. The ultimate goal of this study is to determine the impact of implementing an environmentally friendly "green" adoption by local coffee shops and how satisfied customers are with their experience in Dasmariñas City. The Sustainable Development Goal (SDG) 13 means to address climate change today and to take action to protect the environment. Nowadays, customers are concerned about environmental challenges and protection; therefore, owners take initiative to implement sustainable green materials (biodegradable) to reduce the negative environmental impact of using plastics and contribute to environmental protection as well.

The researchers aim to gather proper information about the demographic profile of customers to identify their perception of the green practices. Most of the customers of coffee shops in Dasmariñas City are students and young professionals who are aware of environmental issues that create a positive relationship between green practices and customer values regarding environmental protection. This study addresses that the use of green is not just good for the environment but in businesses also. This study assesses the usual category green practices such as, by eliminating the use of single use of plastics, owners using biodegradable straws, the use of organic ingredients like plant-based ingredients and eco-friendly menu options, and the "green environment," which includes the reduction of energy that costs the environment pollution. Eventually, by implementing green practices in their coffee shops, sustainable practices create environmental growth and customer satisfaction.

The study proves that an urban city like Dasmariñas City's marketing strategy and environmentally concerned coffee shops business owners leads to a successful and sustainable business. The study emphasizes the importance of the use of green practices in food service industries, making it significantly essential like in the small food establishments in Tambo, Parañaque City which is lacking in implementing green practices and waste management. Overall, Tambo, Parañaque City's small food establishments must be environmentally aware and use the green practices to reduce waste, to contribute to environmental growth, and to have a good impression on customers.

A local study conducted by Tendero (2023) entitled "Waste management practices for food and agricultural by-products: Case studies of public markets in Zamboanga City" looked into how waste is actually handled in public markets here in

the Philippines. The researcher found out that even though some people are trying to segregate and recycle, there are still big problems when it comes to how the waste is collected and where it finally goes. The study points out that the biggest issues are the lack of proper facilities, not enough awareness from the vendors, and poor coordination with local officials, which makes it hard to manage food waste properly.

Also, the research explains that just having laws or policies isn't enough if the implementation is weak. It was observed that when waste isn't managed well, it leads to pollution and health risks for the community. The study suggests that instead of just throwing everything away, the government and stakeholders should invest in better infrastructure and education programs. This is to help transform waste management from a messy problem into a sustainable system that helps the environment.

This local research is very relevant to Tambo, Parañaque, because our area is also experiencing fast economic growth, which leads to more food waste from small establishments. Just like the markets in Zamboanga, the businesses in Tambo face challenges in following sustainable practices due to a lack of clear systems and monitoring. By looking at these findings, it is clear that for a place like Parañaque City to improve, there needs to be a stronger focus on eco-innovation, like turning food scraps into fertilizer and making sure everyone—from the owners to the customers—is aware of their waste.

The main point of including this study is to show that waste management problems are a common issue in the Philippines. For our study in Barangay Tambo, the findings of Tendero (2023) serve as a guide to emphasize waste prevention and the use of better technology to monitor trash. If these challenges are addressed locally, it will help lessen the environmental problems in our city and lead to a cleaner and more sustainable future for Parañaque.

A local study conducted by Hilda Ymar Gunt, Delos Reyes, Ma. Ara Nicoleen Loliza, and Mamzel Angelique (2023), entitled “Waste Management Practices of Local Eateries in District 1 of Parañaque City: A Basis for Extension Program,” conducted by Polytechnic University of the Philippines, discussed the need for proper waste management practices among local eateries and food service establishments because of the ever-increasing generation of solid waste from food service operations.

The study reveals that waste generated by restaurants and eateries includes various categories, including food waste, plastic bags, bottles, cans, and other disposable items. The researchers noted that if not disposed of properly, these wastes are a source of environmental issues in the community. The study also pointed out that the enactment of the Ecological Solid Waste Management Act of 2000 (RA9003) encourages LGUs and business places to adopt waste segregation, recycling, composting, and proper disposal of waste to minimize environmental impact.

It was also mentioned in the literature that the “3Rs” principle (Reduce, Reuse, Recycle) is essential in food establishments for waste management. Waste reduction in structured practices can help food service businesses to reduce the cost of waste disposal and enhance their operational efficiency, it said. Further, the study highlighted the measures implemented by local restaurants to involve the environment, such as providing proper garbage segregation, establishing a waste collection system, and participating in local clean and green schemes.

This is local literature because both studies are based on waste management in small food establishments. The present study aims to discuss the innovative and sustainable waste management practices in small food business establishments (FBSs) in Tambo, Parañaque City, which will supplement the previous study on how eateries in Parañaque City manage their waste and adhere to environmental practices. Both studies highlight the importance of sustainability, environmental responsibility, and appropriate waste management systems in the food service sector.

Banzuelo (2025) did a study on “An Analysis of Waste Management Practices in Selected Buffet Restaurants in Quezon City, Philippines.” The study examined the waste management in buffet restaurants, i.e., waste collection, segregation and disposal in selected buffet restaurants in Quezon City.

This study aims to assess the effectiveness of waste management in buffet restaurants and to see whether they are complying with the environmental laws such as the Ecological Solid Waste Management Act of 2000 (Republic Act 9003). One of its goals was to find out the issues that were encountered by the restaurant operators in implementing the correct waste management system.

The study used a mixed method, which included quantitative and qualitative methods. Data was gathered using observation, interviews, and questionnaires of restaurant employees, managers, and local government representatives. The data collected were analyzed using statistical techniques such as the percentage analysis, weighted mean, and ANOVA.

The results showed that buffet restaurants in Quezon City have a high level of compliance in terms of their waste management practices, especially in the collection and disposal of waste. However, some of the problems observed were the irregularity of the collection of waste, and facilities for waste segregation were not sufficient. Despite these challenges, the respondents had a fairly good knowledge of and practiced good waste management practices.

The study is pertinent to the current research study since it emphasized the waste management practices in the food service industry in an urban scenario in the Philippines. It offers a good indication of the compliance of the restaurants with the environmental rules and how they are dealing with waste effectively. The findings can be used as a guide or benchmark in identifying gaps and potential improvement of sustainability in Tambo small food businesses in Parañaque City.

Foreign Theories

The study entitled “Sustainable Solid Waste Management System Using Technology-Enabled End-of-Pipe Strategies” by Gupta, Hirani, and Shankar (2023) aimed to enhance the solid waste management systems using modern technological solutions. A systematic review and conceptual analysis were done on various literature related to smart waste management systems, end-of-pipe solutions, and principles of the circular economy. The primary objective of the study was to study the potential for the use of technology-based systems for efficiency, monitoring, and sustainability in solid waste management, particularly in urban areas where solid waste disposal is continuously increasing due to rapid urbanization and population growth.

The study revealed a positive correlation between the use of advanced technologies, such as automatic waste treatment and data analysis/digital monitoring systems, and waste collection and waste segregation/treatment processes. It also highlighted the importance of the application of the principles of the circular economy (reuse, recycle, and minimize waste) to further optimize waste management efficiency and sustainability. However, the study highlighted a number of challenges, such as the cost of implementation, lack of policy support, and the need for enhanced institutional capacity.

Lastly, the research suggests the need to innovate and integrate technology to develop efficient and sustainable waste management systems, which is important for small food business establishments in Tambo, Parañaque City.

The study by Bhatt (2024) about the Economic Impact of Food Waste in Urban India explains that food waste is a huge global problem that affects everyone. It is estimated that around 1.3 to 1.4 billion tonnes of food are wasted every year. In busy cities, this problem gets worse because of how fast the population is growing. The research shows that managing food waste is not just about trash, but also about the economy, because wasting food also means wasting the water, land, and energy used to produce it. The goal of this study is to encourage businesses and customers to be more responsible so they can help build a more sustainable economy.

According to the research, there is a big difference in how much people waste based on their income. High-income groups in urban areas waste about 90 kg of food per person each year, while middle and lower-income groups waste a bit less, around 63 to 68 kg. This is a massive waste of money, estimated at about 750 billion dollars globally. The study also mentions that we need to follow SDG 12 (Responsible Consumption and Production) and move toward a "circular economy," where instead of just throwing food away, we find ways to reuse it or turn it into something useful.

Another important point from the study by Sahoo et al. (2024) is how food waste affects the prices of food in the city. When too much food is wasted because of bad storage or transport, the prices of the remaining food go up. This makes it hard for poor families to buy healthy food, leading to malnutrition. The researchers suggest that we need better policies to keep food prices stable and make sure everyone can afford a good diet. The main goal is to find international solutions that can be used to grow the economy without destroying the environment.

This international perspective is very important for my research on Tambo, Parañaque. Even though the study was done in India, the problems are very similar to what we see here, where fast-growing cities struggle to manage the waste from food establishments. In Barangay Tambo, we also need to look at eco-innovations, such as waste monitoring and turning food waste into fertilizers, to solve our local problems. By learning from these international studies, we can find better ways to make Parañaque City a cleaner and more sustainable place to live.

The study according to Phonthanakitithaworn, C. Et al. (2024) examined the nation's food waste management and promoted eco-innovation, which are environmentally practical, innovative, and sustainable practices, by highlighting the challenges in businesses' and consumers' behavior, which have contributed to food sectors. Not only in the nations from Europe but also in some developing nations in ASEAN as well, the goal of this study is to encourage businesses not only in social but also in environmental issues to be aware that being responsible for environmental sustainability will lead to innovative economy and more sustainable progress in waste management in the future.

Moreover, this study is also promoting the use of SDG 12 “Responsible Consumption and Production” to reduce food waste in the food supply chain/food sectors and practice innovating sustainable methods. Also, the importance of PESTEL (Political, Economic, Social, Technological, Environmental, and Legal) creates opportunities to enhance the challenges in waste in a legal or policymaker's way.

The study (Phonthanakitithaworn, C. Et al. 2024) examined appropriate and accurate studies and sources and the eco-innovation policies in food waste as well, the European nations (Germany, France, Belgium, Denmark, and Ireland), which are high-income economies, have approximately 22,700,003.6 kg (annually) of food waste, and the ASEAN nations (Indonesia, Philippines, Vietnam, Thailand, and Malaysia), which are middle-income economies, have approximately 48,000,009.4 kg (annually) of food waste. This study addresses that the said nations are facing critical challenges in food waste management and need to significantly prioritize SDG 12.3 and PESTEL policies. The goal of this study is to seek food waste management challenges and promote sustainable solutions or the eco-innovation that creates innovative environmental growth.

Tambo in Parañaque City is facing challenges, like, due to fast economic growth, it's difficult to implement sustainable practices in food waste management. By identifying the challenges, it's crucial to implement solutions like eco-innovation practices in food waste management and to minimize environmental challenges. The SDG 12.3 and PESTEL policies are the concept of economic growth and environmental innovation that are presently facing challenges not only in Parañaque City but in the Philippines itself. The objective of this study is to significantly emphasize waste prevention, enhancing environmental challenges, and implementing eco-innovation utilization of waste monitoring, not using plastics, transforming food waste into fertilizers, and consumer awareness.

SYNTHESES

In conclusion, the theoretical approaches and empirical literature that were examined in this chapter, all highlight the need to pursue sustainable waste management for the food service sector from a multi-dimensional perspective. The ability of businesses to integrate environmental knowledge with innovative, sustainable compliance solutions can help mitigate these risks, and central to this discussion is the Environmental Kuznets Curve (EKC) theory which suggests that rapid economic growth and urbanisation worsen environmental degradation, but that this risk can be reduced if businesses use their knowledge of the environment to develop innovative, sustainable compliance solutions.

This is a macro level view that is complemented directly by behaviour and organisation theories that address how things are done inside. Consider, for example, that Social Practice Theory (SPT) moves away from the focus on the 'big picture' and instead examines the institutional dynamics between waste management technologies (materials), employee's attitude (meanings) and corporate knowledge (competencies) in the daily work of the kitchen. In addition, the Theory of Planned Behavior (TPB), and the Norm Activation Model (NAM) show that these localized practices rely heavily on individual psychology: Personal norms, environmental awareness, and perceived behavioral control are the factors that make the difference in whether a business owner will choose to practice proactive waste segregation or not (Michael et al., 2024; Wu et al., 2024).

In addition to individual and internal practices, Stakeholder Theory also lays the foundation that food businesses must not function in isolation but must engage actively with consumers, workers, and local government bodies (LGUs) to ensure that food safety and environmental protection are upheld. However, there are significant gaps between these theoretical models and the actual implementation on the ground, as a result of various operational limitations.

However, environmental frameworks exist locally and compliance is very inconsistent, as illustrated by local literature.

The time constraint and the lack of space for on-site segregation in major urban food markets of Quezon City and Pasay City greatly hamper the implementation of the Ecological Solid Waste Management Act of 2000 (RA 9003) as food markets are commercial (Graham, 2022). In secondary cities, such as Dasmariñas City, and in certain sub-sectors, the same pattern of vulnerability to compliance can be seen, for instance, a high demand by consumers for the use of “green” practices and biodegradable materials in the coffee shops of Dasmariñas City, but in which local businesses do not always comply with the implementation of proper waste management strategies (Baisa et al., 2024).

This execution gap is compounded by studies conducted in Zamboanga City and District 1 of Parañaque City, which have highlighted that legislation, such as RA 9003, needs to be backed by good infrastructure, targeted education of stakeholders and local enforcement measures to be effective (Gunt et al., 2023; Tendero, 2023). Institutional barriers, such as the irregular collection of municipal waste and the lack of segregation facilities, still hamper sustainable operations of the establishment, even in cases where the operators are very aware of the regulations and are generally compliant, like buffet restaurants in Quezon City (Banzuelo, 2025).

International literature suggests technological integration as a key solution to close these local operational gaps.

The research around the world showed the need for end-of-pipe solutions with technology, automatic waste treatment and digital data monitoring systems to achieve the maximum efficiency from the transition to a circular economy (Gupta et al., 2023). Yet there is also a clear parallel between local and international contexts: both contexts experience significant challenges with high costs in implementing the practice, weak institutional policy support, and limited organizational capacity (Gupta et al., 2023).

The existing body of literature has its own limitations: most local studies dealt mainly with large-scale public markets, buffet restaurant food outlets, or in general, municipality-wide food outlets with distinct lack of study on the effects of these barriers on small-scale food outlets in densely populated, specific urban barangays. This current study aims to fill this research gap by examining the distinct socio-economic and spatial issues encountered by small food businesses in Barangay Tambo, Parañaque City. The aim of this study is to combine the behavioural elements of TPB and SPT with the technological aspects of international frameworks to suggest local, eco-innovative and feasible waste management solutions for the specific capacities of small-scale food retailers.

METHODOLOGY

RESEARCH DESIGN

This research uses quantitative descriptive methods to determine the range of waste management practices in small food establishments in Tambo, Parañaque City in relation to Enhancing Sustainability through Waste Management Practices. The researchers used a survey questionnaire to collect necessary data from participants.

The study aimed to identify the waste management practices of small food establishments and present innovative sustainable practices to help the small food establishments.

Quantitative research refers to a set of characteristics, strategies, and assumptions used in a study to evaluate information through databases. Quantitative research gathers numeric data to analyse it using statistical analysis in order to measure necessary data and express it in variables to reach the objective of summarised and compared outcomes. Lim, W. M. (2024)

The descriptive method is about interpreting data and information. It serves as a method for researchers to address demographic profiles, populations, understandings, and circumstances. Its main objective is to systematically observe variables and conditions influencing observable facts. Singh, S. (2023)

RESEARCH LOCALE

The study was conducted in the Barangay Tambo, City of Parañaque, Metro Manila, Philippines. Strategically located in the first district of Parañaque City, Barangay Tambo is a heart of the City's top economic, commercial and entertainment hub. The region is filled with commercial complexes, housing and a thriving service industry concentrated along the coastline of Manila Bay. It has created a rich economic activity that has resulted in a very competitive and diversified local food industry.

This area was selected as the research area because it has a large and dense concentration of small food outlets, ranging from the “carinderia” to local eateries, to independent cafes, bakery shops and street food vendors. Another factor is that Barangay Tambo is merely a short distance from the coastal zone which has a high degree of integration to the monitoring program of the Parañaque City City Environment and Natural Resources Office (CENRO) for environmental and waste management monitoring. This makes the city an ideal location for observing, measuring, and evaluating how the small-scale food enterprises are actively engaging ecosystem policy and the ability to implement appropriate waste management with the aim of enhancing community sustainability.

RESPONDENTS OF THE STUDY

The respondents in this study were 112 owners/managers and staff/employees of small food establishments from Tambo, Parañaque City.

The participants were selected regarding their correlation and accurate information with sustainable waste management practices.

SAMPLING TECHNIQUE

The researchers used a purposive sampling questionnaire in selecting of respondents.

Purposive sampling is a method used when only the owners/managers and staff/employees of small food establishments who are related to the study are eligible to participate.

Participants were determined to be qualified to be respondents based on their relationship in the study.

RESEARCH INSTRUMENT

The main instrument used to collect data in this study was a survey questionnaire in google forms using a 5-point likert scale.

The questionnaire includes questions about the owners/managers and staff/employees waste segregation and storage, collection and disposal, compliance and local awareness, and effectiveness of waste management practices.

Furthermore, we created 5-15 sets of questionnaires to gather the data and we will determine their relationship on waste management practices on the scale.

This 5-point likert scale helped the researchers to gather numerical data for analysis.

5 - (Strongly Agree) The practice is always observed/done daily

4 - (Agree) The practice is often observed/done frequently

3 - (Neutral) The practice is sometimes observed/done occasionally

2 - (Disagree) The practice is rarely observed/almost never done

1 - (Strongly Disagree) The practice is never observed/never done

DATA GATHERING PROCEDURE

To gather data information, the researchers informed respondents the importance of this study and asked official permission from the small food establishments owners/managers and staff/employees before conducting the study. After official permission, the researchers hand out the survey questionnaire through google form.

The researchers collect data after the respondents answer the survey honestly. The collected data were then analyzed and evaluated to organize for statistical analysis and establish a conclusion to aim for the importance of waste management practices.

DATA ANALYSIS

The researchers implemented frequency, percentage, and weighted means to analyze the collected data.

1. Frequency and percentage - the total responses in a database

Frequency and percentage is used to identify the respondents demographic and business profiles.

2. Weighted mean - average of responses

Weighted mean is utilized to get the average responses using the 5-point likert scale.

ETHICAL CONSIDERATION

The study purpose, methods and the time required for the study was explained to all the respondents, both the food establishment owners and the staff. It was a completely voluntary participation and participants stated their agreement to join the study without any type of coercion.

SUMMARY

This chapter explains the methods and procedures used for the study, which includes research design, respondents of the study, sampling techniques, research instrument, data gathering procedure, and statistical instrument of data. These methods collected accurate and appropriate information to analyze the sustainable waste management practices in Tambo, Parañaque City.

PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

This research determines the practices of waste management in Tambo, Parañaque City. The 112 respondents of this study were owners/managers and staff/employees from Tambo, Parañaque City, and selected by their relationship to waste management practices. The researchers used a survey questionnaire in Google Forms with the 5-point Likert scale to gather data. The survey questionnaire in Google Forms was conducted in Tambo, Parañaque City, with small food owners/managers and staff/employees as respondents to evaluate accurate information and aim to understand and make recommendations that will affect the small food establishments.

The tools used to identify the databases are frequency and percentage to analyse the demographic profiles of respondents, including their job position and type of food establishments. Weighted mean is also used as a tool to understand and interpret the respondents' current waste management practices, awareness and effectiveness based on the 5-point Likert scale.

What is the demographic and business profile of the respondents in terms of:

Table 1. Demographic profile of the respondents in terms of gender

Gender	Frequency	Percentage
Male	64	57.14%
Female	46	41.07%
LGBTQ	2	1.79%
Average	112	100%

The table showed that out of 112 respondents, 64 respondents were Male which has 57.14%, 46 respondents were Female which has 41.07%, and 2 respondents were 2 which has 1.79%.

This means that Male are the most common owners or staff of small food establishments in Tambo, Parañaque City.

Table 2. Demographic profile of the respondents in terms of age

Age	Frequency	Percentage
18 - 29	104	92.86%
30 - 39	6	5.36%
40 - 49	2	1.78%
Above 50	0	0%
Average	112	100%

The table showed that out of 112 respondents, 104 respondents were in the age of 18-29 which has 92.86%, 6 respondents were in the age of 30-39 which has 5.36%, 2 respondents were in the age of 40-49 which has 1.78%, and there's no respondents in the age of of above 50.

This means that the most common owners and staff of small food establishments in Tambo, Parañaque City were young adults.

Table 3. Business profile of the respondents in terms of type of food establishment/s
Other (Please Specify) -

Type of food establishment/s	Frequency	Percentage
Carinderia/Local Eatery	20	11.61%
Food stall/kiosk	13	17.86%
Coffee Shop/Bakery	78	69.64%
Delivery-only Hub	0	0%
Other (Fast food)	1	.89%
Average	112	100%

The table showed that out of 112 respondents, 78 respondents are working in carinderias/local eatery which has 69.64%, 13 respondents are working in food stall/kiosk which has 17.86%, 20 respondents are working in coffee shop/bakery which has 11.61%, 0 respondents in delivery-only hub, and 1 respondent is working in fast food which has .89%.

This means that the most common small food establishments in Tambo, Parañaque City are carinderia/local eatery followed by coffee shop/bakery, food stall/kiosk.

Table 4. Business profile of the respondents in terms of job position/role

Job position/role	Frequency	Percentage
Owner/manager	15	13.39%
Staff/employee	97	86.61%
Average	112	100%

The table showed that out of 112 respondents, 15 respondents were working as owner/manager which was 13.39%, and 97 respondents were working as staff/employees which was 86.61%.

This means that the most common job position/role of respondents in small food establishments in Tambo, Parañaque City were staff/employees.

Table 5. Business profile of the respondents in terms of years of working experience

Years of working experience	Frequency	Percentage
1 - 5 years	105	93.75%
6 - 10 years	7	6.25%
11 - 15 years	0	0%
Above 16 years	0	0%
Average	112	100%

The table showed that out of 112 respondents, 105 respondents have a 1-5 years of working experience which has 93.75%, 7 respondents have 6-10 years of working experience which has 6.25%, and both the 11-15 and above 16 years of working experience has 0 respondents.

This means that the most common years of working experience of respondents in small food establishments in Tambo, Parañaque City is 1-5 years.

Table 6. Business profile of the respondents in terms of average of daily customers

Average of daily customers	Frequency	Percentage
Less than 50	85	75.89%
51 - 100	18	16.07%
101 - 200	7	6.25%
More than 200	2	1.79%
Average	112	100%

The table showed that out of 112 respondents, 85 respondents have less than 50 daily customers which has 75.89%, 18 respondents have 51-100 daily customers which has 16.07%, 7 respondents have 101-200 daily customers which has 6.25%, and 2 respondents have more than 200 daily customers which has 1.79%.

This means that the most common average of daily customers in small food establishments in Tambo, Parañaque City is less than 50.

Table 7. Business profile of the respondents in terms of primary service mode

Primary service mode	Frequency	Percentage
Dine-in	91	81.25%
Take-out	19	16.96%
Food delivery apps(GrabFood, FoodPanda, and etc.)	2	1.79%
Average	112	100%

The table showed that out of 112 respondents, 91 respondents have a dine-in as primary service mode which has 81.25%, 19 respondents have a take-out as primary service mode which has 16.96%, and 2 respondents have a Food delivery apps(GrabFood, FoodPanda, and etc.) as primary service mode which has 1.79%.

This means that the most common primary service mode in small food establishments in Tambo, Parañaque City is Dine-in.

How do these establishments currently manage their waste (use of waste segregation or not)?

Table 8. Waste Segregation and Storage

Questions	Weighted mean	Verbal interpretation
1. Our establishment strictly segregates biodegradable (food waste) from non-biodegradable waste (plastics, paper).	4.45	Strongly Agree
2. We use color-coded or clearly labeled trash bins in both the kitchen and dining areas.	4.15	Strongly Agree
3. All waste containers are properly covered, lined with trash bags, and emptied before they overflow.	4.54	Strongly Agree
Overall mean	4.38	Strongly Agree

The table showed the overall weighted mean is 4.38, interpreted as “Strongly Agree”. The number 3 in the table has the highest weighted mean of 4.54.

This means owners and staff of small food establishments in Tambo, Parañaque City are generally implementing the right of waste segregation and storage.

Table 9. Collection and Disposal

Questions	Weighted mean	Verbal interpretation
1. We rely entirely on the Parañaque City CENRO / Barangay garbage trucks for our daily waste collection.	4.56	Strongly Agree
2. We regularly practice recycling or selling clean recyclables (cardboard		Strongly Agree

boxes, oil containers, aluminum cans) to junk shops.	4.30	
3. We partner with local farmers or hog-feeders (kanin-baboy collectors) to dispose of our leftover food waste.	4.31	Strongly Agree
Overall mean	4.39	Strongly Agree

The table showed the overall weighted mean is 4.39, interpreted as “Strongly Agree”. The number 1 in the table has the highest weighted mean of 4.56.

This means owners and staff of small food establishments in Tambo, Parañaque City are generally implementing the right of waste collection and disposal.

Which innovative sustainable practices like disposal of waste, inventory storage and minimizing use of plastics) are presently being practiced?

Table 10. Compliance and local awareness

Questions	Weighted mean	Verbal interpretation
1. I am highly aware of Republic Act 9003 (Ecological Solid Waste Management Act) and Parañaque's local plastic reduction ordinances.	4.49	Strongly Agree
2. We actively minimize single-use plastics (e.g., styrofoam, plastic bags, straws) in our day-to-day serving and take-out packaging.	4.30	Strongly Agree
3. I am willing to participate in environmental seminars or sustainability initiatives organized by Parañaque City or local business	4.53	Strongly Agree

networks.		
4. The penalty system or fear of local business permit non-renewal motivates us to keep our waste disposal compliant.	4.62	Strongly Agree
Overall mean	4.24	Strongly Agree

The table showed the overall weighted mean is 4.24, interpreted as “Strongly Agree”. The number 4 in the table has the highest weighted mean of 4.62.

This means owners and staff of small food establishments in Tambo, Parañaque City are generally aware and following the policy implemented in the baranggay.

How's the effectiveness in businesses and the environment of using waste management practices in small food establishments?

Table 11. Effectiveness of Waste Management Practices

Questions	Weighted mean	Verbal interpretation
1. Proper waste management improves the establishment's cleanliness.	4.68	Strongly Agree
2. Effective waste management creates positive impacts on the community.	4.70	Strongly Agree
3. Sustainable waste management practices help protect the environment.	4.72	Strongly Agree
4. I believe that adopting innovative waste management (e.g., plastic alternatives, food waste reduction) is highly beneficial for my business in the long run.	4.75	Strongly Agree
5. Reducing operational		Strongly Agree

waste in my establishment is deeply important to protect the environment and the coastal safety of Parañaque.	4.66	
Overall mean	4.70	Strongly Agree

The table showed the overall weighted mean is 4.70, interpreted as “Strongly Agree”. The number 4 in the table has the highest weighted mean of 4.75.

This means owners and staff of small food establishments in Tambo, Parañaque City are generally believed that the implementation of innovative sustainable waste management practices is effective.

SUMMARY, COCLUSION, AND RECOMMENDATIONS

SUMMARY OF FINDINGS

SOP #1: Demographic and Business Profile of the Respondents. The data gathered from 112 respondents shows that the majority of small food establishment owners or staff in Tambo, Parañaque City are young adult males aged 18–29.

Carinderias or local eateries represent the most common type of business involved in the study. Furthermore, most respondents operate primarily as staff/employees, possess 1 to 5 years of working experience, serve fewer than 50 customers daily, and rely heavily on dine-in as their primary mode of service.

SOP #2: Current Waste Management Practices. The respondents strongly agree that they actively practice correct waste management. For waste segregation and storage, the highest-rated practice is ensuring that all trash containers are properly covered, lined, and emptied before they overflow. For collection and disposal, the establishments rely most heavily on the daily waste collection services provided by the Parañaque City CENRO and Barangay garbage trucks.

SOP #3: Innovative Sustainable Practices and Compliance. The findings reveal a high level of awareness regarding environmental laws like Republic Act 9003 and local plastic reduction ordinances. The primary driver for compliance is regulatory pressure, specifically the fear of local business permit non-renewal or penalty systems. However, respondents also expressed a strong willingness to participate in environmental seminars and sustainability initiatives.

SOP #4: Effectiveness of Waste Management Practices. The respondents strongly believe that proper waste management brings immense value. They highly agree that adopting innovative waste management practices is beneficial for their businesses in the long run. They also recognize that reducing operational waste is deeply important for protecting the environment and ensuring the coastal safety of Parañaque City.

CONCLUSIONS

The study determined that small food establishments in Tambo, Parañaque City, maintain the utilization of basic solid waste management practices, specifically the segregation of biodegradable, non-biodegradable, and recyclable materials. The study also shows that the data gathered for demographic and business profiles of respondents were generally young adults with 1-5 years of experience in working as an owner or staff, dine-in is their main service mode, and they serve fewer than 50 customers a day. It is concluded that the owners and staff are also actively practicing the right to waste segregation and storage and waste collection and disposal. The small food establishments' owners and staff obtain a highly favorable personal attitude toward environmental protection, and social pressure serves as a stronger force for actual behavioral change. The findings prove that the waste management practices in small food establishments in Tambo, Parañaque City, are effective practices.

The strict implementation of local environmental ordinances by Parañaque City CENRO and Baranggay officials is a primary force to motivate the small food establishment to strictly maintain sustainable waste habits. In fact, Tambo in Parañaque is a city that always grows in terms of businesses, and it's crucial for the owners and staff to be environmentally aware and involved. This study shows the importance of having innovative, sustainable waste management practices and policy, making the small food establishments to be long-term businesses with sustainable practices and the environment to be clean and safe as well. It clearly shows that a lot of owners and staff use the right waste management practices and the minimizing of the use of plastics. The results provide a positive impact for small food establishment owners and staff in Tambo, Parañaque City, and their strong adoption rates prove that limited resources or space are not barriers to innovative, sustainable waste management.

Ultimately, this study concludes small food establishments in Tambo, Parañaque City, are already using the solid foundation in proper waste management practices. It proves their success in implementing sustainable waste management practices such as the right of minimizing use of plastics, waste segregation, leftover food waste, and strictly following the policy from Parañaque City when there is consistent effort, localized community support, and internal discipline within the establishments. Small food establishments in the Tambo sector can easily transform from standard waste management practices to a full-scale green revolution.

RECOMMENDATIONS

Based on the findings and conclusions of the study entitled “Enhancing Sustainability through Waste Management Practices in Small Food Establishments in Tambo, Parañaque City”, the following recommendations are made to improve the sustainability in Tambo, Parañaque City:

- LGUs can also implement incentive schemes or recognition awards for businesses that have effective, sustainable waste management and use of green at the core of their business to promote a greater uptake.
- Future research is recommended to explore additional food establishments in different regional areas and other factors such as cost effectiveness, employee behaviors, and customer participation in waste management.

SUMMARY OF THE OVERALL STUDY

The study emphasizes the waste management practices of small food business establishments in Tambo, Parañaque City and the ecological role of these businesses, specifically the carinderias and cafés. The descriptive quantitative research design was employed and data was obtained from the owners and the staff to find out the level of compliance of the owners and staff with the environmental ordinances. The results found that waste is well segregated and well disposed of in hygienic ways, which is correlated to good local regulation by the establishments. But proactively sustainable measures, like cutting down on single-use plastics have been met with market costs. The study indicates that Tambo's enterprises are capable of implementing improved sustainability measures, which it proposes be achieved through a certification program to encourage the enterprises to become more sustainable, and through the creation of eco-alliances for bulk ordering of biodegradable materials. Other neighborhoods in Parañaque are also set for study, and will serve as a yardstick.

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