

Sustainable Green Practices of Coffee Businesses in Naga City

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ABSTRACT

This study investigated the adoption of sustainable green practices among coffee businesses in Naga City, Philippines. It identified practices in green marketing, product sourcing, and waste disposal; analyzed customer awareness of sustainable practices and eco-friendly product offerings; examined implementation challenges across business operations, customer perception, and environmental outcomes; and developed a framework to support informed adoption. A mixed-methods design was employed, combining quantitative survey data and qualitative insights from open-ended responses. Using purposive sampling, 100 respondents were selected 50 coffee shop owners or managers and 50 customers to ensure representation across operational profiles and customer perspectives.

Findings revealed that coffee businesses highly practiced sustainable green across all three dimensions, with waste disposal being the most consistently implemented, followed by product sourcing and green marketing. Customer awareness of eco-friendly product offerings was higher than awareness of broader sustainability practices, with overall awareness rated as high. Implementation challenges were significant across all dimensions, with business operations presenting the most substantial barriers, followed by environmental outcomes and customer perception. Thematic analysis uncovered persistent confusion about certification processes, high costs of sustainable materials, limited supplier access, unfamiliarity with sustainability terminology, and strong demand for clearer educational resources.

In response, the B.R.E.W. Guide — Business Responsibility for Environmental Wellness: Brewing Sustainability in Every Cup — was developed to address identified knowledge gaps. The study concluded that long-term sustainability adoption requires strategic integration, clearer communication, enhanced customer awareness, and targeted capacity-building, offering practical guidance for coffee shop owners, policymakers, and sustainability stakeholders.

Keywords: sustainable green practices, coffee shop operations, eco-friendly practices, waste management, customer environmental awareness, green business practices, sustainability framework

In recent years, sustainability has become a critical concern for businesses as environmental challenges such as climate change, waste generation, and resource depletion continue to intensify. These challenges have increased pressure on organizations across industries to adopt responsible practices that reduce environmental impacts while maintaining operational efficiency and profitability. This research aligns with the global call for sustainable urban development under the United Nations Sustainable Development Goal 11, as it promotes a greener and more resilient urban future, envisions cities that are inclusive, safe, resilient, and environmentally responsible (United Nations, 2023). Stakeholders, including consumers, governments, and investors, now expect businesses to demonstrate environmental accountability as part of their core operations.

Focusing on the local setting of Naga City, coffee businesses have become an integral part of the city's growing urban economy and social landscape. The rise of coffee shops in Naga City reflects changing consumer preferences, increased entrepreneurial activity, and a vibrant café culture. While some establishments have begun implementing eco-friendly initiatives such as biodegradable packaging, waste segregation, and support for local suppliers, these efforts vary widely in scope and consistency. Existing local studies suggest that sustainability practices among small businesses are often influenced by management capacity, financial constraints, and the

perceived awareness of customers (Santos & Ramirez, 2022). However, there is a notable lack of systematic research that examines sustainable green management practices in coffee businesses within the city and how these practices are perceived by customers.

This study is motivated by the growing awareness that sustainable green management is not only essential for protecting the environment but also crucial for the long-term success of businesses, especially within the fast-growing coffee industry. As cities like Naga continue to develop, the rise of coffee shops mirrors changing lifestyles and a shift toward more socially and environmentally conscious consumer choices. Despite some local efforts to adopt eco-friendly practices, there remains limited understanding of how thoroughly these practices are implemented and perceived by customers. The timeliness of this research lies in its focus on capturing these dynamics at a moment when sustainability is becoming a priority not just globally but in local communities as well. By exploring sustainable management within coffee businesses in Naga City, this study seeks to fill a critical gap in knowledge that can help business owners make informed decisions, assist policymakers in crafting effective support programs, and contribute to the broader conversation on sustainable urban development. Ultimately, the findings of this research will provide meaningful insights to encourage greener business practices that benefit the environment, satisfy evolving consumer expectations, and support the city's vision for a more resilient and responsible urban future.

Ultimately, this study aligns with the global call for sustainable urban development under the United Nations Sustainable Development Goal 11, which envisions cities that are inclusive, safe, resilient, and environmentally responsible (United Nations, 2023). By examining how coffee businesses in Naga City integrate green management into their operations—reducing waste, conserving resources, and contributing to local environmental wellbeing—this research offers grounded insights into how small enterprises can support more sustainable cities and communities. In doing so, it contributes to local evidence that can guide municipal policies, business support programs, and community engagement efforts aimed at building a greener and more resilient urban future.

Research Objectives

This study aimed to explore the Sustainable Green Practices of Coffee Businesses in Naga City, Philippines. Specifically, sought to answers to the following objectives: to identify the sustainable green practices adopted by coffee businesses in Naga City in terms of green marketing, product sourcing, and waste disposal, to analyze the level of awareness on sustainable green practices and eco-friendly product offerings among coffee businesses as perceived by customers, to identify the challenges faced by coffee shop owners in the implementation of green practices along business operations, customer perception, and environmental outcomes, to develop a framework for the sustainable green practices of coffee businesses in Naga City.

Scope and Delimitation

This study examines sustainable green practices in coffee businesses, focusing on key areas such as green marketing, sustainable sourcing, and waste disposal. It seeks to understand how these practices are adopted and perceived within the context of Naga City's expanding café culture and active environmental initiatives. The motivation for this research stems from the city's growing coffee industry and strong commitment to sustainability, making it a fitting setting to explore how local businesses respond to environmental challenges.

Theoretical/Conceptual Framework

The present study is anchored on three complementary theories the Triple Bottom Line (TBL) Framework, Stakeholder Theory, and the Theory of Planned Behavior (TPB) which collectively guide the analysis of sustainable green management practices among coffee businesses in Naga City. These theories provide a multidimensional understanding of how businesses make sustainability-related decisions, how stakeholders influence these decisions, and how attitudes and perceived control shape behavioral intentions. Through their integration, the study develops a comprehensive lens that aligns with the research objectives in examining practices, awareness, perceptions, and framework development.

METHODOLOGY

The research methodology used in this study. It covered the research design, methods and procedures, respondents of the study, data analysis techniques, and ethical considerations.

Research Design

This study utilized a mixed-methods research design that combined both quantitative and qualitative approaches. The mixed-methods approach provided a more comprehensive perspective by integrating diverse forms of data, thereby allowing for deeper insights into complex phenomena (Dovetail, 2023; Harvard Catalyst, 2022). Qualitative research offered an in-depth understanding of participants' behaviors, motivations, and decision-making processes, while quantitative research enabled the systematic collection and analysis of numerical data to identify patterns, examine relationships, and quantify key variables (Loyola Marymount University, n.d.; Voxco, 2024).

Respondents/Participants of the Study

This study focuses on coffee shops operating within Naga City, Camarines Sur, a growing urban center in the Bicol Region recognized for its flourishing coffee culture. The respondents of the study consist of 50 coffee shop owners or managers and 50 customers. Only coffee shops that have been in operation for at least three years are included to ensure that respondents possess sufficient experience and familiarity with sustainability practices in their business operations.

Purposive sampling is employed to select the participants, with a total of 100 respondents considered adequate to achieve data saturation. The inclusion criteria are as follows: (1) the coffee shop must be located within Naga City, Camarines Sur; (2) the coffee shop must have been operational for a minimum of three years; (3) the owner, manager, and customers must be willing to participate in the study; and (4) the coffee shop must be engaged in at least one sustainability or environmentally responsible practice. These criteria ensure a comprehensive and reliable understanding of sustainability implementation across various operational levels of local coffee businesses.

Data Gathering Tools

This study employed both quantitative and qualitative methods of data analysis. For the quantitative data, descriptive statistics such as frequency, percentage, weighted mean, and ranking were used to analyze the responses gathered from the survey. The frequency and percentage determined the distribution of responses regarding the profile of coffee shop owners/managers and customers, while weighted mean was used to analyze all Likert-scale items in the study. This included measuring the level of adoption of sustainable green management practices in terms of green marketing, product sourcing, and waste disposal. The weighted mean likewise measured the level of customer awareness regarding sustainable green practices and eco-friendly product offerings, as well as the degree to which challenges in business operations, customer perception, and environmental outcomes were experienced by the respondents. Ranking was used to identify which specific practices, awareness indicators, or challenges received the highest and lowest ratings among respondents, allowing for prioritization and comparison across dimensions.

Data Analysis Techniques

Qualitative data from the open-ended responses were analyzed through thematic analysis. Responses were coded according to the research objectives to identify recurring themes, particularly those related to challenges and confusion in implementing green management practices, information needs for better green management understanding, and factors that respondents believed would encourage stronger adoption in the future. This combination of quantitative and qualitative analysis provided both measurable patterns and deeper insights, forming a strong basis for the development of the B.R.E.W. Guide (Business Responsibility for Environmental Wellness) - Brewing Sustainability in Every Cup, tailored to the needs of coffee businesses in Naga City.

Ethical Considerations

This study adhered to high ethical research standards. Participation was entirely voluntary, and all respondents were provided with a clear explanation of the study's purpose, procedures, and their rights prior to data collection. Informed consent was obtained from all participants, ensuring they understood their participation was optional and that they could withdraw at any time without penalty. Confidentiality and anonymity were strictly maintained. Survey responses and interview transcripts excluded personally identifiable information, and all data were securely stored and used solely for academic purposes. Only the researcher had access to the raw data, and findings were reported in aggregate form to protect participant identities. Special care was taken to respect participants' privacy and comfort, particularly when discussing sensitive information, such as financial matters. All audio recordings, obtained with prior consent, were securely stored and deleted after transcription and analysis. The researcher ensured adherence to academic integrity by properly citing all sources using APA 7th edition guidelines. Plagiarism, data fabrication, or misrepresentation of findings was strictly avoided. The study was conducted with full respect for the dignity, rights, and welfare of all participants, guided by ethical principles throughout the research process—from planning and data collection to analysis and dissemination of results. While AI tools were occasionally used to assist in paraphrasing and improving clarity, all research decisions, analyses, and interpretations remained the sole responsibility of the researcher.

RESULTS AND DISCUSSION

The results, analysis, and interpretation of data gathered from the survey questionnaires and interviews conducted among coffee shop owners, managers, and customers in Naga City. The findings were presented in tabular form and discussed using appropriate statistical tools, followed by thematic analysis of open-ended responses to provide deeper insights into Sustainable green management adoption and related challenges.

Sustainable Green Practices adopted by Coffee businesses in Naga City

The study found that, it is recommended that coffee businesses in Naga City strengthen the strategic integration of green marketing by gradually embedding sustainability goals into their overall business plans rather than limiting them to promotional activities. Business owners may begin by setting clear and attainable environmental objectives, such as incorporating sustainability statements in their mission and aligning marketing campaigns with measurable green practices. This approach allows sustainability to become part of long-term decision-making while remaining practical for small and medium-sized enterprises. To address the moderate adoption of eco-labels and sustainability certifications, coffee businesses are encouraged to gradually adopt recognized eco-labeling practices through attainable steps. Initial actions may include displaying locally recognized environmental compliance certificates or participating in city-recognized green business programs before pursuing formal third-party certifications. In this regard, partnership with the Local Government Unit (LGU) of Naga City, particularly through the City Environment and Natural Resources Office (CENRO) and the City Trade or Business Permits Office, is strongly recommended. The LGU may provide technical guidance, accreditation support, and simplified compliance procedures to help coffee businesses adopt eco-labels without incurring excessive costs. Furthermore, coffee businesses may improve the consistency of green messaging on product packaging by transitioning to cost-effective and sustainable packaging alternatives, such as recyclable labels and minimal packaging designs.

Level of awareness on sustainable green practices and eco-friendly product offerings as perceived by customers in Naga City

The findings suggest that customers tend to associate sustainability more strongly with visible and marketable elements such as eco-friendly cups, packaging, or ethically sourced products, rather than with internal operational practices such as energy conservation, waste management, or water efficiency. This indicates that while sustainability awareness is present, it is unevenly distributed across different dimensions, reflecting partial understanding rather than comprehensive knowledge of sustainable business practices. This further implies the need for coffee businesses to improve communication and education regarding their internal sustainability efforts. By highlighting these practices, businesses can help customers develop a more holistic understanding of environmental responsibility in coffee shop operations.

Challenges faced by Coffee Shop in implementation of Green Practices in Naga City

The findings highlight that coffee shops in Naga City confront multifaceted challenges when attempting to implement sustainable green management. Operational challenges emerge as the most pressing, indicating that internal systems, resource constraints, and process adaptations require significant attention and investment. At the same time, the notable challenges in environmental outcomes suggest that even when sustainable practices are in place, achieving measurable environmental benefits is difficult, likely due to barriers such as inadequate infrastructure, lack of technical expertise, or insufficient regulatory support. Customer perception challenges further complicate the sustainability landscape, implying that despite internal efforts, coffee shops must also address consumer awareness, expectations, and behavior to ensure the success of green initiatives. This interplay between operational capacity, environmental performance, and customer engagement underscores the need for a holistic approach to sustainability that addresses all these factors in an integrated manner.

Sustainable Green Practices Framework Guide for Coffee Businesses in Naga City

The researcher developed the B.R.E.W Framework as a guide for the Coffee Businesses in Naga city.

The Output of the study is the B.R.E.W. Guide (Business Responsibility for Environmental Wellness), referred to as "Brewing Sustainability in Every Cup," developed to support the informed adoption of sustainable green management practices among coffee businesses. The guide served as a practical educational material that translates the study's empirical findings into clear, accessible, and actionable information that coffee shop owners can easily understand and apply in real business situations.

The guide is structured into thematic sections that directly respond to the adoption patterns, influencing factors, and barriers identified in the quantitative and qualitative findings. The sections included: (1) an introduction to sustainable green management and its relevance for coffee businesses; (2) step-by-step pathways to obtaining relevant eco-certifications such as fair trade, organic, and carbon neutral designations; (3) guidance on selecting and evaluating sustainable suppliers, including a curated directory of verified local and regional suppliers; (4) practical waste management protocols covering segregation systems, food waste reduction, plastic alternatives, and recyclable packaging implementation; (5) green marketing strategies for effectively communicating sustainability efforts through signage, social media, packaging, and staff interactions; (6) cost-benefit analysis tools and financial planning guidance for sustainability investments; (7) energy efficiency recommendations including LED lighting adoption and partnerships with reliable suppliers for uniformity and consistency; (8) customer and staff education materials such as simple posters and signs; (9) monitoring and assessment tools for regular evaluation and continuous improvement; and (10) common implementation mistakes to avoid based on challenges identified in the study.

Each section of the guide was designed to address specific gaps revealed by the study. For instance, the emphasis on certification pathways and plain-language explanations responded to the findings that confusion about eco-certification processes and sustainability terminology limited formal adoption. The inclusion of the sustainable supplier directory reflects supply chain limitations expressed by respondents. The focus on cost-benefit analysis tools addresses the finding that uncertainty about financial returns was a major barrier to sustainability investments. Likewise, the green marketing strategies section aligned with the moderate adoption of strategic green marketing and the need to improve customer awareness and engagement. The addition of energy efficiency recommendations, educational materials, and monitoring tools addresses the need for cost-effective solutions, visible communication, and consistent implementation.

Rather than focusing on a single sustainability standard, the guide adopted a comprehensive and function-based approach, consistent with the study's analytical framework covering green marketing, product sourcing, and waste disposal. This allowed the guide to remain relevant across different business sizes and adaptable to future changes in sustainability standards. The use of simplified explanations and a conversational communication style further ensured that the guide is appropriate for community-level orientations, Negosyo Center seminars, and other business development activities.

Overall, the B.R.E.W. Guide represented a concrete application of the Green Management Awareness

Framework, transforming research insights into a usable educational tool. It was designed not only for direct use by coffee shop owners but also for adoption by partner institutions such as the Department of Trade and Industry (DTI), local government units, business associations, and environmental organizations as part of their entrepreneurship development and sustainability promotion programs.

Limitations of the Study

As for the delimitations of this study, the focus is limited to coffee shops operating within Naga City, excluding cafés from neighboring municipalities to maintain consistency in local governance, regulatory frameworks, and market conditions. The research does not include suppliers, farmers, or other upstream actors in the coffee value chain, as their activities fall outside the scope of in-store sustainability practices under review. Furthermore, the study does not incorporate quantitative environmental measurements such as carbon footprint calculations or exact waste volume assessments. Instead, it emphasizes the lived experiences, perceptions, and operational realities of coffee businesses and their customers, recognizing that these qualitative insights are crucial for understanding the practical implementation and challenges of sustainable green management within the urban Philippine setting.

CONCLUSIONS

This section summarizes the conclusions of the findings from the data gathered.

1. Coffee businesses in Naga City adopt green marketing practices selectively, with a stronger emphasis on promotional and communication-based initiatives than on formal structural sustainability mechanisms. Environmental messaging is perceived as more accessible and cost-effective compared to pursuing certifications or redesigning packaging. Green marketing is moderately integrated into overall business strategy, with sustainability efforts implemented primarily at the operational or tactical level rather than as a core strategic priority. Local supplier prioritization and long-term partnerships are very highly adopted, reflecting the value businesses place on reliability, accessibility, and supply consistency. Environmentally responsible supplier selection is only moderately adopted, as practical factors such as price, availability, and supplier capacity continue to outweigh sustainability criteria in procurement decisions. Product sourcing practices are guided primarily by operational and financial feasibility, with environmental responsibility adopted only when it aligns with business continuity. Waste segregation and compliant disposal methods are very highly adopted, reflecting the influence of local waste management policies and the necessity of maintaining regulatory compliance in food service operations. Reducing plastic use and shifting to recyclable packaging receive comparatively lower emphasis, as cost considerations, supplier availability, and customer preferences affect the pace of adoption.

2. Customers in Naga City coffee shops demonstrate moderate awareness of sustainable green practices, indicating a communication gap rather than a practice gap. Awareness is higher for tangible and observable initiatives such as visible waste segregation bins compared to less prominent efforts like reusable container incentives, as customer recognition is closely linked to the visibility and prominence of sustainability displays within the coffee shop environment. The moderate association between coffee shops and overall sustainability further shows that existing green efforts have not yet strongly shaped customer perception of the establishments as sustainable. Strategic communication and improved practice visibility are essential to bridging the awareness gap and strengthening customer recognition of sustainability efforts. The high awareness of carbon footprint reduction measures and plastic alternatives reflects that customers not only recognize these products but also understand their environmental relevance. In contrast, the moderate awareness of certain packaging options such as compostable containers and eco-friendly cups indicates that visibility and consistent usage across coffee shops remain uneven. Awareness is shaped by both the frequency of product exposure and the clarity of sustainability information communicated to customers.

3. Coffee businesses in Naga City face significant operational barriers in implementing effective green management practices. Transitioning to eco-friendly operations entails substantial upfront costs and technical requirements that small businesses find difficult to afford. Resource constraints and operational complexity limit the capacity of businesses to fully adopt green management practices despite their recognized value. Sustainability efforts are generally perceived as cost-intensive rather than revenue-generating in the short term,

making it challenging to maintain profitability alongside green initiatives. Promoting awareness of green management efforts is among the most difficult challenges, as businesses struggle to communicate sustainability initiatives in ways that capture customer attention and influence purchasing decisions. Building trust and meeting diverse customer expectations are complex, as sustainability awareness and priorities vary widely across the market. Green practices alone are insufficient to drive consumer decisions, particularly when eco-friendly products are perceived as more costly or less convenient. Access to monitoring systems and ongoing institutional support is necessary for continuous improvement and long-term effectiveness of green management practices.

4. Coffee businesses in Naga City require clearer, more accessible, and more practical guidance to effectively implement and communicate sustainable green management practices. Operational sustainability practices such as waste disposal and local sourcing are highly adopted, while strategic elements such as green marketing integration, formal certifications, and comprehensive customer engagement remain underdeveloped. Knowledge gaps, resource constraints, and communication challenges contribute to these limitations. Customer awareness of sustainability efforts is significantly influenced by the visibility and communication of green initiatives. In response to these needs, the B.R.E.W. Guide (Business Responsibility for Environmental Wellness) — *Brewing Sustainability in Every Cup* was developed to address identified gaps by providing simplified explanations, step-by-step implementation guides, supplier directories, certification roadmaps, customer communication templates, and cost-benefit analysis tools. Structured educational and operational interventions are necessary to complement existing sustainability efforts and enable coffee businesses to transition from tactical implementation toward strategic and institutionalized green management practices.

RECOMMENDATIONS

The researcher recommended the following:

1. Coffee businesses in Naga City are encouraged to strengthen their existing environmental practices by addressing gaps in implementation. First, they should enhance green marketing by incorporating clear sustainability messages into product packaging, supported by cost-effective methods and LGU partnerships. Second, businesses should expand their local sourcing practices by integrating environmental criteria and collaborating with suppliers to adopt sustainable methods, with support from LGU-led incentives or certification programs. Lastly, coffee shops should move beyond waste segregation by focusing on waste prevention, particularly by reducing plastic straw use through alternatives, customer awareness, and LGU-supported initiatives.
2. Coffee businesses in Naga City should strengthen sustainable practices by improving customer participation and product visibility. First, they are encouraged to promote reusable cup usage by applying effective visibility and communication strategies, supported by LGU-led campaigns and materials. Second, businesses should enhance the identification of eco-friendly products through clear labeling, visual cues, and staff communication, with additional support from LGU guidelines and awareness initiatives.
3. It is recommended that coffee businesses in Naga City address key sustainability challenges by adopting a strategic and phased approach across operations, customer perception, and environmental outcomes. They should prioritize cost-effective, incremental upgrades to eco-friendly equipment while utilizing simple monitoring systems to track progress and support decision-making. At the same time, businesses should enhance the visibility and credibility of their sustainability efforts through clear communication and actively engage customers in participatory initiatives. Lastly, they should shift from waste management to waste prevention by improving operational practices to reduce waste generation, while strengthening existing recycling systems with support from LGU programs and incentives.
4. It is recommended that the B.R.E.W. Guide (Business Responsibility for Environmental Wellness) - *Brewing Sustainability in Every Cup* be utilized in local orientations, training activities, and business development programs to help coffee shop owners better understand and implement sustainable green management practices, including green marketing strategies, sustainable sourcing criteria, waste management protocols, and customer engagement techniques. The guide may be disseminated through business associations, cooperatives, Department of Trade and Industry (DTI) Negosyo Centers, local government of Naga unit

livelihood programs, and environmental organizations to improve accessibility among coffee shop owners with limited exposure to formal sustainability frameworks. Additionally, local government units may use the B.R.E.W. Guide as a reference material when developing sustainability incentive programs, environmental compliance guidelines, or green business certification schemes tailored to the local coffee shop industry. Industry associations may integrate the guide into membership orientation programs and peer learning workshops to facilitate knowledge sharing and collaborative problem-solving among business owners. Sustainability advocates and environmental organizations may utilize the guide's customer awareness campaign framework to design public education initiatives that strengthen consumer support for green businesses.

Furthermore, it is recommended that the sustainable supplier directory included in the B.R.E.W. Guide be regularly updated and expanded through collaboration between coffee shop associations, local government units, and supplier networks to ensure accuracy and continued relevance. Establishing quarterly sustainability roundtable discussions among coffee shop owners, suppliers, local government representatives, and sustainability experts may create ongoing platforms for sharing updates, addressing emerging challenges, and celebrating progress toward environmental goals.

Finally, coffee businesses are encouraged to adopt the B.R.E.W. Guide not merely as a reference document but as an operational framework that guides daily decision-making, staff training, supplier evaluation, and customer communication. By embedding the principles of "Brewing Sustainability in Every Cup" into their core business philosophy, coffee shops can achieve long-term competitive advantage, strengthen customer loyalty, contribute meaningfully to Naga City's environmental goals, and position themselves as leaders in the local sustainable business movement.

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