

Adulteration in Eco-Friendly Products as Material Greenwashing: Trust Erosion and Sustainable Market Implications

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ABSTRACT

The rapid growth of eco-friendly product markets has increased concerns about adulteration, a material form of greenwashing in which products marketed as sustainable contain non-eco or synthetic components. Unlike symbolic exaggeration in environmental communication, adulteration constitutes a product level ethical breach, that compromises product authenticity. Despite exhaustive study of research on greenwashing and eco-label credibility, limited theoretical convergence exists between material adulteration, consumer trust erosion, and institutional safeguards in sustainable markets. To bridge this gap, the research develops an integrated conceptual structure, Consumer Trust Theory and the Ethical Marketing Framework to explain how adulteration disrupts trust-based exchange relationships. Analysing secondary sources from Scopus-indexed literature (2020–2025) and institutional policy reports, consumer trust acts as an intermediary process through which adulteration affects purchase intention and brand loyalty. Regulatory enforcement and label transparency are further seen as conditional safeguards that can mitigate trust erosion. By conceptualizing adulteration as green misrepresentation, the research emphasizes its impact for sustainable market legitimacy. It contributes by integrating psychological and institutional view points in green marketing and provide actionable guidance for businesses and regulators seeking to protect consumer trust in emerging eco-friendly markets.

Keywords: Adulteration, Material Greenwashing, Consumer Trust, Eco-Label Credibility, Regulatory Enforcement, Sustainable Consumption, Emerging Markets.

Introduction

The transition toward sustainable consumption has significantly reshaped contemporary markets. Growing environmental awareness, climate concerns, and regulatory pressures have encouraged firms to introduce eco-friendly products positioned as natural, biodegradable, organic, or environmentally safe. Green marketing has evolved from a niche approach to a central competitive strategy in both developed and emerging economies. As consumers increasingly rely on environmental claims in their purchase decisions, trust has become essential to sustainable market exchange.

However, the rapid commercialization of eco-friendly markets has also created opportunities for opportunistic practices. Among these, adulteration represents an important yet neglected area. Unlike conventional greenwashing, which typically involves exaggerated or misleading communication, adulteration refers to the inclusion of non-eco or synthetic components in products marketed as environmentally friendly. This product-level manipulation represents a more ethical breach because it compromises genuine authenticity rather than merely distorting promotional messaging.

Although existing research has examined greenwashing, eco-label confusion, and deceptive environmental communication, insufficient conceptual linkage positions adulteration as a fundamental causes of trust breakdown in green markets, particularly in emerging economies. Most studies focus on

symbolic misrepresentation without clearly distinguishing it from material adulteration. This lack of differentiation reduces conceptual clarity and limits effective regulatory and managerial responses.

The issue is especially relevant in developing contexts such as India, where eco-labelling systems operate within uncoordinated regulatory framework. Institutions such as the Bureau of Indian Standards and the Food Safety and Standards Authority of India have introduced certification mechanisms; however, inconsistent monitoring and overlapping jurisdictions create regulatory loopholes. As a result, consumer skepticism regarding eco-label authenticity persists, threatening long-term market credibility.

Trust plays a main role in this context. In markets characterized by credibility features where consumers cannot independently verify environmental claims trust reduces information disparities between producers and buyers. When adulteration is revealed, this psychological trustworthiness is disrupted, leading to lower purchase intention, weakened brand loyalty, and broader skepticism toward eco-friendly products.

Against this background, the present study addresses a bridging theoretical and contextual gap by addressing adulteration as a material dimension of greenwashing and merging Consumer Trust Theory with the Ethical Marketing Framework. Drawing on current scholarly literature (2020–2025) and official regulatory reports, the study develops a fundamental framework connecting adulteration, consumer trust, regulatory enforcement, and sustainable market outcomes. The study makes three main contributions. First, it distinguishes material adulteration from communication-based greenwashing, improving conceptual clarity. Second, it positions consumer trust as the mediating factors connecting ethical compliance to behavioural outcomes. Third, it highlights regulatory enforcement and label transparency as institutional safeguards capable of checking trust erosion, particularly in emerging markets.

By advancing this holistic outlook, the paper contributes to green marketing theory, ethical marketing scholarship, and sustainability policy discourse, providing a basis for future empirical research and regulatory development.

Literature Review

Greenwashing has received growing attention in sustainable marketing literature and is generally defined as the misrepresentation of environmental claims for competitive advantage. De Freitas Netto et al. classified greenwashing into several forms, including selective disclosure, ambiguous labelling, and misleading environmental imagery [1]. Similarly, Torelli et al. found that deceptive environmental communication negatively influences stakeholder perception and weakens corporate legitimacy [2]. These studies provide important insights into communication-based deception; however, they largely focus on symbolic misrepresentation rather than product-level manipulation. When firms alter product ingredients while promoting them as eco-friendly, the ethical violation extends beyond communication distortion to product authenticity. The literature rarely differentiates between symbolic exaggeration and material adulteration, creating a significant conceptual gap in sustainable marketing research.

Eco-labels are widely recognized as tools that reduce information asymmetry in markets characterized by credence attributes. Majer et al. found that consumer reliance on eco-labels depends significantly on perceived credibility and clarity [3]. Similarly, Riskos et al. reported that transparency and clarity in environmental labelling enhance consumer trust and purchase intention [4]. Wang and Walker further highlighted that transparency mechanisms and third-party verification help restore consumer confidence after greenwashing incidents [5]. Despite these findings, most studies assume that labelling systems operate reliably and pay limited attention to situations where eco-labels are attached to adulterated products. In such cases, the signalling function of eco-labels weakens and consumer trust declines. This indicates that eco-label research should be examined alongside product authenticity concerns rather than treated solely as a communication mechanism.

Research on adulteration has traditionally focused on food safety and public health issues. Haji et al. emphasized that credence-based products are particularly vulnerable to adulteration because their quality cannot be verified even after consumption [6]. Similarly, Manning and Kowalska highlighted that adulteration risks increase in markets where consumers depend heavily on trust, certification, and regulatory oversight [7]. Eco-friendly products share these characteristics, as consumers cannot directly verify biodegradability, ingredient purity, or sustainability compliance. Despite these similarities,

adulteration research and green marketing literature remain largely disconnected. Studies addressing organic or natural product fraud rarely integrate consumer trust theory or ethical marketing frameworks. As a result, the psychological and behavioural consequences of adulteration in sustainability markets remain insufficiently explored.

Ethical marketing literature emphasizes transparency, honesty, and alignment between marketing claims and organizational practices. Santos et al. argued that authentic sustainability practices strengthen brand loyalty, corporate legitimacy, and stakeholder trust, while deceptive conduct damages long-term reputation [8]. However, much of this literature focuses primarily on communication integrity rather than production integrity. Misleading advertising and material adulteration may differ significantly in the intensity of trust erosion they produce. The limited distinction between these forms reduces theoretical clarity in understanding consumer responses and market outcomes, particularly in sustainability-focused markets.

The regulatory environment also plays an important role in shaping market credibility and consumer confidence. In India, certification initiatives such as EcoMark and Jaivik Bharat aim to improve eco-product verification and promote sustainable consumption [9]. However, overlapping jurisdictions, limited enforcement capacity, and inconsistent monitoring reduce regulatory effectiveness, as highlighted by FSSAI [10] and BIS [11]. Evidence also suggests that many consumers express skepticism toward eco-label authenticity, particularly in emerging markets where enforcement mechanisms are relatively weak. In contrast, markets with stronger and more transparent regulatory systems tend to experience lower levels of sustainability-related fraud. This indicates that institutional enforcement may moderate the relationship between corporate misconduct and consumer trust, an area that remains underdeveloped in green marketing research.

The existing literature highlights several important gaps. Greenwashing research primarily emphasizes communication-based deception, while material adulteration receives limited attention. Eco-label studies focus on credibility but underexplore label misuse linked to product composition. Adulteration research addresses fraud detection but lacks integration with consumer trust and ethical marketing theory. These fragmented research streams reveal the absence of a comprehensive framework connecting adulteration, consumer trust, ethical marketing compliance, and regulatory enforcement in sustainable markets, particularly in emerging economies. Accordingly, the present study advances a conceptual integration that reframes adulteration as a material form of greenwashing and positions consumer trust as a mediating mechanism linking ethical compliance to sustainable market outcomes.

Recent research in sustainable marketing has expanded significantly, specifically in areas such as greenwashing, eco-label credibility, and ethical brand communication. However, the difference between misleading communication and material product manipulation remains conceptually unclear. This section reviews existing literature to identify theoretical gaps and build the foundation for conceptual integration.

Theoretical Framework and Hypotheses Development

This study distinguishes between symbolic greenwashing and material greenwashing (adulteration). While symbolic greenwashing involves misleading environmental communication, material greenwashing refers to manipulation of product composition. This conceptual distinction helps explain differences in trust erosion and ethical severity.

Table 1: Symbolic vs. Material Greenwashing

Aspect	Symbolic Greenwashing	Material Greenwashing (Adulteration)
Nature	Misleading communication	Manipulation of product composition
Level	Promotional/communication	Structural/product-level
Consumer Impact	Perception distortion	Authenticity violation
Ethical Severity	Moderate	High

Theoretical Foundations

This study combines Consumer Trust Theory and the Ethical Marketing Framework to explain how adulteration in eco-friendly products influences sustainable market results.

- **Consumer Trust Theory**

Consumer Trust Theory suggests that trust develops when consumers perceive firms as competent, honest, and reliable (Wang & Walker, 2023). In markets characterized by high information asymmetry like eco-friendly product markets trust acts as a substitute for direct verification. Because environmental attributes (e.g., biodegradability, organic composition, low carbon impact) are largely credence-based, consumers depend on signals such as eco-labels, certifications, and corporate claims.

When firms engage in adulteration by introducing non-eco components into products marketed as sustainable, perceived integrity is compromised. This gap weakens the cognitive and emotional foundations of trust. Unlike minor overgeneralizations in advertising, material adulteration directly affects product authenticity, expanding perceived betrayal and skepticism.

Therefore, trust functions as the central psychological mechanism through which adulteration influences consumer behaviour.

- **Ethical Marketing Framework**

The Ethical Marketing Framework highlights consistency between marketing claims and actual business practices (Santos et al., 2024b; Tanveer et al., 2021). Ethical marketing needs transparency, honesty, and accountability. When firms misrepresent environmental performance or alter product composition, they violate normative expectations of corporate responsibility.

From this perspective, adulteration is not merely operational misconduct but an ethical deviation that undermines long-term legitimacy. Sustained brand equity depends on alignment between communicated values and material reality.

By integrating these perspectives, adulteration can be understood as:

- A violation of consumer trust (psychological dimension), and
- A breach of ethical marketing norms (normative dimension).

This dual-theoretical lens provides a clear cut explanation of its impact on sustainable market stability.

Adulteration and Consumer Trust

Adulteration challenges perceived honesty and competence—two significant dimensions of trust. Research shows that exposure to deceptive sustainability claims reduces brand trust and increases consumer skepticism (Torelli et al., 2020; Tu et al., 2024).

Material adulteration may strengthen this effect because it alters intrinsic product attributes rather than merely distorting communication. Consumers may interpret such practices as intentional exploitation, resulting in stronger distrust compared to vague environmental claims.

H₁: Adulteration in eco-friendly products negatively influences consumer trust.

Consumer Trust and Sustainable Behavioural Outcomes

Trust is a key determinant of purchase intention, repeat buying, and brand loyalty. Sustainable consumption decisions often involve higher perceived risk, as consumers may pay premium prices for eco-friendly products. When trust is high, consumers are more willing to accept price premiums and demonstrate stronger brand loyalty (Damberg et al., 2024).

Conversely, erosion of trust increases perceived risk and reduces consumers' willingness to purchase eco-friendly products. Trust therefore functions as an important mediating mechanism linking ethical compliance to consumer behavioural outcomes.

H₂: Consumer trust positively influences purchase intention and brand loyalty toward eco-friendly products.

Moderating Role of Regulatory Enforcement and Label Transparency

Institutional theory suggests that strong regulatory environments constrain opportunistic behaviour and enhance market legitimacy. Transparent labelling systems and effective enforcement mechanisms reduce information asymmetry and strengthen accountability.

When regulatory oversight is strong and labelling standards are clear, the negative impact of adulteration on trust may be reduced. Consumers may perceive institutional safeguards as protective mechanisms that lower risk perception.

In contrast, weak enforcement can magnify distrust by increasing perceived systemic vulnerability.

H₃: Regulatory enforcement and transparent labelling moderate the relationship between adulteration and consumer trust, such that stronger enforcement weakens the negative impact of adulteration on trust.

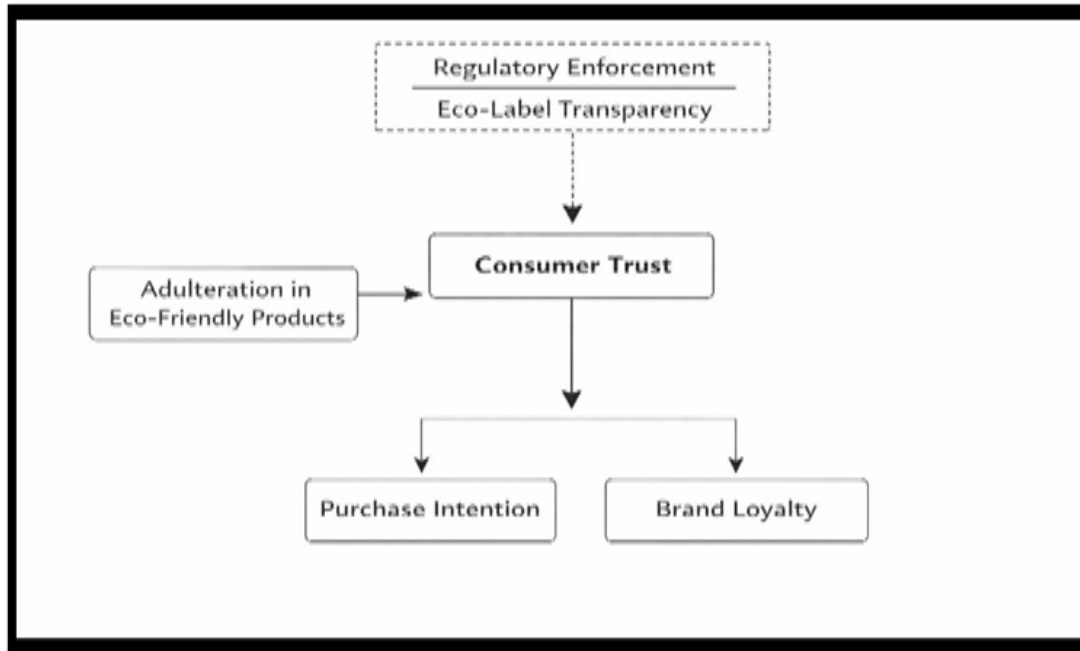


Figure 1: Conceptual Framework of Adulteration, Consumer Trust, and Sustainable Behavioural Outcomes

Integrated Conceptual Model

The framework proposes:

- Adulteration as the structural antecedent
- Consumer trust as the mediating psychological mechanism
- Purchase intention and brand loyalty as behavioural outcomes
- Regulatory enforcement and label transparency as institutional moderators

This model extends greenwashing research by clearly distinguishing material adulteration from symbolic deception and conceptualising consumer trust within an institutional context.

Research Methodology

Research Design

This study uses a conceptual–analytical research design, suitable for theory development and integrative synthesis in emerging research areas. Conceptual research is particularly appropriate when literature is fragmented and existing findings require structured integration to enhance theoretical clarity. It helps clarify key constructs and develop a coherent framework prior to empirical validation.

Rather than collecting primary data, the study develops a structured theoretical framework through systematic analysis of peer-reviewed literature and institutional policy documents. This approach enables the identification of conceptual gaps, refinement of constructs, and formulation of theoretically grounded hypotheses.

The objective is not to empirically test relationships but to construct a logically coherent model that can guide future empirical research.

Data Sources and Scope

The study relies exclusively on secondary sources, including:

- Scopus-indexed peer-reviewed journal articles
- Official reports and guidelines issued by regulatory institutions
- Sustainability and policy publications related to eco-friendly product certification

The temporal scope covers publications from January 2020 to September 2025 to ensure contemporary relevance. This period captures recent developments in green marketing theory, eco-label research, sustainability governance, and greenwashing scholarship. Although the discussion reflects the Indian context—particularly emerging markets such as Odisha—the framework is conceptually applicable to similar developing economies characterized by evolving regulatory systems and expanding sustainable consumption.

Literature Selection Procedure

A structured literature identification process was followed to ensure methodological rigor.

The following keywords were used during database searches:

- “Adulteration”
- “Greenwashing”
- “Eco-friendly products”
- “Green marketing”
- “Consumer trust”
- “Ethical marketing”
- “Eco-label credibility”

Articles were selected based on the following criteria:

- Peer-reviewed and indexed in Scopus
- Published in English
- Direct relevance to sustainability marketing, adulteration, eco-label systems, or trust theory
- Empirical or theoretical contributions supporting conceptual integration
- Studies lacking direct theoretical relevance were excluded to maintain analytical focus.

Analytical Strategy

The study employs qualitative content analysis and thematic synthesis. Selected literature was systematically reviewed to extract insights related to:

- Drivers and forms of adulteration
- Psychological consequences for consumer trust
- Institutional and regulatory mechanisms
- Ethical marketing implications

Findings were organized into three thematic clusters:

- Adulteration and greenwashing practices
- Consumer trust and behavioural outcomes
- Regulation, transparency, and ethical governance

Through iterative comparison across studies, conceptual linkages were identified and integrated into the proposed framework.

Rigor and Theoretical Validity

Although the study does not include primary data, rigor was maintained through:

- Exclusive reliance on peer-reviewed and official institutional sources
- Cross-comparison of findings across multiple studies

- Transparent selection criteria
 - Logical derivation of hypotheses from established theoretical foundations
- Conceptual validity was ensured by grounding all key constructs in Consumer Trust Theory and the Ethical Marketing Framework.

Ethical Considerations

All sources have been cited in accordance with APA 7th edition guidelines. No proprietary or confidential data were used. The study adheres to academic integrity and ethical research standards.

Results

• Conceptual Synthesis of Literature

The systematic synthesis of recent literature (2020–2025) reveals a consistent pattern across sustainability and marketing research: adulteration in eco-friendly products acts as a structural disruptor of trust-based exchange relationships. While prior studies have primarily treated greenwashing as misleading communication, material misrepresentation appears to generate deeper and more persistent distrust.

Table 2: Thematic Synthesis of Literature on Adulteration, Trust, and Sustainable Markets (2020–2025)

Thematic Area	Core Insights from Literature	Conceptual Implication for This Study
Greenwashing & Adulteration	Environmental claims are often exaggerated or partially disclosed; product-level manipulation intensifies perceived deception.	Establishes adulteration as a material form of greenwashing affecting intrinsic product authenticity.
Eco-Label Credibility	Consumers rely on certification cues to reduce information asymmetry; credibility depends on transparency and verification.	Positions label transparency as a moderating safeguard in trust formation.
Consumer Trust & Behavioural Outcomes	Trust reduces perceived risk and enhances purchase intention and loyalty; trust erosion leads to skepticism toward sustainable products.	Identifies trust as the mediating psychological mechanism linking adulteration to behavioural outcomes.
Regulatory Enforcement	Fragmented oversight increases fraud vulnerability; strong institutional enforcement enhances market legitimacy	Frames regulatory enforcement as an institutional moderator buffering trust erosion.
Ethical Marketing & Legitimacy	Long-term brand equity depends on alignment between claims and actual practices; unethical conduct damages corporate legitimacy.	Integrates Ethical Marketing Framework to explain normative consequences of adulteration.

Across the reviewed studies, three dominant themes emerge.

First, adulteration reflects opportunistic behaviour masked under sustainability positioning. The inclusion of synthetic or non-eco components in products marketed as environmentally friendly creates a gap between claimed and actual attributes. This misalignment intensifies perceptions of ethical violation because it affects intrinsic product integrity rather than communication alone.

Second, consumer trust consistently appears as the central psychological variable influencing sustainable purchase behaviour. Trust reduces perceived risk in credence-based markets and supports willingness to pay price premiums. When adulteration is revealed, perceived honesty and reliability decline, leading to skepticism toward both individual brands and, in some cases, the broader eco-product category.

Third, regulatory enforcement and label transparency function as institutional stabilizers. Strong verification systems, third-party audits, and consistent certification frameworks can help mitigate trust erosion following deceptive practices. In contrast, fragmented regulatory environments increase uncertainty and weaken the signaling value of eco-labels.

These thematic insights provide conceptual support for the relationships proposed in the integrated framework.

- **Interpretation of Hypothesized Relationships**

The synthesis supports the proposition that adulteration negatively affects consumer trust (H1). Material distortion of product composition challenges perceived honesty and weakens the psychological foundation necessary for sustainable consumption.

The literature also supports the positive association between trust and behavioural outcomes (H2). Trust strengthens purchase intention and brand loyalty by reducing uncertainty and reinforcing perceptions of ethical credibility.

Furthermore, the moderating role of regulatory enforcement and transparent labelling (H3) is conceptually supported. Strong institutional safeguards may reduce the severity of trust erosion by signaling accountability and reducing perceived systemic vulnerability. Conversely, weak enforcement structures may intensify the negative consequences of adulteration.

Together, these findings reinforce the role of consumer trust as a mediating mechanism linking ethical compliance to sustainable market stability.

- **Conceptual Contribution of the Model**

The integrated model extends existing scholarship in three ways.

First, it clearly differentiates material adulteration from symbolic greenwashing, improving conceptual precision.

Second, it embeds consumer trust within an institutional regulatory context, moving beyond purely psychological explanations.

Third, it positions adulteration as a structural antecedent with implications for long-term sustainable market viability.

Overall, the findings suggest that adulteration is not merely a compliance concern but a broader threat to the credibility of green marketing.

Discussion

The study advances green marketing scholarship by reconceptualizing adulteration as a material dimension of greenwashing and by positioning consumer trust as the mediating mechanism linking ethical compliance to sustainable market stability. This perspective moves beyond communication-focused interpretations and highlights the structural consequences of product-level manipulation.

- **Adulteration as a Structural Ethical Deviation**

Most prior greenwashing research emphasizes symbolic exaggeration, such as misleading advertisements or vague claims. While such practices distort perception, adulteration represents a deeper ethical breach because it compromises intrinsic product authenticity. By altering product composition while maintaining sustainability claims, firms violate both normative expectations and transactional integrity.

This distinction is theoretically important. Communication-based deception may be perceived as exaggeration, whereas material adulteration is often interpreted as betrayal. As a result, distrust may extend beyond individual brands to entire eco-product categories. By introducing this structural perspective, the study refines the conceptual boundaries of greenwashing research.

- **Consumer Trust as the Psychological Bridge**

The findings reinforce the central role of consumer trust in sustainable markets. Trust functions as a risk-reduction mechanism in credence-based transactions where consumers cannot independently verify environmental claims. When adulteration occurs, this psychological contract between firms and consumers weakens.

Trust erosion is often difficult to reverse. Restoring confidence requires transparency and credible institutional support. By positioning trust as a mediating variable, the model clarifies how ethical deviations translate into reduced purchase intention and weakened brand loyalty.

- **Institutional Moderation and Regulatory Signaling**

A key contribution of this study is the identification of regulatory enforcement and label transparency as moderating factors. Regulation is often treated as contextual background; however, institutional safeguards actively shape consumer perceptions of credibility.

In emerging markets with fragmented enforcement, eco-labels may lose signaling value and appear symbolic rather than substantive. Conversely, strong monitoring and transparent standards can buffer trust erosion by demonstrating accountability.

This institutional perspective connects macro-level governance mechanisms with micro-level trust dynamics, strengthening the theoretical scope of green marketing research.

- **Emerging Market Implications**

The emphasis on emerging economies adds contextual relevance. Rapid market expansion, evolving certification systems, and limited monitoring capacity may increase vulnerability to adulteration practices.

By situating adulteration within this institutional environment, the study explains why trust erosion may be more pronounced in developing contexts. This perspective encourages comparative research across regulatory systems and supports the need for harmonized certification standards.

- **Theoretical Advancement**

Overall, the discussion highlights three key theoretical contributions:

- Clear differentiation between material adulteration and symbolic greenwashing
- Integration of Consumer Trust Theory with the Ethical Marketing Framework
- Inclusion of regulatory enforcement as an institutional moderator

Through this integrated lens, adulteration is reframed not merely as isolated misconduct but as a structural risk to sustainable market legitimacy.

Implications

- **Theoretical Implications**

The study contributes to green marketing and sustainability research in several ways.

First, it enhances conceptual clarity by distinguishing material adulteration from symbolic greenwashing. By identifying adulteration as a product-level ethical violation, the study broadens the analytical scope of sustainability misconduct and introduces a structural dimension into green marketing theory.

Second, the integration of Consumer Trust Theory and the Ethical Marketing Framework provides a multidimensional explanation of how ethical deviations influence behavioural outcomes. Trust is positioned as a mediating mechanism linking ethical compliance to sustainable market viability.

Third, incorporating regulatory enforcement and label transparency as moderating variables bridges micro-level consumer psychology with macro-level governance structures. This integration strengthens institutional perspectives within sustainability research.

Together, these contributions provide a foundation for future empirical validation and cross-context analysis.

- **Managerial Implications**

From a managerial perspective, the findings emphasize that sustainability positioning must be supported by operational integrity. Firms cannot rely solely on persuasive communication; product authenticity is essential.

Managers should:

- Implement strict internal quality control mechanisms to prevent adulteration
- Adopt transparent supply-chain disclosure practices
- Use traceability technologies (e.g., QR-coded certification details)
- Engage in third-party audits to enhance credibility

Short-term gains from adulteration may result in long-term reputational damage and broader category-level distrust. Ethical consistency between claims and product attributes is therefore both a moral responsibility and a strategic necessity.

• **Policy Implications**

At the policy level, the findings highlight the importance of unified certification systems and robust enforcement mechanisms, particularly in emerging economies.

Regulators may consider:

- Consolidating fragmented certification systems under coordinated oversight
- Mandating clearer disclosure standards for eco-label eligibility
- Increasing random product testing and audit frequency
- Strengthening penalties for sustainability-related fraud
- Promoting consumer awareness initiatives to improve eco-literacy

Strengthening transparency and enforcement capacity can reduce systemic vulnerability and enhance consumer confidence in sustainable markets. In developing contexts, regulatory harmonization is essential to ensure that eco-labels function as credible market signals rather than symbolic branding tools.

Conclusion

This study examined adulteration in eco-friendly products as a systemic hurdle to green marketing credibility and sustainable market development. By synthesizing recent literature and institutional insights (2020–2025), the study conceptualizes adulteration as a sustainable misrepresentation in form of greenwashing that extends beyond misleading communication to big level ethical violation.

The findings highlight consumer trust as the main mechanism through which adulteration influences purchase intention, brand loyalty, and sustainable market sustainability. When product authenticity is compromised, trust declines, leading to increased skepticism toward eco-friendly claims. By integrating Consumer Trust Theory with the Ethical Marketing Framework, the study provides a clearer explanation of how ethical misconduct translates into behavioural and market consequences.

The analysis also emphasizes the moderating role of regulatory enforcement and label transparency. Strong institutional safeguards can reduce trust erosion by improving accountability and transparency, while fragmented regulatory systems may intensify consumer skepticism.

Overall, the study contributes by distinguishing material adulteration from symbolic greenwashing and by linking psychological, ethical, and institutional dimensions within a unified framework. It highlights that maintaining sustainable market credibility requires both managerial integrity and effective regulatory oversight.

Adulteration is therefore not merely a compliance issue; it represents a broader threat to sustainable market legitimacy and demands stronger accountability to preserve long-term consumer trust.

Limitations and Future Research

Despite its theoretical contributions, this study has certain limitations that should be acknowledged.

First, the research adopts a conceptual–analytical design based exclusively on secondary data. While this approach is appropriate for theory development and integrative synthesis, the proposed relationships have not been empirically tested. Future research should employ quantitative surveys, experimental designs, or longitudinal studies to validate the hypothesized mediation and moderation effects within diverse product categories.

Second, although the conceptual discussion reflects the context of emerging markets such as India, the framework has not been empirically examined across different regulatory regimes. Comparative cross-country studies could investigate whether the moderating influence of regulatory enforcement varies between developed and developing economies.

Third, the study treats eco-friendly products as a broad category. Future research may explore sector-specific variations, such as organic food, cosmetics, textiles, or cleaning products, to determine whether adulteration effects differ based on perceived health risk, price premium, or product involvement.

Fourth, additional psychological constructs—such as perceived risk, environmental concern, or moral identity—could be incorporated into the framework to deepen understanding of consumer response mechanisms.

Finally, future research could examine digital transparency tools, blockchain verification systems, and traceability technologies as emerging institutional safeguards capable of reshaping trust dynamics in sustainable markets.

By empirically testing and extending the proposed model, future studies can strengthen theoretical precision and contribute to the development of more resilient and credible green marketing systems.

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