

Structural Modeling of Behavioral Predictors and Stakeholder-Prioritized Strategies for Green Consumption Among Indonesian Youth

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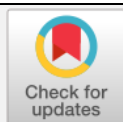
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ABSTRACT

This study examines the behavioral determinants and strategic enablers of green consumption among Indonesian youth, aligning with Sustainable Development Goal 12: Responsible Consumption and Production. Employing a mixed-methods approach, the research integrates structural modeling via partial least squares structural equation modeling (PLS-SEM) with multi-stakeholder prioritization through the Analytic Hierarchy Process (AHP). Quantitative data collected from 229 respondents aged 18–35 indicate that attitude ($\beta = 0.89$), perceived behavioral control ($\beta = 0.16$), and actual behavior ($\beta = 0.70$) significantly influence the willingness to engage in green consumption. Interestingly, perceived behavioral control also exerts a negative effect ($\beta = -0.58$), pointing to possible psychological or systemic constraints. Complementary qualitative insights were obtained from focus group discussions involving 25 stakeholders representing government agencies, non-governmental organizations, academia, and the private sector. These discussions identified and ranked key sustainability strategies, with top priorities including the integration of environmental topics into formal education, the expansion of eco-friendly public infrastructure, and the enhancement of youth-focused awareness campaigns. The findings underscore the dual necessity of fostering individual behavioral intentions and providing institutional support through coordinated stakeholder action. This study offers evidence-based recommendations for policymakers, educators, and industry actors to strengthen youth engagement in sustainable consumption initiatives.

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1. Introduction

The growing public awareness of green products reflects the importance of meeting present needs without compromising the ability of future generations to meet theirs, in line with the principles of sustainable development. This awareness corresponds with the global adoption of the Sustainable Development Goals (SDGs), particularly SDG 12 on Responsible Consumption and Production (RCP), which seeks to improve production efficiency and consumer behavior while minimizing resource use, waste generation, and environmental emissions across product life cycles (OECD, 2020).

In response to these global goals, Indonesia has formulated the National Action Plan (Rencana Aksi Nasional, RAN) to implement all 17 SDGs. The effective realization of SDG 12 requires collaboration and systemic strategies that involve all supply chain actors, from producers to end consumers. At the consumer level, RCP supports the emergence of a new consumer profile, referred to as the green consumer, who engages in environmentally responsible behavior and seeks to fulfill personal needs without damaging ecological systems (Harbo et al., 2017; Waskito & Wahyono, 2017).

A study by Zsóka et al. involving students aged 18–24 found that 96% associated peace and hope for the future with environmental consciousness, 67% desired more knowledge to contribute meaningfully, and 65% expressed concern about climate change (Zsóka et al., 2013). Many participants also emphasized the need for financial and infrastructural support to adopt sustainable habits. In this context, Indonesia's younger generations, Millennials (born 1980–1996) and Generation Z (born 1997–2015), who comprise approximately 144 million people or half of the national population (Badan Pusat Statistik., 2021), are positioned as key agents in advancing sustainable consumption.

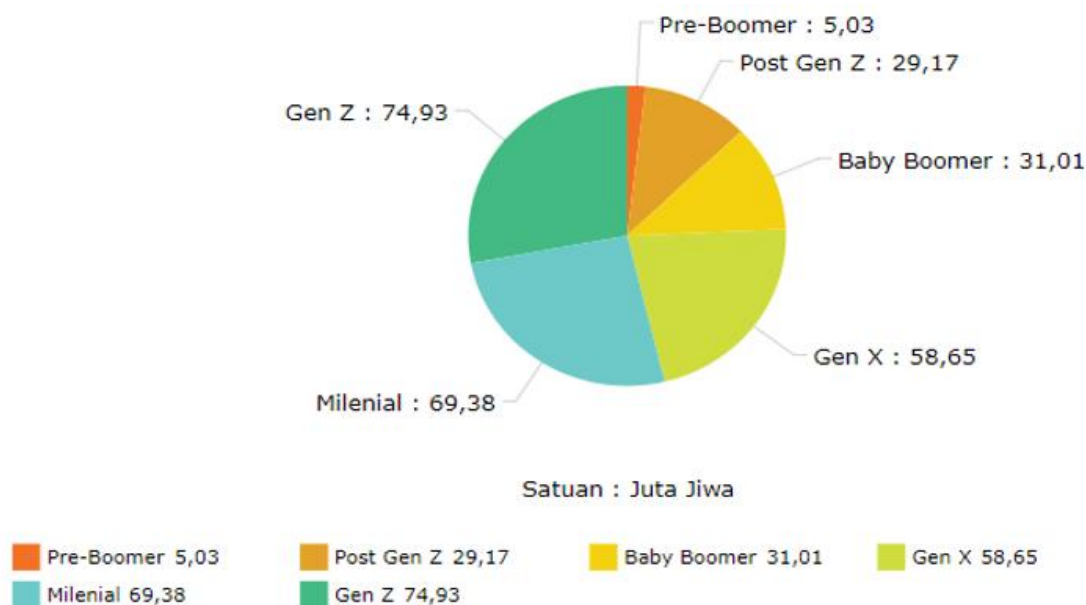


Figure 1. Population Composition by Generation in 2020

Source: (Badan Pusat Statistik., 2021)

Raised in a digital environment where technology and media strongly influence values and behaviors, these generations are highly exposed to environmental information (Leal Filho et al., 2023). However, several studies indicate that such awareness does not consistently translate into green practices (Jawad et al., 2023; Krajnc et al., 2022; Maria, 2022).

This reveals a gap between environmental awareness and behavioral commitment among youth. While concern for the environment is evident, practical barriers such as product accessibility, cost, and prevailing social norms often hinder meaningful behavioral change.

From a broader stakeholder and policy standpoint, Indonesia continues to face environmental degradation, partly due to the lack of an integrated, cross-sectoral strategy that engages all relevant actors. Existing policies remain fragmented, and the implementation of SDG 12 often lacks coordination and synergy among stakeholders. Furthermore, most prior studies emphasize individual behavioral intention and rarely integrate institutional or multi-actor perspectives. There is thus a pressing need for interdisciplinary approaches that combine psychological models with stakeholder-driven strategic planning.

To address this gap, the present study adopts an integrated theoretical framework combining Norm Activation Theory (NAT), the Theory of Planned Behavior (TPB), and Willingness to Participate Theory. These models offer a comprehensive perspective for analyzing the antecedents and consequences of pro-environmental behavior by incorporating key constructs such as personal norms, social norms, perceived behavioral control, and awareness of consequences (Han et al., 2017; Stern, 2000).

Unlike previous studies that treat these theories separately, this research synthesizes them into a unified behavioral model tested using partial least squares structural equation modeling (PLS-SEM). This method enables the identification of dominant behavioral predictors while accounting for the interplay between intention, action, and willingness to adopt green behaviors.

By combining NAT and TPB, this study develops a conceptual model to explore how green behavior is initiated and sustained. In particular, it highlights the potential of youth to serve as influencers within their communities, promoting and modeling sustainable consumption practices.

Beyond theoretical modeling, the research also addresses strategic stakeholder involvement. Through the Analytic Hierarchy Process (AHP), the study incorporates perspectives from government agencies, non-governmental organizations, academia, and industry to identify and prioritize actionable strategies that can enhance green product adoption.

Accordingly, this study sets out two main objectives: (1) to analyze the willingness of Indonesian youth to participate in green product consumption, and (2) to formulate a sustainable strategic plan from a stakeholder perspective that promotes long-term adoption of green practices. In doing so, the research aims to contribute to Indonesia's green economy transition in alignment with its national commitment to achieving net-zero emissions by 2050.

2. Literature Review

2.1. Responsible Consumption and Production (SDG 12): Best Practices in Indonesia

The Sustainable Development Goals (SDGs), introduced in 2015, represent a global framework aimed at eradicating poverty, reducing inequality, and safeguarding the environment. Among the 17 goals, SDG 12 is dedicated to promoting sustainable consumption and production patterns. For Indonesia, this goal is particularly urgent, as the country's rapid economic and social development has resulted in increasing resource depletion, environmental pollution, and ecological degradation, factors that threaten the well-being of future generations. In response, the Indonesian government has formulated a National Action Plan (Rencana Aksi

Nasional, RAN) to localize the SDGs and to encourage the transition to a green economy through sustainable production systems and environmentally responsible consumer behavior.



Figure 2. Sustainable Development Goals

While Indonesia has demonstrated progress toward achieving SDG 12, multiple challenges persist. Christiani et al. reported an increasing number of companies receiving Green Industry Awards, yet these only account for a small proportion of the country's industrial sector (Christiani et al., 2017). Similarly, Ridho, in an analysis of corporate social responsibility (CSR) disclosures from 200 publicly listed companies, found that although the consumer goods and agricultural sectors show active support for SDG 12, other sectors remain largely underengaged (Ridho, 2020). This suggests that sustainable business practices have yet to gain traction across all industries in Indonesia.

Indonesia's youth population plays a critical role in advancing sustainable consumption. Numerous studies have consistently demonstrated that Indonesian youth express environmental concern, a willingness to purchase eco-friendly products, and active participation in environmental initiatives (Fielding et al., 2008; Lee, 2008; Vermeir & Verbeke, 2008). These characteristics position them as potential agents of change capable of influencing societal attitudes and behaviors. Agents of change is individuals who mobilize others through activism, environmentally responsible personal habits, and peer encouragement for sustainable practices. This concept aligns with the framework on environmentally significant behavior proposed by Stern, which emphasizes the interplay between personal values, behavioral norms, and broader environmental outcomes (Stern, 2000).

Although the literature highlights institutional progress and youth engagement, there remains a gap in understanding how individual behavioral tendencies can be effectively integrated into system-level strategies involving multiple stakeholders. This study addresses that gap by combining behavioral predictors with structured stakeholder input, aiming to link micro-level consumer behavior with macro-level sustainability initiatives through a coherent and actionable framework.

2.2. Behavioral Theories

Behavioral theories provide a foundational lens for understanding how young consumers form intentions and adopt green consumption practices. The Reasoned Action Approach (RAA), an extension of the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB), posits that behavior is primarily driven by behavioral intention, which itself is shaped by attitude, perceived social norms, and perceived behavioral control. These core predictors are influenced

by underlying beliefs and background factors, including socio-demographic and psychological variables (Ajzen et al., 2014).

When young individuals perceive that purchasing green products aligns with their personal values and is supported by social expectations, they are more likely to form strong behavioral intentions and act accordingly. However, these models often emphasize intention formation and do not adequately explore the extent to which intention is translated into actual behavior or sustained willingness, especially in developing countries such as Indonesia.

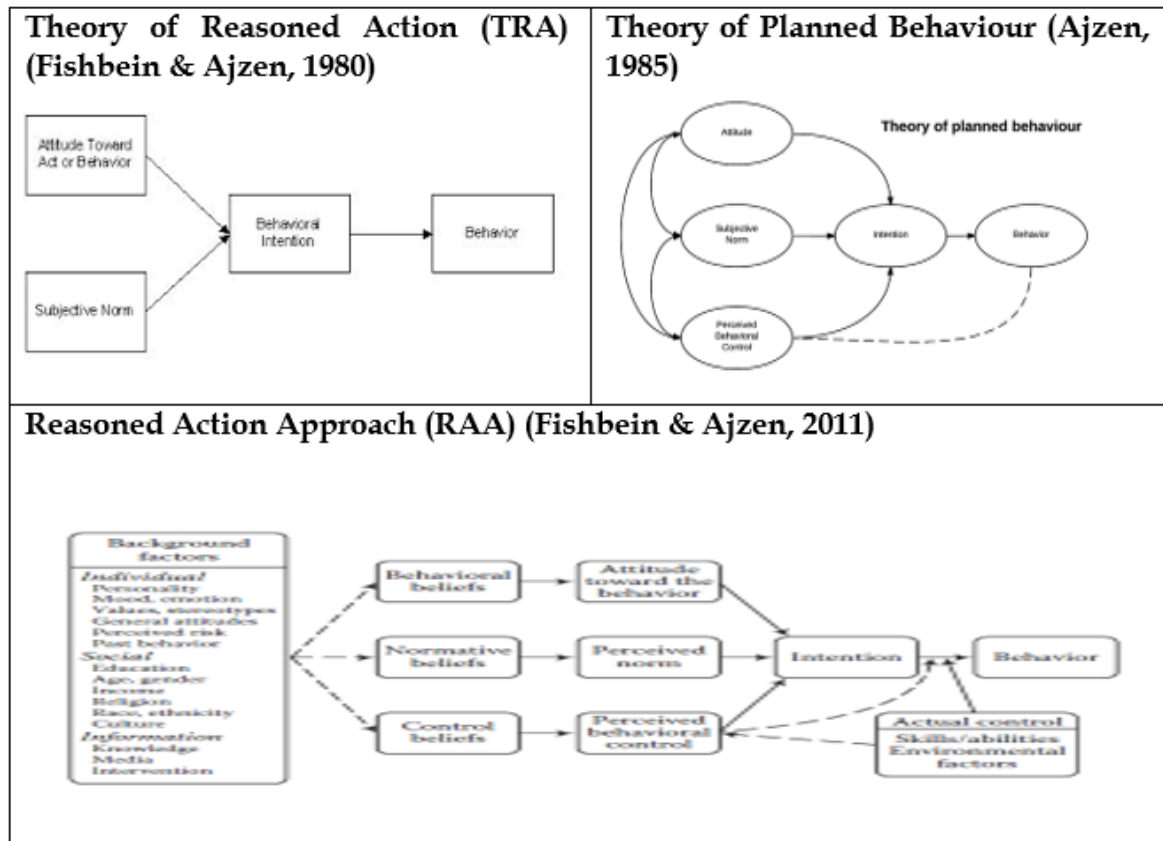


Figure 3. Theory of Reasoned Action, Theory of Planned Behavior, and Reasoned Action Approach

Among these frameworks, TPB is particularly relevant for understanding the barriers between intention and action. It emphasizes that perceived behavioral control plays a critical role in determining whether intention leads to actual behavior. For instance, even if young consumers have positive attitudes toward green products, their behavior may be inhibited by limited access or high costs (Bosnjak et al., 2020). This intention-behavior gap is especially salient in low- to middle-income countries, where pro-environmental actions are often constrained not by values alone, but by infrastructure limitations, pricing, and a lack of perceived self-efficacy.

Consequently, enhancing behavioral control, through interventions such as improving the availability and affordability of eco-friendly products, is essential for enabling sustainable consumer behavior among youth. Within this context, TPB remains a powerful analytical tool for measuring intention and the structural and psychological barriers that influence real-world action.

2.3. Willingness to Participate Theory and Norm Activation Theory

The Willingness to Participate Theory (Hao et al., 2020; Zhao & Huangfu, 2023) offers a valuable perspective for understanding youth engagement in collective environmental action. This theory emphasizes that participation in sustainability movements, such as green consumption campaigns, is shaped by motivational factors, identity affiliation, and emotional resonance. Youth are more inclined to participate in pro-environmental efforts when they feel personally connected to the cause and experience a sense of belonging to a movement.

In parallel, the Norm Activation Theory (NAT) (Jansson & Dorrepaal, 2015) posits that pro-environmental behavior is influenced by personal norms, which are activated when individuals perceive a moral obligation to act, often reinforced by social expectations. When youth internalize environmental responsibility as a personal duty, and when social norms support this, they are more likely to adopt eco-friendly habits. Empirical studies consistently show that personal norms are among the strongest predictors of both intention and actual behavior in environmental contexts (Kim & Seock, 2019; Niu et al., 2023; Wu et al., 2022).

The integration of NAT enriches the Theory of Planned Behavior by adding a moral and normative dimension to the predictors of sustainable action. Meanwhile, the Willingness to Participate Theory contributes a collective and affective lens, accounting for emotional drivers and identity-based motivation that extend beyond private consumption behavior.

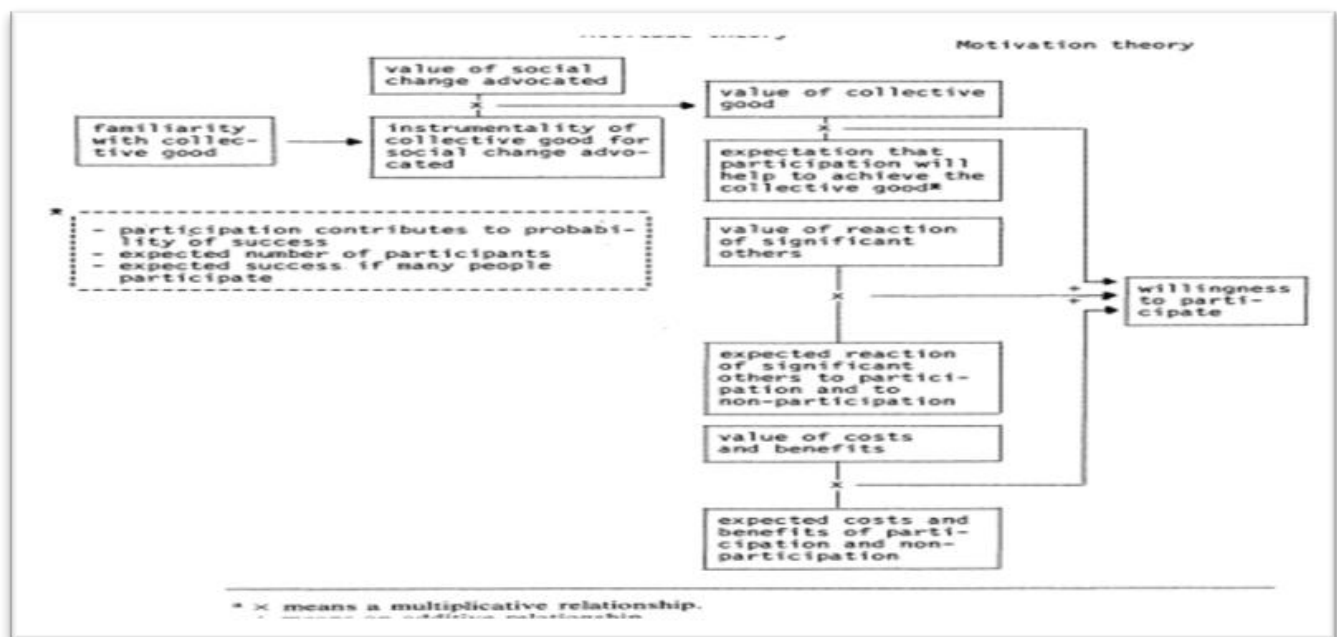


Figure 4. Theory of Willingness to Participate (adapted from Klandermans, 1984)

These behavioral perspectives inform the construction of a research model designed to assess youth willingness to consume green products. As illustrated in Figure 5, the model incorporates key psychological and social constructs, including attitude toward green products, perceived norms, subjective norms, behavioral intention, actual behavior, and willingness. The premise is that stronger intentions and greater social reinforcement increase the likelihood of consistent green consumption.

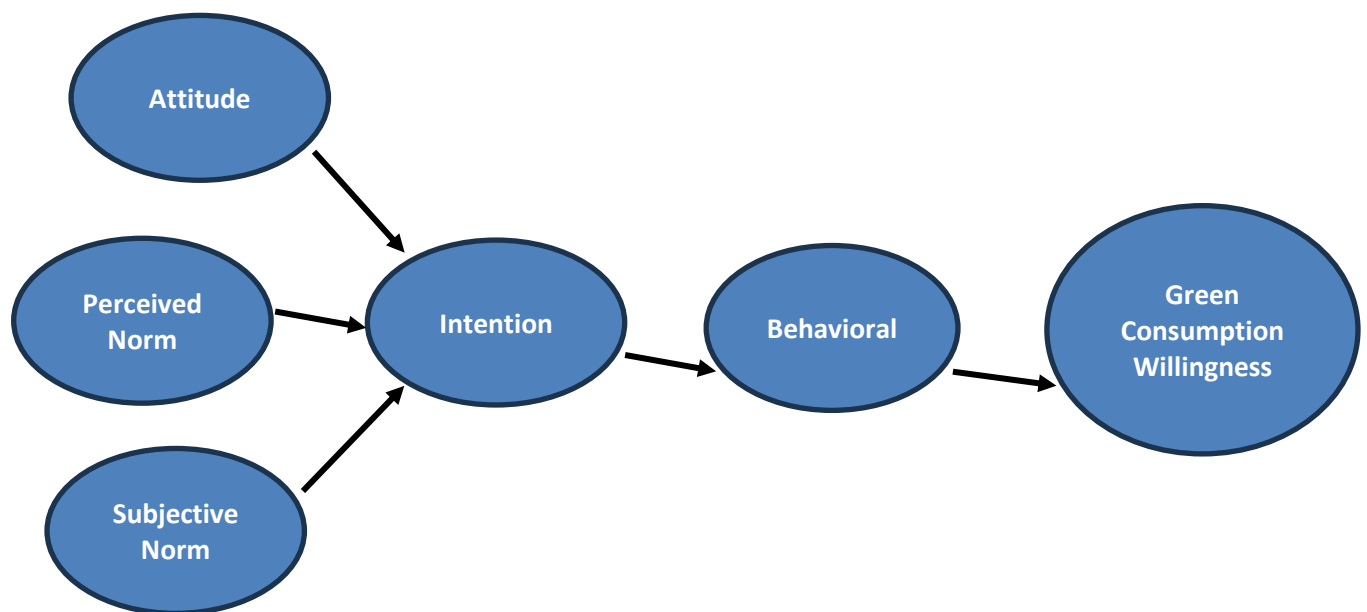


Figure 5. Conceptual Framework for Green Product Consumption Behavior

The conceptual model presented in **Figure 5** is grounded in behavioral theories such as the Theory of Planned Behavior and the Reasoned Action Approach. It illustrates how cognitive (e.g., attitude), normative (e.g., perceived and subjective norms), and motivational (e.g., willingness) factors converge to shape environmentally responsible behavior. Specifically, it demonstrates that intention serves as a central pathway through which attitude and perceived norms influence actual green behavior and the sustained willingness to engage in eco-friendly consumption. This framework helps explain how internal beliefs and social contexts translate into real-world practices and supports the broader agenda of SDG 12 on responsible consumption and production.

By integrating the Theory of Planned Behavior (as a model of rational intention), Norm Activation Theory (as a model of moral and social responsibility), and the Willingness to Participate Theory (as a model of affective and collective motivation), this study proposes a more holistic framework for understanding youth engagement in green consumption. This synthesis captures the multi-dimensional nature of behavior, extending beyond intention to include behavioral performance and long-term willingness.

Beyond the individual level, achieving sustainable development also requires multi-stakeholder collaboration. Stakeholder theory underscores the role of diverse actors, including government institutions, non-governmental organizations, private sector entities, and academic institutions, in shaping sustainability outcomes. The degree of stakeholder influence is often determined by the elements of power, legitimacy, and urgency (Mitchell et al., 1997). In complex policy environments, particularly within developing economies such as Indonesia, coordinated stakeholder engagement is essential for fostering green literacy, improving access to sustainable products, and implementing supportive regulations.

To this end, the present study incorporates stakeholder theory alongside behavioral models to develop a strategic framework for sustainable consumption. This dual perspective, linking individual-level behavior with multi-actor governance, enables the formulation of an evidence-based, context-specific roadmap for empowering youth and accelerating progress toward SDG 12. Unlike prior studies that treat behavioral and institutional dimensions separately, this

research offers an integrated model that addresses both psychological drivers and systemic enablers of green consumption.

3. Research Methodology

This study investigates consumer behavior, specifically green consumer behavior and the implementation of Sustainable Development Goal 12 (SDG 12) in Indonesia. To address this complex subject, a mixed-methods research design is employed. The design integrates a descriptive non-experimental approach, which involves collecting objective data without any treatment or manipulation of the respondents. Additionally, a quantitative-causal approach is used to explore and explain causal relationships between key variables. To complement these quantitative methods, qualitative techniques are applied to gain deeper insight into stakeholder perspectives through interviews and discussions. This integration allows for both statistical validation of behavioral patterns and contextual refinement of strategic priorities based on stakeholder input.

3.1. Data Collection

Data collection is carried out using multiple methods to ensure comprehensive coverage of the research topic. Document observation is conducted to examine existing theories of consumer behavior and the various factors that influence green consumer behavior globally, alongside the specific context of SDG 12 implementation in Indonesia. Expert interviews are undertaken with a selected group of stakeholders, including government officials, private sector representatives, NGO members, and academic professionals. These individuals are chosen for their critical roles and resources related to SDG 12 execution in Indonesia.

The identification of key influencing factors is grounded in three core behavioral theories: the Reasoned Action Approach (RAA), the Willingness to Participate Theory, and the Norm Activation Theory. These frameworks serve as the basis for model development by identifying key research variables that help explain and prevent environmental degradation, particularly through the engagement of youth as agents of change. The relevant variables include attitudes toward pro-environmental behavior, perceived norms, perceived behavioral control, intention to engage in environmentally friendly behavior, actual behavior, and willingness to become an agent of change. The latter is further characterized by dimensions such as environmental activism, private-sphere environmentalism, and other environmentally significant actions.

To support the quantitative component of the study, a survey was conducted to explore and validate causal patterns among the identified behavioral variables. Structured questionnaires were distributed to selected youth respondents using non-probability sampling techniques, specifically judgment sampling, based on predetermined inclusion criteria. These criteria included being between the ages of 18 and 35, residing primarily in urban or semi-urban areas, and reporting at least moderate levels of environmental awareness. The questionnaire was developed based on established constructs from the Theory of Planned Behavior, Norm Activation Theory, and Willingness to Participate Theory, ensuring theoretical alignment and content relevance.

Focus Group Discussions (FGDs) were also conducted with 15 key stakeholders, including representatives from governmental institutions, environmental NGOs such as WALHI, academic researchers, and environmental policy experts. These discussions aimed to gather practical insights and strategic preferences that informed the subsequent prioritization process and development of multi-stakeholder sustainability plans.

3.2. Research Locations

The distribution of the questionnaire takes place in several major Indonesian cities that face significant environmental challenges and pollution levels, including Jabodetabek (Jakarta Metropolitan Area), Surabaya, Semarang, and Medan. Expert interviews and FGDs are held either online or in locations where participants are based, providing flexibility and broader accessibility.

3.3. Types and Sources of Data

The study utilizes both primary and secondary data. Secondary data is sourced from previous literature and reports to identify the drivers of responsible environmental behavior, such as green product consumption and environmental damage prevention. Primary data is gathered directly from youth respondents and expert stakeholders through surveys, interviews, and focus group discussions.

3.4. Data Analysis

Questionnaire data is collected via Google Forms and consists of several indicators measured using a Likert scale. The analysis of the collected data employs Partial Least Squares Structural Equation Modeling (PLS-SEM), as proposed by Hair et al., to evaluate the youth as agents of change in environmental protection. Data were analyzed using SmartPLS 3.2.9 software (Hair Jr. et al., 2021). The measurement model was assessed for convergent validity, discriminant validity, and internal consistency before structural path analysis was performed. This analytical procedure was instrumental in developing a comprehensive green consumer behavior model and identifying the most influential behavioral predictors.

Additionally, the Analytic Hierarchy Process (AHP) is utilized to analyze stakeholder perspectives and formulate strategic recommendations for sustainability practices (Saaty, 2002). Stakeholder inputs were converted into pairwise comparisons across key criteria, with consistency ratios (CR) calculated to ensure the reliability of responses. Final weights and rankings were derived using eigenvalue-based prioritization, forming the basis for a stakeholder-informed sustainability strategy.

4. Results

This study involved a total of 229 respondents, with the aim of understanding the behavioral dynamics of the younger generation in adopting green product consumption. The core rationale of this research lies in the role of youth as influencers and agents of change, capable of leading by example, encouraging others, and campaigning for environmentally friendly behavior.

4.1. Demographic Background

Table 1 presents the demographic profile of the study participants. Nearly half of the respondents were aged between 18 and 24 years (48.0%), consistent with the study's focus on young adults. This group was followed by those aged 25–29 (28.4%), 30–35 (14.8%), and over 35 years (8.7%). The sample was predominantly female (57.2%), with males comprising 41.0%, and 1.8% opting not to disclose their gender.

In terms of educational attainment, the majority held a bachelor's degree (69.0%), followed by postgraduate qualifications (17.9%), and high school diplomas (13.1%). More than half of the respondents were students (54.1%), while others were employed in the public or private sectors (30.6%), worked as entrepreneurs or freelancers (8.7%), or were unemployed (6.6%).

Regarding income, 77.7% of participants reported earning less than IDR 4 million per month, with 38.4% earning below IDR 2 million and 39.3% earning between IDR 2 million and IDR 4 million. Most respondents resided in urban areas (64.2%), followed by those in semi-urban (25.3%) and rural settings (10.5%).

In terms of environmental awareness, 49.3% described their awareness as moderate, 36.7% as high, and 14.0% as low. When asked about their green product usage, 28.8% reported frequent use, 54.1% occasional use, and 17.0% rare or no use.

Table 1. Respondent Profile

Description	N	%	Description	N	%
Age (years)			Monthly income (IDR)		
18–24	110	48.0	< 2 million	88	38.4
25–29	65	28.4	2–4 million	90	39.3
30–35	34	14.8	4.1–6 million	36	15.7
> 35	20	8.7	> 6 million	15	6.6
Gender			Place of residence		
Male	94	41.0	Urban	147	64.2
Female	131	57.2	Semi-urban	58	25.3
Prefer not to say	4	1.8	Rural	24	10.5
Educational background			Environmental awareness		
High school diploma	30	13.1	High	84	36.7
Bachelor's degree	158	69.0	Moderate	113	49.3
Postgraduate (Master's/PhD)	41	17.9	Low	32	14.0
Occupation			Green product usage		
Student	124	54.1	Frequently	66	28.8
Employed (private/public sector)	70	30.6	Occasionally	124	54.1
Entrepreneur/freelancer	20	8.7	Rarely/never	39	17.0
Unemployed	15	6.6			

These findings emphasize that young adults represent a crucial demographic for advancing sustainable consumption. However, despite relatively high levels of environmental awareness, a noticeable gap persists between awareness and consistent behavioral engagement.

4.2. Measurement Model (Verificative Method)

The results of the validity and reliability tests for the measurement model are presented in **Table 2**. Five constructs, Perceived Behavioral Control, Attitude, Intention, Behavior, and Willingness to Participate, demonstrate high internal consistency, with Cronbach's alpha values exceeding the 0.70 threshold. However, the Perceived Norm construct shows a relatively low reliability score ($\alpha = 0.61$), primarily due to the performance of indicator Pnm6. Since only one out of six indicators under this construct exhibits low reliability, the overall construct can still be considered sufficiently valid and reliable for inclusion in further analysis.

Table 2. Validity and Reliability of the Measurement Model

No.	Kode	Model				Reliabilitas
		Loading	t.	Error	t.e.	
A. PERCEIVED BEHAVIORAL CONTROL (PBC)						0.78
1	Pbc1	0.91	48.56	0.25	2.39	
2	Pbc2	0.88	39.08	0.26	3.2	
3	Pbc3	0.80	21.22	0.67	4.18	
4	Pbc4	0.79	17.65	0.63	4.12	
5	Pbc5	0.83	20.43	0.38	3.4	
6	Pbc6	0.71	15.05	0.45	5.51	0.61
B. PERCEIVED NORM						
7	Pnm1	0.71	16.02	0.69	5.64	
8	Pnm2	0.78	19.99	0.61	4.65	
9	Pnm3	0.74	21.52	0.37	5.64	
10	Pnm4	0.78	23	0.54	4.97	
11	Pnm5	0.81	22.89	0.42	4.15	0.74
12	Pnm6	0.69	15.68	1.01	6.03	
C. ATTITUDE						
13	Att1	0.83	33.63	0.41	4.16	
14	Att2	0.76	21.61	0.4	5.15	
15	Att3	0.80	28.47	0.59	4.69	
D. INTENTION						0.95
16	Int1	0.88	*	0.21	3.09	
17	Int2	0.86	34.72	0.22	3.33	
18	Int3	0.92	35.62	0.18	2.22	
E. BEHAVIORAL						0.90
19	Bhv1	0.82	*	0.38	4.14	
20	Bhv2	0.87	24.93	0.3	3.18	
21	Bhv3	0.86	23.38	0.32	3.49	
22	Bhv4	0.87	24.85	0.22	3.39	
23	Bhv5	0.90	27.25	0.18	2.87	
F. WILLINGNESS TO BE AGENT OF CHANGE						0.89
24	Wac1	0.86	*	0.39	3.51	
25	Wac2	0.82	25.55	0.4	4.32	
26	Wac3	0.88	29.79	0.21	3.22	
27	Wac4	0.87	29.21	0.24	3.55	
28	Wac5	0.89	29.9	0.29	3.09	
29	Wac6	0.87	28.02	0.39	3.4	
30	Wac7	0.88	31.12	0.23	3.26	

Table 3 presents the Goodness of Fit indices, which are essential for assessing model adequacy in Structural Equation Modeling (SEM). These indices confirm that the model has an acceptable fit to the data. The probability value exceeds 0.05 ($p = 0.1379$), indicating no significant discrepancy between the observed and estimated covariance matrices. The Root Mean Square Error of Approximation (RMSEA) is well below the standard threshold ($0.019 < 0.08$), and the Standardized Root Mean Square Residual (SRMR) is 0.054, also within acceptable limits. The Comparative Fit Index (CFI) reaches 1.00, indicating excellent fit. While the Goodness of Fit Index (GFI = 0.79) and Adjusted Goodness of Fit Index (AGFI = 0.74) fall slightly below the conventional cutoff of 0.90, the Parsimony Goodness of Fit Index (PGFI = 0.64) is acceptable, reflecting model parsimony.

Table 3. Goodness of Fit Indices of the Model

Index	Criteria	Model Value
Degrees of Freedom	Relatively small	381
Chi-Square	Relatively small	411.19
Probability	> 0.05	0.1379
RMSEA	< 0.08	0.019
Standardized RMR (SRMR)	< 0.08	0.054
CFI	> 0.95	1.00
GFI	> 0.90	0.79
AGFI	> 0.90	0.74
PGFI	> 0.60	0.64

These results indicate that the model provides an acceptable fit and is suitable for further structural analysis. The subsequent analysis focuses on the estimated parameters of the structural model, as shown in **Table 4**.

Table 4. Parameter Estimates of the Structural Model

Model	Dependent Variable	Independent Variable	β	t-value	Sig.	R ²
I	Intention	PBC	0.16	1.24	ns	0.81
		Norm	-0.14	-0.31	ns	
		Attitude	0.89	1.80	**	
II	Behavior	Intention	0.61	3.79	*	0.90
		PBC	0.36	3.38	*	
		Attitude	0.04	0.27	ns	
III	Willingness	Behavior	0.70	4.06	*	0.87
		PBC	-0.58	-3.88	*	
		Attitude	0.73	5.09	*	

Notes: $p < 0.05$ (*), $p < 0.10$ (**), ns = not significant

The structural model reveals that attitude is the strongest predictor of intention ($\beta = 0.89$), followed by Perceived Behavioral Control (PBC) ($\beta = 0.16$), whereas subjective norm has a small and non-significant negative effect ($\beta = -0.14$). These three variables collectively explain 81% of the variance in intention.

In predicting actual behavior, intention emerges as the most influential factor ($\beta = 0.61$), followed by PBC ($\beta = 0.36$), while attitude exerts a minimal direct effect ($\beta = 0.04$). The model accounts for 90% of the variance in behavior.

Regarding willingness to engage in green consumption, both behavior ($\beta = 0.70$) and attitude ($\beta = 0.73$) are significant and positive predictors. Interestingly, PBC exerts a significant negative influence on willingness ($\beta = -0.58$), which may reflect psychological overconfidence or the presence of unmeasured structural barriers. Overall, the model explains 87% of the variance in willingness.

A total effect analysis further confirms the dominant role of attitude, which has a strong direct and indirect impact on both behavior ($\beta = 0.58$) and willingness ($\beta = 1.14$). In contrast, PBC demonstrates mixed effects, positive for behavior, but negative for willingness, while subjective norms appear weak and statistically insignificant throughout the model.

In summary, attitude consistently serves as the most influential determinant of intention, behavior, and willingness to consume green products, whereas PBC plays a dual role, and social norms contribute minimally. These findings underscore the importance of targeting individual beliefs and perceived control in designing behavioral change interventions for sustainable consumption.

4.3. Structural Model Results

The structural model results presented in **Figure 6** offer valuable insights into the psychological factors influencing green product intention, actual consumption behavior, and willingness to engage in sustainable consumption among young people. The first structural equation reveals that attitude is a significant predictor of intention to consume green products ($\beta = 0.89$), with an R² value of 0.81. This indicates that 81% of the variance in intention is explained

by the model. Although perceived behavioral control (PBC) and subjective norm were also included as predictors, their effects were statistically insignificant.

This finding suggests that when young individuals hold a favorable perception of green products, viewing them as ethical, beneficial, or socially desirable, they are more likely to develop a strong intention to consume them. This tendency persists even in the absence of social pressure or despite perceived limitations in access or affordability.

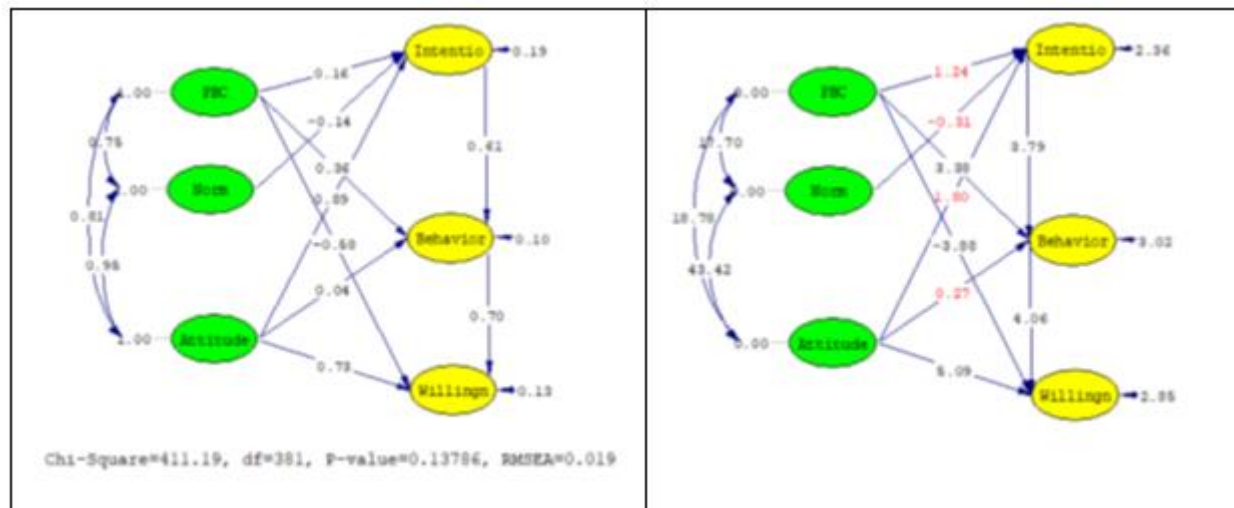


Figure 6. Structural Model Results

The second structural equation identifies the predictors of actual green consumption behavior. Intention emerges as the most significant factor ($\beta = 0.61$), followed by perceived behavioral control (PBC) ($\beta = 0.36$), while the direct effect of attitude is minimal ($\beta = 0.042$). The model accounts for 90% of the variance in behavior ($R^2 = 0.90$), indicating excellent predictive power. These findings underscore the importance of translating intention into action by enhancing individuals' confidence and perceived ability to engage in green consumption. Accordingly, practical interventions such as improving product accessibility, affordability, and informational transparency may help bridge the gap between intention and actual behavior.

The third equation focuses on willingness to engage in green consumption, defined as the readiness to adopt or maintain environmentally friendly purchasing behaviors. The results indicate that behavior ($\beta = 0.70$) and attitude ($\beta = 0.73$) are both strong, positive predictors of willingness. Interestingly, PBC exhibits a significant negative effect ($\beta = -0.58$). This suggests that even when individuals have favorable attitudes and a history of sustainable behavior, their willingness may diminish if they perceive persistent barriers such as high costs or limited product availability.

The reduced form (total effect) analysis further reinforces these results. With regard to behavior, attitude continues to exert a strong influence ($\beta = 0.58$), and PBC contributes positively ($\beta = 0.46$). In contrast, for willingness, attitude has the highest total effect ($\beta = 1.14$), while PBC ($\beta = -0.26$) and norms ($\beta = -0.057$) have negative total effects. These outcomes highlight that while promoting positive attitudes is essential, reducing practical and psychological barriers is equally critical to sustaining youth engagement in green product consumption.

In summary, the findings demonstrate that among young consumers, attitude consistently plays the most influential role in shaping intention, behavior, and willingness to engage in sustainable consumption. Intention serves as a key determinant of actual behavior, while PBC

presents a dual effect, facilitating behavioral action but potentially undermining willingness when perceived barriers are high. Subjective norms, meanwhile, exert only a limited influence across all outcomes. These insights offer strategic guidance for both policymakers and marketers: invest in strengthening positive attitudes, support consumer behavior through accessible and affordable options, and actively work to eliminate practical constraints in order to foster long-term sustainable consumption among youth.

Based on these structural model results, hypothesis testing was conducted to evaluate the strength and significance of the proposed relationships (see [Figure 6](#)). These relationships are illustrated in [Figure 7](#), which presents the standardized regression weights indicating the magnitude of influence from each independent variable to its respective dependent outcome.

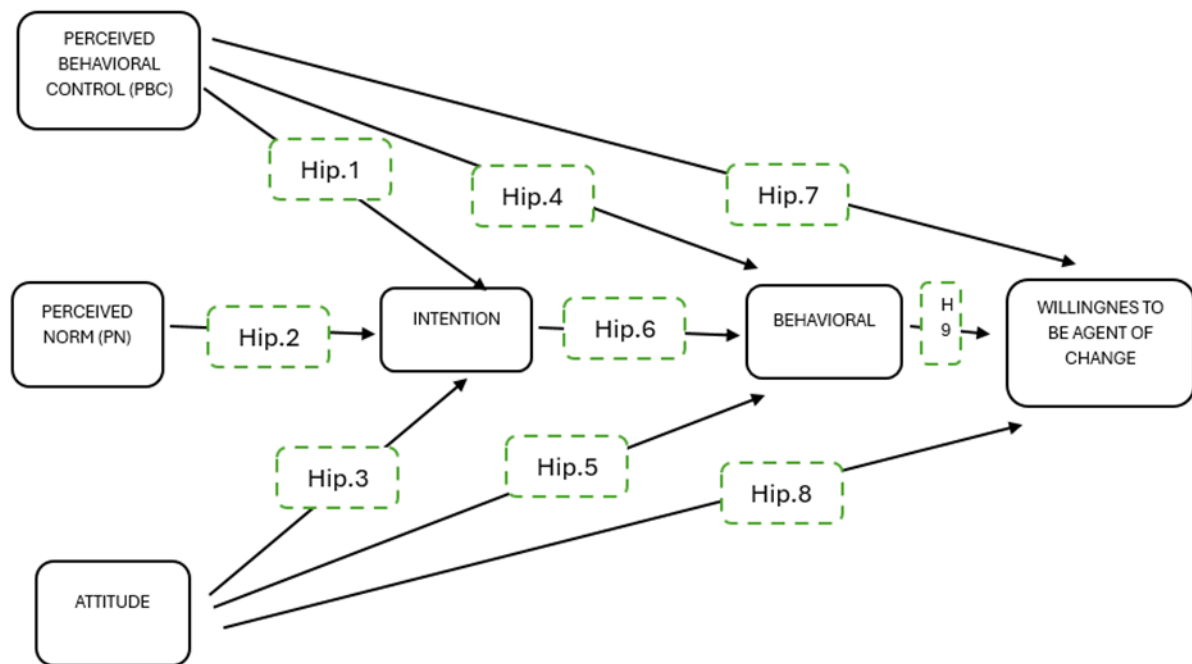


Figure 7. Structural Model

The results of the structural model analysis demonstrate the influence of key psychological variables on behavioral intention, actual green consumption behavior, and willingness to engage in sustainable practices.

The first structural equation examines intention to consume green products. Attitude exhibits the strongest positive effect ($\beta = 0.89$), indicating that individuals who positively evaluate green consumption are significantly more likely to form a corresponding behavioral intention. Perceived behavioral control (PBC) has a smaller but positive influence ($\beta = 0.16$), suggesting that a sense of capability modestly enhances intention. Meanwhile, subjective norm exerts a minor negative effect ($\beta = -0.14$), implying that perceived social pressure may slightly diminish intention. Collectively, these predictors account for 81% of the variance in intention ($R^2 = 0.81$), signifying a strong model.

Table 5. Hypothesis Testing Results

Hypothesis	Path	Estimate	S.E.	C.R.	P-value	Result
H1	PBC → Intention	0.16	0.129	1.24	0.216	Not supported
H2	Norm → Intention	-0.14	0.452	-0.31	0.757	Not supported
H3	Attitude → Intention	0.89	0.494	1.80	0.073	Supported ($\alpha = 0.10$)
H4	PBC → Behavior	0.36	0.107	3.38	0.001	Supported
H5	Attitude → Behavior	0.04	0.148	0.27	0.787	Not supported
H6	Intention → Behavior	0.61	0.161	3.79	0.000	Supported
H7	PBC → Willingness	-0.58	0.149	-3.88	0.000	Supported
H8	Attitude → Willingness	0.73	0.143	5.09	0.000	Supported
H9	Behavior → Willingness	0.70	0.172	4.06	0.000	Supported

In terms of actual behavior, intention is the most significant predictor ($\beta = 0.61$), followed by PBC ($\beta = 0.36$). The direct effect of attitude is minimal ($\beta = 0.04$), indicating that those who intend to act and feel capable are more likely to engage in green behavior. The model explains 90% of behavioral variance ($R^2 = 0.90$), demonstrating high predictive validity.

For willingness to engage in sustainable consumption, both behavior ($\beta = 0.70$) and attitude ($\beta = 0.73$) have strong and statistically significant effects. Notably, PBC shows a negative effect ($\beta = -0.58$), indicating that when perceived control is overly high, perhaps due to overconfidence or systemic obstacles, willingness may decrease. The model explains 87% of the variance in willingness ($R^2 = 0.87$).

The total effects analysis (reduced form equations) further clarifies these relationships. Regarding behavior, attitude ($\beta = 0.58$, $t = 1.82$) and PBC ($\beta = 0.46$, $t = 3.88$) exert meaningful positive effects, while subjective norm remains non-significant ($\beta = -0.082$, $t = -0.31$), accounting for 83% of the explained variance ($R^2 = 0.83$). In predicting willingness, attitude has the strongest total effect ($\beta = 1.14$, $t = 4.85$), while PBC contributes negatively ($\beta = -0.26$, $t = -1.84$) and norm again shows no meaningful influence ($\beta = -0.057$, $t = -0.32$). These predictors collectively explain 79% of the variance in willingness ($R^2 = 0.79$).

The structural model confirms that attitude is the most influential factor across all stages of sustainable behavior: intention, actual behavior, and willingness. While PBC supports action by increasing perceived efficacy, it may simultaneously hinder willingness if high perceived control masks latent barriers. Subjective norms exert negligible influence throughout, suggesting that internal beliefs and self-perception are more decisive than external social expectations.

These findings have practical implications for policy and marketing interventions. Efforts should prioritize the development of positive attitudes, enhance consumers' perceived behavioral capacity through accessible and affordable green product offerings, and remove structural constraints that discourage consistent engagement with sustainable consumption practices.

4.4. Discussion

The findings from this study, based on a sample of 229 youth respondents, reveal a positive trend: attitude, perceived behavioral control, and actual behavior significantly influence willingness to participate in sustainable consumption. These results underscore the potential of youth to act as environmental influencers and agents of change through the adoption of eco-friendly behaviors and products.

Youth willingness to participate is expressed in various green economy activities, including encouraging others to engage in environmentally responsible actions, joining environmental communities, initiating new eco-friendly habits, motivating peers to adopt sustainable practices, dedicating time and energy to become role models, expressing pride in being part of environmentally conscious groups, and actively engaging in conservation initiatives.

The strong influence of attitude on willingness suggests that a positive environmental outlook, rooted in concern for ecological degradation, plays a crucial role in motivating action. This attitude is often shaped by personal experiences with environmental damage and reinforced by exposure to environmental education in both formal settings (e.g., schools and universities) and informal settings (e.g., community groups and social organizations). These findings align with the Theory of Planned Behavior, where attitude serves as a key antecedent of intention and action (Bosnjak et al., 2020).

Hypothesis testing also revealed that perceived behavioral control (PBC), an individual's perceived capacity to engage in sustainable practices, positively affects willingness to participate. This sense of control encompasses understanding the importance of environmental protection, the urgency of pollution prevention, and the long-term value of sustainability. Confidence in executing environmentally friendly behaviors further strengthens participation willingness.

Moreover, the study finds that actual behavior is a significant predictor of willingness to be an agent of change. This means that those already practicing sustainable behaviors are more likely to continue or expand their environmental engagement. These behaviors include managing household waste, conserving energy and water, making conscious consumption decisions, and actively participating in environmental campaigns or restoration activities. Behavior, in this context, serves as a feedback mechanism, reinforcing identity and motivating further action.

Interestingly, the results also show that perceived behavioral control and subjective norm do not significantly influence intention. This indicates that personal perceptions of capability and perceived social pressure are not yet strong motivators for intention formation among youth regarding green economy practices. However, all three constructs, PBC, perceived norm, and attitude, positively influence behavior, which in turn enhances willingness to act as an agent of change. This layered relationship suggests that while youth may not initially feel socially compelled or entirely capable of adopting sustainable intentions, their actual engagement in green practices ultimately fosters deeper commitment.

These findings offer practical implications for designing environmental interventions. Effective strategies may include leveraging digital media, particularly social media, to deliver engaging and relatable environmental messages; expanding access to eco-friendly public infrastructure; enhancing environmental education with actionable, solution-oriented content; and involving key stakeholders, such as educators, NGOs, and businesses, in delivering impactful environmental programming.

The findings of this study align with previous literature on youth engagement in sustainability. A global survey conducted by Masdar highlighted that Generation Z views climate change and environmental degradation as defining challenges of their era, with many expressing a willingness to lead change through lifestyle adjustments and environmental advocacy (Masdar,

2016). Similarly, a report by Amnesty International found that climate change ranked as the most critical issue among young people worldwide, indicating heightened ecological awareness and urgency (Amnesty International, 2019). These perspectives are reinforced by growing evidence that youth are not only concerned about environmental issues but are actively adopting sustainable practices in daily life. Such environmental challenges, including pollution, resource depletion, and global warming, continue to motivate young people to assume roles as agents of change within their communities and beyond.

4.5. Strategic Sustainability View Development Involving Stakeholders

Beyond behavioral dimensions, empowering youth as green consumers requires strategic support from stakeholders to strengthen their roles as agents of change. To explore actionable strategies, a series of brainstorming sessions, focus group discussions (FGDs), and interviews were conducted in March 2023 with 25 stakeholders, including representatives from government agencies, non-governmental organizations, academia, and the private sector. These discussions produced three key thematic areas with multiple strategic alternatives.

In the first thematic area, enhancing environmental awareness and responsibility, stakeholders assigned the highest priority to organizing youth-oriented events that foster emotional attachment to environmental values (weight = 0.162). Such events are considered effective in cultivating a sense of ownership and connection with sustainability goals. The second and third-ranked strategies were the development of environmentally friendly public facilities that serve educational purposes (0.089) and the dissemination of public service announcements on sustainability through targeted media channels (0.084). These findings emphasize the importance of accessibility, visibility, and youth engagement in environmental communication efforts.

The second focus area, strengthening youth motivation for environmental action, highlighted the integration of sustainability values into all youth-related activities, which received a significant weight of 0.151. This strategy encourages the inclusion of environmental themes in school programs, extracurricular initiatives, and community-based projects. The second-highest strategy in this category involved increasing youth awareness of the importance of preserving natural resources and ecological balance (0.107), underscoring the role of education in stimulating long-term behavioral change.

In the third thematic area, enhancing environmental knowledge, stakeholders identified the integration of sustainability-related subjects into formal education curricula at all levels as the top priority. This reflects a long-term commitment to embedding environmental literacy across the educational system. Additional priorities included implementing firm and consistent government regulations to promote sustainability (0.122), and fostering multi-stakeholder collaboration among NGOs, universities, businesses, and government institutions (0.084). These measures point to the need for both institutional reform and cross-sectoral cooperation.

When all eight strategies were ranked using the Analytical Hierarchy Process (AHP), the top priorities emerged as: (1) integrating sustainability education in schools and public awareness campaigns; (2) organizing youth-centered environmental events; and (3) embedding sustainability principles in youth programs. These were followed by strengthening policy enforcement, raising environmental awareness, expanding eco-friendly infrastructure, enhancing media-based outreach, and promoting collaborative governance.

Overall, the AHP analysis offers a data-driven foundation for designing strategic interventions. The findings demonstrate that empowering youth through education, meaningful engagement, and supportive environmental infrastructure is essential to foster sustainable

consumption behaviors. Furthermore, these strategies emphasize the need to build structurally and socially enabling environments to support the broader transformation toward sustainability.

The proposed strategies derived from stakeholder inputs were further refined using the AHP framework, as illustrated in **Figure 8**.

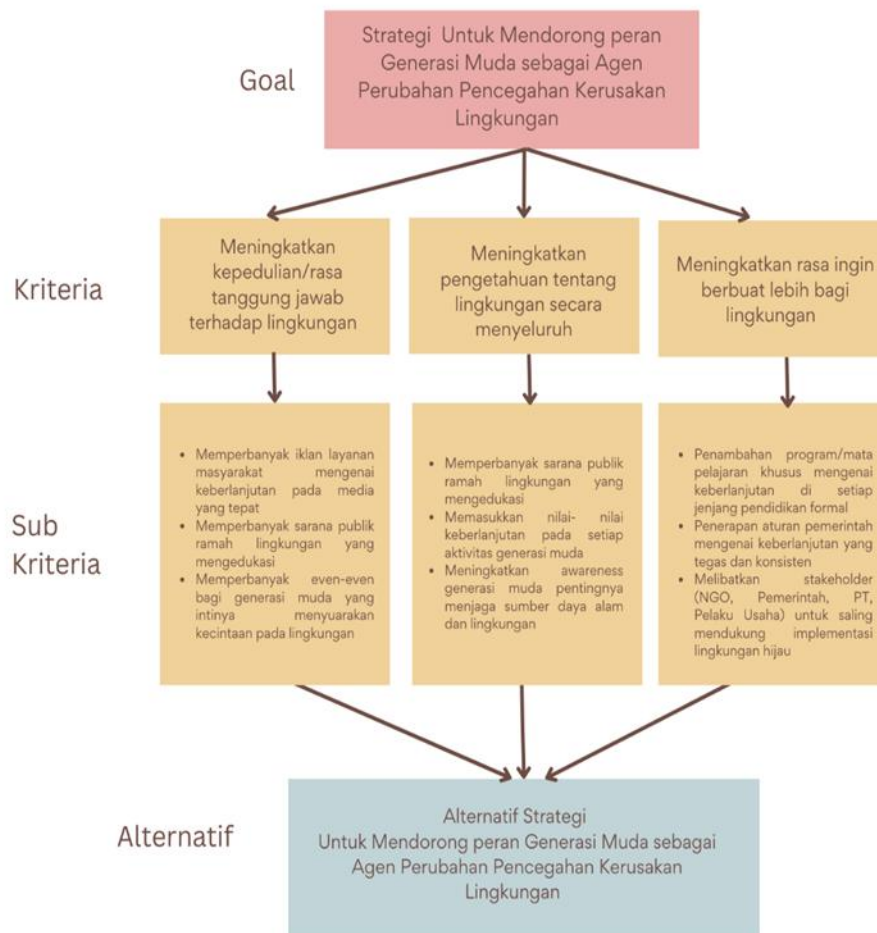


Figure 8. Analytical Hierarchy Process (AHP)

Based on the AHP analysis and behavioral model findings, a strategic roadmap has been developed to enhance the role of youth as influential actors in promoting green economy practices. This roadmap, presented in **Figure 9**, is structured into three implementation phases, short-term, medium-term, and long-term, ensuring a progressive and sustained transformation in youth behavior toward environmental responsibility.

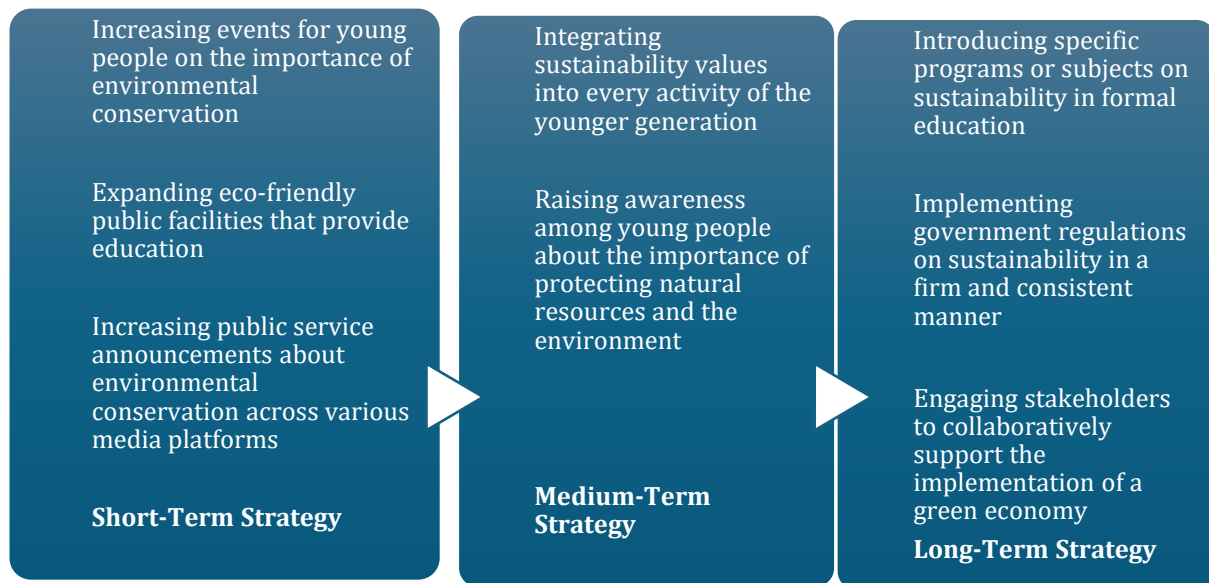


Figure 9. Roadmap for Strategy Implementation

In the short term, the focus lies in cultivating environmental awareness and a sense of responsibility among youth. This foundational phase includes organizing events that highlight environmental care, constructing educational public spaces that incorporate eco-friendly elements, and disseminating public service announcements to raise ecological awareness through diverse media platforms.

In the medium term, the strategy shifts toward nurturing stronger motivation for environmental action. This involves embedding sustainability values into the everyday activities of youth, such as community initiatives, school-based projects, and social movements, thereby normalizing pro-environmental behavior. Concurrently, targeted efforts are needed to reinforce understanding of natural resource conservation and environmental preservation.

In the long term, the strategy emphasizes deepening environmental knowledge and institutionalizing behavioral change. This is achieved by integrating sustainability content into the national education curriculum across all levels. In addition, enforcing consistent and well-structured government regulations becomes imperative to support structural transformation. To maximize impact, this phase also advocates for coordinated action involving key stakeholders, including civil society organizations, educational institutions, businesses, and government bodies, to collaboratively advance sustainable environmental practices.

This phased strategy ensures that youth empowerment efforts are not only timely and engaging but also strategically aligned with the broader goal of long-term, systemic change in support of a green economy.

5. Conclusion

This study concludes that youth play a pivotal role in promoting sustainable consumption, particularly in the adoption of green products in Indonesia. The analysis reveals that attitudes, perceived behavioral control, and actual pro-environmental behavior significantly influence their willingness to participate as agents of change. Among these factors, attitude is the most

dominant, while perceived behavioral control exhibits a dual effect, positively influencing behavior but potentially diminishing willingness when constraints are perceived.

The study contributes theoretically by integrating three behavioral frameworks to offer a comprehensive understanding of green consumption. It moves beyond intention to capture actual behavior and willingness to engage in collective environmental action. Methodologically, it combines structural modeling with stakeholder-driven prioritization, aligning individual behavioral insights with broader strategic planning.

Practically, the findings identify key strategies to accelerate youth involvement, including the integration of environmental education into curricula, the expansion of eco-friendly infrastructure, the development of targeted campaigns, and the enforcement of supportive regulations. These strategies are structured across three stages: short-term awareness-building, medium-term behavioral integration, and long-term institutional development and collaboration.

Future efforts should focus on embedding youth participation within sustainability governance through innovation platforms, youth-led initiatives, and inclusive policy design. Digital outreach and international engagement are also recommended to promote behavioral change and cultivate global environmental awareness. Together, these efforts will position youth as central actors in the transition toward a greener and more sustainable future.

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7. Declaration of Conflicting Interests

The authors have declared no potential conflicts of interest regarding this article's research, authorship, and/or publication.

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