Journal of Tourism, Hospitality and Environment Management
JTHEM
EISSN: 0128-178X
Volume 11 Issue 45 (September 2026) PP. 310-335

JOURNAL OF TOURISM, HOSPITALITY AND ENVIRONMENT MANAGEMENT (JTHEM)
www.gaexcellence.com/jthem

GLOBAL ACADEMIC EXCELLENCE

CHALLENGES AND BEST PRACTICES OF GREEN PRACTICE IMPLEMENTATION: A CASE STUDY OF MCDONALD'S MALAYSIA

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Article Info:

Article history:
Received date: 27.07.2026
Revised date: 13.08.2026
Accepted date: 30.08.2026
Published date: 17.09.2026

To cite this document:

Ishak, L. N. A., Chik, C. T., & Hamid, R. (2026). Challenges And Best Practices Of Green Practice Implementation: A Case Study Of McDonald's Malaysia. *Journal of Tourism Hospitality and Environment Management, 11* (45), 310-335.

Abstract:

The increasing emphasis on environmental sustainability has encouraged restaurant operators to adopt green practices to minimise environmental impacts and improve operational efficiency. Despite growing awareness of sustainability issues, the implementation of green practices remains challenging due to various organisational, financial, and operational barriers. This study aims to explore the challenges encountered during the implementation of green practices and identify the best practices adopted to overcome these challenges in a Malaysian quick-service restaurant. A qualitative case study approach was employed, with data collected through semi-structured interviews with key personnel responsible for sustainability and operational management at McDonald's Malaysia. The interview data were analysed using thematic analysis. The findings revealed five major challenges affecting the implementation of green practices, namely supplier mindset and resistance, financial and investment constraints, behavioural and human factors, infrastructure limitations, and low consumer awareness. To address these challenges, the organisation adopted several best practices, including strong leadership commitment, long-term sustainability planning, automation and technology adoption, data-driven decision-making, and stakeholder collaboration. The findings indicate that successful sustainability implementation requires not only environmental commitment but also organisational support, strategic investment, technological integration, and collaboration across the broader business ecosystem. This study contributes to the growing literature on sustainable restaurant management by providing empirical

Journal of Tourism, Hospitality and Environment Management
EISSN: 0128-178X
JTHEM
Volume 11 Issue 45 (September 2026) PP. 310-335

evidence on the implementation challenges and practical solutions associated with green practices in a developing-country context. The findings offer useful insights for restaurant operators, industry stakeholders, and policymakers seeking to enhance sustainability performance within the foodservice sector. Overall, the study demonstrates that effective sustainability implementation depends on an organisation's ability to balance environmental objectives with operational and business considerations.

DOI:10.35631/JTHEM.1145019

Keyword:

Green Practices, Sustainability, Quick-Service Restaurants, Restaurant Management, Sustainable Operations.

Introduction

Restaurant operations consume substantial amounts of energy and water while generating food waste, packaging waste, and greenhouse gas emissions, making sustainability an important operational consideration (Kasim & Ismail, 2012; Madanaguli et al., 2022). To address these issues, restaurants have adopted various green practices, including sustainable sourcing, energy and water conservation, waste reduction, environmentally friendly packaging, recycling, and green technologies (Schubert et al., 2010; Namkung & Jang, 2013). Previous studies have shown that these practices contribute not only to environmental protection but also to improved operational efficiency, enhanced corporate image, higher customer satisfaction, and stronger competitive advantage (DiPietro et al., 2013; Namkung & Jang, 2013).

Sustainability has also gained increasing attention in Malaysia through national initiatives such as the Twelfth Malaysia Plan (2021–2025), the Green Technology Master Plan, and the MyHIJAU programme, which encourage organisations to adopt environmentally responsible practices. Despite these efforts, the adoption of green practices across the restaurant industry remains uneven. While several large restaurant chains have made substantial investments in sustainability initiatives, many restaurant operators continue to face challenges in integrating green practices into their daily operations. Previous studies have identified financial limitations, inadequate supporting infrastructure, supplier availability, limited awareness, and operational constraints as major barriers to implementing sustainability initiatives in the hospitality industry (Kasim & Ismail, 2012; Tan et al., 2018). Existing research has largely focused on green practices, customer perceptions, and environmental performance (Schubert et al., 2010; Namkung & Jang, 2013; Madanaguli et al., 2022). Moreover, consumers generally respond positively to restaurants that demonstrate sustainability efforts, leading to greater customer satisfaction and stronger revisit intentions (Chaturvedi et al., 2022). However,

Journal of Tourism, Hospitality and Environment Management
JTHEM
EISSN: 0128-178X
Volume 11 Issue 45 (September 2026) PP. 310-335
comparatively little attention has been given to understanding the challenges encountered during implementation and the strategies organisations employ to overcome them.

This limitation is particularly evident in developing countries, where the implementation of sustainability initiatives is often influenced by financial, infrastructural, organisational, and stakeholder-related constraints. Madanaguli et al. (2022) highlighted the need for more context-specific empirical studies that examine how sustainability is implemented in restaurants, particularly in emerging economies. As one of the largest quick-service restaurant operators in Malaysia, McDonald's Malaysia provides a valuable setting for examining the implementation of sustainability within a complex operational environment. The organisation has introduced sustainability initiatives covering sustainable sourcing, energy management, waste management, environmentally friendly packaging, and technology-enabled operations. Examining these experiences can provide practical insights for other restaurant operators seeking to implement sustainability initiatives under similar operating conditions. Therefore, this study aims to explore the challenges encountered in implementing green practices and identify the best practices adopted to address them within a Malaysian quick-service restaurant.

Literature Review

Green Practices in Restaurants

The restaurant industry has long been recognised as one of the most resource-intensive sectors due to its high consumption of energy and water and the substantial generation of food and operational waste (Wang et al., 2013). Consequently, green restaurants have emerged as an approach to reducing environmental impacts while maintaining operational efficiency. Green restaurants are generally defined as establishments that adopt environmentally responsible practices, including waste reduction, resource conservation, recycling, and energy-efficient management, to minimise their environmental footprint (Lorenzini, 1994; Gilg et al., 2005). Previous studies have identified a wide range of green practices implemented in restaurant operations, including energy and water conservation, waste reduction and recycling, sustainable sourcing, green technologies, and environmentally friendly packaging (Schubert et al., 2010; Namkung & Jang, 2013). More recent research suggests that sustainability in restaurants has evolved beyond symbolic environmental initiatives and increasingly incorporates measurable practices such as operational sustainability, food waste reduction, resource efficiency, and circular economy approaches (Hastaoglu, 2026).

The implementation of green practices has consistently been associated with both environmental and organisational benefits. Environmentally, these initiatives contribute to reducing resource consumption, lowering greenhouse gas emissions, and improving waste management. From a business perspective, green practices can enhance operational efficiency, reduce long-term operating costs, strengthen corporate image, and improve organisational competitiveness (Chou et al., 2012; DiPietro et al., 2013). Recent empirical studies further indicate that green practices contribute to operational excellence and enhance firm performance within the food and beverage industry. Consumer support also plays a significant role in encouraging the adoption of green practices. Studies have shown that consumers generally respond positively to restaurants that communicate their sustainability initiatives, resulting in higher customer satisfaction, more favourable brand attitudes, and stronger revisit intentions (Jang et al., 2011; Namkung & Jang, 2013; Shin et al., 2019; Nicolau et al., 2020). Nevertheless, the effectiveness of sustainability initiatives varies according to the type of practice implemented. Namkung and Jang (2013) found that food-related green practices, such as using organic and locally sourced ingredients, have a greater influence on consumer perceptions than operational initiatives that are less visible to customers. Similarly, Kwok et al. (2016) argued that the effectiveness of sustainability initiatives depends largely on how well they are communicated and whether consumers perceive immediate benefits. Recent research also highlights that transparent communication of sustainability efforts helps strengthen stakeholder trust and improve consumer awareness of environmental initiatives (Vota & Tettamanzi, 2026).

Challenges in Implementing Green Practices

Although the importance of sustainability is increasingly recognised in the restaurant industry, implementing green practices remains a complex and challenging process. While restaurant operators acknowledge the environmental and business benefits of sustainability, numerous barriers continue to hinder its implementation. Existing studies suggest that these challenges are multidimensional, encompassing financial, technological, organisational, regulatory, and market-related factors (Baloglu et al., 2020; Tan et al., 2019). Recent reviews further emphasise that sustainability implementation should not be viewed as a collection of isolated barriers but rather as an interconnected process in which multiple challenges influence operational sustainability, resource efficiency, and food waste management (Hastaoglu, 2026).

Financial constraints remain one of the most persistent barriers to implementing green practices. Adopting environmentally friendly operational systems and investing in sustainable technologies often require substantial financial resources. Energy-efficient equipment, renewable energy systems, waste management infrastructure, and environmentally certified products generally involve higher acquisition and maintenance costs than conventional alternatives (Chan et al., 2009; Tan et al., 2019). In addition, restaurant operators frequently face uncertainty regarding the financial returns of sustainability investments, particularly where large capital expenditures are involved, making such investments even more challenging for small- and medium-sized restaurants (Ha et al., 2020; Pradana et al., 2026). As a result, many operators prioritise short-term financial performance over long-term environmental benefits.

Technological and supply chain limitations also present significant obstacles to sustainability implementation. Successful implementation often depends on the availability of appropriate technologies, environmentally responsible suppliers, and adequate supporting infrastructure. However, in many developing countries, green technologies and sustainable materials remain relatively expensive and less accessible than conventional alternatives (Wang et al., 2013). Restaurant operators also encounter difficulties in securing a reliable supply of environmentally friendly products, including organic ingredients, biodegradable packaging materials, and sustainably sourced raw materials (Kasim & Ismail, 2012). The limited development of green supply chains therefore constrains the effective implementation of sustainability initiatives across restaurant operations.

Organisational and managerial factors further influence the successful implementation of green practices. Leadership commitment, organisational culture, and employee engagement have consistently been identified as key enablers of sustainability initiatives (Talib, 2020). Nevertheless, organisations often encounter resistance when introducing new environmental practices because these initiatives require changes to established routines and operational procedures. Furthermore, employee training and awareness programmes demand considerable time and financial investment, while high employee turnover may disrupt the continuity of sustainability initiatives (Tan et al., 2019).

Institutional and regulatory factors also affect the adoption of green practices within the restaurant industry. Previous studies have highlighted the absence of industry-specific environmental guidelines, weak regulatory enforcement, and limited government support as significant barriers to sustainability implementation (Kasim & Ismail, 2012). In many developing countries, sustainability practices remain largely voluntary, while industry standards and certification systems are still evolving. Without clear implementation frameworks and established benchmarks, restaurant operators often face uncertainty regarding the most appropriate sustainability practices to adopt.

Consumer-related challenges represent another important barrier to implementing green practices. Although environmental awareness has increased, consumer demand for green restaurants remains inconsistent across market segments. Research indicates that while many consumers express positive attitudes towards environmental sustainability, they are often unwilling to pay higher prices or significantly change their purchasing behaviour to support environmentally responsible businesses (Kasim & Ismail, 2012; Perumal & Genesan, 2017). This attitude–behaviour gap creates uncertainty for restaurant operators, who may hesitate to invest in sustainability initiatives without confidence that consumers will recognise or reward these efforts. Furthermore, many sustainability initiatives take place behind the scenes, limiting consumer awareness of the environmental value created by restaurant operations (Kwok & Huang, 2019). Recent studies further suggest that transparent communication of sustainability initiatives is essential for strengthening consumer awareness and trust, both of which are critical for translating environmental efforts into competitive advantages (Vota & Tettamanzi, 2026).

Best Practices for Green Practice Implementation

Successful implementation of green practices requires more than simply adopting green technologies or introducing environmentally friendly initiatives. The sustainability literature consistently emphasises that effective implementation depends on structured management approaches, stakeholder collaboration, organisational commitment, and continuous performance monitoring. Recent studies also suggest that sustainability should be embedded in daily operational decision-making rather than being treated as a stand-alone environmental initiative (Hastaoglu, 2026).

One widely recognised best practice is the adoption of structured environmental frameworks and sustainability guidelines. These frameworks provide restaurant operators with a systematic approach to implementing sustainability initiatives, monitoring progress, and supporting continuous improvement. The Green Restaurant Association (GRA) identifies several key operational areas for sustainability implementation, including energy conservation, water efficiency, waste reduction, sustainable food sourcing, environmentally friendly building materials, and pollution prevention (Wang et al., 2013). Similarly, environmental certification programmes such as LEED and Green Seal provide operators with recognised standards and technical guidance for implementing sustainable practices (Geerts, 2014; Molina-Azorín et al., 2015). Such frameworks also facilitate continuous improvement through regular performance measurement and benchmarking (Madanaguli et al., 2022).

Another important best practice is integrating sustainability throughout the supply chain. Green Supply Chain Management (GrSCM) emphasises the incorporation of environmental considerations into sourcing, production, distribution, and waste management activities (Wang et al., 2013). Previous studies have highlighted the importance of close collaboration with suppliers, distributors, and other stakeholders to ensure a reliable supply of environmentally responsible products and services (Tan et al., 2019). Sustainable sourcing, including the use of certified ingredients and environmentally friendly packaging, is therefore regarded as a fundamental component of sustainable supply chain management (Bonn et al., 2016).

Strong leadership and organisational commitment are equally important for the successful implementation of sustainability initiatives. Management commitment plays a critical role in establishing sustainability objectives, allocating resources, and fostering an organisational culture that supports environmental responsibility (Kasim, 2009; Talib, 2020). Likewise, employee involvement and continuous training are essential to ensure that staff understand organisational sustainability goals and possess the knowledge and skills required to implement green practices effectively (DiPietro et al., 2013; Tan et al., 2019).

In addition to internal organisational commitment, effective communication and stakeholder engagement have emerged as key enablers of sustainability implementation. Many green practices remain largely invisible to customers because they occur behind the scenes within restaurant operations (Namkung & Jang, 2013). Consequently, restaurants are encouraged to communicate their sustainability initiatives through marketing activities, sustainability reporting, and customer engagement programmes. Xu and Jeong (2019) found that communication strategies emphasising the benefits of sustainability initiatives are generally more effective than messages focusing solely on environmental attributes. Recent studies further indicate that transparent communication strengthens stakeholder trust, whereas limited communication may reduce consumers' recognition and appreciation of sustainability efforts (Vota & Tettamanzi, 2026).

Finally, data-driven decision-making and systematic performance measurement have become increasingly important in supporting continuous sustainability improvement. Recent research demonstrates that regular monitoring enables organisations to improve resource efficiency, evaluate environmental performance, and support long-term sustainability planning (Hastaoglu, 2026). Tools such as energy monitoring systems, environmental performance indicators, and Life Cycle Cost Analysis (LCCA) enable organisations to assess both the environmental and economic outcomes of sustainability initiatives, thereby supporting more informed decision-making and continuous improvement (Madanaguli et al., 2022).

Methodology

Research Design

This study was based on a qualitative case study approach to identify the challenges faced in implementing green practices and the good practices implemented to address the challenges in a Malaysian quick-service restaurant (QSR). A qualitative approach was deemed suitable, since the study aimed to understand in detail how individuals who are at the forefront of decision-making and action for sustainability understand sustainability implementation. The case study method allows the study of the phenomena in the present day of their existence and is especially useful where the boundaries of phenomena and context are not clearly defined (Yin, 2018).

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Using a case study approach can enable a detailed study of the experiences, problems and managerial responses to sustainability implementation in an organisational context.

Case Selection

To obtain information-rich cases and ease of access, McDonald's Malaysia was chosen because, in the field of sustainability and environmental management, the company has been involved in many activities. The quick service restaurant leader is one of the leading organisations in the country to practice green elements in the food value chain, the restaurant, energy, waste, sustainable sourcing and circular economy. Given the organisation's commitment to sustainability, and the scale and structured environmental programme, it seemed an appropriate setting for looking at implementation issues as well as best practice in the restaurant sector. Furthermore, sustainable commitments such as investing in renewable energy, rolling out investment in energy-efficient technologies, sustainable sourcing and waste reduction initiatives were taken into consideration for the selection of McDonald's Malaysia. These initiatives offer a prime chance to delve into the sustainability challenges faced by a large-scale restaurant group and the strategies they employ to ensure operational efficiency and business performance. Two participants were selected through purposive sampling. Both were selected by purposive sampling, following the inclusion criteria (shown in Table 1). The criteria allowed the selection of participants with knowledge/experience and decision-making power to allow for rich and relevant insights into the challenges and best practices for green practice implementation in the organisation.

Table 1: Participant Profile and Selection Criteria

Participant	Years with Organisation	Expertise	Inclusion Criteria
P1	>35 years	Supply chain and sustainability implementation	Senior managerial role Direct responsibility for sustainability implementation Involved in strategic decision-making related to sustainability.
P2	>7 years	Environmental management, energy management, sustainability implementation	

Source: Developed by the Authors.

Data Collection and Data Analysis

Semi-structured interviews were conducted with two senior managers who are directly involved in sustainability governance, operational management and environmental issues at McDonald's Malaysia to gather data. While the study had a small number of two participants, both had a high level of knowledge and responsibility for the sustainability implementation in the organisation. Qualitative case study research does not require a certain number of participants; for example, in that type of research, the number of participants is judged by the richness and relevance of their information (Yin, 2018). Participant 1 (P1) brought an understanding of sustainability implementation within the supply chain and operational functions, and Participant 2 (P2) brought an understanding of the work done in sustainability, energy management and environmental performance projects. Their complementary roles helped in achieving a complex picture of the organisation's sustainability plans, how these plans were implemented, what challenges were faced, and how decisions were made. So, these participants were regarded as suitable key informants to accomplish the objectives of the study. Semi-structured interviews were used to offer the flexibility of exploring participants' experiences whilst providing consistency in the areas of discussion. The interview protocol was divided into three different areas that included green practices adopted by the organisation, issues that were faced during implementation, and measures taken to tackle these issues. During each interview, the participants consented to the interview, and the interviews took approximately 60 to 90 minutes. The interviews were recorded and then transcribed exactly for analysis. Organisational documents, sustainability-related announcements, corporate reports and information provided on the company's official website on environmental initiatives and sustainability programmes were used to supplement the interview data to increase the context and relevance of the data to aid in the data triangulation.

Thematic analysis was used for analysing the interview data according to the six-phase approach proposed by Braun and Clarke (2006). Thematic analysis was chosen because of the flexibility it offers and because it fits well with the specific needs of the analysis of identifying patterns in the data. Analysis began with repeated reading of the interview transcripts to achieve data familiarisation. Initial codes were developed to identify meaningful parts of the data, which were then grouped into more generic codes, based on conceptual similarities. These were then clustered into key themes that indicate the challenges the enterprises faced when they were implementing green practices and the good practices, they resorted to to meet their challenges. In line with the analysis process and the research target, the emerging themes in the analysis process were constantly reviewed and enriched with the original transcripts to try to best reflect the participants' points of view and to ensure that the analysis direction was correct. The last themes served as guidelines for interpreting and presenting the findings of the study.

Trustworthiness

A number of steps were taken to improve the credibility of the study. The credibility of the study was enhanced because the participants were selected based on their position in the organisation that was responsible for implementing sustainability within the organisation, and individuals directly involved in operational decision-making. The use of verbatim quotations in the findings section further supports the authenticity and transparency of the analysis. Data were triangulated by combining interview data and organisational documents to allow key findings to be cross-checked. To maximise transferability, a detailed description of the organisational context, sustainability activities, and their experiences in implementation was given for readers to evaluate the applicability of the findings for similar settings. Descriptions of an interview protocol, coding, and creation of themes were conducted systematically to ensure dependability. A review of the emerging themes was carried out against the interview transcriptions throughout the analysis to verify the accuracy of the themes and to make sure they were consistent with both the content of the interview transcriptions and the objectives of the research. Confirmability was obtained by interpreting the information from the interview participants' accounts and justifying it with empirical evidence garnered from the participants' accounts and documents. Furthermore, interview summaries were compared with the tape recordings and transcripts to verify reliability and uniformity while analysing the interviews.

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Findings and Discussion

Ten themes were identified through thematic analysis, which formed two wider categories: implementation challenges and best practices. There was a total of five themes that were identified as challenges to the implementation of green practices and five themes identified as organisation strategies to deal with the challenges. The results of the interviews are summarised in Table 2 as themes and illustrative quotes.

Table 2: Summary of Challenges and Best Practices for Green Practice Implementation

Category	Theme	Key Finding	Representative Quotation
Challenges	Supplier Mindset and Resistance	Suppliers are reluctant to invest in sustainability because they perceive limited business value and insufficient customer demand.	*"The challenge is really our local supplier mindset… it actually takes time for us to speak to them, to help them understand the role they play. Because to them it's like, why should I invest so much for all this green initiative?"*
	Financial and Investment Constraints	Sustainability initiatives require careful financial evaluation before implementation because of substantial capital investment.	*"All those are investments that we really study, and we understand what the payback is and what is the ROI… very specific data analytics is being put into the picture before we roll out."*
	Behavioural and Human Factors	Employee behaviour and organisational discipline influence the effectiveness of sustainability implementation.	*"Behavioural changes are something that is very challenging… it is very difficult for us to train everybody… so we try to reduce the dependency on behaviour."*
	Infrastructure Limitations	Limited downstream recycling infrastructure restricts waste separation and circular economy initiatives.	*"Malaysia is not yet ready for the infrastructure… we love to do waste separation, but we can't do it alone today… there's no more downstream."*
	Low Consumer Awareness	Consumer awareness of sustainability initiatives remains limited because environmental practices are often invisible and not actively communicated to customers.	*"We ourselves have not shouted out loud about it because we feel that we are not there yet… creating awareness is where we require assistance so that customers are aware*

			that we are actually doing a lot of things."
Best Practices	Leadership Commitment	Strong top-management commitment ensures consistent implementation of sustainability initiatives.	*"Consistency is always a top-down voice… consistency is always there from the top management… ensuring that they actually execute what is actually required."*
	Long-Term Sustainability Planning	Sustainability investments are evaluated based on long-term organisational and environmental benefits.	*"Don't think about short-term profitability… long-term profitability when actually invest in something sustainable speaks for itself."*
	Automation and Technology Adoption	Automation reduces reliance on employee behaviour while improving operational consistency and energy efficiency.	*"Automation is definitely in the picture… how do I actually make things very much easier for them is by automation… so we reduce the dependency on behaviour."*
	Data-Driven Decision Making	Sustainability initiatives are supported by scientific evidence, performance monitoring, and financial analysis.	*"Everything has numbers… we go by data analytics. Everything has numbers, and we verify them… using an energy monitoring system we are able to set a baseline."*
	Stakeholder Collaboration	Collaboration with suppliers, universities, government agencies, and industry partners supports sustainability implementation.	*"We work very closely… validating them by peer reviewing, by collaborating with universities… we also extend our initiative to our suppliers as well."*

Source: Developed from Interview Findings.

Supplier Mindset and Resistance

One of the major difficulties identified that impacts the uptake of green practices in the partner companies is the mindset of suppliers and resistance. While McDonald's Malaysia has set sustainability criteria across all its supply chains, the research results indicated that some suppliers are still hesitant to embrace or do not have confidence on environmentally friendly

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EISSN: 0128-178X
Volume 11 Issue 45 (September 2026) PP. 310-335
practices due to concerns regarding cost, operational disruption, and uncertain returns on investment.

As explained by Participant 1:

"The challenge is really our local supplier mindset. It takes time for us to speak to them and help them understand the role they play. To them, it's like, 'Why should I invest so much for all these green initiatives?'"

Participant 1 further explained that many suppliers perceived sustainability initiatives as unnecessary investments because they believed customers did not demand environmentally responsible products:

"My customers don't require… I also supply to my other customer (other than McDonald's). They don't complain. The real consumer out there doesn't demand, so why should I invest?"

They show that sustainability activities are often viewed as "extra costs" and not investments in strategic activities. Suppliers frequently favour short-term financial performance and are less inclined to invest in environmentally friendly technologies, certifications or process improvements if there is not an immediate financial return on the investment. These quotations seem to reflect the perspective of suppliers on sustainability initiatives from a short-term commercial point of view, meaning that the decision to invest in sustainability initiatives is based more on short-term financial return and customers' expectations than long-term environmental or strategic benefits.

As Participant 1 noted:

"It takes time for us to make them understand the role they play in preserving the environment."

This indicates that some vendors have not yet fully appreciated the contribution they can offer to sustainability efforts, and a sustained approach to both engagement and raising awareness is necessary for sustainability efforts to be effective. The challenge is especially pronounced for local suppliers operating in a resource-constrained fashion and in an intensely competitive market. Results are in line with past studies pointing to important barriers such as financial concerns and lack of awareness about the sustainability benefits for green practice implementation. Tan et al. (2019) stated that many organisations still do not want to apply sustainable practices because they lack confidence regarding the payback period and the cost of implementing sustainable practices. Likewise, Ha et al. (2020) identified that financial risks perceived by the investors are one of the factors that may hinder investments in environmental projects, especially in the case where organisations fail to clearly visualise a long-term benefit. The results also confirmed that stakeholder readiness is key to the sustainability goals. As restaurant sustainability is not something that can be achieved within the confines of individual organisations, it is vital to have the support of suppliers across the supply chain to successfully implement these initiatives. As such, the effectiveness of sustainability programmes and the adoption of environmentally responsible practices can be curtailed by resistance from the vendors. Therefore, the implementation of sustainability cannot be considered a one-off project, but instead a project that needs to be continuously engaged in hands-on activities, supported and communicated throughout the wider supply chain ecosystem.

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Financial and Investment Constraints

Financial and investment considerations emerged as another significant challenge in adopting green practices. The results showed that several sustainability-related projects involve significant capital investments, such as renewable energy technologies and energy-efficient equipment, automation systems and green infrastructure. These investments may produce long-term environmental and economic gains, but the upfront investments can often be a big hurdle for implementation.

According to Participant 2:

"All those are investments that we really study, and we understand what the payback is and what is the ROI before reaching the market accordingly. That is why very specific data analytics is being put into the picture before we roll out."

It shows that the investments made for sustainability are critically assessed financially prior to their implementation. The organisation does not solely focus on the environmental aspects; they look at the potential return or payback of the investment and supporting data to determine the viability of the sustainability efforts.

Participant 2 further explained that investment decisions extend beyond short-term profitability and focus on long-term organisational value:

"That thinking of having long-term investment, not short-term profitability, is where the challenge is… we actually see it for the next generation to come."

This observation indicates that sustainability investments represent a significant initial investment, but the organisation believes they are more likely to be long-term investments with long-lasting environmental and operational benefits. The participant also added that sustainability initiatives are assessed for environmental significance and financial viability. Examples include energy-efficient equipment, smart HVAC technologies, solar PV systems and energy monitoring systems, which all involve a strong initial investment upfront to reap benefits over a long period. Therefore, sustainability projects are often subjected to rigorous financial evaluation processes prior to approval and implementation. The results confirm previous research, which found that financial constraints were one of the top reasons for not implementing sustainability in the restaurant sector. The cost of green technologies is considered high, which may demotivate restaurant operators to invest in environmental initiatives, according to Chan et al. (2009) and Yusof & Jamaludin (2014). In the same way, Baloglu et al. (2020) revealed that the economic viability of implementing sustainable practices is often a deciding factor for the level of implementation restaurant operators can apply, especially if the financial impact is not clear or simple to measure. Despite these challenges, the results indicated that the implementation of sustainability would not be completely hindered by financial constraints and that a long-term orientation of an organisation might be enough to overcome these challenges. McDonald's Malaysia not only considers investments for immediate costs, but also takes into account the long-term benefits and resource savings, as well as the positive environmental impact for its operations. This is a long-term strategy and a perception of sustainability and the environment as investments, not as costs and expenses. The results also showed that financial factors are not a standalone factor but are related to the organisational decision-making process. When the environmental goals can be linked to the business goals and backed up with tangible economic gains, sustainability initiatives can be more likely to be adopted. Therefore, it is important that financial benefits are clear, in order to gain organisational support and ensure the implementation of green practices within restaurant operations.

Behavioural and Human Factors

One of the most difficult fields to get into green practices within restaurant operations was behavioural and human factors. Although organisational policies and technological systems can aid a sustainability initiative, the initiative's success can be determined, in large part, by how employees – who are expected to carry out day-to-day operational tasks – act, think and feel about it. The findings showed that it may be difficult for the quick-service restaurant (QSR) setting to have consistent sustainability practices, with high employee turnover, pressure to operate efficiently and uniformity of employees' work.

As highlighted by Participant 2:

"Behavioural changes are something that is very challenging… it is very difficult for us to train everybody."

This quotation suggests the need for ongoing training and reinforcement when working towards cultivating environmentally responsible behaviours within a large employee base. As the restaurant industry is constantly evolving and staff change, it is a regular challenge for the organisations to keep employees consistently aligned to sustainability practices.

Participant 2 further explained that the organisation reduces its dependence on employee behaviour through automation:

"That's why automation is definitely in the picture… how do I actually make things very much easier for them is by automation, so we reduce the dependency on behaviour."

According to the discovery, automation systems are not about supplanting workers but reducing "behavioural variability," to ensure more consistent sustainability deployment. With technologies like sensor-based lighting and smart HVAC systems, and operational controls, the organisation can facilitate environmental performance without relying on individual behavioural compliance. Results indicate that in many instances, sustainability implementation relies on the willingness and capacity of employees to follow environmentally related procedures such as waste separation, energy-saving measures, resource-management practices and so on, as well as on operational monitoring. But it is difficult to get excellent behavioural compliance from a large staff. There is a need to train and continuously remind staff of sustainability practices for new employees and differing levels of environmental awareness can cause different practices at outlets. This is similar to other studies which have indicated that one of the biggest challenges within the implementation of hospitality sustainability is behaviour. Humans' variability in behavioural aspects was suggested by Filimonau et al. (2019) to impact environmental initiatives, thereby decreasing the consciousness and uninterruptedness of sustainability programmes. Likewise, Tan et al. (2019) found that a lack of awareness among staff, lack of training, and varying degrees of commitment among organisations are common challenges in the successful application of green practices in restaurant operations. The results also show the shortcomings of only using behavioural methods to reach sustainability goals. Employee engagement is key, but initiatives required for sustainability may be defeated by inconsistencies in the field, especially in a labour-intensive service sector. This challenge is even more relevant in quick-service restaurants, which are all about speed, standardisation and staff turnover. Therefore, the results indicate that to make behaviour change happen, organisations need to implement additional strategies to reduce reliance on behavioural change only. This encompasses the ongoing education of employees, organisational assistance, a well-defined policy on sustainability and the deployment of technological tools which can help to automate environmental tasks. This kind of solution can potentially contribute to more consistent solutions and lessen the operational risks related to sustainability implementation based on behaviour.

Infrastructure Limitations

Another factor revealed to be an obstacle for the implementation of green practices was infrastructure. Organisations can be willing to invest in sustainability initiatives and take responsible operations, depending on the availability of external supporting infrastructure. The findings revealed that limitations in waste management and recycling systems remain a major obstacle to achieving comprehensive sustainability outcomes.

As explained by Participant 2:

"Malaysia is not yet ready for the infrastructure… we love to do waste separation, but we can't do it alone today."

Participant 2 further explained that the challenge extends beyond waste separation because the supporting recycling ecosystem remains underdeveloped:

"There's no more downstream."

As these quotes suggest, organisations may be able to do all they can to separate waste from their processes, but in the end, it depends on downstream recycling and resource recovery systems being available. Environmental advantages of waste segregation can only be achieved when there is supporting infrastructure in place. It was pointed out that waste segregation practices can be implemented within restaurant operations, but a lack of downstream facilities is one of the limiting factors. However, separated waste streams are in many cases not adequately dealt with because recycling plants, collection systems and factories for the recovery of resources are too few. This can mean the benefits of segregating and recycling waste are not the hoped-for. The findings are in line with previous studies which have suggested that infrastructural shortage is one of the key constraints to sustainability implementation, especially in developing countries. Kasim and Ismail (2012) stated that the environmental efforts in the hospitality industry are often limited because there is a lack of a waste management system and a lack of environmental infrastructure. Kasim and Ismail (2012) also noted that the lack of supporting facilities and environmental services available has an effect of discouraging organisations from investing in sustainability programmes, as it is unclear whether the programmes are effective and financially sustainable. It is also found that sustainability implementation is not an 'evolving consultant responsibility' within the organisation but is affected by broader institutional and environmental conditions. Since there are several stakeholders that can initiate environmentally responsible practices in the individual organisations, achieving sustainable results can require collective effort among various players, such as government bodies, waste management companies, recycling companies and industry partners. Organisations might have issues with implementing green ideas to achieve green results in the absence of supportive infrastructure. In addition, there may be barriers in terms of infrastructure, which may hinder organisations in undertaking further sustainability initiatives. Recycling networks, circular economy systems and waste recovery might not yet exist, which negatively impacts the potential for resource recovery and environmental innovation. Therefore, green practices are not only a matter of organisational motivation, but also of preparedness of the sustainability ecosystem at large. It is evident that by taking these findings into account, coordinated efforts are required in order to achieve a sustainable restaurant industry in the long term. However, environmental infrastructure, waste management systems, and resource recovery must be improved to support the successful implementation of green practices and ensure that these have the greatest possible environmental benefit.

Low Consumer Awareness

Another challenge which impedes the implementation of green practices in restaurant operations is low consumer awareness. Environmental sustainability has come more and more into consumers' focus in recent years, but the research results indicate that many consumers are still more concerned about the products, convenience, speed of service and price than the actions taken by the restaurant operators on the path of sustainability. As a result, investments in the environment do not always get paid for or valued by customers, in some cases.

Participant 2 explained that although McDonald's Malaysia has implemented numerous sustainability initiatives, many of these efforts remain largely invisible to customers because the organisation has not actively communicated them:

"We ourselves have not shouted out loud about it because we feel that we are not there yet. There's still so much to actually do… creating awareness is where we require assistance… so that the customer is aware that we are actually doing a lot of things."

It is interesting to note that this is not only because of the lack of public interest but is also a consequence of a cautious communication attitude of the organisation towards the declaration of its sustainability performance. Consequently, many of the environmental activities remain unnoticed even though a considerable effort was made to implement them.

Participant 1 further observed that environmental considerations are often secondary to customers' immediate consumption needs:

"Malaysians are not too exposed or concerned about green… as long as I get my drink and my product, I'm okay. I don't care where the cup comes from or how it is produced."

This signifies that the restaurant operations' environmental properties are not directly mentioned as a primary factor when consumers consider ordering food from a restaurant. This means that even when sustainability efforts are integrated into real day-to-day operations, for example, energy management, waste reduction or sustainable sourcing, they can have a limited impact on customer perceptions if they are not portrayed successfully. The results suggest that although on average consumers have a positive attitude toward environmental protection, this is not necessarily reflected in their buying habits. Oftentimes, a restaurant's sustainability efforts are out of sight for their customers, whether they are part of their restaurant's front or back of house, supply chain operations, energy management systems, or waste management systems. This makes it hard for organisations to directly convince consumers about the value of the sustainability investments. The results align with previous research that has found an attitude–behaviour gap as it relates to green consumption. Perumal and Genesan (2017) presented that while consumers are more inclined to buy environmentally friendly products at a higher price, they often fail to change their buying behaviour or may not be willing to pay the premium for the same environmentally friendly products/services. In a similar way, Kwok and Huang (2019) recently revealed that the food sector fails to adequately align organisational expectations with consumers' behaviours, with customers expecting businesses to take action on sustainability. The results also suggest that there are many environmental programmes that are relatively unknown to customers. Namkung and Jang (2013) noted that operational aspects like energy conservation and waste management also do not necessarily mean as much to the consumer as do those that are clearly seen, such as sustainable food sourcing and eco-friendly packaging. As a result, restaurant owners may struggle to produce arguments on the worth of sustainability investments, particularly when customers cannot observe the restaurant's environmental actions. However, low consumer awareness does not diminish the importance of sustainability implementation. Instead, the results indicate that there is a need to more effectively communicate the programmes to boost public awareness of them and their potential benefits to the environment. The campaign can help raise awareness among consumers, boost corporate reputation, and contribute to the support of environmentally responsible actions within restaurants. The conclusions derived from this overall can be summarized that: implementing sustainability, while important to have organisational capability, is also dependent on consumer perceptions and market readiness. One of the major challenges in this regard is to overcome the disconnect between awareness and buying behaviour of restaurants to attain environmental and business goals.

Best Practices for Green Practice Implementation

Although there are a number of obstacles faced in the implementation of green practices, the results showed McDonald's Malaysia has taken some measures to make the implementation of green practices possible and to sustain the green initiatives that are implemented. These strategies are regarded as best practices, recognising the issues of financial, behavioural, operational and stakeholder-related challenges and supporting the long-term sustainability goals of the organisation.

Leadership Commitment

Strong leadership commitment emerged as a key factor in successful sustainability implementation. The results show that sustainability projects are a consequence of decisions being made with a clear organisational direction, with the backing of top management, policies and resources.

Participant 2 explained that sustainability implementation is driven by consistent commitment from top management:

"Consistency is always a top-down voice. Consistency is always there from the top management, ensuring that they actually execute what is actually required."

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This quote shows that leadership commitment is much more than declaring a sustainability commitment; it is about making it happen across any organisation. Top management establishes the organisation's accountability by giving clear direction and by reinforcing what is expected from the work with sustainability so that the work is integrated in a systematic way in day-to-day operations.

Participant 2 further emphasised that leadership also plays an important role in embedding sustainability into organisational culture:

"Behavioural changes are something that is very challenging... that's why automation is definitely in the picture."

This result indicates that leadership commitment includes not only policy decisions relating to sustainability, but also practical solutions, for instance, investments in technologies, to address challenges and to enable the pursuit of sustainability. Therefore, the finding indicates that sustainability lies in a context of organisational concerns and is not something that the organisation is doing voluntarily. The top-down approach allows for consistency in the implementation across restaurant outlets and garners organisational buy-in to the environmental goals. Leadership commitment also strengthens accountability across the organisation and helps to mobilise resources to invest in sustainability. This matches with previous studies which showed that management commitment is one of the important keys to the successful implementation of sustainability (Kasim, 2009; Talib, 2020). Leaders' roles are central to defining sustainability objectives, setting the tone within the organisation and inspiring a workforce to get involved in environmental efforts. Lack of senior management backing can make it difficult to get sustainability programmes accepted and buy-in from the organisation.

Long-Term Sustainability Planning

One other key best practice that has been unearthed in this study is that sustainability investments need a long-term perspective. Rather than evaluating environmental initiatives solely based on immediate financial returns, McDonald's Malaysia evaluates the long-term operational, environmental, and economic benefits associated with sustainability projects.

Participant 2 emphasised that sustainability investments should be viewed from a long-term rather than a short-term perspective:

"Don't think about short-term profitability. Think about long-term profitability. When you actually invest in something sustainable, it speaks for itself."

Participant 2 further explained that this long-term perspective extends beyond financial returns and reflects the organisation's responsibility towards future generations:

"That thinking of having long-term investment, not short-term profitability, is where the challenge is… we actually see it for the next generation to come."

The quotations clearly reflect the importance of sustainability investments being judged beyond just direct financial returns, but also by their long-term operating, environmental and social benefits. The long-term planning approach allows the organisation to count on investments with high upfront expenses, but that will lead to longer environmental improvement and long-term business resilience. What the results do suggest is that long-term value creation is a driver for the evaluation of sustainability investments, including solar photovoltaic installations, energy-efficient equipment and environmental technologies. This strategic approach makes it possible for the organisation to make investments which may require high startup expenditure but have a high return on investment in the long run. This finding is consistent with Baloglu et al. (2020), who argued that organisations with formal sustainability strategies are more likely to have long-term environmental goals and include sustainability in organisational planning. Planning for long-term sustainability helps organisations align their short-term financial strategies and boardroom objectives with long-term sustainability, which enhances the organisation's ability for continuous improvement and resilience.

Automation and Technology Adoption

Adoption of automation and technology was identified as a critical approach in tackling behavioural and/or operational barriers to sustainability implementation. The results showed that McDonald's Malaysia increasingly relies on automated systems to reduce dependence on employee behaviour and enhance the consistency of environmental practices.

Participant 2 explained that automation was introduced to reduce reliance on employee behaviour, which was identified as one of the greatest implementation challenges:

"Behavioural changes are very challenging… That's why automation is definitely in the picture. How do I actually make things very much easier for them is by automation, so we reduce the dependency on behaviour."

From this quotation, one concludes that automation serves as a viable approach to reduce behavioural variability and increase consistency of sustainability initiatives throughout restaurant operations. But, instead of depending on employees to conduct environmental practices properly, automated systems have the power to standardise functioning and minimise human error.

Participant 2 further explained that technological solutions enable sustainability practices to be integrated directly into restaurant operations:

"Everything has numbers… using the energy monitoring system we can set a baseline."

This finding indicates that automation goes hand-in-hand with digital monitoring solutions, which enable the organisation to measure environmental performance continuously and look for opportunities to optimise its operations. Some of them are automation systems for lights, smart HVAC systems, energy monitoring systems and Make-for-You (MFY) production model. The use of such technologies is allowing sustainability to be integrated into the actual day-to-day processes, minimising variability and risk of non-compliance. The results confirm the findings in previous studies, which indicated that applying technological systems is beneficial for improving sustainability performance by standardising processes, monitoring, and optimising resources (Buhalis & Leung, 2018). Operational systems can incorporate sustainability and drive more consistency and less dependency on behavioural compliance.

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EISSN: 0128-178X
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Data-Driven Decision Making

The results also showed that systematic data collection, performance monitoring and evidence-based evaluation guide sustainability decisions. McDonald's Malaysia does not just assume or have general sustainability targets but rather has several analytical tools available to assess the effectiveness of the initiatives.

Participant 2 explained that sustainability decisions are supported by systematic data analysis and measurable evidence before implementation:

"Everything has numbers… we go by data analytics. Everything has numbers, and we verify them before actually implementing."

At the very least, this quotation suggests that sustainability initiatives are judged based on objective performance data, not on intuition or assumption. The organisation can reduce risks of investment and provide measurable support for sustainability decisions by checking environmental and operational information before making investments.

Participant 2 further explained how environmental performance data are used to support investment decisions:

"Using the Energy Monitoring System (EMS), we can set a baseline. Based on the baseline, we know which stores are suitable for initiatives such as solar panels or other energy-saving technologies."

This finding indicates that performance monitoring can lead the organisation to find potential improvement opportunities, prioritise investments and resources, and thus improve their allocation. Sustainability efforts can be assessed using analytical tools like Energy Monitoring System (EMS) and Life Cycle Cost Analysis (LCCA), which provide a dimension to assess environmental performance as well as financial viability. These tools ensure that the organisation knows where it needs improvements, what to expect, and provide evidence to back up investment choices. This is in alignment with Madanaguli et al. (2022), who highlighted the need for performance measurement and data-driven management to facilitate the implementation of sustainability. Data-driven approaches help in making informed decisions and enable organisations to incorporate environmental considerations into strategic and operational decisions.

Stakeholder Collaboration

The collaboration of stakeholders was found to be an important best practice in support of the implementation of sustainability. Based on the results, it is found that McDonald's Malaysia is working with several external partners such as utility suppliers, waste management organisations, suppliers and academic institutions to enhance environmental performance and address challenges in implementation.

Participant 2 explained that strategic partnerships support the organisation's sustainability initiatives through specialised expertise and infrastructure:

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“We signed a contract with our local partner, which is IWK… to service almost about 300 restaurants… that grease has been converted into biogas… producing electricity.”

The quotation underlines that the organisation's partnership with others is allowing it to use operational waste for the production of sustainable energy, thus contributing towards circular economy practices while reducing environmental pollution.

Participant 2 further explained that sustainability initiatives are also extended throughout the supply chain:

"We also extend our initiative to our suppliers... so they themselves also can actually reduce their carbon footprint as well."

This result indicates that sustainability has a wider scope of implementation and the involvement of suppliers is essential for reducing environmental impacts. This cooperation contributes to a higher sustainability performance and not just in the restaurants' operations. The aforementioned results align with the literature on GSCM, which implies the need for the integration and cooperation of all stakeholders across the value chain (Tan et al., 2019; Wang et al., 2013). Many challenges in implementing sustainability measures involve various disciplines, and many organisations will need to coordinate parties for the measure to be put in place, with those that reach out to external parties better suited to surmount implementation issues and reach long-term environmental targets.

Linking Challenges and Best Practices

Results point to a close relationship between the challenges and the best practices of green practice implementation. While not a matter of stand-alone best practice, the practices that have emerged in the course of this study are seen as organisational approaches to the problems of practice. This connection offers a dynamic perspective on the implementation of sustainability and demonstrates how organisations adapt their approaches to the challenges faced by operations, financing and institutional structure. Table 3 shows the relationship between the challenges faced and the best practices that McDonald's Malaysia has adopted.

Table 3: Relationship Between Implementation Challenges and Best Practices

Implementation Challenges	Best Practices Adopted
Supplier Mindset and Resistance	Stakeholder Collaboration
Financial and Investment Constraints	Long-Term Sustainability Planning; Data-Driven Decision Making
Behavioural and Human Factors	Automation and Technology Adoption
Infrastructure Limitations	Stakeholder Collaboration
Low Consumer Awareness	Leadership Commitment; Stakeholder Collaboration

Source: Developed from Thematic Analysis of Interview Data.

Results show that supplier resistance was tackled mainly by stakeholders' collaboration and stakeholders' engagement with supply chain partners. Through close collaboration with suppliers and communicating the sustainability expectations, the organisation wanted to involve them so that they could play a bigger role in environmental work. Likewise, financial considerations were addressed by long-term sustainability planning and data-based decision-making procedures, resulting in measurable investment value for the environment based on operational and financial advantages. Automation and technology uptake were seen as ways to address behaviour and human factors. Switching to sensor-based technologies, energy monitoring systems and automating operational processes decreased the need to depend on behavioural compliance and created a consistent approach to implementation across all restaurant operations. This study shows the possibility of a technology-based solution in complementing the organisational sustainability efforts by reducing human variability. One challenge encountered was the limitations on infrastructure, which required actions outside of the internal organisation. Therefore, collaboration among stakeholders was identified as a significant strategy to involve external partners, service providers and other stakeholders participating in waste management and resource recovery activities. Similarly, low consumer awareness demonstrated that there is a need for greater leadership commitment and better communication of sustainability efforts to enhance awareness and support from the public. The results overall indicate that, to successfully implement sustainability, organisations should match strategies with implementation challenges. It also highlights that sustainability implementation works on several levels, such as organisational, supply chain, consumer and institutional levels. Therefore, to create a real change and do something valuable for sustainability, internal organisational capacity and external stakeholder support are needed. The integrated view adds to the present body of knowledge regarding sustainability aspects when a restaurant implements them and emphasises the need for a holistic approach to environmental management.

Conclusion

This study investigated the problems faced when green practices are implemented and the most used best practices to solve these problems in a Malaysian quick-service restaurant. The study is based on a qualitative case study of McDonald's Malaysia and offers empirical discussions of how sustainability is implemented in a large-scale restaurant business. Results showed that the implementation of green practices is dependent on various interrelated challenges. These challenges include supplier mindset and resistance, financial and investment constraints, behavioural and human factors, infrastructure limitations, and low consumer awareness. The results show that sustainability implementation processes cannot solely be about the adoption of environmental measures but involve organisations responding to barriers at the operational, organisational and ecosystem level. These findings also reveal that numerous sustainability issues cannot simply be resolved within a single organisation, but are influenced by institutional conditions, willingness of stakeholders and market dynamics. The study also revealed several best practices to enable successful implementation, even in the face of these challenges. Leaders' commitment was identified as to help give direction and organisational support for sustainability efforts. The planning for sustainability of the organisation allowed for accounting for and funding for long-term benefits that will continue to contribute to the environment and the operation. To be less reliant on behavioural compliance and to make things more consistent in terms of implementation, there was an attempt to use automation and technology adoption. Collaboration with stakeholders bolstered sustainability throughout the expanded supply chain and operational ecosystem, and evidence-based investment and operational decisions were made using data-driven decision-making. Theoretically, this study offers a valuable and useful addition to the literature on sustainable restaurant management by moving out of the focus on identifying green practices in restaurants into understanding the implementation process. The study offers empirical evidence of the difficulties encountered by organisations and approaches used to address difficulties, where previous studies have largely focused on sustainability outcomes and consumer perceptions. The results add to the more complex picture of sustainability operations in the restaurant business, more specifically in developing economies. The study also has several practical implications. The results emphasise the need for dedication from leadership, strategic planning, technological innovation, and stakeholder engagement for the restaurant industry in the context of sustainability. The findings highlight the importance for policymakers of developing environmental infrastructure, industry-specific sustainability guidelines, and increased multi-stakeholder cooperation to support green application in the restaurant sector. There are some caveats to be noted. First, the study considers only one case study organisation and therefore results may not necessarily be replicated in other restaurant environments. Second, results are largely from the viewpoint of top decision makers and do not necessarily reflect the experience of employees and customers or other stakeholders in sustainability implementation. The possibilities for extending this study for future research include investigating various restaurant organisations, considering the perspectives of a variety of stakeholders and examining the implementation of sustainability in restaurant sectors. Finally, the results indicate that for green practices to be implemented, it is not just about being green. Implementation of sustainability is a highly complex process requiring organisational leadership, long-term thinking, technologies and stakeholder collaboration. By understanding the challenges and best practices associated with sustainability implementation, restaurant operators can arm themselves to make significant environmental gains while maintaining operational effectiveness and long-term business sustainability.

Acknowledgements: The authors would like to express their sincere gratitude to Universiti Teknologi MARA (UiTM) for providing academic support and research facilities throughout the completion of this study. The authors also wish to thank McDonald's Malaysia and all participants who generously shared their time, experiences, and insights during the data collection process. Their contributions were invaluable in enhancing the quality and relevance of this research.

Funding Statement: No Funding.

Conflict of Interest Statement: The authors declare that there is no conflict of interest regarding the publication of this paper. All authors have contributed to this work and approved the final version of the manuscript for submission to the International Journal of Tourism, Hospitality and Environment Management (JTHEM).

Ethics Statement: This study was conducted in accordance with accepted ethical research standards. Informed consent was obtained from all participants before data collection. Participation was voluntary, and respondents were assured of confidentiality and anonymity. The data collected were used solely for academic purposes. All information provided by participants was treated confidentially and used exclusively for research purposes.

Author Contribution Statement: All authors contributed significantly to the development of this manuscript. Lily Nurainul Ashikin Ishak was responsible for the conceptualisation, methodology, data collection, data analysis, interpretation of findings, and preparation of the manuscript. Professor Dr Chemah Tamby Chik contributed to the overall supervision of the study, methodological guidance, and critical review of the manuscript. Associate Professor Dr Rasidah Hamid contributed to the literature review, manuscript refinement, critical revision, and validation of the study. All authors read and approved the final version of the manuscript before submission.

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