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# When Greenwashing Backfires: Consumer Signal Interpretation and Sustainable Consumption Planning in Emerging Markets

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**ABSTRACT**

Greenwashing (GW) is a systemic obstacle to sustainable consumption planning, especially in emerging markets where information asymmetry is prevalent. This study integrates Signaling Theory and the Theory of Planned Behavior (TPB) to examine the impact of GW on customer assessments and its deterrent effect on green purchasing intentions within Vietnam's FMCG sector. Analyzing data from 522 well-educated urban consumers via PLS-SEM software, the study identifies a structural convergence of Green Trust (GT) and Green Brand Image (GBI), leading to the respecification of a higher-order construct termed Green Brand Credibility (GBC). The results indicate that GW does not directly inhibit purchase intention; rather, it exerts a comprehensive indirect negative impact via undermining Green Attitude (GA) and GBC. Moreover, Green Perceived Value (GPV) functions as a key boundary condition, amplifying consumers' sensitivity to deceptive sustainability signals and intensifying GW's detrimental effects on evaluative judgments. These findings highlight that strengthening credible, verifiable sustainability communication is central to responsible consumption planning and sustainability governance in emerging markets.

## 1. INTRODUCTION

Sustainable consumption is becoming an essential aspect of the global transition toward climate resilience, corporate responsibility, and sustainable development. For long-term planning for sustainable consumption, it is highly important that enterprises, consumers, and governance systems work together to turn environmental goals into consistent behavior. In this instance, information about sustainability must be reliable so that customers can trust it, and trust-based consumption systems can work. However, the growing prominence of sustainability narratives has been accompanied by the widespread practice of Greenwashing (GW), the deliberate exaggeration or misrepresentation of environmental achievements for reputational or economic gain [1-3]. GW is a credibility paradox in sustainability communication: while companies use more green language, vague or false claims hurt consumer trust and make real environmental efforts seem less legitimate [4, 5]. It also misleads stakeholders about a company's real environmental performance and could hurt its reputation by making stakeholders less trusting [6]. Empirical evidence showed that GW weakens the moral contract between organizations and society, blurring the boundary between authentic environmental stewardship and strategic deception [7]. It's important to notice that the effects of distorted sustainability signals depend not only on their availability but also on how consumers understand and judge environmental information. Previous studies have shown that misleading environmental advertising lowers green trust and makes people less likely to buy green products in all industries [7, 8]. This issue is especially important in Vietnam's fast-moving consumer goods (FMCG) industry, where rapid market growth has made tensions between rising sustainability goals and inadequate market openness even worse. A majority of Vietnamese consumers prefer sustainable products [9], and climate awareness remains high [10]. However, the lack of standardized verification and impact reporting mechanisms limits consumers' ability to distinguish substantive environmental responsibility from opportunistic green communication [11]. Consequently, deceptive sustainability signals jeopardize not only individual assessments but also the overall efficacy of sustainable consumption systems.

Previous studies in ASEAN countries show that their institutional and governance structures are different from those in more developed economies. This could affect how GW is made and understood [6]. Indonesia's shift to net-zero shows how inadequate regulatory enforcement and fiscal pressures make it harder to carry out policies [12]. In these situations, sustainability communication is more likely to be distorted, which leads to a culture of green cynicism, where people are skeptical and pessimistic about environmental claims [13]. From a planning standpoint, this decline in confidence presents a systemic obstacle, diminishing consumer participation and the efficacy of sustainability programs. Recent studies underscore openness and authenticity as solutions for trust erosion caused by GW [14]; nevertheless, current research is still disjointed and primarily focused on marketing [15]. Previous studies focus on immediate

consumer reactions while overlooking how distorted sustainability communication affects the functioning of sustainable consumption systems [7, 15]. Also, previous research generally portrays GW as a single bad effect, ignoring the fact that different people may interpret misleading signals in different ways [16]. This constraint is reinforced by a pronounced contextual bias favoring developed economies, resulting in ambiguity concerning consumer responses in emerging countries marked by poorer institutional enforcement and changing environmental governance [6, 12, 17].

To fill these gaps, this study integrates Signaling Theory [18] and the Theory of Planned Behavior (TPB) [19] to explain how misleading messages about sustainability are understood and turned into a desire to buy green products. GW is thought of as a false market signal that makes information less reliable and makes it harder for customers to make good decisions, which hurts Green Trust (GT), Green Attitude (GA), and Green Brand Image (GBI). Consistent with TPB, attitude represents a proximal determinant of intention, while credibility-related evaluations provide an additional evaluative pathway through which sustainability signals shape intention formation. In Vietnam's FMCG sector, Green Perceived Value (GPV) is incorporated as a boundary condition that affects how customers interpret deceptive sustainability signals. By integrating signaling systems with intention-based behavioral theory, this study presents three contributions to sustainable development and planning. First, it reframes GW as a signaling failure that disrupts sustainable consumption planning rather than merely a marketing inefficiency. Second, it clarifies how distorted sustainability signals undermine intention formation through attitudinal and credibility-related mechanisms within sustainability governance contexts; empirically, the trust- and image-based facets show strong convergence and are therefore represented as a higher-order construct (Green Brand Credibility (GBC)) in the final model. Third, by identifying GPV as a critical boundary condition, the study demonstrates how value-oriented consumers may become more sensitive, rather than immune to misleading environmental claims, offering insights for strengthening sustainability governance and responsible consumption in emerging markets.

## 2. THEORETICAL FOUNDATION AND HYPOTHESIS DEVELOPMENT

### 2.1 Theoretical background

#### 2.1.1 Signaling Theory

Signaling Theory is used to explain market interactions under information asymmetry, where businesses possess superior information about product attributes or organizational practices relative to consumers [18, 20]. In sustainability-oriented markets, environmental claims, green labels, and corporate disclosures function as signals of environmental commitment, whose effectiveness depends on their credibility and consistency with actual environmental performance [21, 22].

Based on Signaling Theory, GW constitutes a form of distorted signaling. By exaggerating or selectively disclosing environmental information, businesses introduce noise that impairs consumers' ability to distinguish substantive sustainability efforts from symbolic communication [1, 2]. Such signal distortion weakens trust-based market mechanisms and undermines sustainable consumption systems, particularly in emerging markets characterized by limited regulatory oversight and verification capacity [7]. Accordingly, this study conceptualizes GW as a negative market signal that disrupts consumers' evaluative judgments, leading to unfavorable assessments of GA, GT, and GBI [8]. These signaling failures erode consumer confidence and weaken the informational foundations required for sustainable consumption planning [15, 17].

Importantly, consumers do not interpret sustainability signals uniformly. GPV reflects consumers' evaluation of the functional, emotional, and environmental benefits associated with green products and operates as a critical filter condition shaping responses to misleading environmental claims [23]. Value-oriented consumers apply stricter evaluative standards and therefore exhibit stronger trust- and image-based reactions when GW is detected [24, 25].

#### 2.1.2 Theory of Planned Behavior

The TPB provides a well-established framework for explaining intention-driven behavior, including environmentally responsible consumption. TPB posits that behavioral intention is shaped by evaluative beliefs, among which attitude toward the behavior plays a central role in translating beliefs into intention. In the context of green consumption, prior research consistently demonstrates that favorable GAs significantly influence green purchase intention (GPI) by aligning personal environmental values with consumption decisions [26, 27]. In addition to attitude, trust-based beliefs are particularly salient in sustainability contexts characterized by uncertainty and information asymmetry. GT reflects consumers' confidence in the authenticity and reliability of firms' environmental claims and has been shown to positively influence GPI, especially in markets where misleading sustainability communication is prevalent [28, 29]. Based on the overlap between trust- and image-based evaluations in green markets, this study represents them as a credibility-based evaluation in the final model (GBC).

The authors applied the TPB to explain how consumers' evaluative judgments, specifically GA and GT, are translated into GPI. Accordingly, this study uses TPB's intention-formation logic by focusing on attitude and credibility-related evaluations as proximal mechanisms, rather than testing the complete TPB model. However, despite adopting the full TPB structure, subjective norms and perceived behavioral control are not included. The research focus lies on how distorted sustainability signals shape intention formation through attitudinal and trust-based mechanisms. Thus, the TPB application is parsimonious and mechanism-focused.

By integrating TPB with Signaling Theory, this study develops the interpretation of sustainability signals with behavioral intention formation. Signaling Theory explains how GW distorts environmental information and weakens consumer evaluations. TPB clarifies how these weakened evaluations are subsequently translated into reduced GPIs.

### 2.2 Conceptual framework

#### 2.2.1 Greenwashing

GW represents a major challenge to corporate accountability and sustainability governance and is commonly defined as the strategic misrepresentation or exaggeration of

firms' environmental achievements for reputational or economic gain [1, 22]. Such practices typically involve vague eco-friendly rhetoric, selective environmental disclosure, or symbolic ecological imagery that overstates actual environmental performance [2]. Prior research showed that GW erodes the credibility of sustainability communication and fosters green skepticism, whereby consumers question the authenticity of environmental claims [8, 14]. In contexts with weak institutional enforcement and limited verification mechanisms, this skepticism may evolve into green cynicism, characterized by persistent negative sentiment toward corporate environmental messaging [13].

By undermining trust and generating unfavorable evaluations, GW weakens GPI and constrains progress toward responsible consumption and production [25, 30]. From a signaling perspective, GW operates as a distorted market signal that degrades information quality and disrupts consumers' evaluative judgments, thereby weakening trust-based mechanisms essential for effective sustainable consumption planning.

2.2.2 Green Purchase Intention

GPI refers to consumers' willingness to purchase products that minimize environmental harm and support sustainable production practices [31, 32]. GPI is widely regarded as an early indicator of green marketing success and a proximal predictor of sustainable consumption behavior [33]. Within the TPB, GPI represents a central behavioral intention linking evaluative beliefs, particularly attitude and trust, to subsequent consumption behavior. Prior research shows that GPI is highly sensitive to the perceived credibility of sustainability-related information, especially in markets where GW is prevalent [16, 34]. Misleading environmental claims erode GT and foster unfavorable attitudes, thereby weakening intention formation and reducing consumers' support for environmentally responsible products.

From a sustainable development perspective, weakened GPI reflects a broader challenge for sustainable consumption systems, as individual intentions constitute the micro-level foundation of responsible consumption planning. In emerging markets such as Vietnam, where institutional oversight remains uneven, understanding how GW undermines intention formation is therefore critical for strengthening sustainability governance in the FMCG sector [12, 35, 36].

## 2.3 Hypothesis development

2.3.1 Greenwashing and Green Attitude

GA refers to consumers' overall evaluative orientation toward environmentally responsible products and green consumption practices, and represents a core antecedent of behavioral intention within the TPB [19]. A favorable GA reflects moral alignment with sustainability values and increases consumers' willingness to engage in responsible consumption [26, 35].

From a signaling perspective, GW functions as a form of signal distortion that weakens the credibility of environmental claims. When consumers perceive inconsistencies between firms' sustainability rhetoric and actual practices, such distorted signals undermine perceived ethical congruence and generate evaluative uncertainty toward green products [8, 37]. Consequently, consumers develop less favorable attitudes toward green products, reflecting diminished confidence in the authenticity of sustainability communication. Based on the above arguments, the authors propose the following research hypothesis:

**H1a:** *GW negatively influences GA*.

2.3.2 Greenwashing and Green Trust

GT refers to the extent to which consumers believe that green products - and the firms offering them - are genuinely committed to environmental values rather than merely engaging in promotional claims or GW practices [28, 38]. GT plays a crucial role in shaping consumers' GPI and behavior, while also helping to reduce the inconsistency between intention and actual green purchasing behavior [29].

From a signaling perspective, GW constitutes a form of distorted environmental signaling that undermines information credibility. When consumers detect inconsistencies or exaggerations in environmental claims, their confidence in the environmental authenticity of green products declines, leading to the erosion of GT [7, 34]. Such signal distortion is particularly detrimental in emerging markets, where trust-based mechanisms are essential for the functioning of sustainable consumption systems.

**H1b:** *GW negatively influences GT*.

2.3.3 Greenwashing and Green Brand Image

GBI reflects consumers' overall brand-level perception of a firm's environmental credibility and commitment to sustainability, formed through accumulated exposure to sustainability-related communication and practices [38]. A favorable GBI strengthens positive brand associations and supports long-term engagement with environmentally responsible products.

From a signaling perspective, repeated exposure to misleading sustainability claims introduces signal inconsistency that weakens the reliability of environmental communication. Such signal distortion gradually erodes GBI by undermining consumers' confidence in a brand's long-term environmental commitment [22, 39]. When sustainability communication is perceived as exaggerated or symbolic, consumers are less likely to associate the brand with genuine environmental responsibility. Accordingly, the authors propose the following research hypothesis:

**H1c:** *GW negatively influences GBI*.

2.3.4 Green Attitude, Green Trust, Green Brand Image, and Green Purchase Intention

GPI represents consumers' willingness to support environmentally responsible products and serves as the most immediate antecedent of sustainable consumption behavior. Within the TPB, intention formation is primarily driven by consumers' evaluative judgments, including attitudes toward the behavior and trust-based beliefs that reflect confidence in expected outcomes [19].

A favorable GA reflects consumers' positive evaluation of environmentally responsible consumption and motivates alignment between personal environmental values and purchasing decisions. Prior studies consistently show that positive GAs strengthen consumers' intention to engage in sustainable purchasing by reinforcing moral commitment and perceived behavioral relevance [16, 31]. Accordingly, a GA is expected to have a positive influence on GPI.

GT further plays a critical role in shaping intention formation, particularly in sustainability contexts characterized by uncertainty and information asymmetry. When consumers trust that firms genuinely fulfill their environmental claims,

perceived risk is reduced, and confidence in the environmental impact of purchasing decisions is strengthened. Empirical evidence suggests that GT significantly enhances consumers' willingness to support environmentally responsible products, especially in markets where misleading sustainability communication is prevalent [28, 34].

Beyond individual attitudes and trust, GBI represents consumers' overall perception of a brand's environmental credibility and long-term commitment to sustainability. From a signaling perspective, GBI functions as an accumulated signal derived from consistent sustainability-related communication and observed behavior over time. A favorable GBI can reduce evaluative uncertainty and serve as a heuristic cue to guide consumer decision-making, particularly in emerging markets where formal verification mechanisms are limited [22, 39]. As such, GBI is expected to contribute positively to GPI, although its influence may be comparatively weaker than that of attitude and trust. Based on the above discussion, the following hypotheses are proposed:

**H2a:** *GA positively influences GPI.*
**H2b:** *GT positively influences GPI.*
**H2c:** *GBI positively influences GPI.*

2.3.5 The mediating role of Green Attitude, Green Trust, and Green Brand Image

Drawing on Signaling Theory and the TPB, this study conceptualizes GW as a distorted market signal that undermines GPI through consumers' evaluative judgments. From a signaling perspective, misleading environmental communication degrades information quality, creating ambiguity in how sustainability claims are interpreted and assessed [16, 31]. Such signal distortion weakens consumers' confidence in firms' environmental credibility and prompts reassessment of green-related evaluations.

Within the framework of the TPB, these evaluations operate as proximal determinants of intention formation. GA reflects consumers' overall assessment of environmentally responsible consumption and its perceived moral congruence. Exposure to exaggerated or misleading claims weakens this evaluation by generating skepticism and cognitive dissonance between declared environmental values and perceived authenticity [13, 40]. GT captures consumers' willingness to rely on firms' environmental integrity under uncertainty, and is particularly vulnerable to distorted sustainability signals, which erode confidence in the reliability of green claims [41].

GW further influences intention formation through GBI, representing consumers' accumulated perception of a brand's environmental credibility over time. Repeated exposure to misleading sustainability communication weakens favorable brand-level associations and reduces the heuristic value of brand image in guiding green purchase decision [8, 38, 42]. Accordingly, GA, GT, and GBI are conceptualized as parallel mediating mechanisms through which distorted sustainability signals translate into weakened GPI. Accordingly, the following mediation hypotheses are proposed:

**H3a:** *GA mediates the relationship between GW and GPI.*
**H3b:** *GT mediates the relationship between GW and GPI.*
**H3c:** *GBI mediates the relationship between GW and GPI.*

2.3.6 The moderating role of Green Perceived Value

Within the framework of Signaling Theory, GPV functions as a cognitive filter through which consumers interpret, decode, and evaluate environmental claims. When confronted with potentially misleading sustainability messages, individuals rely on their perceived value orientation to judge whether a company's green communication is authentic or deceptive [24, 42]. Consumers with stronger GPV tend to engage in deeper cognitive processing and apply stricter moral and evaluative standards when assessing sustainability-related signals, which enhances their ability to distinguish credible environmental efforts from symbolic or exaggerated claims [25, 31]. As a result of this value-based evaluative process, the impact of GW on psychological constructs such as GA, GT, and GBI does not operate uniformly across consumers but varies depending on their GPV. High-GPV consumers evaluate environmental signals more critically, filtering out deceptive cues and responding more strongly to perceived inconsistencies between corporate claims and actual practices, which may intensify negative reactions when GW is detected [40]. Conversely, low-GPV consumers—those who attach limited functional, emotional, or moral importance to environmental value—are less engaged in critical evaluation and therefore more susceptible to generalized skepticism or indifference toward environmental communication, reacting negatively in a less differentiated manner [16]. Under these conditions, GPV shapes the direction and strength of the GW effect by conditioning how environmental signals are processed rather than uniformly buffering or mitigating their negative consequences.

Accordingly, the following moderation hypotheses are proposed:

**H4a:** *GPV moderates the relationship between GW and GA.*
**H4b:** *GPV moderates the relationship between GW and GT.*
**H4c:** *GPV moderates the relationship between GW and GBI.*

In summary, the proposed research model is presented in Figure 1.

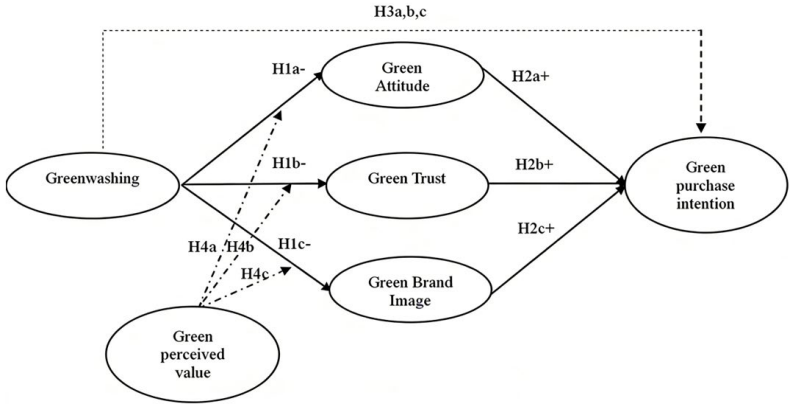


**Figure 1.** Proposed research model

**Table 1.** Measurement scales

| Construct | Code | No. of Items | Source / Adapted from |
|---|---|---|---|
| Greenwashing (GW) | GW1–GW5 | 5 | [43] |
| Green Attitude (GA) | GA1–GA3 | 3 | [37] |
| Green Trust (GT) | GT1–GT5 | 5 | [39] |
| Green Brand Image (GBI) | GBI1–GBI5 | 5 | [43] |
| Green Perceived Value (GPV) | GPV1–GPV4 | 4 | [44] |
| Green Purchase Intention (GPI) | GPI1–GPI5 | 5 | [37] |

## 3. METHODS

### 3.1 Research design and data collection

This study adopted a quantitative, cross-sectional design to examine the effects of GW on GPI through evaluative mechanisms, incorporating the moderating role of GPV. Data were collected using an online survey administered via Google Forms. A purposive convenience sampling approach with quota allocation was employed across Vietnam's four major urban centers: Hanoi, Ho Chi Minh City, Da Nang, and Can Tho, from August to October, 2025. The distribution of questionnaires across these cities was proportionally aligned with their respective urban population statistics to enhance the representativeness of the sample within the context of urban FMCG consumers. Participants were required to be at least 18 years old, hold a university degree or higher, and report prior awareness of green FMCG products, reflecting sufficient information-processing capacity to interpret sustainability-related signals and evaluate potentially misleading environmental claims. In this study, green FMCG refers to frequently purchased consumer goods produced/packaged in environmentally responsible ways, typically identifiable via eco-labels/environmental certifications (e.g., organic-certified foods and beverages, recyclable/biodegradable or reduced-plastic packaging, and personal care/cleaning products with natural ingredients). Respondents were instructed to recall one specific green FMCG brand they knew or were interested in, and to answer all items with reference to that brand based on their prior exposure and/or usage experience. Ethical considerations were addressed through an informed-consent statement on the first survey page; participation was voluntary, anonymous, and respondents could exit at any time. After data screening, 522 valid responses were retained for analysis.

### 3.2 Measurement development

Measurement items were adapted from established scales and subjected to back-translation to ensure linguistic accuracy. All constructs were measured using five-point Likert scales (1 = Strongly Disagree, 5 = Strongly Agree).

Table 1 summarizes the measurement items and sources. Specifically, two indicators (GW2 and GBI1) were excluded due to low factor loadings (< 0.70) [45]. All remaining indicators met the recommended criteria for reliability and validity, consistent with established guidelines for PLS-SEM analysis [46].

### 3.3 Data analysis

The proposed research model was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software. This method is suitable for models that incorporate parallel mediating mechanisms and moderation effects, as well as for theory testing in emerging market contexts.

The analysis followed a two-step procedure. First, the measurement model was evaluated in terms of reliability and validity. Second, the structural model was assessed by examining direct, indirect, and moderating effects, by using a bootstrapping procedure (with n = 5,000).

## 4. RESULTS

### 4.1 Descriptive statistics

Table 2 summarizes the demographic profile of the respondents. The results show a balanced gender distribution, with 47.9% male and 52.1% female respondents. In terms of age, the sample is predominantly composed of young consumers, with 64.2% aged 18–24 and 21.1% aged 25–34. Overall, more than 85% of respondents are under 35 years old, representing age cohorts most actively exposed to sustainability-related information and green consumption practices in urban FMCG markets. All respondents hold a university degree or higher, including 61.3% with a bachelor's degree and 38.7% with postgraduate qualifications. Monthly income levels are relatively heterogeneous, with 36.4% earning below VND 10 million, 41.2% between VND 10–20 million, and 22.4% above VND 20 million. Geographically, respondents are drawn from Vietnam's four major urban centers - Ho Chi Minh (37.9%), Hanoi (30.3%), Da Nang (16.1%), and Can Tho (15.7%) - ensuring coverage of metropolitan areas where green FMCG products and sustainability communication are most prevalent.

**Table 2.** Demographic profile of respondents (n = 522)

| Variable | Category | Frequency | Percentage (%) |
|---|---|---|---|
| Gender | Male | 250 | 47.9 |
| | Female | 272 | 52.1 |
| Age group | 18–24 (Gen Z) | 335 | 64.2 |
| | 25–34 | 110 | 21.1 |
| | 35–38 | 77 | 14.7 |
| Education level | Bachelor's degree | 320 | 61.3 |
| | Postgraduate (Master/PhD) | 202 | 38.7 |
| Monthly income (VND) | < 10 million | 190 | 36.4 |
| | 10–20 million | 215 | 41.2 |
| | > 20 million | 117 | 22.4 |
| City | Hanoi | 158 | 30.3 |
| | Ho Chi Minh | 198 | 37.9 |
| | Da Nang | 84 | 16.1 |
| | Can Tho | 82 | 15.7 |

### 4.2 Common method bias assessment

Given the self-reported, cross-sectional nature of the data, common method bias (CMB) was assessed following established methodological recommendations. Statistical examination was conducted using the full collinearity variance

inflation factor (VIF) approach, which is effective in detecting common method variance in PLS-SEM models [47]. The results indicate that all latent constructs exhibit VIF values below the conservative threshold of 3.3, suggesting that CMB is unlikely to be a serious concern in this study.

### 4.3 Measurement model results

The measurement model was assessed for internal consistency reliability, convergent validity, and discriminant validity (Table 3), following established guidelines for PLS-SEM [46]. All constructs met or exceeded the recommended threshold values for reliability and validity. The authors removed GBI1 and GW2 because their outer loadings were below 0.70. The remaining indicators, finally ranging from 0.740 to 0.867, satisfied the criterion [45]. Cronbach's alpha values ranged from 0.821 to 0.854, Composite reliability (CR) values were above 0.80, and average variance extracted (AVE) values exceeded the recommended threshold of 0.50 for all constructs, confirming convergent validity of the measurement model [46].

**Table 3.** Measurement model assessment

| Construct | Indicator | Outer Loading | Cronbach's α | CR | AVE |
|---|---|---|---|---|---|
| GA | GA1 | 0.826 | 0.854 | 0.882 | 0.653 |
| | GA2 | 0.838 | | | |
| | GA3 | 0.779 | | | |
| GBI | GBI1 | **0.460** | 0.821 | 0.867 | 0.620 |
| | GBI2 | 0.778 | | | |
| | GBI3 | 0.781 | | | |
| | GBI4 | 0.741 | | | |
| GT | GT1 | 0.772 | 0.825 | 0.877 | 0.589 |
| | GT2 | 0.806 | | | |
| | GT3 | 0.764 | | | |
| | GT4 | 0.741 | | | |
| | GT5 | 0.751 | | | |
| GW | GW1 | 0.751 | 0.828 | 0.871 | 0.628 |
| | GW2 | **0.605** | | | |
| | GW3 | 0.837 | | | |
| | GW4 | 0.867 | | | |
| | GW5 | 0.754 | | | |
| GPV | GPV1 | 0.781 | 0.836 | 0.874 | 0.636 |
| | GPV2 | 0.775 | | | |
| | GPV3 | 0.798 | | | |
| | GPV4 | 0.784 | | | |
| GPI | GPI1 | 0.740 | 0.842 | 0.879 | 0.645 |
| | GPI2 | 0.765 | | | |
| | GPI3 | 0.763 | | | |
| | GPI4 | 0.787 | | | |
| | GPI5 | 0.813 | | | |

Note. CR = Composite Reliability; AVE = Average Variance Extracted. GBI1 and GW2 were removed

The authors used the heterotrait–monotrait ratio (HTMT) to assess the discriminant validity of the measurement model. As shown in Table 4, most HTMT values were below the conservative threshold of 0.85, indicating satisfactory discriminant validity among the constructs [48]. However, the discriminant validity assessment revealed an excessively high HTMT ratio of 0.964 between GT and GBI, indicating a substantial conceptual overlap [46, 48]. This statistical result reflects a specific characteristic of the research context. In the Vietnamese FMCG market, where GW is widespread, and verification mechanisms are weak, consumers often face difficulty in separating a brand's reputation (GBI) from its actual reliability (GT) [9, 11]. Faced with ambiguous environmental claims, consumers tend to merge these two judgments into a single, holistic assessment.

Given the lack of discriminant validity indicated by the high HTMT ratio between GT and GBI, these two constructs were merged into a reflective second-order construct to ensure model parsimony and theoretical robustness. This approach is recommended when theoretically related dimensions show strong empirical overlap and helps avoid interpretational ambiguity while preserving the multidimensional conceptualization [49, 50]. The higher-order construct was estimated by using the two-stage approach as recommended in PLS-SEM [46, 49].

**Table 4.** The Heterotrait–monotrait ratio

| Constructs | GA | GT | GBI | GPV | GW | GPI |
|---|---|---|---|---|---|---|
| GA | | | | | | |
| GT | 0.812 | | | | | |
| GBI | 0.774 | **0.964** | | | | |
| GPV | 0.681 | 0.702 | 0.654 | | | |
| GW | 0.593 | 0.618 | 0.621 | 0.578 | | |
| GPI | 0.814 | 0.786 | 0.769 | 0.702 | 0.566 | |

Based on Signaling Theory [51, 52], the higher-order construct is termed GBC. Brand credibility is conceptualized as the summation of a brand's trustworthiness (willingness to deliver promises) and expertise (ability to deliver promises) [53]. In this study, the GT items (e.g., reliability, adherence to promises) reflect the trustworthiness dimension, while the GBI items (e.g., gold standard, environmental success) capture the expertise and reputational dimension. Consequently, GBC serves as a holistic measure of the brand's believability regarding its environmental commitments.

As a result of respecifying GT and GBI into the higher-order construct GBC, the initial hypotheses associated with these separate dimensions were integrated. Specifically, H1b and H1c were coalesced into a new hypothesis (H1bc) testing the impact of GW on GBC. Similarly, H2b and H2c were combined to test the effect of GBC on GPI (H2bc), while H3b and H3c were merged to examine the mediating role of GBC (H3bc). Finally, H4bc (combined from H4b and H4c) presented the moderating effect of GPV on the relationship between GW and GBC. The subsequent structural model analysis will test these integrated relationships.

Table 5 reports the final measurement assessment of the post-hoc model adjustment. Indicator reliability was satisfactory as all reflective indicators exhibited outer loadings above 0.70 (ranging from 0.740 to 0.942) [45]. Notably, the reflective higher-order construct GBC showed strong loadings on its two stage-two indicators (GT_Score = 0.942; GBI_Score = 0.934).

Cronbach's alpha values ranged from 0.747 to 0.864, and composite reliability (CR) values ranged from 0.856 to 0.936, indicating satisfactory internal consistency across all reflective constructs. Convergent validity was also supported [46], as the AVE for each construct exceeded the 0.50 threshold (0.599–0.880), with GBC demonstrating particularly strong reliability and convergence (CR = 0.936; AVE = 0.880).

Discriminant validity assessment by using HTMT was presented in Table 6, with all values below the 0.90 threshold [48]. As a supplementary check, the Fornell-Larcker criterion was also satisfied (Table 7). The square root of AVE for each construct exceeded its correlations with other constructs, providing further support for discriminant validity [54].

**Table 5.** Measurement model assessment (post-hoc model adjustment)

| Construct | Indicator | Outer Loadings | Cronbach's Alpha | CR | AVE |
|---|---|---|---|---|---|
| GA | GA1 | 0.826 | 0.747 | 0.856 | 0.664 |
| | GA2 | 0.838 | | | |
| | GA3 | 0.779 | | | |
| Grene Brand Credibility (GBC) | GBI_Score | 0.934 | 0.864 | 0.936 | 0.880 |
| | GTI_Score | 0.942 | | | |
| GW | GW1 | 0.757 | 0.820 | 0.881 | 0.650 |
| | GW3 | 0.83 | | | |
| | GW4 | 0.871 | | | |
| | | 0.759 | | | |
| GPV | GPV1 | 0.783 | 0.792 | 0.865 | 0.616 |
| | GPV2 | 0.774 | | | |
| | GPV3 | 0.797 | | | |
| | GPV4 | 0.785 | | | |
| GPI | GPI1 | 0.740 | 0.833 | 0.882 | 0.599 |
| | GPI2 | 0.765 | | | |
| | GPI3 | 0.763 | | | |
| | GPI4 | 0.787 | | | |
| | GPI5 | 0.812 | | | |

Note: CR = Composite Reliability; AVE = Average Variance Extracted. GW2 was removed in the previous model assessment.

**Table 6.** Discriminant validity (HTMT)

| | GA | GBC | GPI | GPV | GW |
|---|---|---|---|---|---|
| GA | | | | | |
| GBC | 0.778 | | | | |
| GPI | 0.876 | 0.664 | | | |
| GPV | 0.898 | 0.819 | 0.768 | | |
| GW | 0.220 | 0.290 | 0.182 | 0.163 | |

**Table 7.** Discriminant validity (Fornell-Larcker)

| | GA | GPI | GPV | GTI | GW |
|---|---|---|---|---|---|
| GA | 0.815 | | | | |
| GPI | 0.697 | 0.774 | | | |
| GPV | 0.693 | 0.629 | 0.785 | | |
| GTI | 0.627 | 0.569 | 0.679 | 0.717 | |
| GW | -0.172 | -0.15 | -0.136 | -0.251 | 0.806 |

**Table 8.** Collinearity statistics

| | Inner VIF |
|---|---|
| GA→GPI | 1.646 |
| GBC→GPI | 1.646 |
| GW→GA | 1.134 |
| GW→GBC | 1.134 |
| GPV x GW→GA | 1.12 |
| GPV x GW→GBC | 1.12 |

### 4.4 Structural model assessment and hypothesis testing

Before interpreting the path coefficients, the structural model was examined for lateral collinearity. All Inner VIF values ranged from 1.12 to 1.646 (Table 8), well below the threshold of 3, confirming that collinearity is not a concern [50].

4.4.1 Direct effects

The structure of the post-hoc model adjustment was assessed using a bootstrapping procedure with 5,000 resamples. The results are summarized in Table 9.

Consistent with hypothesis H1a and H1bc (Combines original H1b & H1c), GW has negative effects on GA, with β = -0.078; p-value = 0.034; and GBC, with β = -0.110; p-value < 0.001 [46]. The 95% bias-corrected confidence intervals for all path coefficients did not include zero, providing robust support for the proposed direct hypotheses. These findings indicate that perceived GW systematically undermines consumers' attitudinal, trust-based, and brand-image evaluations.

**Table 9.** Structural model assessment results (post-hoc model adjustment)

| Path | β (O) | T-Value | P-Value | 95% CI | Conclusion |
|---|---|---|---|---|---|
| GW→GA | -0.078 | 2.121 | 0.034 | [-0.153; -0.009] | Accepted |
| GW→GBC | -0.110 | 3.569 | < 0.001 | [-0.173; -0.051] | Accepted |
| GA→GPI | 0.562 | 15.018 | < 0.001 | [0.487; 0.635] | Accepted |
| GBC→GPI | 0.215 | 5.497 | < 0.001 | [0.137; 0.291] | Accepted |
| GW→GPI | -0.01 | 0.027 | **0.978** | [-0.063; -0.054] | Not Accepted |
| GW→GA→GPI | -0.044 | 2.063 | 0.039 | [-0.089; -0.005] | Accepted (Full Mediation) |
| GW→GBC→GPI | -0.024 | 3.32 | 0.001 | [-039; -0.011] | Accepted (Full Mediation) |
| GPV × GW→GA | -0.006 | 0.164 | **0.869** | [-0.082; 0.070] | Not significant |
| GPV × GW→ GBC | -0.179 | 3.881 | <0.001 | [-0.268; -0.088] | Significant (negative) |

Regarding Hypotheses H2a and H2bc (Combines original H2b & H2c), GPI is significantly driven by GA (β = 0.562; p-value < 0.001; CI = [0.487-0.635]), and GBC (β = 0.215; p-value < 0.001; CI = [0.137-0.291]) [46].

4.4.2 Mediation effects

Mediation analysis indicates that GA significantly mediates the relationship between GW and GPI (β = -0.044, p-value = 0.039), supporting H3a. GBC also serves as a significant mediator (β = −0.024, p = 0.001), supporting H3bc (Combines original H3b & H3c).

In both cases, the indirect effects of GW on GPI via GA and GT are statistically significant, while no direct path from GW to GPI is specified in the model (β = -0.001; p-value = 0.978). This pattern indicates that GA and GBC play a full mediation role.

4.4.3 Moderation effects

The moderation effects were tested using the two-stage approach in PLS-SEM with 5,000 bootstrap subsamples. The results in Table 9 indicate that GPV does not moderate the relationship between GW and GA (β = -0.006, p-value = 0.869), and the 95% bias-corrected confidence interval [-0.082, 0.071], including zero. Hypothesis H4a is not accepted. On the other hand, the analysis revealed a significant moderating effect of GPV on the relationship between GW and GBC. The interaction term showed a significant negative coefficient (β = -0.179, p-value < 0.001), with a 95% confidence interval of [-0.264, -0.084]. Hypothesis H4bc (Combines original H4b & H4c) is accepted. This negative

interaction coefficient suggests that GPV exacerbates the negative impact of GW on GBC.

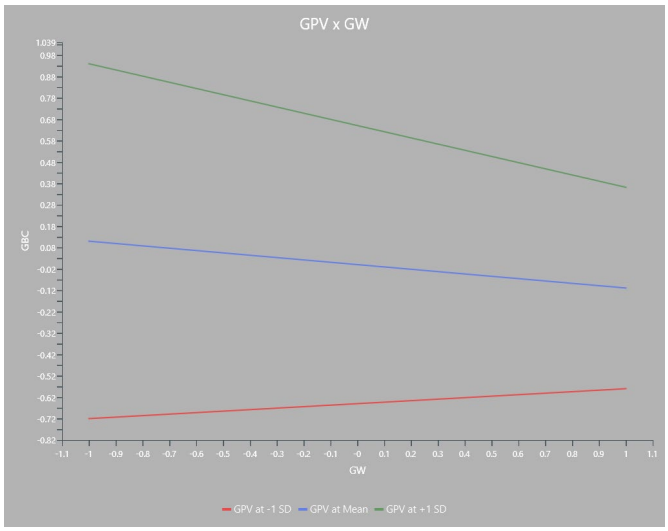


**Figure 2.** Moderating effect of GPV

To interpret the nature of this significant interaction, a simple slope analysis was conducted (Figure 2). The negative slope of the relationship is much steeper for consumers with high GPV (green line, +1 SD) compared to those with low GPV (red line, -1 SD). These findings imply that consumers who perceive high value in green products are more sensitive to GW; consequently, their perception of the brand's credibility diminishes more severely when GW is detected compared to consumers who perceive lower value.

4.4.4 Model explanatory and predictive assessment

Following the hypothesis testing, the quality of the structural model was assessed via the coefficient of determination ($R^2$), effect size ($f^2$), and predictive relevance ($Q^2$) (Table 9).

First, the model demonstrates substantial explanatory power, accounting for 51.4% of the variance in GPI ($R^2$ = 0.514), 50.9% in GBC ($R^2$ = 0.509), and 48.6% in GA ($R^2$ = 0.486). These values indicate that the identified antecedents adequately explain the consumer decision-making process in the green FMCG context. GA was modeled as a function of GW, GPV, and the interaction term GW×GPV; GBC was modeled as a function of GW, GPV, and GW×GPV; and GPI was modeled as a function of GA and GBC (no control variables were included).

**Table 10.** Predictive power (post-hoc model adjustment)

| Construct | $R^2$ | $R^2$ Adjusted | $Q^2$ Predict | $f^2$ |
|---|---|---|---|---|
| GA | 0.486 | 0.483 | 0.478 | GW→GA: 0.010 (Small) |
| GBC | 0.509 | 0.507 | 0.500 | GW→GBC: 0.022 (Small); Interation: GPV x GW→GBC: 0.049 (Small) |
| GPI | 0.514 | 0.512 | 0.382 | GA→GPI: 0.394 (Large); GBC →GPI: 0.058 (Small) |

Second, the effect size analysis ($f^2$) highlights the relative importance of each predictor. Notably, GA has a large effect on GPI ($f^2$ = 0.394), whereas GBC shows a small effect ($f^2$ = 0.058) [55]. The effect of GW on the mediators was statistically significant but relatively small in magnitude ($f^2$ range from 0.010 to 0.022).

Finally, the model's predictive accuracy was confirmed using the PLS-predict procedure (Table 10). The $Q^2$ predict values for all endogenous constructs (GA: 0.478; GBC: 0.500; GPI: 0.382) are considerably larger than zero, establishing the model's high predictive relevance (Shmueli et al., 2019). Additionally, the Standardized Root Mean Square Residual (SRMR) of 0.067 meets the criteria for good model fit (< 0.08) [48].

## 5. DISCUSSION

The results of this study provide essential insights into how GW disrupts the consumer decision-making process within the context of an emerging market's FMCG sector. While the results largely support the principles of Signaling Theory and the TPB, distinct structural deviations, specifically regarding the consolidation of GT and GBI, and the full mediation mechanism, provide new theoretical distinctions.

A distinctive contribution of this study is the empirical integration of GT and GBI into a higher-order construct termed GBC. Earlier studies in Vietnam [39, 43] showed the difference between GT and GBI. However, this study found that there was a lot of conceptual overlap (HTMT > 0.90) between these constructs.

This divergence can be attributed to the fundamental difference in product category involvement. Ha et al. [43] examined electronic products, a high-involvement category characterized by high financial risk and technical complexity. In such contexts, consumers typically engage in central-route processing [56], motivating them to cognitively separate a brand's projected image from its functional reliability. On the other hand, the present study focuses on FMCG, a low-involvement category driven by habitual purchasing and limited cognitive effort. In this high-velocity, low-risk environment, consumers rely heavily on peripheral cues and heuristics. When faced with the unclear signals of GW, FMCG consumers were less likely to look closely at the difference between image and trust. Instead, they combine both assessments into one overall opinion of the brand's believability. This means that the "halo effect" of green branding is significantly more pronounced in low-involvement sectors, where "looking green" and "being green" are often indistinguishable to consumers.

The structural analysis confirms that GA and GBC act as full mediators (indirect-only mediation) in the relationship between GW and GPI (Figure 3) [28, 40]. GW does not have a major direct negative effect on the intention to buy. Instead, its negative influence comes from the fact that it makes people's own judgments worse [43]. This finding contrasts with studies in high-involvement sectors [7, 8, 14], which often report direct punitive reactions from consumers. In the FMCG context, the lack of a straight path shows that customers don't instantaneously reject products just because they see signs of GW. This is probably because it's hard to verify right away [1, 11]. Instead, GW functions as a latent that destroys the brand's credibility. Only when this skewed signal effectively undermines the consumer's attitude and dismantles

the whole perception of brand trustworthiness does the intention to purchase disintegrate [28]. Thus, credibility serves as the absolute gatekeeper of green consumption behavior; without it, even attractive product attributes fail to translate into purchase intention [51, 52].

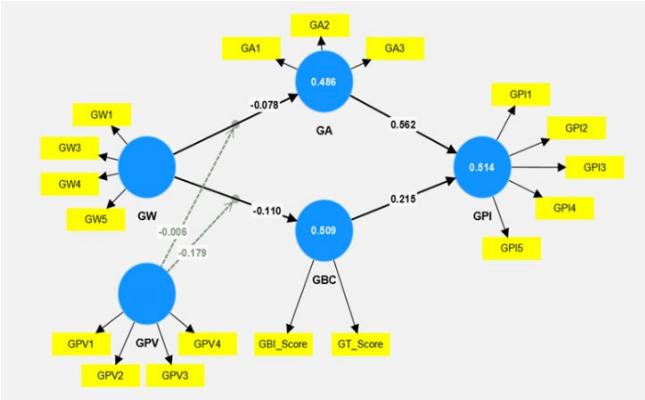


**Figure 3.** Structural model assessment results (post-hoc model adjustment)

Finally, the study clarifies the boundary condition of GPV. In contrast to the buffering hypothesis, which suggests that strong environmental values might protect consumers from negative market information [35, 44], the findings demonstrate that GPV acts as a sensitivity amplifier. The significant negative moderation effect implies that consumers with high GPV apply stricter evaluative standards [24, 25]. When these value-oriented consumers detect GW, they don't just see it as an exaggeration in marketing; they see it as a breach of their underlying values [40]. Consequently, the degradation of GBC is much more severe for high-GPV consumers compared to their low-GPV counterparts. This corresponds with the "betrayal effect," indicating that in the signaling process, receivers with a stronger value orientation apply more scrutiny and impose stricter penalties on misleading signalers [24, 30].

## 6. CONCLUSION AND IMPLICATIONS

### 6.1 Conclusion

This study advances understanding of GW in the context of sustainable consumption planning by demonstrating how misleading sustainability communication undermines GPI through cognitive–affective mechanisms. Based on survey data from 522 consumers in Vietnam's FMCG sector and PLS-SEM analysis, the findings indicate that GW operates as a negative market signal that weakens GA, GT, and GBI. Among these mechanisms, GA and GT emerge as the primary pathways through which GW diminishes GPI.

The results further reveal that GPV intensifies, rather than mitigates, consumers' sensitivity to GW, leading to stronger deterioration of trust and brand image when misleading claims are detected. This finding challenges the assumption that environmental value orientation uniformly protects consumers from deceptive sustainability communication. Overall, the study highlights GW as a systemic risk to sustainable consumption planning, particularly in emerging markets where institutional verification and sustainability governance remain limited.

### 6.2 Theoretical implications

This research contests the universality of green branding frameworks. It demonstrates that the distinction between GT and GBI isn't always the same; it depends on how involved the person is with the product. These constructs are different in sectors with a lot of engagement (like electronics), but they tend to come together in sectors with less involvement (like FMCG). This contributes to the Elaboration Likelihood Model (ELM) literature by showing how low-processing motivation in FMCG leads to the structural merger of evaluative constructs.

By empirically validating GBC as a higher-order construct, the study offers a more parsimonious metric for researching sustainable consumption in low-involvement markets. It suggests that future FMCG research should prioritize credibility instead of distinct measures of image or trust.

The study refines the boundary condition of GPV. GPV is not a protective shield; it is a sensitivity amplifier. This finding contributes to the literature on behavioral pricing and signaling by showing that "value" means "scrutiny"; people who think something is worth a lot anticipate it to be real.

### 6.3 Managerial implications

Because FMCG consumers do not separate GBI from GT, businesses cannot employ a coupling strategy (for example, building a flashy green image while having low actual trust). Any defect in product reliability will immediately decrease the brand image, and vice versa. Credibility is a single, fragile asset that managers need to protect. A modest GW problem in FMCG can utterly destroy a brand's value because customers don't have the buffer of separate trust/image ratings.

FMCG customers take in information in a more indirect way; complicated technical claims (which work for electronics) may not be able to be used. Instead, companies should concentrate on "Credibility Heuristics"—simple, proven, and consistent signals (like an eco-label on the packaging) that quickly convey both image and trust without needing a lot of thought.

Companies that want to sell to wealthy, eco-friendly customers (high GPV) are at the most risk. These customers are the most unforgiving of GW. To market to this segment, you need to be completely open (for example, using QR codes for traceability and third-party certifications) instead of using emotional green advertising.

For policymakers, the combination of GT and GBI indicates that unclear green claims are making things hard for customers. Regulations should focus on making credibility signals (such as mandated validated eco-labels) more consistent so that customers can tell the difference between real signals and GW noise.

## 7. LIMITATIONS AND FUTURE RESEARCH

Despite its contributions, this study has several limitations that offer directions for future research. First, the merger of GT and GBI into GBC may be context-dependent, reflecting the characteristics of the FMCG sector in Vietnam. Future research should examine this model in high-involvement sectors (such as electric vehicles and real estate) to determine if consumers in these sectors distinguish between Trust and Image more clearly due to deeper information processing.

Second, due to the cross-sectional design, this study could not observe changes in consumer perception over time. Longitudinal research is needed to examine the long-term impact of GW and the trajectory of credibility recovery after a crisis.

Third, as the study focused on educated urban consumers, the findings may not generalize to other demographic groups. Subsequent research ought to investigate if rural or less educated customers likewise integrate Trust and Image into a singular credibility assessment or if they depend on alternative heuristic indicators.

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## APPENDIX

### SURVEY ON GREEN FMCG PURCHASE INTENTION IN VIETNAM

Dear Sir/Madam,

We are a research team from the Industrial University of Ho Chi Minh City. We are conducting this survey to collect information for an academic study on factors influencing consumers' purchase intention toward green FMCG in Vietnam. Please answer the questions below objectively based on your personal opinions. We commit that all information collected will be kept confidential and used solely for academic research purposes.

If you have any comments, please contact us via email: nguyenthibichngoc@iuh.edu.vn.

Sincerely, thank you for your support!

***Notes:*** FMCG are low-priced products purchased frequently, consumed quickly, and easily replaced. Examples: packaged food, beverages, milk, personal care products (toothpaste, shampoo, soap), household cleaning products, etc. Green FMCG products are FMCG products produced, packaged, and distributed in environmentally responsible ways. Examples: organic-certified food and beverages with no harmful chemicals; recyclable/biodegradable packaging or reduced plastic use; personal care and cleaning products with natural ingredients that reduce negative environmental impacts.

Throughout this survey, when we refer to "green FMCG products/brands," please understand that these are environmentally friendly FMCG products, often identified through eco-labels or environmental certifications.

***Consent to participate:*** Please indicate your agreement to provide information for this survey on green FMCG purchase intention in Vietnam:

□ Agree
□ Disagree

**PART 1: SCREENING SECTION**

Q1. Are you aware of or interested in environmentally friendly (green) FMCG products?
□ Yes
□ No (stop the survey)

Q2. Your age at the time of the survey:
□ Over 18

□ Under 18 (stop the survey)

Q3. Is your living/working area in one of these four cities: Ho Chi Minh, Hanoi, Da Nang, Can Tho?
□ Ho Chi Minh
□ Hanoi
□ Da Nang
□ Can Tho
□ Other (stop the survey)

**PART 2: FMCG CONSUMPTION BEHAVIOR**

Q1. Which FMCG category do you purchase most frequently?
□ Food
□ Beverages
□ Personal care products
□ Hygiene/Cleaning products
□ Other: _____

Q2. How often do you purchase FMCG products?
□ Daily
□ Once a week
□ 2–3 times per month
□ Less than once per month

Q3. Where do you usually buy FMCG products?
□ Supermarket/Hypermarket
□ Convenience store
□ Grocery store/Traditional market
□ Online platforms (Shopee, Lazada, Tiki, etc.)
□ Other: _____

**PART 3: MAIN SECTION**

When answering the following questions, please think of one specific green FMCG brand that you know, or are interested in (e.g., organic-certified food and beverages; recyclable/biodegradable packaging or reduced plastic use; personal care and cleaning brands with natural ingredients, etc.). Please write the brand name:

Brand name: _____

Response scale: Please indicate your level of agreement with each statement: 1 – Strongly disagree; 2 – Disagree; 3 – Neutral; 4 – Agree; 5 – Strongly agree

| Code | Indicator | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| GW1 | The FMCG brand uses terms to mislead about its environmental characteristics. | | | | | |
| GW2 | The photographs or visuals used in the FMCG brand's environmental elements are deceiving. | | | | | |
| GW3 | A green claim made by this FMCG brand is unclear or seems to be unprovable. | | | | | |
| GW4 | The FMCG brand overstates the extent to which it is green. | | | | | |
| GW5 | The FMCG brand omits key details, making the green claim seem more impressive than it really is. | | | | | |
| GA1 | I like the idea of green FMCG products. | | | | | |
| GA2 | I have a favorable attitude toward purchasing green FMCG products. | | | | | |

| | |
|---|---|
| GA3 | Purchasing green FMCG products is a good idea. |
| GT1 | The environmental reputation of green FMCG products is inherently trustworthy. |
| GT2 | The environmental performance of green FMCG products is reasonably reliable. |
| GT3 | The environmental statements made by FMCG products are generally reliable. |
| GT4 | The environmental concern of green FMCG products meets my needs. |
| GT5 | The green FMCG product adheres to its environmental promises and commitments. |
| GBI1 | The FMCG brand is commonly regarded as the gold standard in terms of environmental commitments. |
| GBI2 | When it comes to environmental credibility, the FMCG brand is serious. |
| GBI3 | In terms of environmental sustainability, the FMCG brand is a success. |
| GBI4 | When it comes to environmental concerns, the FMCG brand is well-known. |
| GBI5 | The FMCG brand can be trusted when it comes to environmental commitments. |
| GPV1 | The green FMCG product's environmental functions provide very good value for me. |
| GPV2 | The green FMCG product has more environmental concerns than other products. |
| GPV3 | The green FMCG product is environmentally friendly. |
| GPV4 | The green FMCG product has more environmental benefits than other products. |
| GPI1 | If I need to buy fast-moving consumer goods (food, beverages, personal care products, detergents...), I intend to buy green FMCG products. |
| GPI2 | I intend to buy green FMCG products with a higher level of eco-certification/eco-label (i.e., having a better impact on the environment). |
| GPI3 | I am willing to pay a slightly higher price for green FMCG products. |
| GPI4 | Whenever possible, I am going to buy more green FMCG products. |
| GPI5 | I will suggest my family, friends, and colleagues to buy green FMCG products. |

**PART 4: PERSONAL INFORMATION**

Q1. Gender:

□ Male

□ Female

□ Other

Q2. Year of birth:

□ 1997–2007

□ 1981–1996

□ 1965–1980

□ Before 1965

Q3. Education level:

□ Bachelor's degree

□ Postgraduate (Master/PhD)

Q4. Average monthly income:

□ Below 10 million VND

□ From 10 million to below 15 million VND

□ From 15 million to below 20 million VND

□ From 20 million to below 25 million VND

□ Above 25 million VND

Q5. From your total monthly income, approximately what percentage is spent on FMCG products (food, beverages, and other FMCG)?

□ Below 10%

□ 10% – below 20%

□ 20% – below 40%

□ Above 40%

**Thank you very much!**