

The Impact of Green Packaging and Green Product on Purchase Decisions of Lee Minerale Products with Environmental Awareness as an Intervening Variable

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ABSTRACT

Increasing consumer awareness of environmental issues has driven companies to adopt sustainable strategies in product development. This study aims to explore the influence of Green Packaging and Green Product on the purchase decisions of Lee Minerale products, with Environmental Awareness as an intervening variable mediating the relationship. The research method employed is a quantitative approach using a questionnaire survey, with respondents being consumers of Lee Minerale. The sample size used consists of 100 respondents. Data analysis was conducted using Structural Equation Modeling based on Partial Least Squares (SmartPLS). The results of the outer model test indicate that all constructs meet the criteria for validity and reliability, with adequate loading factors, AVE, and Composite Reliability. The inner model results show that Green Product has a significant influence on both Purchase Decision and Environmental Awareness, while Green Packaging significantly influences Environmental Awareness but does not directly affect Purchase Decision. Furthermore, Environmental Awareness is proven to be a significant mediator that strengthens the influence of Green Packaging and Green Product on Purchase Decision. This study emphasizes the importance of integrating sustainability practices into marketing strategies to enhance consumer purchase decisions. As a practical implication, companies are advised to strengthen the communication of sustainability values to consumers in order to increase competitive advantage in the market.

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INTRODUCTION

In recent years, environmental issues have become a global concern affecting various aspects of life, including consumer behavior. Indonesia, as a developing country, is not exempt from environmental problems such as plastic pollution, industrial waste, and ecosystem degradation due to human activities. According to data from the Ministry of Environment and Forestry (KLHK) in 2023 (*Indonesia's Environmental Threat: Millions of Tons of Unmanaged*

Waste by 2024 – GoodStats Data, n.d.), plastic waste generation in Indonesia reaches 12.54 million tons per year, with around 30% originating from consumer product packaging, including bottled water. This figure highlights the urgency for industry players to shift toward more environmentally friendly approaches to reduce negative environmental impacts.

Along with the rising public environmental awareness, the concept of green marketing has rapidly developed, especially in the marketing strategies of bottled drinking water (AMDK) products. Lee Minerale, one of the bottled water brands in Indonesia, has implemented green packaging and green product concepts in an effort to meet the demands of environmentally conscious consumers. According to internal data from Mayora Group (*PT Mayora Indah Tbk 2023 Sustainability Report*, n.d.), Lee Minerale uses bottles made from 100% recycled plastic (rPET) and biodegradable labels, as part of its commitment to sustainability. This initiative is expected to enhance product competitiveness while contributing positively to environmental conservation.

A notable phenomenon today is the shift in Indonesian consumer preferences, increasingly taking sustainability aspects into account when making purchase decisions. A study by Mulyono & Sulistyowati (2024a) showed that implementing green marketing and using green packaging significantly influence consumer behavior, particularly in retail sectors such as Guardian Supermarket. This proves that sustainability aspects, such as green packaging and green products, are increasingly important factors in influencing consumer purchase decisions.

Recent research by Frimayasa et al., (2025) further supports these findings. In their study focusing on Lee Minerale's green marketing strategy, it was found that brand strength plays a crucial role in increasing consumer trust and reinforcing perceptions of the green marketing strategy. Interestingly, however, consumer perceptions of green products did not directly influence green marketing strategies or customer trust. Therefore, they emphasize the importance of companies focusing on building a strong brand image to optimize the effectiveness of their green marketing strategies (Frimayasa et al., 2025).

Green packaging refers to the use of packaging materials that are biodegradable, recyclable, and have minimal environmental impact. Research by Amalia et al (2023a) revealed that environmentally friendly packaging significantly influences the purchase decisions of FMCG products, such as MILO Activ-Go UHT. Consumers show strong preferences for sustainably packaged products, thereby increasing the product's added value in an increasingly environmentally conscious market.

In addition to packaging, the quality of green products is also under scrutiny. Green products not only consider environmentally safe raw materials but also ensure sustainable production processes. Research by Mulyono & Sulistyowati (2024b) reaffirms that consumers today prefer products with an environmentally friendly image, especially when companies actively promote the environmental benefits of their products through effective communication.

However, the influence of green packaging and green products on purchase decisions is not always direct. Consumers' environmental awareness plays an important role as an intervening variable that strengthens this relationship. A study by Amalia et al (2023b) found

that consumer environmental awareness plays a significant role in reinforcing the influence of environmentally friendly packaging on purchase decisions. The higher the consumer's environmental awareness, the more likely they are to choose environmentally friendly products. As a product in the AMDK category, Lee Minerale faces both challenges and opportunities. On one hand, competition in Indonesia's AMDK market is very tight, with major brands like Aqua and Le Minerale already widely recognized. On the other hand, by highlighting green strategies, Lee Minerale has the potential to attract a market segment that cares about sustainability. Data from Nielsen Indonesia (2023) show that urban consumers in Indonesia experienced a 15% increase in environmental awareness compared to the previous year, reflecting a growing opportunity for products with sustainability values.

In this context, it is important to scientifically explore how green packaging and green products influence the purchase decisions of Lee Minerale, considering consumer environmental awareness as a mediating variable in that relationship. By understanding this relationship, companies can formulate more effective marketing strategies while supporting Indonesia's national agenda for sustainable development through the Sustainable Development Goals (SDGs), particularly Goal 12 on Responsible Consumption and Production. Furthermore, this study will enrich the academic literature in the field of green marketing, which in Indonesia is still relatively limited, especially in the context of bottled drinking water (AMDK) products. Most previous studies have focused more on personal care or household products, while research on green-themed bottled water products remains very limited. Thus, this research holds strong novelty value.

According to Aria Auliandri et al (2018), green packaging is the use of packaging materials that not only function to protect the main product but are also designed to be environmentally friendly in order to reduce environmental problems caused by packaging waste. Green packaging is considered one of the company's competitive business strategies in responding to increasing awareness of environmental sustainability. This practice includes reducing the use of non-biodegradable packaging, using packaging with low energy consumption, and using eco-friendly packaging materials. Environmentally friendly packaging is defined as the manufacturer's effort in selecting packaging materials and designs that are biodegradable, reusable, or recyclable to minimize environmental impact and build a positive brand image among environmentally conscious consumers (Ramadan, 2025).

Green product refers to a product that is designed, produced, used, and disposed of in a way that minimizes negative environmental impact. These products not only consider the sustainability of raw materials — such as using recycled materials or naturally biodegradable materials — but also consider energy efficiency in the production process, safety for human health, and product lifecycle to minimize waste. Green products aim to provide economic benefits without compromising ecological sustainability, thereby helping to reduce pollution, conserve natural resources, and support global efforts for sustainable development. Consumers who choose green products generally have high environmental awareness and tend to consider sustainability values in their purchase decisions. Green products are those that do not cause harm to the environment and natural resources, nor cause pollution (Madjidan & Sulistyowati, 2022). (Kasali, 1997) defines green products as goods or products

produced by manufacturers with consideration for safety and their impact on human health and the environment.

Purchase decision is a mental and behavioral process that consumers go through in selecting, assessing, and deciding to buy a product or service based on various rational or emotional considerations to fulfill their needs or wants (Frimayasa, 2022). Purchase decision is an integration process used to combine knowledge to evaluate two or more alternative behaviors and choose one of them (Kotler, 2019). A purchase decision is a process in which consumers recognize their problem, seek information about a specific product or brand, and evaluate how well each alternative solves their problem, leading to a purchase decision (Tjiptono, 2020). Purchase decision is consumer behavior involving how individuals, groups, and organizations select, buy, use, and how goods, services, ideas, or experiences are used to satisfy their needs and desires (Kotler and Gary Armstrong, 2016).

Environmental awareness refers to a state in which an individual is consciously aware of something, in this case, awareness of the environment, which can be observed through various actions and behaviors exhibited by a person. According to Afandi et al., (2012), environmental awareness is an active process in which individuals are in a state of alertness to external and internal stimuli, meaning being aware of events in the surrounding environment as well as bodily conditions, memories, and thoughts. This awareness is not a passive state, but rather an active process that reflects an understanding of reality and how to act or respond to that reality.

METHODS

This study employs a quantitative approach with an explanatory research design. This approach was chosen because the research aims to explain the causal relationships between the studied variables, namely the influence of green packaging and green products on purchase decisions, with environmental awareness as an intervening variable in the context of Lee Minerale products.

The population of this study includes all consumers who have purchased and consumed Lee Minerale products in Jakarta and surrounding areas. The sampling technique used is purposive sampling, which involves selecting respondents based on specific criteria aligned with the research objectives. The respondent criteria are: consumers who have purchased Lee Minerale products, are at least 18 years old, and have an understanding of the concept of environmentally friendly products. The sample size is determined based on the formula by Hair et al. (2010) (Agtovia Frimayasa, Yanthi Herawati, Ibnu Haris Nasution, 2024), which suggests a minimum of 5–10 times the number of research indicators. Assuming there are 20 indicators, the sample for this study consists of 100 consumers of Lee Minerale bottled drinking water.

The data analysis method used in this study is variance-based with the Partial Least Squares (PLS) alternative, utilizing SmartPLS software version 3.3.3. The PLS calculation stages involve two models: the Measurement Model (Outer Model) and the Structural Model Testing (Inner Model).

RESULTS AND DISCUSSION

In this study, the outer model testing was conducted to ensure that each indicator used in the research meets the criteria for validity and reliability, making them suitable for use in the structural model (inner model) testing. The outer model serves to evaluate the relationship between latent constructs and their indicators. Convergent Validity aims to measure the extent to which indicators that reflect a particular construct have a high correlation with one another.

Table 1. Outer Loadings

Indica- tor	Green Packag- ing	Green Prod- uct	Purchase Deci- sion	Environmental Aware- ness
GPC1	0.878			
GPC2	0.859			
GPC3	0.920			
GPC4	0.811			
GPC5	0.886			
GPT1		0.760		
GPT2		0.758		
GPT3		0.756		
GPT4		0.750		
GPT5		0.774		
KL1				0.798
KL2				0.854
KL3				0.814
KL4				0.853
KP1			0.715	
KP2			0.819	
KP3			0.868	

All indicators within the four constructs in this study have met the criteria for convergent validity, with loading factor values above 0.70. This indicates that each indicator used in this research is able to accurately and consistently measure the intended construct. Therefore, the measurement model is deemed appropriate to proceed to the next stage, namely discriminant validity testing and structural model (inner model) testing.

Table 2. Average Variance Extracted

	Average Variance Extracted (AVE)
Green Packaging	0,759
Green Product	0,577
Purchase Decision	0,645
Environmental Awareness	0,689

Based on the calculation results of Average Variance Extracted (AVE) for each construct in this research model, it can be concluded that all constructs have met the criteria for good

convergent validity. Referring to the guidelines from Hair et al. (2019), an AVE value greater than 0.50 indicates that a construct is able to explain more than 50% of the variance of its indicators, and therefore is considered to have valid convergent validity.

It can be concluded that all constructs in this study have fulfilled the requirements for convergent validity. Each construct is able to explain an adequate amount of variance from its indicators, and is thus deemed appropriate for use in the subsequent analysis stages, namely discriminant validity testing and structural model (inner model) evaluation.

Table 3. Composite Reliability and Cronbach's Alpha Values

	Cronbach's Alpha	Composite Reliability
Green Packaging	0,920	0,940
Green Product	0,819	0,872
Purchase Decision	0,720	0,844

All constructs in this research model show Composite Reliability values above 0.70, indicating that the constructs have strong internal consistency and are reliable for measuring the variables under study. Cronbach's Alpha is one of the most classical reliability measures used to assess internal consistency. Alpha measures the extent to which the indicators within a construct consistently reflect that construct, assuming that all indicators have equal weight.

Based on the results of construct reliability testing using Cronbach's Alpha and Composite Reliability indicators, it can be concluded that all constructs in this study have met the criteria for good reliability. Referring to the standards proposed by Hair et al. (2019), Cronbach's Alpha and Composite Reliability values greater than 0.70 indicate that the constructs have strong and reliable internal consistency.

Table 4. R Square

	R Square	R Square Adjusted
Purchase Decision	0,521	0,506
Environmental Awareness	0,576	0,567

R-Square or the coefficient of determination (R^2) is a measure in SEM-PLS analysis used to indicate how much of the variation in the dependent variable can be explained by the independent variables in the research model. The analysis results show that the R-square value for the Purchase Decision variable is 0.62, which means that 62% of the variability in purchase decisions can be explained by the variables Green Packaging, Green Product, and Environmental Awareness. Meanwhile, the R-square value for the Environmental Awareness variable is 0.58, indicating that 58% of the variation in consumer environmental awareness can be explained by Green Packaging and Green Product variables. Thus, both endogenous variables in this study have relatively strong predictive power, indicating that the model is feasible for further development.

F-Square or f^2 (Effect Size) is a measure used in SEM-PLS analysis to assess the extent of influence or contribution of each independent variable to the dependent variable within the constructed model.

Table 5. F-Square (f^2)

Variable	Green Pack-aging	Green Product	Purchase De-cision	Environmental Awareness
Green Packaging			0.025	0.035
Green Product			0.062	0.732
Purchase Decision				0.055
Environmental Awareness				

The results of the effect size (f^2) test in this study indicate that among all variables, Green Product has the most dominant and significant contribution to Environmental Awareness, with an f^2 value of 0.732 (large category). Meanwhile, other effects such as Green Packaging and Environmental Awareness on Purchase Decision tend to fall into the small category. This finding reinforces the importance of Green Product in enhancing consumer environmental awareness, which in turn can influence purchase decisions for Lee Minerale products.

Q-Square Predictive Relevance (Q^2) is used to measure the model's ability to predict the observed values of the dependent variables. The higher the Q^2 value, the better the model's predictive capability. Based on the analysis using the blindfolding technique in SmartPLS, the Q^2 (Predictive Relevance) values for each endogenous variable in this research model are as follows:

- a. Environmental Awareness: $Q^2 = 0.421$ (large category)
- b. Purchase Decision: $Q^2 = 0.359$ (large category)

These results show that all endogenous constructs in the model have good predictive relevance. The Q^2 value for Environmental Awareness of 0.421 falls into the large category, indicating that the model can predict the Environmental Awareness variable very well based on the Green Packaging and Green Product constructs.

Meanwhile, the Q^2 value for Purchase Decision of 0.359 is also in the large category, indicating that the variables in the model—Green Packaging, Green Product, and Environmental Awareness—collectively have strong predictive power in explaining consumer Purchase Decisions regarding Lee Minerale products. With Q^2 values in the large category for both endogenous variables, it can be concluded that this research model has very good predictive ability. This means the model not only explains the relationships between variables within the context of this research data but also has the capability to predict similar phenomena in different datasets in the future.

To determine whether a hypothesis is accepted or rejected, attention must be paid to the t-statistic and p-value. If the t-statistic exceeds the critical value at a certain confidence level and the p-value is below the predetermined significance level (typically 0.05), then the hypothesis is accepted. Conversely, if the t-statistic is lower than the critical value or the p-value exceeds the significance threshold, the hypothesis is considered rejected. In this study, hypothesis testing was conducted using SmartPLS software, where a p-value below 0.05 serves as an indicator that the hypothesis is accepted. The results from the path coefficients

and indirect effects are the primary references for evaluating the acceptance or rejection of each hypothesis.

Table 6. Direct Effect Test Results

Path Relationship	Original Sample (O)	T Statistic	P Value	Significance
Green Packaging → Purchase Decision	0.131	1.083	0.279	Not Significant
Green Packaging → Environmental Awareness	0.198	5.314	0.000	Significant
Green Product → Purchase Decision	0.595	4.560	0.000	Significant
Green Product → Environmental Awareness	0.905	7.823	0.000	Significant
Environmental Awareness → Purchase Decision	0.250	4.885	0.000	Significant

These test results show that the Green Product variable is the most dominant factor, as it has a significant effect on both Environmental Awareness and Purchase Decision. Meanwhile, Green Packaging has a significant effect on Environmental Awareness, but does not directly have a significant effect on Purchase Decision. In addition, Environmental Awareness is proven to be an important variable in bridging the influence of environmentally friendly variables on consumers' decisions to purchase Lee Minerale products.

Table 7. Indirect Effect Test Results

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	P Values	Significance
Green Packaging → Environmental Awareness → Purchase Decision	0.505	0.565	0.054	0.000	Significant
Green Product → Environmental Awareness → Purchase Decision	0.226	0.239	0.130	0.000	Significant

The results of the indirect effect testing in this research model show that Environmental Awareness serves as a significant mediator in the relationship between both Green Packaging and Green Product with the Purchase Decision of Lee Minerale products. Therefore, it can be concluded that the company's efforts in implementing environmentally friendly packaging and green products—accompanied by increasing consumer awareness of the importance of environmental sustainability—will be effective in influencing consumers' purchase decisions.

CONCLUSION

The overall findings of this study indicate that the implementation of Green Product and Green Packaging, supported by the enhancement of Environmental Awareness, can influence

consumers' purchase decisions for Lee Minerale products. Green Product contributes the most strongly, both directly and through the mediating pathway of Environmental Awareness. Meanwhile, Green Packaging plays a stronger role in increasing environmental awareness, which in turn positively influences purchase decisions. The implication is that companies need to continuously develop environmentally friendly product innovations and educational strategies to raise consumer awareness about the importance of sustainability, thereby encouraging consumer purchase interest more effectively.

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