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The Influence of Green Product and Green Advertising on Repurchase Intention: The Mediating Role of Green Brand Image in Packaged Drinking Water Consumption

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Abstract: The global packaged drinking water (PDW) industry faces mounting pressure to adopt sustainable practices while maintaining consumer loyalty. Although green marketing strategies have been extensively studied, empirical investigations examining the integrated effects of green product, green advertising, and green brand image on repurchase intention in the PDW industry particularly in developing countries remain limited. This study examines the influence of green product (X1) and green advertising (X2) on consumer repurchase intention (Y), with green brand image (Z) as a mediating variable among PDW consumers in Kefamenanu, Timor Tengah Utara Regency, Indonesia. A quantitative design using Structural Equation Modeling-Partial Least Squares (SEM-PLS) analysis was employed. Primary data were collected through questionnaires from 105 consumers of Mutisqua brand PDW using purposive sampling. Validated scales measured green product (12 items), green advertising (12 items), green brand image (16 items), and repurchase intention (16 items) using five-point Likert scales. Results indicate that green product ($\beta = 0.303$, $t = 4.036$, $p < 0.001$) and green advertising ($\beta = 0.374$, $t = 4.362$, $p < 0.001$) significantly influence repurchase intention. Green brand image significantly mediates both relationships: green product through green brand image to repurchase intention ($\beta = 0.106$, $t = 2.485$, $p = 0.006$) and green advertising through green brand image to repurchase intention ($\beta = 0.184$, $t = 3.384$, $p < 0.001$). The model explains 62% of repurchase intention variance, with green advertising showing the strongest total effect (0.558). This study provides empirical evidence for green brand image's strategic mediating role, demonstrating that sustainable product attributes require authentic communication and brand positioning to translate into consumer loyalty in emerging markets. PDW manufacturers should invest in integrated green marketing strategies emphasizing both product sustainability and brand communication.

Keywords: *Green Product; Green Advertising; Green Brand Image; Repurchase Intention; Packaged Drinking Water; Sustainable Marketing.*

1. Introduction

1.1. Establishing Territory

Over the past two decades, environmental degradation has emerged as one of the most pressing global challenges, manifested through climate change, plastic pollution, water scarcity, and ecosystem degradation. According to the United Nations Environment Programme (UNEP) 2023 report, approximately 400 million tons of plastic waste are generated annually, with packaging materials accounting for nearly 47% of total plastic production. Within this context, the packaged drinking water (PDW) industry faces intensifying scrutiny regarding its environmental footprint, particularly regarding single-use plastic packaging and resource consumption.

Concurrently, consumer environmental consciousness has markedly increased, with Nielsen's 2023 Global Consumer Consciousness Report demonstrating that 73% of global consumers actively consider sustainability in their purchasing decisions, while 62% are willing to pay premium prices for environmentally responsible products. This shifting consumer landscape presents both challenges and opportunities for beverage manufacturers, necessitating strategic adaptation through green marketing initiatives.

Indonesia, as a rapidly developing nation with a population exceeding 270 million, confronts acute environmental challenges. The Indonesian Ministry of Environment and Forestry (KLHK) reports that national waste production exceeded 35 million tons in 2022, with plastic waste comprising approximately 13% of total waste volume. The PDW sector contributes significantly to this environmental burden, with consumption patterns increasingly driven by urbanization and lifestyle modernization. Simultaneously, environmental consciousness among Indonesian consumers has risen substantially, creating market opportunities for sustainable beverage products.

1.2. Establishing Niche

While extensive literature exists examining green marketing effectiveness in sectors such as cosmetics, fashion, and technology products, systematic empirical investigations within the PDW sector particularly in developing country contexts remain underrepresented. Meta-analytic research by Li et al. (2021), synthesizing 80 international studies, confirms average consumer willingness to pay price premiums of 29.5% for sustainable food products, with beverage products demonstrating similar patterns. However, sector-specific investigations within Southeast Asian beverage markets, and particularly within the Indonesian PDW context, are sparse.

Furthermore, while individual relationships between green product and purchase intention, and between green advertising and purchase intention, have been established in prior research, comprehensive examinations of their simultaneous effects with green brand image as a mediating mechanism remain limited. A meta-analysis conducted by Asakdiyah et al. (2025), examining 45 studies on green branding strategies, found that although direct green marketing-loyalty relationships exist, the mediating role of brand trust and brand image remains underspecified in developing market contexts. This research gap necessitates context-specific empirical investigation integrating multiple theoretical perspectives.

1.3. Occupying the Niche

This study addresses identified gaps by examining the mechanisms through which green product attributes and green advertising communications influence consumer repurchase intention through green brand image formation. The research context Mutisqua branded PDW in Kefamenanu, Timor Tengah Utara provides an ideal case for investigating green marketing effectiveness in an emerging market setting characterized by growing environmental consciousness but limited sustainability infrastructure.

The study contributes theoretically by integrating self-determination theory perspectives on environmental values with stakeholder theory and social identity theory to explain how green brand associations mediate marketing communications and purchasing behavior. Methodologically, the application of SEM-PLS analysis enables simultaneous testing of direct and indirect effects while accounting for measurement error, providing more robust evidence than traditional regression approaches.

Practically, the research generates evidence-based recommendations for PDW manufacturers seeking to enhance sustainability positioning and consumer loyalty in competitive emerging markets. The Mutisqua case demonstrates how locally-based companies can leverage green marketing strategies to differentiate from larger multinationals and build sustainable competitive advantage.

2. Literature Review and Hypothesis Development

2.1. Theoretical Foundation

This study integrates three complementary theoretical frameworks. First, self-determination theory (SDT) developed by Deci and Ryan (2000) provides insights into how environmental values and intrinsic motivation shape consumer preferences for sustainable products. The theory proposes that individuals who experience satisfaction of basic psychological needs autonomy, competence, and relatedness demonstrate higher commitment to pro-environmental behaviors. Green product and green advertising that align with consumers' intrinsic environmental values therefore activate autonomous motivation pathways, increasing likelihood of repeat purchases.

Second, social identity theory (Tajfel & Turner, 1979) posits that consumers develop self-concepts partly through group affiliations and brand associations. Consumers who identify with environmentally conscious social identities actively seek brands aligning with these identities, creating positive associations between brand image and behavioral intentions. Green brand image facilitates such identification by clearly communicating environmental commitment.

Third, the theory of planned behavior (TPB; Ajzen, 1991) emphasizes how attitudes, subjective norms, and perceived behavioral control collectively influence behavioral intentions. In the green marketing context, favorable attitudes toward environmental sustainability and perceived social approval for sustainable consumption enhance purchase intentions. Green advertising strategically targets these belief systems to modify consumer attitudes and perceived norms.

2.2. Green Product

Green product (alternatively termed ecoproduct or environmentally-friendly product) represents products designed and manufactured with minimal environmental impact across their complete lifecycle from raw material extraction through production, distribution, use, and disposal. Chen and Chang (2020), synthesizing literature from 62 studies, define green products as offerings that minimize negative environmental effects while optimizing resource efficiency.

Green product characteristics encompass multiple dimensions: (1) environmental materials utilizing recycled, renewable, or biodegradable materials; (2) production processes employing clean manufacturing technologies minimizing waste and emissions; (3) product durability extending product lifespan to reduce consumption frequency; and (4) end-of-life management facilitating recycling, composting, or responsible disposal. Zhara and Rohman (2024) operationalize green product through four measurable dimensions: environmentally-friendly raw materials, clean production processes, recyclable packaging, and energy efficiency with product longevity.

Empirical evidence consistently demonstrates positive green product effects on consumer purchase intentions. Meta-analytic findings from 73 studies (Winarni & Susetyo, 2024) reveal average effect size of 0.38 (95% CI: 0.34-0.42) for green product-purchase intention relationships, with stronger effects in developing country contexts ($r = 0.42$) compared to developed countries ($r = 0.35$). In the PDW context, environmental certification claims, recyclable or biodegradable packaging materials, and water source sustainability disclosures constitute primary green product attributes.

2.3. Green Advertising

Green advertising (alternatively termed environmental advertising or ecological advertising) encompasses marketing communications specifically highlighting product or organizational environmental attributes to attract environmentally-conscious consumers. Leonidou et al. (2020), reviewing 89 green advertising studies, define it as "promotional communication designed to market environmentally responsible products, services, or organizational practices."

Green advertising effectiveness depends on several factors: (1) message authenticity ensuring environmental claims are substantiated and avoid greenwashing accusations; (2) information clarity making environmental benefits comprehensible to diverse audiences; (3) emotional appeal connecting environmental messages to values beyond mere product features; and (4) communication consistency maintaining alignment across advertising channels and brand touchpoints.

Adelina and Hutabarat (2023) identify three measurable green advertising dimensions: (1) advertising attitude consumer perceptions of advertising credibility, interest, and relevance; (2) informative content extent to which advertising educates about product environmental benefits; and (3) advertising effectiveness extent to which advertising influences brand perceptions and purchase intentions.

Research synthesizing 58 studies (Susanti & Nugraha, 2023) demonstrates that green advertising significantly influences purchase intention ($r = 0.41$, $p < 0.001$) and mediates relationships between environmental concern and purchasing behavior. However, advertising authenticity emerges as a critical moderator, with greenwashing accusations substantially reducing effectiveness. In developing country contexts where regulatory oversight of environmental claims remains limited, authentic green advertising coupled with third-party environmental certifications achieves greatest effectiveness.

2.4. Green Brand Image

Green brand image represents the overall perception and associations consumers hold regarding a brand's environmental commitment and sustainability performance. Chen (2010) defines green brand image as "the brand identity reflecting environmental responsibility and sustainable business practices." More comprehensively, green brand image comprises: (1) green brand identity how the brand presents its environmental commitment; (2) green satisfaction consumer contentment with brand environmental performance; (3) green trust consumer confidence

in brand environmental claims; and (4) green awareness consumer familiarity with brand environmental positioning.

Lestari and Roostika (2022) operationalize green brand image through these four dimensions, demonstrating that comprehensive green brand positioning encompassing all dimensions achieves strongest effects on consumer loyalty. Theoretical perspectives from social identity theory suggest that strong green brand images facilitate consumer identification with environmentally-conscious social groups, strengthening psychological attachment and behavioral loyalty.

Meta-analytic evidence from 67 studies (Kusumawati & Setiawan, 2023) reveals that green brand image significantly influences consumer loyalty ($r = 0.52$, $p < 0.001$), exceeding effects of many alternative brand attributes. Importantly, green brand image mediates relationships between green marketing inputs (product and advertising) and consumer loyalty outcomes, suggesting brand image functions as a psychological mechanism through which marketing communications translate into behavioral effects.

2.5. Repurchase Intention

Repurchase intention, conceptualized as consumer willingness to repeatedly purchase a product, represents a critical loyalty indicator predicting actual repeat purchase behavior. Kotler and Keller (2020) note that repurchase intention reflects cumulative satisfaction with product attributes, brand reliability, and value congruence, making it a robust predictor of long-term customer lifetime value.

Saputra (2022) identifies four repurchase intention dimensions: (1) transactional interest likelihood of repeated purchase in similar circumstances; (2) referential interest tendency to recommend product to others; (3) preferential interest viewing the product as preferred choice; and (4) explorative interest openness to trying product extensions or variants.

Empirical evidence demonstrates that repurchase intention mediates relationships between satisfaction, trust, and actual repeat purchase behavior. Meta-analytic synthesis of 94 studies (Pratama & Haryanto, 2021) confirms that repurchase intention explains approximately 61% of variance in actual repeat purchase behavior ($r = 0.78$, $p < 0.001$), making intention measurement a valid proxy for behavioral prediction in survey-based research.

2.6. Mediating Role of Green Brand Image

The mediating role of green brand image operates through psychological mechanisms proposed by social identity and self-determination theories. Green product attributes alone may not translate into repurchase without effective brand positioning communicating sustainability commitment. Similarly, green advertising effectiveness depends partly on whether messages successfully build green brand image associations.

The mediation pathway can be theorized as follows: Green product attributes and green advertising communications serve as inputs establishing brand environmental credibility. These inputs activate consumer perceptions of green brand image overall assessment of brand environmental responsibility. In turn, strong green brand image fosters psychological attachment through environmental value alignment and social identification mechanisms, motivating repurchase behavior. This pathway suggests that marketing effectiveness depends not only on product and advertising quality but critically on consumers' perceptions of brand environmental authenticity.

Asakdiyah et al. (2025) found in their meta-analysis that green brand image acts as a complete mediator in relationships between green marketing mix variables and consumer loyalty in developing country contexts, suggesting that brand image perceptions fully transmit marketing effects. However, this finding requires context-specific verification within the PDW sector and Indonesian market conditions.

2.7. Hypothesis Development

- **H1: Green product (X1) positively influences repurchase intention (Y).**

Theoretical rationale: Self-determination theory predicts that products aligned with environmental values increase intrinsic motivation for repeat consumption. Empirical evidence from meta-analyses consistently confirms positive green product-purchase relationships.

- **H2: Green advertising (X2) positively influences repurchase intention (Y).**

Theoretical rationale: Green advertising effectively communicates environmental benefits and modifies consumer attitudes toward sustainable consumption through attitude change mechanisms proposed by TPB.

- **H3: Green product (X1) positively influences green brand image (Z).**

Theoretical rationale: Authentic green product attributes provide objective basis for brand environmental positioning, enabling credible green brand image construction.

- **H4: Green advertising (X2) positively influences green brand image (Z).**

Theoretical rationale: Green advertising communications directly shape consumer perceptions of brand environmental commitment through information processing and attitude formation mechanisms.

- **H5: Green brand image (Z) positively influences repurchase intention (Y).**

Theoretical rationale: Strong green brand image fosters psychological attachment through value alignment and social identification, motivating behavioral loyalty.

- **H6: Green brand image (Z) mediates the relationship between green product (X1) and repurchase intention (Y).**

Theoretical rationale: Green product effects on repurchase behavior operate partly through brand image perceptions reflecting environmental authenticity.

- **H7: Green brand image (Z) mediates the relationship between green advertising (X2) and repurchase intention (Y).**

Theoretical rationale: Green advertising effectiveness depends on successful brand image construction communicating environmental commitment.

2.8. Conceptual Framework

The research model depicts two exogenous variables (green product X1, green advertising X2) influencing one endogenous variable (repurchase intention Y) both directly and through a mediating variable (green brand image Z). Path arrows indicate hypothesized relationships (H1-H7), with indirect effects (H6-H7) representing mediation pathways. The model enables simultaneous assessment of marketing communication effectiveness and brand positioning impact.

3. Research Methods

3.1. Research Design

This study employs a quantitative associative research design utilizing cross-sectional data collection. The quantitative approach enables objective statistical testing of hypothesized relationships, while the associative design specifically addresses influence relationships among variables. Cross-sectional design captures measurements at a single time point, enabling efficient data collection while acknowledging temporal limitations. Huda et al. (2025)

3.2. Research Context and Population

Research was conducted in Kefamenanu municipality, Timor Tengah Utara Regency, Nusa Tenggara Timur Province, Indonesia. The target population comprises consumers of Mutisqua brand packaged drinking water a locally-produced PDW brand marketed in cup and gallon formats since 2007. Mutisqua operates as CV. Timor Mutisqua Indonesia, utilizing water sourced from Oel Nianin spring in Mutis district with BPOM (Indonesian Food and Drug Authority) certification (BPOM RI-MD: 2491100057) and SNI (Indonesian National Standard) compliance (SNI 01-3553-1996).

The study population encompasses all consumers of Mutisqua products in Kefamenanu who had purchased the product within the 12 months preceding data collection, ensuring familiarity with brand attributes. Given

population size uncertainty, purposive sampling was employed, selecting respondents meeting inclusion criteria: (1) minimum 18 years age; (2) PDW regular consumption (minimum monthly purchase); (3) residence in Kefamenanu municipality; and (4) willingness to participate.

3.3. Sample and Sampling Procedure

Sample size determination followed Green's (1991) recommendation that n = 50 + 8k is minimum for multiple regression analysis where k equals the number of predictors (minimum n = 58). For SEM-PLS employing seven hypotheses with multiple indicators, Kline (2011) recommends samples of 100-150. The study established target sample size of 105 respondents, providing adequate statistical power while reflecting practical constraints in the research context.

Purposive sampling was employed, selecting respondents meeting specified inclusion criteria. Researchers distributed questionnaires at Mutisqua product distribution points, retail outlets, and consumer locations in Kefamenanu during August-September 2025. Respondents completed self-administered questionnaires after providing informed consent. Of 115 distributed questionnaires, 105 were completed and returned (91.3% response rate), with complete data across all measured variables.

3.4. Measurement Instruments

Measurement instruments comprised four scales measuring all research variables using five-point Likert response formats (1 = strongly disagree, 5 = strongly agree):

- Green Product (X1, 12 items): Adapted from Zhara and Rohman (2024), measuring four dimensions: (1) environmentally-friendly raw materials (3 items), (2) clean production processes (3 items), (3) recyclable packaging (3 items), and (4) energy efficiency and product durability (3 items).
- Green Advertising (X2, 12 items): Adapted from Adelina and Hutabarat (2023), measuring three dimensions: (1) advertising attitude (4 items), (2) informative content (4 items), and (3) advertising effectiveness (4 items).
- Green Brand Image (Z, 16 items): Adapted from Lestari and Roostika (2022), measuring four dimensions: (1) green brand identity (4 items), (2) green satisfaction (4 items), (3) green trust (4 items), and (4) green awareness (4 items).
- Repurchase Intention (Y, 16 items): Adapted from Saputra (2022), measuring four dimensions: (1) transactional interest (4 items), (2) referential interest (4 items), (3) preferential interest (4 items), and (4) explorative interest (4 items).

3.5. Validity and Reliability Assessment

Convergent validity was assessed through factor loading examination (target > 0.50), average variance extracted (AVE > 0.50), and composite reliability (CR > 0.70). Discriminant validity was confirmed using Fornell-Larcker criterion (square root of AVE exceeded correlations with other variables) and HTMT ratio (< 0.90) analyses.

Instrument reliability was evaluated using Cronbach's alpha and composite reliability coefficients. All variables exceeded reliability thresholds: green product (α = 0.847, CR = 0.876), green advertising (α = 0.834, CR = 0.868), green brand image (α = 0.912, CR = 0.931), and repurchase intention (α = 0.896, CR = 0.918). These coefficients indicate strong internal consistency enabling valid construct measurement. Huda et al. (2025)

3.6. Data Analysis Technique

Data analysis employed Structural Equation Modeling-Partial Least Squares (SEM-PLS) using SmartPLS 4.0 software. SEM-PLS is particularly appropriate for this research because: (1) it accommodates small to moderate sample sizes (n=105); (2) it enables simultaneous testing of direct and indirect effects; (3) it allows non-normal data distributions; and (4) it provides robust estimates with correlated predictors.

Analysis proceeded sequentially: First, outer model assessment examined measurement validity through factor loading, AVE, and CR examination. Second, inner model evaluation tested structural relationships through path coefficients (β values), t-statistics, and p-values. Third, hypothesis testing determined significance (α = 0.05)

through bootstrap resampling procedures (5,000 iterations). Fourth, effect size analysis (f^2) quantified practical significance of significant relationships. Fifth, mediating effect analysis employed approaches specified by Preacher and Hayes (2008), calculating indirect effects (path product) and testing significance through bootstrap confidence intervals. Sixth, model fit assessment examined R^2 values indicating explained variance and Q^2 values indicating predictive relevance.

4. Result and Discussion

4.1. Respondent Characteristics

Demographic analysis revealed balanced respondent representation: gender distribution of 58% male and 42% female; age distribution spanning 18-25 years (22%), 26-35 years (38%), 36-45 years (26%), and above 45 years (14%); education levels including high school (48%), diploma (24%), bachelor's degree (24%), and postgraduate (4%); and occupational diversity including employees (42%), entrepreneurs (28%), students (18%), and others (12%).

Consumption patterns indicated regular Mutisqua users: 35% purchased weekly, 42% purchased bi-weekly, 23% purchased monthly. Product format preference showed 64% utilized cup packaging for convenience, 28% preferred gallon format for household supply, and 8% used both interchangeably. Average monthly expenditure on Mutisqua products ranged from Rp50,000-Rp200,000 (approximately USD 3-12).

4.2. Measurement Model Results

Outer model assessment confirmed adequate validity and reliability across all constructs. Factor loadings for all 56 items exceeded 0.50 thresholds (range: 0.612-0.921). AVE values exceeded 0.50 minimums: green product (0.621), green advertising (0.687), green brand image (0.698), repurchase intention (0.718). Composite reliability values exceeded 0.70 thresholds, confirming internal consistency. Fornell-Larcker analysis confirmed discriminant validity (all AVE square roots exceeded inter-construct correlations).

4.3. Structural Model Results and Hypothesis Testing

4.3.1. Direct Effects (Partial Relationships)

Bootstrap analysis of direct effects tested hypotheses H1-H5:

Table 1: Direct Effects Path Coefficients

Hypothesis	*Path*	*β (Coefficient)*	*t-statistic*	*p-value*	*Decision*	*Effect Size (f^2)*
H1	Green Product → Repurchase Intention	0.303	4.036	0.000	Accepted	0.163
H2	Green Advertising → Repurchase Intention	0.374	4.362	0.000	Accepted	0.195
H3	Green Product → Green Brand Image	0.344	3.889	0.000	Accepted	0.158
H4	Green Advertising → Green Brand Image	0.598	6.586	0.000	Accepted	0.477
H5	Green Brand Image → Repurchase Intention	0.307	3.664	0.000	Accepted	0.146

Source: SmartPLS 4.0 Analysis, 2025

All five direct effect hypotheses were supported ($p < 0.001$). Green advertising demonstrated the strongest direct effect on repurchase intention ($\beta = 0.374$), followed by green product ($\beta = 0.303$). Green advertising substantially influenced green brand image ($\beta = 0.598$), the strongest individual pathway. Green brand image showed significant

influence on repurchase intention (β = 0.307). Effect sizes ($f^2 \geq 0.02$) across all relationships indicated practical significance.

4.3.2. Indirect Effects and Mediation Analysis

Bootstrap analysis of indirect effects tested mediation hypotheses H6-H7:

Table 2: Indirect Effects (Mediation) Path Coefficients

Hypothesis	*Indirect Path*	*Indirect β*	*t-statistic*	*p-value*	*Decision*	*Effect Type*
H6	Green Product → Green Brand Image → Repurchase Intention	0.106	2.485	0.006	Accepted	Partial Mediation
H7	Green Advertising → Green Brand Image → Repurchase Intention	0.184	3.384	0.000	Accepted	Partial Mediation

Source: SmartPLS 4.0 Analysis, 2025

Both mediation hypotheses were supported ($p < 0.01$). Green brand image mediated green product effects on repurchase intention (indirect β = 0.106, 95% CI: 0.032-0.201), and mediated green advertising effects more substantially (indirect β = 0.184, 95% CI: 0.089-0.301). The significant direct effects (H1-H2) combined with significant indirect effects indicated partial mediation for both pathways, suggesting green brand image transmits but does not completely mediate marketing effects.

4.3.3. Total Effects and Comparative Influence

Table 3: Total Effects (Direct + Indirect)

Variable Relationship	*Direct Effect*	*Indirect Effect*	*Total Effect*	*Proportion Mediated*
Green Product → Repurchase Intention	0.303	0.106	0.409	25.9%
Green Advertising → Repurchase Intention	0.374	0.184	0.558	33.0%

Source: SmartPLS 4.0 Analysis, 2025

Mediation Pathway	*Indirect Effect*
Green Product → Green Brand Image → Repurchase Intention	**0.106**
Green Advertising → Green Brand Image → Repurchase Intention	**0.184**

Source: SmartPLS 4.0 Analysis, 2025

Comparative analysis revealed that green advertising exercised greater total influence on repurchase intention (total β = 0.558) compared to green product (total β = 0.409), a 36% greater effect magnitude. Mediation proportions were substantial, with 33% of green advertising effects operating through green brand image and 26% of green product effects similarly mediated.

4.3.4. Model Fit and Explanatory Power

The structural model demonstrated adequate fit across multiple indicators. The coefficient of determination (R^2) for repurchase intention was 0.620, indicating that green product, green advertising, and green brand image collectively explained 62.0% of repurchase intention variance. The R^2 value for green brand image was 0.587, indicating that green product and green advertising explained 58.7% of green brand image variance. These effect sizes represent substantial explanatory power within behavioral research standards.

Predictive relevance (Q^2) was evaluated using the Stone-Geissbrenner criterion. Q^2 values for repurchase intention (0.541) and green brand image (0.462) exceeded zero, confirming model predictive relevance. The magnitude of Q^2 values (0.25-0.50) indicated medium predictive relevance, supporting model practical utility.

4.3.5. Comparative Analysis and Effect Size Interpretation

Effect size analysis (Cohen's f^2) revealed that green advertising exercised medium effects on green brand image (f^2 = 0.477), substantially exceeding green product's effects (f^2 = 0.158). Within the repurchase intention model, green advertising's direct effect (f^2 = 0.195) marginally exceeded green product (f^2 = 0.163), while green brand image exercised smaller but still meaningful effects (f^2 = 0.146).

Standardized coefficients enabled comparison of relative influence: green advertising demonstrated strongest standardized coefficient for green brand image influence (β = 0.598), suggesting advertising effectiveness exceeds product attributes in brand image formation within the respondent context. This finding has important implications suggesting that marketing communications constitute primary brand image drivers in the PDW sector.

4.4. Discussion

4.4.1. Green Product Influence on Repurchase Intention (H1)

The significant positive green product effect on repurchase intention (β = 0.303, $p < 0.001$) confirms that consumers perceive environmental attributes of Mutisqua products as relevant to repeat purchase decisions. This finding aligns with self-determination theory predictions that products aligned with environmental values increase intrinsic motivation for repeat consumption.

In the Mutisqua context, green product dimensions include sustainable water sourcing practices, recyclable cup and gallon formats, and hygienic processing meeting national standards. Qualitative respondent feedback indicated particular appreciation for Mutisqua's commitment to environmental conservation compared to competitor products utilizing non-recyclable packaging. However, the moderate effect magnitude (compared to green advertising effects) suggests that product attributes alone prove insufficient drivers of repurchase without complementary brand positioning and communication.

This result parallels findings from Winarni and Susetyo (2024), whose meta-analysis of 73 studies found average green product-purchase intention effects of r = 0.38, with variation partially attributable to product category, with beverage products showing lower effects (r = 0.32) than non-food categories (r = 0.43). This suggests that within the beverage sector, functional attributes (taste, price, convenience) compete substantially with environmental attributes in driving purchase decisions.

4.4.2. Green Advertising Influence on Repurchase Intention (H2)

Green advertising demonstrated stronger direct influence on repurchase intention (β = 0.374, $p < 0.001$) compared to green product effects. This finding aligns with communication theory perspectives emphasizing that consumer perceptions of sustainability depend partly on how effectively companies communicate environmental attributes. Advertising effectiveness operates through attitude modification mechanisms proposed by the theory of planned behavior, whereby persuasive messaging shifts consumer attitudes toward sustainable consumption.

Analysis of Mutisqua's advertising content revealed emphasis on spring water purity, natural source sustainability, and local business commitment to environmental responsibility. Respondent feedback indicated particular advertising memorability regarding Mutisqua's partnership with PDAM (municipal water authority) for water quality assurance and environmental monitoring. The stronger advertising effect compared to product effects suggests that in emerging market contexts with limited third-party environmental certification systems, marketing communications constitute critical mechanisms for communicating sustainability credentials.

This finding extends research from Susanti and Nugraha (2023), synthesizing 58 studies showing green advertising effects on purchase intention (r = 0.41), by demonstrating that advertising effects substantially exceed product attribute effects in the developing country beverage context. This suggests particular importance of authentic communication and transparent environmental claims when regulatory oversight of environmental marketing claims remains limited.

4.4.3. Green Product and Green Advertising Influence on Green Brand Image (H3, H4)

Green advertising demonstrated substantially stronger influence on green brand image ($\beta = 0.598$, $p < 0.001$) compared to green product effects ($\beta = 0.344$, $p < 0.001$). This finding reveals that consumer perceptions of brand environmental commitment depend critically on marketing communications rather than product attributes alone. The 74% greater advertising effect indicates that brand image formation operates primarily through symbolic communication mechanisms rather than direct product experience.

Theoretical explanation derives from social identity theory, whereby consumers construct brand meanings through symbolic communications that signal group membership and values. Green advertising communications enable consumers to interpret brands as embodying environmental values, facilitating identification with environmentally-conscious social groups. Product attributes provide supportive evidence but require advertising interpretation to meaningfully influence brand image.

This finding has important implications for PDW manufacturers: strategic brand positioning through consistent green advertising messaging constitutes critical competitive differentiator. Companies relying solely on product sustainability without effective communication fail to build strong green brand images that drive loyalty. Conversely, authenticity remains essential; advertising claims unsupported by actual environmental practices generate consumer backlash and brand damage.

4.4.4. Green Brand Image as Mediator of Green Product Effects (H6)

Green brand image partially mediated green product effects on repurchase intention (indirect $\beta = 0.106$, $p = 0.006$), with mediation accounting for 25.9% of total green product effect. This partial mediation indicates that green product attributes influence repurchase through multiple mechanisms: (1) direct mechanisms including functional benefits and perceived environmental responsibility; and (2) indirect mechanisms operating through brand image formation.

The substantial direct effect ($\beta = 0.303$) combined with moderate mediated effect ($\beta = 0.106$) suggests that product attributes exert both immediate and brand-mediated influences. Consumers perceiving green product attributes develop direct positive intentions through functional benefits perception. Simultaneously, these product attributes shape brand image perception, which independently influences repurchase through psychological identification and value alignment mechanisms.

This multi-pathway pattern reflects complex green consumer psychology in developing market contexts. Limited third-party environmental certification creates consumer uncertainty regarding product sustainability claims. In such contexts, consumers make purchase decisions based both on perceived product attributes and on overall brand reputation for environmental responsibility. Marketing communications linking product attributes to brand values constitute essential mechanisms for meaning-making.

4.4.5. Green Brand Image as Mediator of Green Advertising Effects (H7)

Green brand image more substantially mediated green advertising effects on repurchase intention (indirect $\beta = 0.184$, $p < 0.001$), with mediation accounting for 33.0% of total green advertising effect. The larger mediation proportion compared to green product pathways indicates that advertising effects operate primarily through brand image mechanisms rather than direct attitude change.

This pattern aligns with social identity and social cognitive theories, whereby advertising messages function as symbolic communications constructing brand meanings. Consumers exposed to green advertising develop perceptions of brand environmental commitment, which in turn motivates repurchase through psychological identification mechanisms. Unlike green product effects that generate direct functionality-based motivations, advertising effects operate almost entirely through symbolic meaning construction.

The combined direct effect ($\beta = 0.374$) and mediated effect ($\beta = 0.184$) produce substantial total effect ($\beta = 0.558$), the largest among examined pathways. This substantial total effect indicates that green advertising constitutes the most effective marketing lever for increasing repurchase intention, operating through both direct persuasion and brand image pathways. Strategic implication: invest substantially in green advertising while ensuring authenticity and consistency.

4.4.6. Comparative Marketing Effectiveness Analysis

The comparative pathway analysis reveals important insights regarding optimal marketing mix allocation for PDW manufacturers seeking to enhance consumer repurchase:

- Advertising Dominance: Green advertising totals effects (0.558) substantially exceed green product effects (0.409), suggesting that marketing communications constitute more powerful repurchase drivers than product environmental attributes in the current market context. This likely reflects consumer difficulty in assessing product sustainability absent third-party certifications, making advertising communications critical trust-building mechanisms.
- Mediation Patterns: Green brand image mediates a larger proportion of advertising effects (33%) than product effects (26%), indicating advertising operates primarily through brand image pathways while product effects partially bypass branding mechanisms. This suggests product improvements may generate direct benefits even without strategic brand positioning, but advertising benefits depend critically on successful brand image construction.
- Synergistic Effects: The substantial explained variance in repurchase intention ($R^2 = 0.62$) suggests that integrated green marketing strategies encompassing both product and advertising components achieve greater effectiveness than isolated initiatives. Neither product improvements nor advertising campaigns alone fully explain repurchase behavior.

4.4.7. Contextual Analysis for Developing Market Conditions

The research context Kefamenanu, an emerging market with growing but limited environmental awareness shapes interpretation of findings:

Limited Environmental Infrastructure: The developing market context lacks established third-party environmental certification systems and regulatory enforcement of environmental marketing claims. In this context, brand reputation becomes primary trust mechanism. Strong green brand image partially compensates for absent institutional credibility signals, explaining advertising effects' magnitude.

Consumer Environmental Consciousness: While respondent environmental awareness exceeds national averages (73% reported environmental concern in responses), actual purchasing behavior remains influenced by price, convenience, and social proof. Green marketing effects demonstrate modest magnitudes compared to developed market studies, suggesting environmental considerations represent secondary rather than primary purchase drivers in this context.

Local Business Advantages: Mutisqua's positioning as locally-owned company embedded in community relationships provides advantages over multinational competitors. Green advertising emphasizing local environmental stewardship, water source protection, and community employment generates stronger resonance than global sustainability messaging might achieve. This suggests context-specific messaging strategies outperform standardized corporate sustainability communications.

4.4.8. Theoretical Contributions

The research advances theoretical understanding through three primary contributions:

First, the integrated framework combining self-determination theory, social identity theory, and theory of planned behavior provides comprehensive explanation for green marketing effects in developing country contexts. The finding that green brand image operates as primary meaning-making mechanism connecting marketing communications to behavioral intentions extends previous frameworks that treated brand image as secondary outcome.

Second, the demonstrated partial mediation patterns reveal complexity of green marketing psychology requiring multi-pathway models rather than simple direct-effect specifications. Consumer responses to green marketing operate simultaneously through functional, psychological, and social-identification mechanisms, necessitating comprehensive intervention strategies.

Third, the finding that advertising effects exceed product effects provides counter-intuitive insight challenging common marketing practice assumptions emphasizing product quality. The result suggests that in contexts with information asymmetries and certification gaps, strategic communication substantially outweighs product attributes as purchase drivers, warranting adjusted marketing emphasis.

5. Conclusion

5.1. Summary of Key Findings

This research examined influences of green product and green advertising on packaged drinking water consumer repurchase intention, with green brand image as mediating variable. Seven hypotheses were tested using SEM-PLS analysis with 105 respondents.

All hypotheses were supported. Green product positively influenced repurchase intention (H1: β = 0.303) and green brand image (H3: β = 0.344). Green advertising more substantially influenced repurchase intention (H2: β = 0.374) and green brand image (H4: β = 0.598). Green brand image positively influenced repurchase intention (H5: β = 0.307). Green brand image partially mediated green product effects (H6: indirect β = 0.106) and green advertising effects (H7: indirect β = 0.184) on repurchase intention.

The integrated model explained 62% of repurchase intention variance, with green advertising exercising greatest total influence (total β = 0.558), followed by green product (total β = 0.409). Effect sizes ranged from small to medium, indicating practical significance alongside statistical significance.

5.2. Theoretical Implications

The research contributes to green marketing theory through three primary insights:

First, findings confirm and extend self-determination theory's application to consumption contexts, demonstrating that environmental value alignment generates autonomous motivation for repeat purchase. Importantly, this motivation operates both directly through product functionality and indirectly through symbolic brand associations, requiring integrated marketing approaches targeting multiple psychological mechanisms.

Second, the research demonstrates social identity theory's relevance in green marketing contexts, showing that strong green brand images facilitate identification with environmentally-conscious social groups, creating psychological attachment predicting behavioral loyalty. Marketing communications that effectively position brands as embodying environmental values constitute critical loyalty mechanisms, particularly in emerging markets with limited institutional credibility signals.

Third, the findings support theory of planned behavior predictions regarding attitude change mechanisms in green marketing, while extending TPB by incorporating brand image as additional mediator connecting communications to behavioral intentions. The partial mediation patterns indicate both direct attitude effects and brand-mediated psychological identification mechanisms operate simultaneously in shaping repurchase behavior.

5.3. Practical Implications

The research generates several actionable recommendations for packaged drinking water manufacturers:

- Strategic Green Marketing Emphasis: Given advertising effects' magnitude compared to product improvements, companies should invest substantially in green advertising campaigns while maintaining authentic environmental commitment. Advertising deserves priority marketing resource allocation when product environmental attributes and competitor offerings are relatively comparable.
- Brand Positioning Integration: Green brand image mediates substantial portions of marketing effects, indicating strategic brand positioning as critical success requirement. Companies should develop comprehensive brand identity clearly communicating environmental commitment across all customer touchpoints, not just advertising channels. Consistency between messaging and practices constitutes essential trust-building element.
- Authentic Environmental Communication: The developing market context's limited regulatory oversight creates temptation for greenwashing. However, consumer cynicism toward unsubstantiated

environmental claims generates substantial backlash. Companies should base green advertising on authentic environmental practices, preferably supplemented by third-party certifications or independent verification building consumer trust.

- Product Development Alignment: While advertising effects exceeded product effects, product quality remains important quality signal. Companies should ensure environmental product claims are substantive (e.g., genuinely recyclable packaging, sustainable sourcing) rather than merely symbolic, enabling word-of-mouth amplification and authentic brand reputation building.
- Local Positioning Strategies: The research context's emphasis on local business advantages and community relationships suggests that globally-standardized sustainability messaging often underperforms context-specific environmental commitment communications. Companies should develop locally-adapted green marketing messages emphasizing community environmental stewardship, local water source protection, and sustainable business practices supporting regional development.

5.4. Limitations and Future Research

Sample Scope Limitations: The study examined single brand in single municipality with 105 respondents, limiting generalizability to broader PDW markets and diverse consumer populations. Future research should employ multi-brand, multi-city sampling to establish cross-cultural patterns and test boundary conditions.

Temporal Limitations: Cross-sectional design captures single time-point measurements, preventing causal inference regarding temporal ordering and longitudinal effects. Future research should employ longitudinal designs tracking consumer intentions and behaviors over extended periods to establish causal mechanisms and durability of effects.

Measurement Limitations: Reliance on self-reported questionnaire data may introduce social desirability bias, particularly regarding environmental concern. Future research should incorporate behavioral measures (actual purchase records, sustainability practice adoption) alongside attitudinal measures to verify intention-behavior alignment.

Mechanism Specification: While the research establishes that green brand image mediates marketing effects, specific psychological mechanisms remain partially underspecified. Future research should employ qualitative methods, eye-tracking studies, or neuroscientific techniques to clarify mechanisms through which brand image communicates environmental commitment and motivates repeat purchase.

Competitive Context: The research examined single brand in isolation without incorporating competitive positioning or market structure. Future research should examine how green marketing effectiveness varies across competitive intensity, competitor positioning, and market concentration conditions.

Moderating Conditions: The research did not examine potential moderating variables affecting marketing effectiveness. Future research should investigate how consumer environmental concern, education, income, and cultural values moderate green marketing effects, enabling segmentation strategies targeting high-responsiveness consumer groups.

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Informed Consent

All research participants provided informed consent following complete explanation of research purposes, procedures, and data protection measures. Participation remained voluntary with right to withdraw without consequences. Personal identifiers were removed from data files to ensure confidentiality and compliance with research ethics standards.

Conflict of Interest

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AUTHOR CONTRIBUTIONS

Carles Sikone: Research concept development, literature review, research design, questionnaire development, data collection, statistical analysis, manuscript original draft preparation, critical revision, project supervision, overall research direction, theoretical framework consultation, critical interpretation of findings, manuscript final approval, and final approval.

Berno Benigno Mitang: Hypothesis development, measurement instrument validation, data analysis consultation, theoretical framework guidance, manuscript review and editing.