



ISSN: 2617-6548

URL: www.ijirss.com



Exploring the impact of environmental awareness on customer satisfaction amidst Hong Kong's single-use plastics ban

Supanee Suanin¹,  Tapsatit Gooncockord^{1*},  Jakkawat Laphet²

¹Faculty of Logistics, Burapha University, Chonburi 20131, Thailand.

²College of Aviation Tourism and Hospitality, Sripatum University, Khon Kaen 40000, Thailand.

Corresponding author: Tapsatit Gooncockord (Email: Tapsatit.go@go.buu.ac.th)

Abstract

This study investigates the influence of environmental awareness on consumer acceptance and satisfaction related to Hong Kong's phased ban on single-use plastics, which commenced in April 2024. Using a structured survey and structural equation modeling, the research examines how components such as environmental concern, attitudes, knowledge, and behavioral intention affect perceived enforcement and customer satisfaction. The findings reveal that while general concern and attitudes do not directly impact perceived enforcement, environmental knowledge and behavioral intentions significantly enhance support for and perception of the policy. Moreover, effective enforcement of the ban positively influences customer satisfaction, indicating that successful implementation can reinforce environmental values and consumer loyalty. The results underscore the importance of targeted educational campaigns and transparent communication in translating environmental awareness into supportive consumer behavior. The study provides practical insights for policymakers and businesses, emphasizing the need for collaborative strategies that combine regulatory measures with public education and operational adaptations to promote sustainable consumption and long-term environmental benefits.

Keywords: Customer satisfaction, Environmental awareness, Hong Kong, Policy Enforcement, Single-use plastics ban.

DOI: 10.53894/ijirss.v8i6.9955

Funding: This study received no specific financial support.

History: Received: 21 June 2025 / **Revised:** 18 August 2025 / **Accepted:** 23 August 2025 / **Published:** 18 September 2025

Copyright: © 2025 by the authors. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Competing Interests: The authors declare that they have no competing interests.

Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

Transparency: The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

Institutional Review Board Statement: The research was conducted in accordance with the ethical standards of the Human Research Ethics Committee of the University of the Thai Chamber of Commerce (UTCC). The study protocol received approval under certificate number UTCCEC/Exemp086/2025, Date of Approval: July 27, 2025.

Publisher: Innovative Research Publishing

1. Introduction

Hong Kong's phased ban on single-use plastics, with its first stage beginning in April 2024, represents a crucial policy initiative aimed at curbing waste from the city's prominent takeaway culture and aligning with global sustainability goals [1]. For the city's small and medium-sized enterprises (SMEs), this regulation necessitates a fundamental restructuring of their procurement, operational practices, and customer engagement strategies. Given that SMEs often operate with limited resources and less flexibility, a thorough understanding of their perspectives and the subsequent impact on consumer behavior is vital for creating a policy framework that is both environmentally effective and economically sustainable [2]. While the Hong Kong government has reported broad compliance since Phase One's launch, the transition has presented practical challenges for many businesses, including increased costs for non-plastic alternatives, uncertainty about approved substitute products, and difficulties in communicating these changes to customers [3]. These hurdles often place a disproportionate burden on smaller businesses, highlighting the need for targeted support to ensure equity and long-term viability [4].

The complexities of this transition are further compounded by a long-standing "attitude-behavior gap" among consumers. Previous studies have shown that while the public may have high environmental awareness and positive attitudes toward sustainability, these sentiments do not always translate into pro-environmental actions [5]. For example, consumers may be aware of the harms of plastic waste but still prioritize convenience and low cost [6]. Our study aims to specifically address this gap by investigating which components of environmental awareness concern, attitudes, knowledge, or behavioral intention are most effective in influencing public acceptance and perceived enforcement of the ban. We hypothesize that mere awareness is insufficient; rather, a deeper, actionable understanding of environmental issues is required to bridge this gap [7]. This research fills a critical gap by moving beyond a generalized understanding of environmental consciousness. While many studies have explored the attitude-behavior gap in voluntary contexts, few have scrutinized how different facets of awareness influence compliance with a mandatory government policy [8]. Our study argues that success hinges on a nuanced understanding of these cognitive and behavioral components. We seek to empirically determine whether passive concern and positive attitudes are sufficient drivers of policy support, or if genuine environmental knowledge and a clear behavioral intention are the true catalysts for public acceptance and satisfaction with the ban [9]. This distinction is crucial for developing effective communication strategies.

From the consumer perspective, the new policy introduces a new dimension to the concept of customer satisfaction. As businesses replace familiar plastic items with new materials, consumer satisfaction may be tested by changes in product functionality or convenience. However, our findings suggest that when the ban is effectively implemented, it can positively influence customer satisfaction by affirming consumers' pro-environmental values and perceptions of corporate social responsibility (CSR) [10]. This aligns with research indicating that consumers are increasingly willing to support businesses that demonstrate a genuine commitment to sustainability [11]. The challenge for businesses, therefore, is to manage this transition in a way that not only complies with the law but also enhances the overall customer experience.

By examining the interrelationship between consumer environmental awareness, policy enforcement, and customer satisfaction, this study contributes to a more nuanced understanding of how environmental regulations can be successfully implemented. We argue that the success of the Hong Kong plastics ban, especially as it moves into more restrictive phases, depends on converting abstract environmental awareness into concrete, satisfying consumer outcomes. Our findings provide a clear evidence base for both policymakers and private sector stakeholders, offering actionable insights for the development of sustainable business practices and socially sensitive policy frameworks [2, 12].

2. Literature Review and Hypothesis

2.1. Environment Awareness

Environmental awareness encompasses the understanding, concern, and consciousness individuals possess regarding ecological issues, their causes, and the corresponding solutions. As global attention to environmental crises intensifies, particularly regarding climate change and plastic pollution, public knowledge and sensitivity toward these issues have notably increased [13]. Scholars argue that heightened environmental awareness can significantly influence consumer attitudes, often motivating shifts in purchasing behavior, such as a preference for eco-friendly products, reduced reliance on disposables, and support for green businesses [14].

However, despite rising awareness, the well-documented "attitude behavior gap" persists, wherein pro-environmental attitudes do not always translate into environmentally responsible actions [15]. This inconsistency is particularly relevant in urban consumer settings, where convenience and cost often outweigh environmental intentions. In Hong Kong, recent surveys reveal relatively high awareness levels, especially among younger populations, regarding marine pollution and plastic waste [16]. Nonetheless, actual behavioral shifts, such as consistently bringing reusable containers or refusing plastic cutlery, remain limited [17].

Contributing factors include perceived inconvenience, lack of viable alternatives, cost concerns, and weak social reinforcement. Price-based mechanisms, including discounts for customers using reusables or surcharges on disposables, have shown potential in bridging the gap between awareness and action [18]. For SMEs, recognizing customer awareness levels becomes increasingly important, as environmentally conscious consumers may reward businesses with green credentials. At the same time, SMEs must strategize carefully to integrate sustainability without compromising operational efficiency or alienating price-sensitive segments.

2.2. Hong Kong's Single-Use Plastics Ban

In April 2024, the Hong Kong Government launched the first phase of its single-use plastics ban, targeting items such as plastic cutlery, straws, and stirrers in dine-in services [19]. This initiative forms part of a broader effort to reduce environmental degradation associated with the city's longstanding disposable culture. The policy aligns with international trends seen in the European Union, Taiwan, and Singapore, emphasizing a global shift toward sustainable consumption [20].

While the environmental rationale is compelling, the success of the ban depends not only on regulation but also on infrastructure that supports behavioral change [21-23].

Figure 1 below illustrates one such example: a clearly labeled multi-bin waste separation system for general waste, paper, cans, and plastics. This type of public waste sorting facility enhances accessibility and usability for everyday citizens, thereby reinforcing proper recycling behavior and promoting environmental responsibility.

Such systems reduce friction for consumers by making sustainable disposal easy and intuitive. As argued by Pacific [24], SMEs often face operational challenges in adapting to environmental regulations; however, public infrastructure like color-coded recycling bins can complement business efforts by encouraging environmentally responsible customer behavior. Moreover, public engagement and education are vital; without adequate communication and supportive systems, the policy may lead to customer dissatisfaction or confusion [25].

Therefore, waste separation facilities like those shown in Figure 1 are more than just bins; they are tangible representations of policy in action. They help bridge the gap between environmental intent and individual behavior, fostering a city-wide culture of accountability and ecological awareness [24, 25]. For Hong Kong's single-use plastics ban to achieve a lasting impact, such infrastructure must go hand-in-hand with regulation, public education, and business adaptation.



Figure 1.
Waste separation bins in a Hong Kong public facility.

From left to right: General Waste (brown), Paper (blue), Cans (yellow), and Plastics (green). These bins visually and functionally support the city's broader waste reduction and recycling policies.

2.3. Customer Satisfaction

Customer satisfaction refers to the extent to which a product or service meets or exceeds consumer expectations. In service-driven industries such as hospitality and food and beverage, satisfaction is influenced by a variety of tangible and intangible factors, including service efficiency, value for money, physical comfort, and emotional resonance [26]. High levels of satisfaction are positively correlated with repeat patronage, loyalty, and favorable brand perception [27].

Environmental regulation, such as the single-use plastics ban, introduces new dimensions to customer satisfaction. As businesses shift from familiar plastic items to biodegradable or reusable alternatives, consumers may reassess the value, convenience, and aesthetics of their experience. Studies show that customers’ perception of such changes is shaped not only by practical factors but also by their environmental values and the messaging around the changes [28].

When eco-friendly initiatives are clearly framed as socially responsible and environmentally necessary, consumers are more likely to view them positively even if they entail minor inconvenience or price increases.

In the context of Hong Kong, it has been found that younger, environmentally aware customers tend to support such initiatives and may even expect businesses to go further in sustainability. Conversely, more price-sensitive or less-informed customers may react negatively unless businesses offer clear justification and added value [29] (e.g., loyalty rewards or education campaigns). Therefore, SMEs must balance regulatory compliance with customer relationship management [30]. Staff training, proactive communication, and reward systems can play critical roles in preserving or even enhancing satisfaction during regulatory transitions.

The intersection of environmental policy and consumer satisfaction suggests that sustainable operations can be a value add if framed correctly and executed with customer-centric strategies. Businesses that manage this balance effectively are more likely to sustain consumer trust and remain competitive in an increasingly sustainability-driven market landscape [30].

2.4. Conceptual Framework Explanation

The literature indicates that environmental awareness, regulatory enforcement, and customer satisfaction are interrelated dimensions that collectively shape sustainable consumption behavior. Environmental awareness, comprising environmental concern, attitudes, knowledge, and behavioral intention, is widely recognized as a precursor to public support for environmental regulations and pro-environmental behaviors [3, 31].

In the context of Hong Kong, these components influence how individuals perceive and respond to the enforcement of the single-use plastics ban, a critical government intervention aimed at reducing disposable waste. Studies have shown that the public's acceptance of environmental regulations is strongly conditioned by their level of awareness and willingness to engage in sustainability-related behaviors [10].

As depicted in Figure 2, this study conceptualizes the enforcement of Hong Kong's single-use plastic ban law as a mediating variable that bridges the relationship between environmental awareness (H1a–H1d) and customer satisfaction (H2). That is, individuals with higher environmental awareness are more likely to accept and comply with the ban (H1a–H1d), and in turn, this compliance influences their level of satisfaction with services or businesses that implement sustainable practices.

While the ban aims to deliver long-term environmental benefits, its short-term impact on customer satisfaction may vary depending on how businesses manage the transition. For example, changes in packaging, service delivery, or pricing may disrupt habitual expectations. However, if these changes are well communicated and aligned with consumer values, they can enhance satisfaction rather than diminish it [32].

This framework underscores the importance of effective policy implementation in turning environmental awareness into positive consumer outcomes. It also highlights the role of SMEs and service providers in translating regulation into meaningful and satisfying customer experiences [33, 34].

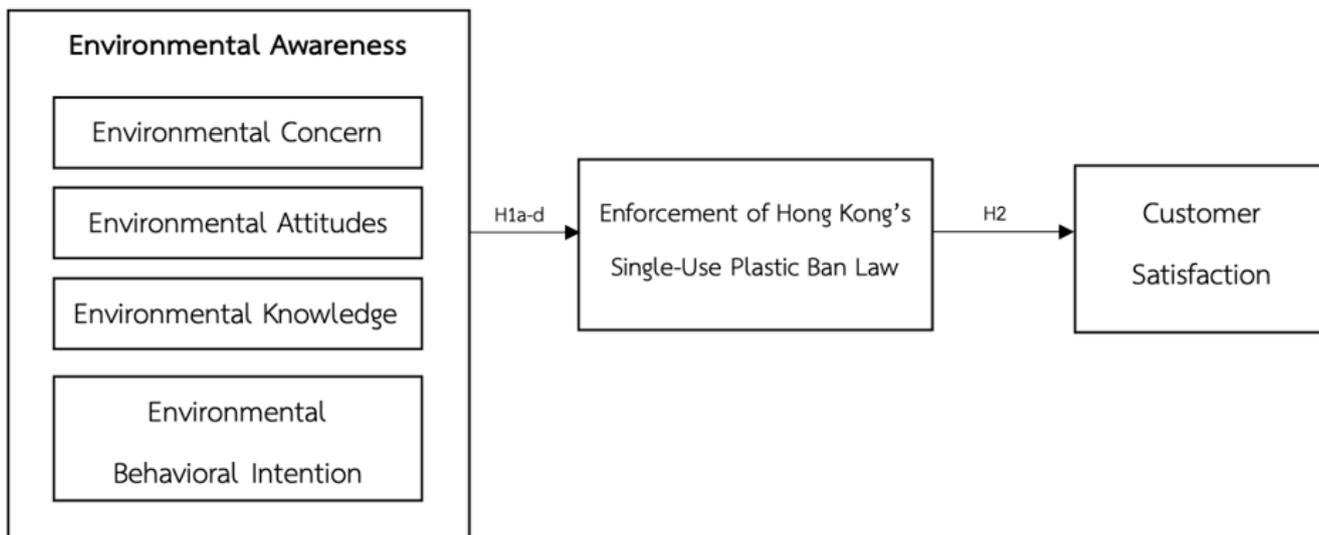


Figure 2. Research conceptual framework.

Environmental awareness, including concern, attitudes, knowledge, and behavioral intention, influences the acceptance and perceived enforcement of Hong Kong’s single-use plastic ban law, which in turn affects customer satisfaction.

- H_{1a}*. Environmental concern has a positive effect on the Enforcement of Hong Kong's Single-Use Plastic Ban Law.
H_{1b}. Environmental attitudes have a positive effect on the Enforcement of Hong Kong's Single-Use Plastic Ban Law.
H_{1c}. Environmental knowledge has a positive effect on the Enforcement of Hong Kong's Single-Use Plastic Ban Law.
H_{1d}. Environmental behavioral intention has a positive effect on the Enforcement of Hong Kong's Single-Use Plastic Ban Law.
H₂. The Enforcement of Hong Kong's Single-Use Plastic Ban Law has a positive effect on customer satisfaction.

3. Methodology

This study, entitled "Exploring the Impact of Environmental Awareness on Customer Satisfaction Amidst Hong Kong's Single-Use Plastics Ban," was approved by the Ethics Committee of the University of Thai Chamber of Commerce (UTCCEC) (approval code: UTCCEC/Exemp086/2025) and conducted in accordance with the Belmont Report and Good Clinical Practice (GCP) standards for social and behavioral research.

3.1. Population and Sampling

The target population comprises consumers residing in Hong Kong who regularly purchase from food service and retail outlets affected by the plastics ban, including cafés, restaurants, and shops adopting sustainable practices. Using purposive sampling, participants who frequently visit or engage with these businesses and are likely to hold opinions or awareness about environmental issues were selected to ensure relevant insights into perceptions and behavioral responses. To enhance representativeness, stratified sampling segmented respondents based on demographics such as age, gender, and travel or visitation frequency. Based on Hair et al. [35] formula, a sample size of consumers was determined to achieve a 95% confidence level with a 5% margin of error, aligning with the typical standards for survey research. This approach aimed to capture diverse opinions while maintaining statistical reliability.

3.2. Research Instrument

A structured questionnaire comprising 44 items across five sections was employed for data collection. The first section gathered demographic data, including age, gender, education level, and frequency of visits to relevant businesses. The second section assessed environmental awareness with seven items measuring knowledge, concern, and attitudes toward plastic waste reduction and sustainability. The third section, consisting of 24 items, examined consumer perceptions and behavioral tendencies, such as willingness to pay for sustainable alternatives and responses to policy measures like surcharges or promotional offers. The fourth section included five items measuring behavioral intentions, including eco-friendly purchase choices and support for sustainability initiatives. The fifth section provided an open-ended item inviting participants to share suggestions on improving policy communication or sustainability practices. A 5-point Likert scale (from "Strongly disagree" to "Strongly agree") was used to reduce neutral responses and gauge the strength of attitudes. All items were developed through an extensive literature review, and content validity was confirmed by experts and the Index of Item Objective Congruence (IOC) was used to ensure content validity.

3.3. Data Collection and Analysis

Data were collected online via platforms such as Facebook and LINE, utilizing Google Forms to facilitate accessibility and broad reach. The sample targeted consumers actively engaging with businesses affected by the plastics ban and interested in environmental issues. Descriptive statistics summarized demographic data and baseline perceptions. Confirmatory factor analysis (CFA) validated the measurement model, confirming that observed items reliably reflected latent constructs like environmental awareness and behavioral intentions. Structural equation modeling (SEM) tested the proposed relationships, such as the impact of environmental awareness on consumer support measures and satisfaction levels related to the plastics ban. Measurement reliability was evaluated using Cronbach's alpha, with a threshold of ≥ 0.70 indicating acceptable internal consistency. Validity was examined through convergent validity (Average Variance Extracted, AVE) and discriminant validity (Fornell-Larcker criterion). Bootstrap techniques generated confidence intervals for estimated parameters, enabling hypothesis testing of the relationships among variables. These rigorous statistical analyses ensured the robustness and validity of the findings, providing deep insights into consumer perceptions and responses to Hong Kong's plastics regulation.

4. Results

This study analyzes a sample of 550 customers from convenience stores in Hong Kong, including both local and international patrons. The data provides essential insights into their demographic characteristics and environmental awareness. Among the total respondents, 62.7% ($n = 345$) were female, and 37.3% ($n = 205$) were male. Most of the surveyed customers were aged 20–29 years (68.5%, $n = 377$). In terms of marital status, a significant portion, 70% ($n = 385$), reported being single. Most respondents, 67.5% ($n = 371$), were employed in the private sector. Regarding income, 23.8% ($n = 131$) reported earning between HKD 6,000 and 8,000 per month.

Furthermore, the data indicated a high level of connectedness to nature, with many respondents emphasizing nature's significance for their well-being and mental tranquility. Overall, environmental awareness among passengers was consistently high across various dimensions, including knowledge of climate change, carbon reduction projects, aviation-related environmental impacts, conservation efforts, and governmental policies aimed at mitigating greenhouse gas (GHG) emissions. Notably, participants expressed strong concerns about climate change and its consequences. The measurement model's fit statistics are presented in Table 1, which summarizes the model evaluation.

Table 1.
Summary of the fit statistics of the measurement model.

Saturated model		Estimated model
SRMR	0.060	0.082
d_ ULS	2.670	4.929
d_ G	1.727	1.804

Note: SRMR = Standardized Root Mean Square Residual.

Table 1 presents the fit statistics used to evaluate the adequacy of the measurement model in SEM analysis. The first measure, SRMR (Standardized Root Mean Square Residual), indicates the discrepancy between the observed and predicted covariance matrices, with values below 0.08 typically considered acceptable. The SRMR value for the estimated model is 0.082, suggesting a good fit. The second measure, d ULS (Discrepancy in Unweighted Least Squares), reflects the overall difference between the model and data; the value for the saturated model is 2.670, while it is 4.929 for the estimated model, indicating a better fit of the estimated model. Lastly, the dG (Discrepancy in General) shows the overall difference, with values of 1.727 for the saturated model and 1.804 for the estimated model. Overall, these results suggest that the model provides a good fit to the data, supporting its appropriateness for hypothesis testing and further analysis.

The evaluation of the measurement model focused on assessing reliability, convergent validity, and discriminant validity according to the standards set by Hair et al. [35]. A comprehensive validation process was carried out to verify that the constructs used in this research were appropriate. All items within each construct were carefully examined, as presented in Table 2. Every factor loading was above the threshold of 0.70, indicating satisfactory reliability of individual items. Furthermore, internal consistency was confirmed through the calculation of composite reliability (CR) and Cronbach’s alpha coefficients, with all values exceeding the recommended cutoff of 0.70. This demonstrated that the scales used in the study possessed strong internal consistency and were suitable for further analysis. Convergent validity was evaluated using the Average Variance Extracted (AVE), with all values surpassing the 0.50 benchmark, thus confirming adequate convergent validity of the measurement constructs. To check for potential multicollinearity among predictor variables, the Variance Inflation Factor (VIF) was examined following the approach outlined by Hair et al. [35], who suggest that VIF values should not exceed 5.00. As shown in Table 2, the VIF scores ranged from 1.000 to 2.954, well below this threshold, indicating that multicollinearity was not a concern and supporting the stability of relationships among the constructs in the structural equation model used in this study.

Table 2.
Measurement model results.

Constructs	Measurement Label	Loading	t-Value
Environmental concern (EC) VIF = 2.290; CR = 0.921; α = 0.892; AVE = 0.700	EC1. I understand the background of plastic waste problems and their impact on the environment.	0.848	37.700
	EC2. I am aware that my daily activities influence the amount of plastic waste in the community.	0.843	35.964
	EC3. I am well aware that plastic waste harms marine animals and ecosystems.	0.884	58.298
Environmental attitudes (EA) VIF = 2.729; CR = 0.923; α = 0.896; AVE = 0.705	EA1. I believe that reducing plastic waste is a responsibility for everyone.	0.821	35.960
	EA2. I think supporting environmental policies is important and should be promoted.	0.856	39.922
	EA3. I feel that changing behaviors for the environment is crucial for the future of our planet.	0.845	41.022
Environmental knowledge (EK) VIF = 2.954; CR = 0.915; α = 0.884; AVE = 0.684	EK1. I understand how plastic pollution impacts the environment.	0.849	53.994
	EK2. I am aware of the harmful effects of plastics on ecosystems and wildlife.	0.778	29.416
	EK3. I understand proper waste management and recycling practices.	0.844	56.919
Environmental behavioural (EB) VIF = 2.943; CR = 0.884; α = 0.910; AVE = 0.679	BC1. I intend to reduce my plastic use in daily life.	0.836	38.914
	BC2. I plan to use personal containers instead of single-use plastics.	0.827	50.174
	BC3. I am motivated to support recycling activities in my community.	0.862	67.063
Enforcement of Hong Kong's Single-Use Plastic Ban Law (LW) VIF= 1.000; CR = 0.953; α = 0.944 AVE = 0.720	LW1. This law is a suitable approach for other Asian countries to tackle plastic waste issues.	0.762	34.397
	LW2. Business operators in Hong Kong should strictly comply with this law.	0.877	66.917
	LW3. The enforcement of this law helps enhance Hong Kong's international reputation.	0.827	37.498
Customer satisfaction. (CS) CR = 0.960; α = 0.953; AVE = 0.705	CS1. I am satisfied with Hong Kong's plastic ban policy.	0.873	72.293
	CS2. I feel that the enforcement of this law supports environmental cooperation in Hong Kong	0.858	61.223
	CS3. I appreciate Hong Kong's approach to promoting environmental sustainability.	0.819	36.974

Note: CR: composite reliability; α : Cronbach's alpha values; AVE: Average Variance Extracted; VIF: Variance Inflation Factor (values < 5 indicate no multicollinearity issue).

Regarding discriminant validity, the HTMT ratio between pairs of constructs approached the threshold of 0.90 [36] as shown in Table 3. Discriminant validity was further verified through the Fornell–Larcker criterion [37], which states that discriminant validity is confirmed when the square root of the AVE for each construct exceeds its highest correlation coefficient with any other construct. The results indicated that all constructs satisfied this criterion. Specifically, the square root of AVE for each construct ranged from 0.714 to 0.813 and was greater than the correlations with other constructs, confirming adequate discriminant validity.

Table 3.
Discriminant validity heterotrait–monotrait ratio (HTMT).

Construct	EC	EA	EK	EB	LW	CS
Environmental concern (EC)						
Environmental attitudes (EA)	0.791					
Environmental knowledge (EK)	0.740	0.787				
Environmental behavioural (EB)	0.734	0.797	0.872			
Enforcement of Hong Kong's Single-Use Plastic Ban Law (LW)	0.616	0.781	0.791	0.841		
Customer satisfaction. (CS)	0.621	0.668	0.784	0.805	0.870	

For assessing discriminant validity, the HTMT (heterotrait-monotrait) [38] ratio between pairs of constructs was examined and found to be close to the 0.90 threshold, as shown in Table 3. Additionally, the Fornell–Larcker criterion was used to verify discriminant validity, which asserts that the square root of the AVE for each construct should be higher than its highest correlation with any other construct. The analysis confirmed that all constructs met this criterion, with the square root of AVE values ranging from 0.616 to 0.872, exceeding the inter-construct correlation coefficients. This indicates that each construct demonstrates sufficient discriminant validity within the measurement model. The discriminant validity of the constructs was assessed using the Fornell–Larcker criterion, as shown in Table 4. The square root of the AVE for each construct (diagonal elements) exceeded the correlations between constructs, indicating adequate discriminant validity.

Table 4.

Discriminant validity using the Fornell–Larcker criterion.

Construct	Mean	S.D.	EC	EA	EK	EB	LW	CS
Environmental concern (EC)	4.4984	0.63987	0.837					
Environmental attitudes (EA)	4.6062	0.54702	0.708	0.840				
Environmental knowledge (EK)	4.5042	0.60744	0.661	0.721	0.827			
Environmental behavioural (EB)	4.4886	0.61885	0.651	0.712	0.773	0.824		
Enforcement of Hong Kong’s Single-Use Plastic Ban Law (LW)	4.3789	0.71242	0.571	0.708	0.734	0.773	0.848	
Customer satisfaction (CS)	4.5472	0.59197	0.573	0.623	0.723	0.737	0.830	0.839

Table 5 presents the results of the path analysis examining the direct effects between variables. The findings indicate that hypotheses H1a and H1b were not supported, as their t-values were 0.740 and 5.334 with corresponding p-values of 0.459 and 0.294, both exceeding the 0.05 significance level, leading to their rejection. Conversely, hypotheses H1c and H1d demonstrated significant effects, with t-values of 4.767 and 5.334 and p-values of 0.000, thereby confirming support for these relationships. Additionally, the effect of LW on CS (H2) was highly significant, with a t-value of 40.910 and a p-value of 0.000, indicating a strong positive influence.

Table 5.

Path analyses (direct effects).

Direct Effect	Path	t-Value	p-Values	Results
H1a	EC → LW	0.740 ***	0.459	Rejected
H1b	EA → LW	5.334 ***	0.294	Rejected
H1c	EK → LW	4.767 ***	0.000	Accepted
H1d	EB → LW	5.334 ***	0.000	Accepted
H2	LW → CS	40.910 ^{n.s.}	0.000	Accepted

Note: *** $p < 0.01$; n.s. = $p > 0.05$.

Figure 3 illustrates the structural model of the research, displaying the relationships between various constructs. It shows that Environmental Concern (EC1 to EC4) has high factor loadings, with values ranging from 0.749 to 0.884, indicating strong measurement reliability. Environmental Attitudes (EA1 to EA5) also demonstrate high loadings between 0.762 and 0.893, reflecting consistent measurement. Environmental Knowledge (EK1 to EK3) has loadings ranging from 0.402 to 0.849, with EK3 and EK2 showing particularly high values. Environmental Behavioral Intention (EB1 to EB5) is represented with high loadings, from 0.775 to 0.862. The path coefficients between constructs show significant relationships, with the strongest effect observed from LW (Likely a specific construct) on CS (Customer Satisfaction), with a value of 0.688. The model includes several shown paths with their respective weights, indicating how well the constructs influence each other within the research framework.

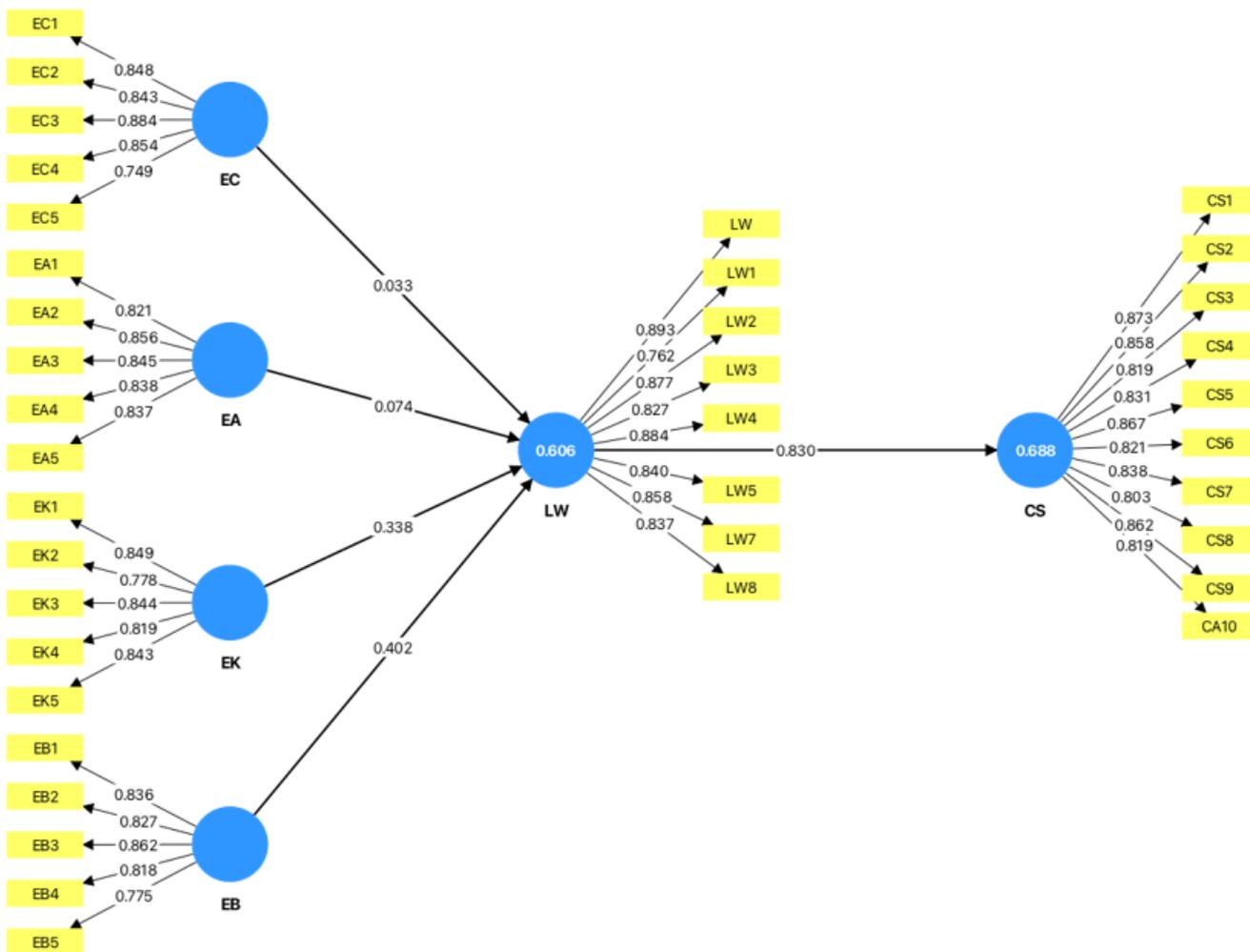


Figure 3. Results of the structural equation modeling. Note: ** $p < 0.01$.

5. Discussion

This study, "Exploring the Impact of Environmental Awareness on Customer Satisfaction Amidst Hong Kong's Single-Use Plastics Ban," provides critical insights into how Hong Kong consumers' environmental awareness translates into their perceptions of the city's new plastics ban and, ultimately, their satisfaction. Our findings align with a growing body of literature on the complexities of sustainable consumer behavior [39]. The demographic data, primarily from a younger, single, and employed population, reflects a segment of society often considered more environmentally conscious. This is a crucial context for interpreting our findings, as younger consumers are known to be more receptive to pro-environmental policies. The high levels of reported environmental awareness and connectedness to nature among our respondents are consistent with recent studies on urban environmentalism in Asia [40]. The effective implementation of such policies is increasingly recognized as a key pillar of urban sustainability strategies [41].

The core findings from the path analysis are particularly revealing. We found that while environmental knowledge (H1c) and environmental behavioral intention (H1d) have a significant positive effect on the perceived enforcement of the ban, general environmental concern (H1a) and environmental attitudes (H1b) do not. This points to a nuanced "attitude-behavior gap" in the Hong Kong context [42]. It's not enough for consumers to simply care about the environment; they must also possess a factual understanding of the issues (knowledge) and a concrete plan to act on their beliefs (behavioral intention) for them to genuinely support and feel the impact of the policy. The rejection of hypotheses H1a and H1b suggests that a broad, generalized concern or positive attitude may not be a strong enough predictor for accepting a specific, potentially inconvenient policy [43]. This is a vital distinction for policymakers, who must recognize that generalized appeals may not be as effective as providing specific, actionable information. Recent research further reinforces that this gap is often influenced by external factors such as inconvenience and perceived cost, underscoring the need for practical support to facilitate behavioral change [44]. The role of government policy in directly shaping behavior, rather than simply relying on awareness, is a key takeaway [45].

Most notably, the study strongly supports hypothesis H2, demonstrating a highly significant positive relationship between the perceived enforcement of the ban and customer satisfaction. This is a powerful finding for policymakers and businesses. It suggests that when the ban is effectively implemented and communicated, it does not necessarily erode customer satisfaction. Instead, it can enhance it by aligning the consumer experience with their existing environmental

values [26]. This contradicts the common fear that such regulations will lead to consumer backlash and supports the notion that effective sustainability measures can be a source of competitive advantage. Our results are consistent with research showing that customers reward businesses that align with their values. This positive effect on customer satisfaction is particularly evident when businesses successfully communicate their commitment to the policy, thereby enhancing their corporate social responsibility (CSR) image [46, 47].

This strengthens the idea that corporate environmental initiatives, when perceived as genuine, can significantly boost brand reputation and consumer trust [48]. Furthermore, the quality of non-plastic substitutes, a key factor in the transition, has been shown to be a direct determinant of consumer acceptance and satisfaction with these new practices [49].

These findings suggest that for policies like the plastics ban to succeed, public education efforts must go beyond simply raising awareness. They need to equip the public with practical knowledge and actionable intentions. This is crucial for overcoming the psychological inertia that often prevents behavior change [50]. Moreover, for businesses, the key to maintaining customer satisfaction is not to hide or downplay the changes but to embrace and effectively communicate them. By doing so, they can leverage the policy to build a positive brand image and foster loyalty among a growing segment of environmentally aware consumers [51]. The adoption of circular economy models and sustainable supply chain practices by SMEs is an important pathway to achieving both compliance and innovation [52]. Ultimately, the transition to a sustainable consumption model is not just a regulatory obligation but an opportunity to forge a stronger, value-based connection with customers [53]. This reinforces the need for a holistic approach that integrates policy, business strategy, and consumer engagement to achieve lasting environmental and economic benefits [54, 55].

6. Policy Recommendations

Based on the research findings, a successful implementation of the single-use plastics ban requires a collaborative and multi-faceted approach involving both the public and private sectors. The government must move beyond simply enacting regulations by providing targeted, practical support. This includes enhancing public education to focus on actionable knowledge, such as proper disposal and the benefits of alternatives, and offering financial assistance like subsidies or micro-grants to help small and medium-sized enterprises (SMEs) with the transition. Furthermore, investing in and promoting public waste separation infrastructure is crucial to bridge the gap between pro-environmental attitudes and actual behavior. In parallel, the private sector has a key role to play by proactively training staff to communicate the changes effectively and by investing in high-quality, functional, and aesthetically pleasing alternatives that maintain customer satisfaction. By strategically leveraging the ban as an opportunity for brand enhancement, businesses can transform regulatory compliance into a competitive advantage, fostering customer loyalty and demonstrating leadership in sustainability. Ultimately, the success of the policy hinges on this synergy between government support and business innovation.

7. Conclusions

This research confirms that the success of Hong Kong's single-use plastics ban is deeply intertwined with consumer psychology and effective policy implementation. While a broad sense of environmental concern is prevalent among the public, it is the more specific and actionable components of environmental awareness, knowledge, and behavioral intention that truly drive support and acceptance of the ban. The most significant finding is that when the ban is perceived to be enforced effectively, it can lead to a direct and positive impact on customer satisfaction.

This suggests a powerful opportunity for both government and businesses. By moving from general awareness campaigns to targeted, practical education, policymakers can empower citizens to embrace the changes. Simultaneously, businesses that strategically and transparently adopt the new regulations, offering high-quality alternatives and clear communication, can transform a regulatory challenge into a value-added proposition. Ultimately, the study highlights that for Hong Kong to achieve its sustainability goals, policy cannot exist in a vacuum; it must be supported by public education and a business sector that champions the transition, ensuring both environmental gains and economic resilience. The future success of the initiative hinges on this synergy.

8. Limitations and Future Research

This study, while providing valuable insights, has a few limitations that future research could address. First, the use of a purposive sampling method, though intentional for selecting environmentally aware consumers, may limit the generalizability of the findings to the broader Hong Kong population, particularly those who are less engaged with environmental issues. A larger, more random sample could provide a more representative view.

Second, the data was collected via online platforms, which may overrepresent individuals who are more digitally active and socially connected. A mixed-methods approach, including in-person surveys or interviews, could capture the perspectives of a wider range of demographics.

Future research could explore the long-term impacts of the ban on consumer behavior and satisfaction as the policy progresses into Phase Two. It would also be valuable to conduct a comparative analysis with other Asian cities that have implemented similar bans to identify best practices and common challenges. Finally, a study focusing specifically on the SME perspective, quantifying the financial and operational impacts of the ban and the effectiveness of government support programs, would provide a critical complement to the consumer-focused findings presented here.

References

- [1] C. Nansen, "The challenges of setting Hong Kong free from single-use plastics," 2025. <https://earth.org/the-challenges-of-setting-hong-kong-free-from-single-use-plastics>
- [2] Y. P. V. Chen, Z. Zhuo, Z. Huang, and W. Li, "Environmental regulation and ESG of SMEs in China: Porter hypothesis re-tested," *Science of the Total Environment*, vol. 850, p. 157967, 2022. <https://doi.org/10.1016/j.scitotenv.2022.157967>
- [3] K. T. Ho, P. W. Kwok, S. S. Chang, and A. M. Chu, "Gaps between attitudes and behavior in the use of disposable plastic tableware (DPT) and factors influencing sustainable DPT consumption: A study of Hong Kong undergraduates," *Sustainability*, vol. 15, no. 11, p. 8958, 2023. <https://doi.org/10.3390/su15118958>
- [4] Q. Wu, Q. Ding, C. S. Poon, and W. M. Kong, "Social impact assessment of the regulation of disposable plastic tableware in Hong Kong," *Impact Assessment and Project Appraisal*, vol. 42, no. 4, pp. 394-408, 2024. <https://doi.org/10.1080/14615517.2024.2387471>
- [5] M. Barth, T. Masson, I. Fritsche, K. Fielding, and J. R. Smith, "Collective responses to global challenges: The social psychology of pro-environmental action," *Journal of Environmental Psychology*, vol. 74, p. 101562, 2021. <https://doi.org/10.1016/j.jenvp.2021.101562>
- [6] M. A. Fayshal, "Current practices of plastic waste management, environmental impacts, and potential alternatives for reducing pollution and improving management," *Heliyon*, vol. 10, no. 23, p. e40838, 2024. <https://doi.org/10.1016/j.heliyon.2024.e40838>
- [7] N. Kim and K. Lee, "Environmental consciousness, purchase intention, and actual purchase behavior of eco-friendly products: The moderating impact of situational context," *International Journal of Environmental Research and Public Health*, vol. 20, no. 7, p. 5312, 2023. <https://doi.org/10.3390/ijerph20075312>
- [8] A. Prashar and L. A. Kaushal, "Nudging sustainable fashion choices: An experimental investigation on generation Z fashion consumers," *Acta Psychologica*, vol. 253, p. 104727, 2025. <https://doi.org/10.1016/j.actpsy.2025.104727>
- [9] C. Lopes, *The self-deception trap: Exploring the economic dimensions of charity dependency within Africa-Europe relations*. Cham, Switzerland: Springer Nature, 2024.
- [10] S.-L. Ng and Y.-C. Hsieh, "Understanding Demographic and behavioral determinants of engagement in plastic tableware reduction: Behavior, support, and price sensitivity," *Recycling*, vol. 10, no. 3, p. 103, 2025. <https://doi.org/10.3390/recycling10030103>
- [11] M. Jave-Chire, A. Alvarez-Risco, and V. Guevara-Zavaleta, "Footwear industry's journey through green marketing mix, brand value and sustainability," *Sustainable Futures*, vol. 9, p. 100561, 2025. <https://doi.org/10.1016/j.sfr.2025.100561>
- [12] T. Štrukelj, J. Nikolić, D. Zlatanović, and S. Sternad Zabukovšek, "A strategic model for sustainable business policy development," *Sustainability*, vol. 12, no. 2, p. 526, 2020. <https://doi.org/10.3390/su12020526>
- [13] V. P. Cahyani and M. Munawwarah, "The global research mapping on environmental awareness in education: Bibliometric analysis 2015-2025," *SPEKTRA: Jurnal Kajian Pendidikan Sains*, vol. 11, no. 1, pp. 62-76, 2025. <https://doi.org/https://doi.org/10.32699/spektra.v11i1.9031>
- [14] S. Shiwani and M. Kumar, "From classroom to climate action: Exploring the educational pathways to environmental awareness—a systematic literature review," *International Journal of English Literature and Social Sciences*, vol. 10, no. 2, p. 620454, 2025. <https://doi.org/10.22161/ijels.102.64>
- [15] H. R. Perea, A. R. Piedrahita, and Ó. E. T. Alzate, "Models of environmental awareness: Exploring their nature and role in environmental education—a systematic review," *Heliyon*, vol. 11, no. 13, p. e43679, 2025. <https://doi.org/10.1016/j.heliyon.2025.e43679>
- [16] J. Premović, M. Pavlović, and M. Perić, "The influence of socio-demographic variables on the state of environmental awareness of the rural areas population-example of Serbia," *Ekonomika Poljoprivrede*, vol. 72, no. 1, pp. 171-187, 2025. <https://doi.org/10.59267/ekoPolj2501171P>
- [17] T. Liu and X. Cao, "Going green: How executive environmental awareness and green innovation drive corporate sustainable development," *Journal of the Knowledge Economy*, vol. 16, pp. 6577-6604, 2025. <https://doi.org/10.1007/s13132-024-01788-1>
- [18] R. Salleh, S. M. Nordin, W. Moughal, H. A. Abbasi, P. W. Ching, and N. A. B. Adnan, "The role of social environmental networks in influencing environmental knowledge and environmental awareness towards education for sustainable development in Malaysia and Japan," *Higher Education Quarterly*, vol. 79, no. 1, p. e70009, 2025. <https://doi.org/10.1111/hequ.70009>
- [19] Hong Kong General Chamber of Commerce, *Hong Kong's single-use plastic ban*. Hong Kong: Deluxe, 2024.
- [20] W. K. So, K. Chan, and C. Not, "Abundance of plastic microbeads in Hong Kong coastal water," *Marine Pollution Bulletin*, vol. 133, pp. 500-505, 2018. <https://doi.org/10.1016/j.marpolbul.2018.05.066>
- [21] B. Steuer and P. Chen, "Exploring capacities, environmental benefits and potential for a circular economy on waste plastic bottles in Hong Kong," *Resources, Conservation and Recycling*, vol. 199, p. 107270, 2023. <https://doi.org/10.1016/j.resconrec.2023.107270>
- [22] E. D. W. Ancheta, M. O. L. Cambaliza, and L. Delina, "Towards net zero and a zero landfill future: Leveraging Hong Kong's municipal solid waste charging scheme for sustainable waste management and carbon neutrality," *Journal of Sustainability*, vol. 1, no. 2, 2025. <https://doi.org/10.55845/jos-2025-128>
- [23] K. Zhang *et al.*, "Microplastics in Hong Kong's marine waters: Impact of rainfall and Pearl River discharge," *Marine Pollution Bulletin*, vol. 205, p. 116635, 2024. <https://doi.org/10.1016/j.marpolbul.2024.116635>
- [24] T. L. R. H. W. Pacific, "What are we waiting for? The time to act on plastic pollution is now," *The Lancet Regional Health: Western Pacific*, vol. 46, p. 101107, 2024. <https://doi.org/10.1016/j.lanwpc.2024.101107>
- [25] J. Dell, *Major six-year trends in global plastic waste trade*. In S. Gündoğdu (Ed.), *Plastic waste trade*. Cham, Switzerland: Springer, 2024.
- [26] R. L. Oliver, *Satisfaction: A behavioral perspective on the consumer*. New York: Routledge, 2015.
- [27] C. H. Li, T. T. Lee, and S. S. Y. Lau, "Enhancement of municipal solid waste Management in Hong Kong through innovative solutions: A review," *Sustainability*, vol. 15, no. 4, p. 3310, 2023. <https://doi.org/10.3390/su15043310>
- [28] L. M. Heidbreder, I. Bablok, S. Drews, and C. Menzel, "Tackling the plastic problem: a review on perceptions, behaviors, and interventions," *Science of The Total Environment*, vol. 668, pp. 1077-1093, 2019.

- [29] L. S. L. Choi, K. W. Chan, and H. Fock, "Deepening exploration of socially responsible consumption in generation z: the impacts of environmental knowledge and perceived consumer effectiveness," *Journal of Consumer Marketing*, 2025. <https://doi.org/10.1108/JCM-05-2024-6857>
- [30] R. Nethanani, L. Matlombe, S. N. Vuko, and B. Thango, "Customer relationship management (CRM) systems and their impact on SMEs performance: A systematic review," *SSRN*, 2024. <https://doi.org/10.2139/ssrn.4996185>
- [31] E. J. Sharpe, G. Perlaviciute, and L. Steg, "Pro-environmental behaviour and support for environmental policy as expressions of pro-environmental motivation," *Journal of Environmental Psychology*, vol. 76, p. 101650, 2021. <https://doi.org/10.1016/j.jenvp.2021.101650>
- [32] A. H. Tahir, M. Adnan, and Z. Saeed, "The impact of brand image on customer satisfaction and brand loyalty: A systematic literature review," *Heliyon*, vol. 10, no. 16, p. e36254, 2024. <https://doi.org/10.1016/j.heliyon.2024.e36254>
- [33] A. Panyagometh and A. Keeratiratanalak, "Understanding plastic bag consumers' use behavior after the plastic bag ban policy in major retail stores in Bangkok," *NIDA Development Journal*, vol. 63, no. 2, pp. 87-105, 2023. <https://doi.org/10.14456/ndj.2023.4>
- [34] J. van Doorn, H. Risselada, S. M. Rizio, and M. Ye, "(Un) intended spillovers of green government policies: The case of plastic regulations," *Journal of the Academy of Marketing Science*, vol. 53, pp. 490-512, 2025. <https://doi.org/10.1007/s11747-024-01041-w>
- [35] J. F. Hair, W. C. Black, B. J. Babin, and R. E. Anderson, *Multivariate data analysis*, 8th ed. Andover, Hampshire: Cengage Learning, 2018.
- [36] J. C. Nunnally, *An overview of psychological measurement*. In P. McReynolds (Ed.), *Clinical Diagnosis of Mental Disorders: A Handbook*. New York: Springer, 1978.
- [37] C. Fornell and D. F. Larcker, "Evaluating structural equation models with unobservable variables and measurement error," *Journal of Marketing Research*, vol. 18, no. 1, pp. 39-50, 1981. <https://doi.org/10.1177/002224378101800104>
- [38] J. Henseler, C. M. Ringle, and M. Sarstedt, "A new criterion for assessing discriminant validity in variance-based structural equation modeling," *Journal of the Academy of Marketing Science*, vol. 43, no. 1, pp. 115-135, 2015.
- [39] M. Alsaleh, M. M. Abdulwakil, and A. S. Abdul-Rahim, "Does social businesses development affect bioenergy industry growth under the pathway of sustainable development?," *Sustainability*, vol. 13, no. 4, p. 1989, 2021. <https://doi.org/10.3390/su13041989>
- [40] Y. Fu, J. Li, and F. K. S. Chan, "Urban environmentalism in Asia: Environmental awareness and behavioral intentions among young adults in Hong Kong," *Environmental Research Letters*, vol. 18, no. 3, p. 034001, 2023.
- [41] D. A. Rezende, L. A. W. Fumagalli, H. Bartling, G. U. Okon, and A. R. Gallego, "Sustainable city strategies for strategic digital city project in the sustainable development goals (SDGs) context," *Land*, vol. 14, no. 6, p. 1195, 2025. <https://doi.org/10.3390/land14061195>
- [42] A. Kollmuss and J. Agyeman, "Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behavior?," *Environmental Education Research*, vol. 8, no. 3, pp. 239-260, 2002.
- [43] P. Van Hau, "Rethinking single-use plastic (SUP): Behavioural insights and lessons from a developing nation," *Environmental Challenges*, vol. 17, p. 101052, 2024. <https://doi.org/10.1016/j.envc.2024.101052>
- [44] S. Liu, "Understanding and achieving sustainable consumption: Integrating international political economy and psychology perspectives," *Business Strategy & Development*, vol. 7, no. 1, p. e321, 2024. <https://doi.org/10.1002/bsd2.321>
- [45] E. Fasllija and S. Yilmazer, "Investigating the potential of transparent parallel-arranged micro-perforated panels (MPPs) as sound absorbers in classrooms," *International Journal of Environmental Research and Public Health*, vol. 20, no. 2, p. 1445, 2023. <https://doi.org/10.3390/ijerph20021445>
- [46] D. Hariyani, P. Hariyani, S. Mishra, and M. K. Sharma, "A literature review on green supply chain management for sustainable sourcing and distribution," *Waste Management Bulletin*, vol. 2, no. 4, pp. 231-248, 2024. <https://doi.org/10.1016/j.wmb.2024.11.009>
- [47] M. Yasir, A. Majid, M. Yasir, H. Qudratullah, R. Ullah, and A. Khattak, "Participation of hotel managers in CSR activities in developing countries: A defining role of CSR orientation, CSR competencies, and CSR commitment," *Corporate social responsibility and Environmental Management*, vol. 28, no. 1, pp. 239-250, 2021. <https://doi.org/10.1002/csr.2045>
- [48] E. Cuce *et al.*, "Solar chimney power plants: a review of the concepts, designs and performances," *Sustainability*, vol. 14, no. 3, p. 1450, 2022. <https://doi.org/10.3390/su14031450>
- [49] I. Djekic, T. Petrovic, N. Smigic, B. Udovicki, and N. Tomic, "Confronting various quality perspectives of paper straws—Case study with Generation Z," *Applied Sciences*, vol. 14, no. 23, p. 11189, 2024. <https://doi.org/10.3390/app142311189>
- [50] F. R. Kardes, M. L. Cronley, and T. W. Cline, *Consumer behavior: Science and practice*, 6th ed. Boston, MA: Cengage Learning, 2022.
- [51] T. Jia, S. Iqbal, A. Ayub, T. Fatima, and Z. Rasool, "Promoting responsible sustainable consumer behavior through sustainability marketing: the boundary effects of corporate social responsibility and brand image," *Sustainability*, vol. 15, no. 7, p. 6092, 2023. <https://doi.org/10.3390/su15076092>
- [52] G. Bressanelli, M. Perona, and N. Saccani, "Challenges in supply chain redesign for the Circular Economy: A literature review and a multiple case study," *International Journal of Production Research*, vol. 57, no. 23, pp. 7395-7422, 2019. <https://doi.org/10.1080/00207543.2018.1542176>
- [53] K. Lobos, R. Cobo-Rendón, D. García-Álvarez, J. Maldonado-Mahauad, and C. Bruna, "Lessons learned from the educational experience during COVID-19 from the perspective of Latin American university students," *Sustainability*, vol. 15, no. 3, p. 2341, 2023. <https://doi.org/10.3390/su15032341>
- [54] Y. Sun, S. Liu, P. Wang, X. Jian, X. Liao, and W.-Q. Chen, "China's roadmap to plastic waste management and associated economic costs," *Journal of Environmental Management*, vol. 309, p. 114686, 2022. <https://doi.org/10.1016/j.jenvman.2022.114686>
- [55] J. K. Debrah, D. G. Vidal, and M. A. P. Dinis, "Innovative use of plastic for a clean and sustainable environmental management: Learning cases from Ghana, Africa," *Urban Science*, vol. 5, no. 1, p. 12, 2021. <https://doi.org/10.3390/urbansci5010012>