ADOPTION OF SUSTAINABILITY PRACTICES AMONG SMALL-SCALE FOOD VENDORS IN SAN JOSE CITY

Sandara De Vero[1], Jhulie Anne C. Adona[2], Charlyn T. Garcia[3], Erica Jane A. Peralta[4], Janna Mae M. Recasio[5], Aeron Joshriel N. Villanueva6, John Paul B. Prado[7], and Franz Ervy D. Mallari[8]

Business Education program, Core Gateway College, Inc., San Jose City, Nueva Ecija
Business Education program, Core Gateway College, Inc., San Jose City, Nueva Ecija[2]
Business Education program, Core Gateway College, Inc., San Jose City, Nueva Ecija[3]
Business Education program, Core Gateway College, Inc., San Jose City, Nueva Ecija[4]
Business Education program, Core Gateway College, Inc., San Jose City, Nueva Ecija[5]
Business Education program, Core Gateway College, Inc., San Jose City, Nueva Ecija[6]
Business Education program, Core Gateway College, Inc., San Jose City, Nueva Ecija[7]
Business Education program, Core Gateway College, Inc., San Jose City, Nueva Ecija[8]

Corresponding authors' email:
sandaradevero@gmail.com[1],jhulieanne007@gmail.com[2],garciacharlyn40@gmail.com[3]
ericajaneperalta2@gmail.com[4],jannarecasio@gmail.com[5],aeronvillanueva06@gmail.com[6] prado.johnpaulb@gmail.com[7] ,franzduya@gmail.com[8]

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Abstract.

This research examined the adoption of sustainability practices among small-scale food vendors in San Jose City. These vendors played a vital role in the local economy by offering affordable food options to residents and visitors. The study aimed to assess vendors' socio-demographic profiles, evaluate their awareness and adoption of sustainable practices, and explore the challenges and opportunities they encountered in implementing sustainability. Data collection included information on age, sex, marital status, educational attainment, monthly income, and years of vending experience. Results revealed that the majority of the vendors were adults aged 31 and above, with a significant portion being female. Most had completed high school and earned less than Php10,000 per month, and the majority had been vending for 5 years or less. Vendors demonstrated strong awareness of sustainability, particularly in waste management and energy conservation, and commonly practiced activities such as sorting waste

and using energy-efficient cooking methods. However, adoption levels varied due to financial constraints and the limited availability of affordable, eco-friendly alternatives. The primary challenges cited included a lack of training and high costs of sustainable materials. The study highlighted the need for targeted support from local government units and community organizations to equip food vendors with the knowledge, tools, and incentives necessary to adopt sustainable practices.

Keywords: *Sustainability, Food Vendors, San Jose City, Waste Management, Energy Conservation*

Introduction

Street vendors are informal business actors who play a vital role in driving innovation and economic growth in the country. This term refers to the sale of products on streets, sidewalks, in public parks, or in other public spaces. Since street vending is affordable, readily available, and culturally relevant, it is among the most prominent food enterprises worldwide, particularly in developing nations. In addition to benefiting millions of people, especially those from low-income families, it also generates jobs and opportunities for businesses. According to The Business Research Company (2025), the street vendor market has grown rapidly in recent years. It will increase from $2.68 billion in 2024 to $3.02 billion in 2025 at a compound annual growth rate (CAGR) of 12.7%. Its market size is expected to reach $4.79 billion in 2029, growing at a compound annual growth rate (CAGR) of 12.3%. Moreover, Gazali (2020) reported that some street vendors have improved their performance by demonstrating competence in innovation, distinguishing themselves from others through differences in service, processes, and product quality.

Street food is expected to become even more critical over the coming decades as populations in urban and peri-urban settlements expand, driven mainly by the influx of rural migrants. (Bini et al., 2017). Furthermore, small-scale street vendors still need to adopt sustainable methods despite their population. Adopting sustainable practices is crucial because they increase the availability of products and services and enhance business resilience. For instance, the social practice approach could help identify leverage points for innovations to support

the routinization of sustainable street food system practices (Herrero et al., 2020).

Despite the large number of food vendors, studies have shown that street food vendors have primarily focused on public health and nutrition security (Steyn et al., 2014). This suggests that small-scale food vendors must be knowledgeable about proper food handling and hygiene practices. Additionally, in the view of Vignola & Oosterveer (2022), street food constitutes an essential component of urban food systems, which are critical in achieving several of the Sustainable Development Goals (SDGs). To effectively contribute to food security and environmental sustainability, food sellers must be included as an integral part of the analysis and decision-making processes for adopting sustainable practices.

In the Philippines, street vending is an essential part of culinary culture, offering convenient and cost-effective options for residents and visitors (Armas et al., 2024). In 2019, street stalls and kiosks accounted for 43 percent of the total food service establishments in the Philippines, or approximately 41.2 thousand units (Statista, 2019). Revealing a substantial overall number of food vendors supports a constantly growing economy. Despite their popularity, these vendors often operate in informal, unregulated settings, raising questions about the quality and safety of the food they serve (Ali et al., 2019). A study by Santos et al. (2019) found that many street food vendors lacked access to clean water, handwashing facilities, and proper waste management systems. For instance, in San Isidro, Nueva Ecija, Philippines, Armas et al. (2024) found that although vendors washed their hands with clean water as part of basic hand hygiene, they frequently overlooked protective clothing such as gloves, aprons, and hairnets. They often struggle to comply with laws, permits, and sanitary regulations and improperly dispose of garbage. This emphasizes how crucial it is for food vendors to continue and maintain waste management and hygienic food-handling procedures to ensure food safety nets are in place.

The growing number of small-scale food vendors not only helps people meet their daily needs and support their families, but also fosters innovation and economic progress. Still, more research and comprehension are required to determine how small-scale food vendors are using sustainable practices. Thus, the purpose of this study is to identify the socio-demographic profile of food vendor owners in terms of age, sex, civil status, average monthly income, number of years as a vendor, and their highest educational attainment; assess their level of

awareness regarding sustainability practices; and identify the opportunities and challenges for adopting sustainable practices among small-scale food vendors in San Jose City.

Literature Review

Sustainability Practices of Small-Scale Food Vendors

Waste Management

The ethical handling of waste should be integral to a vendor's business model and aligned with environmental sustainability goals. However, despite its income-generating potential, street vending contributes significantly to environmental degradation due to poor urban planning, inadequate waste disposal systems, and informal systems (Ezeudu et al., 2021; Famous & Adekunle, 2020).

The consequences of improper waste disposal—such as pest attraction, foul odors, and blocked drainage—are evident in informal settlements (Srivastava, 2020). Vendors resort to methods such as dumping waste behind stalls or in public areas and even burning it, leading to soil and water contamination (Maphanga & Madonsela, 2023). While these practices are short-term fixes, they have long-term environmental and health implications. Community-driven solutions, such as recycling initiatives and reduced packaging, could help mitigate these problems. As local governments encourage recycling and the use of reusable resources, vendor-government cooperation becomes vital for sustainable waste systems.

Packaging Practices

Attractive packaging plays a crucial role in attracting customers and influencing purchase decisions, particularly in street vending, where visual appeal drives sales (Fianda et al., 2022). However, while vendors prioritize appearance, many neglect environmental impacts. Despite these benefits, Nurwulandari (2023) observes that plastic and Styrofoam are still widely used due to their affordability and availability.

The tension between sustainability and cost persists. Plastic packaging remains a preferred choice because it is inexpensive, durable, and widely accessible, especially for financially constrained vendors (Santoso et al., 2018).

Cities worldwide are increasingly transitioning toward eco-

packaging. In Bangkok and Mexico City, for example, banana leaves and avocado seed containers are replacing single-use plastics (UNEP, 2021). Over 50% of Southeast Asia's vendors now use biodegradable packaging, not only to comply with regulations but also to elevate their brand image. Faishal et al. (2021) and Mollah et al. (2024) add that safe, eco-conscious packaging can boost consumer trust, reinforce product quality, and enhance customer satisfaction.

Energy Conservation

Adopting energy-efficient cooking methods has become increasingly crucial as vendors seek to reduce their environmental footprint. Traditional fuels such as charcoal and gas emit harmful emissions. S. A. (2025) and the International Renewable Energy Agency (2020) show that solar cooking stations can reduce carbon emissions by up to 50%, demonstrating that profitability and sustainability are not mutually exclusive. Cities like Rio de Janeiro and Chiang Mai have adopted similar initiatives, demonstrating the practicality of sustainable alternatives (Alex, 2024).

Despite these advancements, urban vendors still face significant barriers, including inadequate infrastructure and limited access to water and electricity. Mguni et al. (2020) stress that sustainable practices must include changes in habits and social structures, not just the adoption of technology. Patel & Mishra (2023) also note the rising demand for ready-to-eat food as an opportunity to integrate solar energy into food-vending operations. While education and awareness remain key gaps, the adoption of LED lights, solar panels, and low-energy cookers marks a positive trend.

Water Conservation

Water quality and hygiene are critical for food safety. Mulyodarsono & Kristopo (2024) highlight the widespread issue of poor water hygiene among Southeast Asian street vendors, which impacts equipment cleaning and food preparation. Contaminated water can pose severe health risks, including food poisoning (Cholid et al., 2022). Street vendors must be supported by an infrastructure that allows access to clean water and sanitation.

Conserving water also aligns with the Sustainable Development Goals (SDGs), which aim to balance environmental, social, and

economic development (Kurunthachalam, 2014). Efficient water use not only reduces operational costs but also enhances business image (Schug, 2016). Though water-saving devices can help, many vendors still lack access to clean water altogether (Muhonja & Kimathi, 2014). Innovations such as low-flow faucets and better washing methods can bridge the gap between hygiene and limited resources (Santos et al., 2019).

Use of Sustainable Ingredients

Sourcing ingredients sustainably benefits both the environment and the local economy. According to Reinoso (2024), ethical sourcing supports biodiversity and long-term food security.

Vendors in Bogotá and Nairobi have embraced farm-to-table approaches that minimize transportation emissions and ensure freshness (S. A., 2025). Chakawodza (2024) further explains that locally sourced ingredients support local economies and strengthen relationships between vendors and producers. This not only reduces carbon footprints but also enhances food quality and vendor credibility.

Reduced Plastic Use

The sudden prohibition of single-use plastics has created significant challenges for small-scale vendors (Priyanka, 2024; Jay, 2024). Many rely on plastics for their affordability and convenience, and transitioning to eco-friendly alternatives comes with higher upfront costs. However, a report by Zero Waste Europe, Serious Business, and NHF indicates that switching to reusable systems could reduce plastic waste by over 86% and create thousands of jobs.

UNEP (2018) highlights that plastic packaging accounts for nearly half of global plastic waste, with Asia being a major contributor. While small vendors can help reduce waste, systemic reforms are necessary to address the broader issue. Still, the transition to biodegradable and compostable materials, as noted by Alex (2024), represents a step in the right direction.

Opportunities and Challenges in Adopting Sustainable Practices

Street food vendors face structural vulnerabilities due to low

and unstable incomes, making it difficult for them to adopt sustainability practices (Tigashi & Shalini, 2020). Limited access to training and business development services is a significant barrier (Apanga et al., 2014; Munishi, 2022). Vendors often lack proper food safety education, leading to unsafe handling practices (Samapundo et al., 2015; Noor, 2016).

Gumede (2024) emphasizes the need for awareness campaigns and resource support to improve sustainability literacy. Without targeted educational interventions, vendors remain unaware of environmentally friendly practices and regulations. Infrastructure gaps further complicate adoption, with many lacking refrigerators, clean water, and proper sanitation (Farahat et al., 2015; Jaffee et al., 2019).

Although much research has focused on food safety, few studies explore vendor attitudes and nutritional awareness (Hassan & Fweja, 2020; Pinto et al., 2021). Perception shapes behavior; vendors with positive attitudes toward sustainability are more likely to adopt health-focused practices (Aggarwal et al., 2014). However, Steiler & Nyirenda (2021) note that most vendors operate informally and lack access to supportive frameworks.

On a more optimistic note, technology-driven solutions offer hope. Chatterjee et al. (2023) found that digital tools such as e-VRM can enhance efficiency and compliance with sustainability standards. Bertossi et al. (2023) and Tacardon et al. (2023) advocate for government involvement in providing training and financial support. Ultimately, cleanliness and customer satisfaction can improve not only public health but also the vendor's competitiveness.

As Vignola & Oosterveer (2022) explain, street vending involves a series of interconnected daily routines—from sourcing to selling. Nicolas (2024) warns that small enterprises in the Philippines often lag in sustainability due to resource constraints. Bridging this gap requires multi-level interventions focused on education, regulation, and financial assistance.

Methods

The researchers used a quantitative research method, specifically a descriptive design, to collect and analyze data that addressed the research questions. This approach helped them identify patterns and characteristics related to the socio-demographic profiles, awareness levels, and the challenges and opportunities in adopting

sustainability practices among small-scale food vendors in San Jose City, Nueva Ecija. The study focused on how these vendors practiced sustainability, especially in areas such as waste management, packaging, energy and water conservation, the use of sustainable ingredients, and the reduction of plastic use. Understanding their environment highlighted the practical challenges they faced and informed the recommendations.

The study population consisted of 70 small-scale food vendor owners. Using Slovin's formula, the researchers determined a sample size of 60 respondents, which ensured a manageable yet statistically reliable sample. A probability sampling technique, specifically simple random sampling, was used. A list of vendors was prepared, and random numbers were generated to select participants, ensuring that every vendor had an equal chance of inclusion and that the results were unbiased.

The researchers used a survey questionnaire to gather data on the adoption of sustainability practices among small-scale food vendors in San Jose City. The first part of the questionnaire collected socio-demographic information, including age, sex, civil status, educational background, income, and years of vending experience. The second part measured sustainability practices, including waste sorting, energy-saving measures, water conservation, and the use of sustainable packaging. Responses were rated on a 4-point scale from *"consistently practiced"* to *"unaware."* The third part identified challenges and opportunities related to sustainability, using a 4-point Likert scale ranging from *"strongly agree"* to *"strongly disagree."* The questionnaire was pre-tested and validated by experts to ensure clarity. Its internal consistency was confirmed through a reliability test, yielding a Cronbach's alpha coefficient of 0.87, indicating high reliability.

Before conducting the survey, the researchers obtained informed consent from the participants to ensure voluntary and ethical participation. The survey was administered using a printed questionnaire, giving vendors enough time to respond thoughtfully. Once all responses were collected, the data were reviewed for accuracy and completeness. The responses were then analyzed using statistical software and summarized with descriptive statistics. The results provided a clear view of current sustainability practices among small food vendors and helped identify areas for improvement and further study.

The researchers applied a descriptive analysis using survey data

to examine how small-scale food vendors adopted sustainability practices. The data collected through structured questionnaires were analyzed using basic statistical tools, including frequency counts, percentages, mean, and standard deviation. This helped reveal common patterns, levels of awareness, and the challenges vendors experienced, effectively supporting the research goals.

The study followed ethical guidelines by obtaining informed consent from all participants. The purpose of the study was clearly explained, and respondents participated voluntarily with the option to withdraw at any time without consequences. Personal data were kept confidential and accessible only to authorized researchers. Electronic data were protected using encryption, and an ethical review ensured that the study respected participants' rights and privacy. All data were securely disposed of after the study concluded.

Results and Discussion

Socio-Demographic Profile of Respondents

Table 1 summarizes the frequency and percentage of the respondents' socio-demographic profile, including Age, Sex, Civil Status, Highest Educational Attainment, and Average Monthly Income. The number of years as a vendor is also shown in the table.

Age.

Table 1 showed that the majority of respondents (63%) were aged 31 and above, indicating that mature individuals primarily undertook small-scale food vending in San Jose City. The next largest age group was 26–31 years old, comprising 23% of respondents. The least represented age group was 20–25, with only 8 participants out of 60. Notably, there were no respondents under 20. Under Republic Act No. 7658, individuals aged 15 and above may work in non-hazardous environments under specific conditions. However, the absence of respondents under 20 years suggested that younger individuals may either not be engaged in vending or may have been excluded due to legal or educational considerations.

Sex.

A majority of respondents were female (56.73%), while male vendors accounted for 43.30%. This gender distribution supported findings by Perez et al. (2019) and the Women in Informal Employment:

Globalizing and Organizing (WIEGO, 2014) report, which noted that women dominate the street vending sector in Asia and Latin America. Street vending continues to be a key form of informal employment for women, particularly in developing countries where gendered labor dynamics influence occupational choices.

Civil Status.

Regarding civil status, the data showed a nearly even split: 51.70% of respondents were married, while 47.50% were single. This balance suggested that food vending served as a viable income source regardless of marital status and may reflect the accessibility of this livelihood option for individuals at different stages of personal life.

Highest Educational Attainment.

The respondents' educational backgrounds indicated that 63.30% had completed high school, making it the most common level of education. Few respondents had attained a bachelor's degree, and none held a master's or doctoral degree. According to the 2020 survey by the Philippine Statistics Authority, 38.7% of the unemployed population consisted of high school graduates and college undergraduates. This trend highlighted that individuals with limited academic qualifications often resorted to self-employment and small-scale business ventures, such as food vending, to sustain their livelihoods.

Average Monthly Income.

A substantial portion of the respondents (65%) reported earning less than PHP 10,000 per month. Only 12 respondents earned between PHP 10,001 and PHP 15,000, while just nine individuals reported monthly earnings exceeding PHP 15,001. These figures aligned with Solidum (2023), which found that vendors with lower daily income faced more pronounced challenges in governance, legal compliance, and workplace conditions. Among the vendors surveyed in Solidum's study, 36.66% earned PHP 500 or less per day. The similarity in income patterns highlighted the persistent economic struggles faced by many vendors in San Jose City.

Number of Years as a Vendor.

Lastly, 63.30% of respondents had been operating their vending businesses for 5 years or less, suggesting that many had relatively recent entry into the sector. Meanwhile, 21.70% had been in the industry for 6–10 years, and only 15% had been in the industry for over a decade. This distribution indicated a mix of both emerging and more established vendors, with newer participants potentially driven by limited employment opportunities or the flexibility offered by informal trade.

Table 1. Socio-Demographic Profile of the Respondents

SOCIO-DEMOGRAPHIC PROFILE	FREQUENCY (N=60)	PERCENTAGE
Age		
20-25	8	13%
26-31	14	23%
31 Above	38	63%
Sex		
Female	34	56.70%
Male	26	43.30%
Civil Status		
Married	31	51.70%
Single	29	47.50%
Highest Educational Attainment		
Bachelor's Degree	10	16.70%
High School Graduate	38	63.30%
Elementary Graduate	12	20.00%
Average Monthly Income		
Below PHP 10,000	39	65.00%
PHP 10,001-15,000	12	20.00%
PHP 15,001 above	9	15.00%
No. of years as a vendor		
0-5 year/s	38	63.30%
6-10 years	13	21.70%
11 years above	9	15.00%

Level of Awareness in Sustainability Practices

Table 2 assesses small-scale food vendors' awareness of sustainability practices in San Jose City. Six sustainability practices are presented in this table, along with their weighted mean, standard deviation, and interpretations.

Table 2. Level of Awareness in Sustainability Practices

SUSTAINABILITY PRACTICES	MEAN	SD	INTERPRETATION
1. Waste Management	3.60	0.669	Consistently Practiced
2. Packaging Practices	3.63	0.486	Consistently Practiced
3. Energy Conservation	3.65	0.515	Consistently Practiced
4. Water Conservation	3.67	0.510	Consistently Practiced
5. Use of Sustainable Ingredients	3.47	0.596	Consistently Practiced
6. Reduced Plastic Use	3.40	0.827	Consistently Practiced
Total	3.57	1.499	**Consistently Practiced**

Legend: 3.25-4.00-Consistently practiced 2.50-3.24-Occasionally practiced

1.75-2.49-Aware but not practiced 1.00-1.74-Unaware

Opportunities and Challenges for Adopting Sustainability Practices

The results of the third part of the questionnaire are shown in Table 3. The table addresses nine (9) statements on the challenges and opportunities small-scale food vendors face in adopting sustainable practices in their businesses.

The table reveals that Water Conservation holds the highest mean score of 3.67, indicating that this sustainable practice is the most

consistently adopted among small-scale vendors in San Jose City. This high mean suggests that vendors recognize the importance of conserving water in their daily operations, driven by both cost-saving measures and increased environmental awareness.

In contrast, statement 6, on Reduced Plastic Use, exhibits the highest standard deviation of 0.827, indicating a wide range of responses. This implies that vendors demonstrate differing levels of commitment or capacity to reduce plastic consumption. Factors contributing to this disparity may include access to alternatives, cost considerations, or differing perceptions of the practice's feasibility.

Notably, Reduced Plastic Use also recorded the lowest mean score of 3.40, highlighting it as the least frequently practiced among the sustainability measures evaluated. Despite growing global attention to plastic pollution, this result suggests that more targeted education, incentives, or policy support may be needed to encourage uniform adoption of plastic-reduction strategies among vendors.

On the other hand, statement 2, which relates to Packaging Practices, yielded the lowest standard deviation of 0.486, indicating a relatively consistent application of sustainable packaging methods across the respondent group. This consistency may reflect shared sourcing practices, community norms, or existing regulations influencing packaging behavior.

The overall mean score of 3.57 falls within the *"Consistently Practiced"* range based on the verbal interpretation scale. This suggests a generally high level of awareness and adoption of key sustainability practices—including Waste Management, Packaging Practices, Energy Conservation, Water Conservation, Use of Sustainable Ingredients, and, to a lesser extent, Reduced Plastic Use. The data underscores the vendors' proactive engagement in environmentally responsible practices, though it also points to specific areas, such as plastic reduction, that require greater support and attention.

This finding is consistent with the study by Santos et al. (2024) on the environmental responsibility of micro-food business owners in Sapang Palay, Bulacan. Their research demonstrated that business owners have effectively adopted practices such as water and energy conservation, waste management, and other sustainable initiatives. However, the continued prevalence of plastic products in the industry is due to their lower production costs, posing a challenge to the full implementation of sustainable practices.

The data from Statements 1 to 9 reveal that all recorded mean scores fall within the range of 3.25 to 4.00, indicating strong agreement among small-scale vendors in San Jose City regarding various sustainability-related perceptions. This overall trend underscores a shared understanding of the benefits and challenges of sustainable business practices.

Among the statements, Statement 9 had the highest mean score of 3.77 and the lowest standard deviation of 0.427. This statement emphasizes the belief that sustainable practices—such as energy conservation and effective waste management—can reduce operational costs. The high mean and low variability suggest a widespread consensus among vendors that sustainability is not only environmentally responsible but also economically advantageous. The data implies that many vendors view sustainability as a strategic investment, potentially enhancing profitability through long-term cost savings.

On the other hand, Statement 1, while still within the strong agreement range, recorded the lowest mean score of 3.63 and the highest standard deviation of 0.551. This item concerns the initial cost of eco-friendly packaging, which is perceived as a challenge for implementation. The greater spread in responses suggests that vendor perspectives vary depending on factors such as available capital, supplier access, and familiarity with sustainable materials. While some respondents acknowledge the value of investing in eco-friendly packaging, others remain hesitant due to financial constraints and perceived lack of immediate returns.

The overall mean of 3.69 further reinforces the observation that vendors generally support sustainability initiatives. It reflects a balanced understanding that, while sustainable practices can entail upfront costs or logistical challenges, they also offer opportunities to reduce costs, enhance brand, and improve long-term operational efficiency.

These sentiments are reflected in a study conducted in Kidapawan City on consumer purchase intentions towards eco-friendly packaging, which found that willingness to pay, product quality, and awareness of eco-friendly packaging were key factors influencing purchasing decisions (Garcia & Campos, 2022). This suggests that while sustainable practices are generally seen as financially beneficial in the long run, vendors may perceive the initial costs and efforts involved as obstacles. Therefore, further investment in education, support, and financial incentives may be needed to ease the adoption of sustainable practices, especially in small-scale businesses.

Table 4. Opportunities and Challenges for Adopting Sustainable Practices

STATEMENT	MEAN	SD	INTERPRETATION
1.It is easy to invest in eco-friendly packaging due to its lower initial costs.	3.63	0.551	Strongly Agree
2. Incorporating sustainable practices could help me attract more environmentally conscious customers.	3.65	0.515	Strongly Agree
3. Access to affordable, sustainable materials is a key factor in adopting greener practices in my business.	3.70	0.497	Strongly Agree
4. I have the opportunity to improve my business image by promoting sustainability in my operations.	3.68	0.469	Strongly Agree
5.It is easier to properly segregate waste due to the abundance of resources for waste management.	3.72	0.490	Strongly Agree
6. I am interested in learning more about sustainable sourcing and how it can benefit my	3.72	0.454	Strongly Agree

business in the long run.			
7. The local community's increasing awareness of environmental issues could support my efforts to adopt sustainable practices.	3.68	0.469	Strongly Agree
8. I see opportunities to collaborate with other local organizations to share knowledge on sustainability.	3.68	0.469	Strongly Agree
9. I see potential to reduce my operational costs by adopting sustainable practices such as energy conservation and waste reduction.	3.77	0.427	Strongly Agree
Grand Mean	3.69	1.45	**Strongly Agree**

Legend: 3.25-4.00-Strongly Agree 2.50-3.24-Agree

1.75-2.49-Disagree 1.00-1.74-Strongly Disagree

Conclusions

The following conclusions summarize the study's key findings on the adoption of sustainability practices among small-scale food vendors in San Jose City. Most vendors are middle-aged with only a high school education, which affects their adoption of sustainable practices, but their long experience in the business shows resilience. In addition, vendors generally understand key sustainability concepts and apply some practices daily, but inconsistencies—especially in plastic use—highlight areas needing improvement. Lastly, vendors see

benefits, such as reduced costs and improved public image, from adopting eco-friendly practices, but face barriers, including high packaging costs, limited resources, and poor infrastructure.

Recommendations

The following recommendations are proposed to enhance the adoption of sustainable practices among small-scale food vendors in San Jose City based on the study's findings. Local governments should provide training and tools to help vendors implement proper waste management and maintain cleanliness in public vending areas. To encourage sustainable packaging, authorities should offer financial incentives and run awareness campaigns that help vendors shift from plastic to eco-friendly alternatives. Moreover, training and modest financial support should be provided to vendors to encourage them to adopt energy-efficient cooking practices and water-saving measures. The vendors are encouraged to use locally sourced, seasonal, and sustainably grown ingredients to promote food security and reduce environmental impact. Further, vendors should transition from disposable plastics to reusable or biodegradable alternatives to reduce pollution and attract eco-conscious consumers. Lastly, future researchers should examine how sustainable practices affect vendor profitability and explore additional barriers to their adoption.

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