Exploring Sustainable Packaging Awareness and Purchase Intentions Among Thai University Students

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ABSTRACT

This research paper investigates Thai and International university students' awareness of sustainable packaging and their purchase intentions. A cross-sectional data collection method was used to gather data from approximately 73 respondents of various nationalities via an online survey using google forms. The results indicated that environmental concern and willingness to pay significantly affect purchase intentions. However, the knowledge of sustainable packaging did not significantly influence purchasing behavior, suggesting that respondents might not have sufficient information about sustainable packaging options. This gap highlights the need for enhanced educational efforts to inform students about the benefits and availability of sustainable packaging. The research's limitations include a limited sample size.Given these limitations, the results give useful information on the factors impacting students' purchasing intentions for sustainable packaging. Future studies might overcome these limitations by employing a bigger and more varied sample of students from various colleges to examine their awareness and attitudes about sustainable packaging. Future research that widens the scope and methodology can help to gain a greater awareness of how to effectively advertise sustainable packaging amongst university students, thereby creating environmentally conscious consumer behavior.

Keywords: Sustainable packaging, Environmental concern, purchase intention, willingness to pay, environmental knowledge

INTRODUCTION

Background of the study

With the growing demand for products and services, product packaging is playing an important role in the business. Packaging offers several practical advantages pertaining to product safety and transportation effectiveness. In fact, packaging is the fastest-growing segment within the artificial plastic packaging market area. However, packaging, often discarded after use, has a significant negative impact on the environment due to its immediate disposal. According to Eurostate report, only European Union countries produced 83.4 million tons of packaging waste in 2022 (eurostate, 2024). In 2022, the EU's packaging waste, primarily made up of paper and cardboard, accounts for 41% of all waste, followed by plastic 19%, glass 19%, wood 16%, and metal 5% (Eurostat, 2024). According to statistics, the entire world manufactures 141 million tons of plastic packaging per year. Approximately one-third of the plastic used on the worldwide market leaks from collecting systems, damaging the environment. Eventually contributing to carbon emissions average around 1.8 billion tons each year. Human well-being, the economy, and the environment are the three main components that makeup sustainability (Otto et al., 2021). According to Martin et al., (2012), these three areas can be seen as ways to preserve the ecosystem's resilience while also enhancing human well-being (i.e., equitable burden-sharing and social equity). From an ecological point of view, sustainability means making contributions to keep the environment and a robust ecosystem intact continuously. In this regard, packaging materials are also related to this. Reichert et al., (2020) argued that reduced use of virgin resources and recyclable or reusable post-consumed materials made of easily accessible materials are two indicators that packaging material is sustainable. Packaging has many practical advantages in terms of product safety and efficient transportation. Packaging has the significant drawback of increasing our environmental footprint because it is typically thrown away right away after a product is used.

Rich countries in the West are dumping their plastic garbage in low-income villages in Myanmar, arguably the world's most restrictive government, polluting the environment and jeopardizing lives and livelihoods (Mendelson, 2024). Additionally, Ocean Conservancy's 2017 report revealed Thailand, China, Indonesia, Philippines, and Vietnam collectively contribute to 17 million ton/year plastic pollution in the oceans. Thailand generates 2 million tons of plastic waste annually, with 0.5 million tons recycled, and 1.5 million tons being single-use plastics (SUP). These short-use items are discarded as solid waste, affecting the country's recycling rate. To mitigate the issue of plastic waste, Thailand government has developed a roadmap for 2018- 2030. The roadmap aims to achieve 100% reusability of plastic waste by 2027. To achieve the target, by 2022, Thailand planned to ban on four single-use plastics, including thin bags, Styrofoam food boxes, plastic straws, and plastic cups. However, not only Thailand, but international regulations are intended to limit plastic trash exports, and a transparent worldwide supply chain and chaotic regulatory framework can make it easier for firms to get rid of non-recyclable dump products in places thousands of kilometers away. From that viewpoint, the topic of of sustainable packaging arises.

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Packaging serves not only as a protective barrier for products but also as a gateway that opens numerous possibilities. In addition to drawing clients, businesses create a distinctive brand identity to succeed in the market's intense rivalry nowadays. Along with the growth in production and shift in customer needs caused by industrialization, which began in the 18th century, the marketing aspect of packaging, in addition to its protection and storage functions became increasingly important (Polat, 2022). Sustainability has been a key concern in recent years, and today's packaging innovators are always finding innovative methods to lessen the packaging industry's environmental effects. To reduce the impact plastic packaging on the environment, it is important to shift towards ecologically designed sustainable packaging. Ecological design is gaining popularity among scholars due to its emphasis on sustainability and ecological efficiency (Boks & Stevels, 2007; Esslinger, 2011). Recent eco-friendly inventions, such as disposable and edible packaging, not only represent the current status of our culture but also show the packaging industry's capacity to adapt to customers' ever-changing wants and issues which encouraged the introduction of sustainable packaging. It has been noticed that by having sustainable packaging, companies can reduce the environmental impact while meeting the functional requirements of their business. According to White (2023), people are prepared to pay extra for ecologically friendly packaging. Consumers who wish to reduce their environmental impact prefer recyclable, renewable, or Green packaging. By addressing this requirement, businesses may not only attract new customers but also establish a favorable brand image and increase trends toward green packaging. However, to increase the knowledge and awareness of sustainable packaging, new contributions are needed and focus on design of sustainable packaging that can stimulate consumer choice.

According to Erik Pauer (2019), green packaging, also known as sustainable packaging, uses less energy and has fewer negative environmental consequences than traditional packaging. However, this paper will focus more in terms of sustainable packaging. Unlike plastic and fiberglass, green packing methods use sustainable and recyclable supplies. In fact, sustainable packaging includes environmentally friendly materials such as bioplastics, paper that can be recycled, plastics, plant-based biomaterials, and recycled items. These goods are simple to use and biodegradable, making them an attractive alternative to standard packaging while having a lower environmental impact. From the figure below it can be understood, how the demand of sustainable packaging around the world is increasing. With the growth from 2019 to 2022, it shows a positive increase, which makes it easy to predict the upcoming market size as well.

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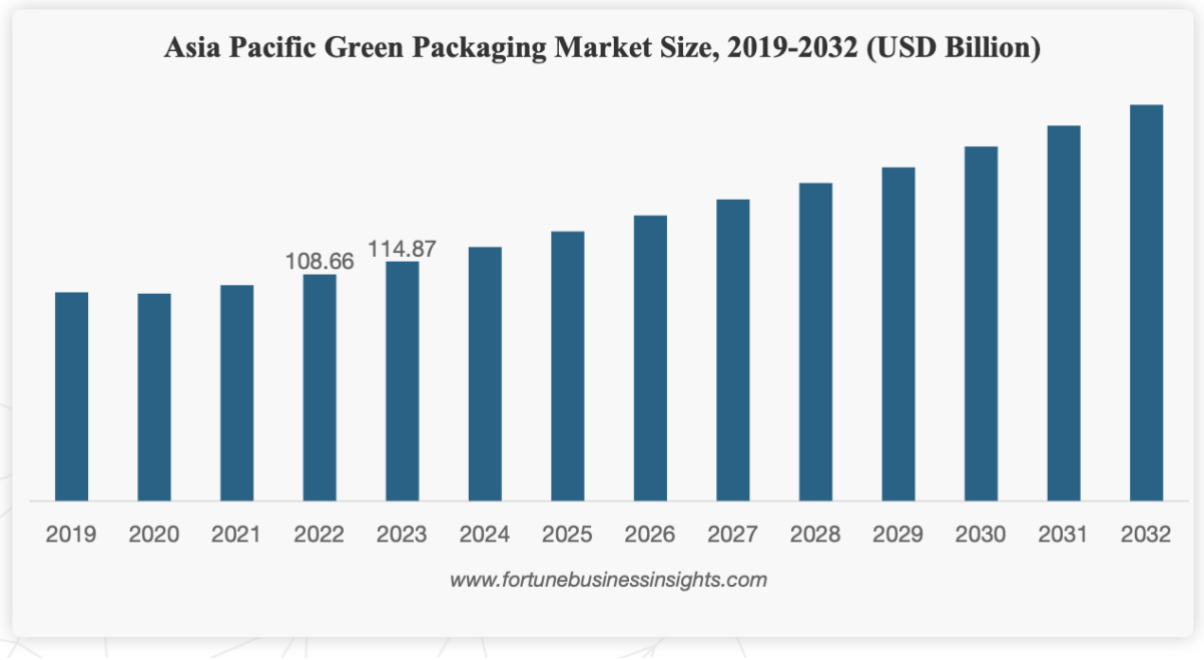

Fig 1: Asia Pacific Green (sustainable)packaging market size, 2019-2032

Sustainable packaging offers several benefits, including reduced reliance on fossil fuels, reduced consumption of natural resources, increased usage of recyclable items, more energy-efficient production processes, and the use of renewable resources. Recent advances in sustainable packaging include edible packaging of materials, with a major aim of minimizing the carbon footprint and reducing waste. It additionally proves beneficial for producers as well as customers. In 2019, the European Union considerably tightened its current packaging and waste restrictions. All packaging made of plastic must be recyclable until the year 2030, with 55% effectively recycled. Approximately 30% of all plastic packaging has been collected (Singh and Genovese, 2021).

OBJECTIVE OF THE STUDY

To persuade consumers to purchase sustainable packages, a comprehensive comprehension of their evaluation of sustainable packaging is required. In this regard, the purpose of this study is to analyze and investigate sustainable packaging awareness and purchase intentions among university students based in Thailand. It will aim to address the possibilities and limitations of this study as well as raise awareness related to the importance of Sustainable packaging in this fast-paced environment.

LITERATURE REVIEW

Sustainable packaging

Packaging waste generation constitutes 29.7% of the total municipal solid waste. The SPC is a stakeholder-based organization envisioning “a world where all packaging is sourced responsibly, designed to be effective and safe throughout its life cycle, meets market criteria for performance and cost, is made entirely using renewable energy, and once used, is recycled

efficiently to provide a valuable resource for subsequent generations" (SustainablePackaging Coalition®, 2011). Sustainable packaging was first defined as a result of a stakeholder survey study supported by the Sustainable Packaging Alliance (SPA) in Australia. Orth & Malkewitz (2008) mentioned that the design of a package, seen from a comprehensive angle, tells customers about the product category, the product's quality, or the branding identity. In another study, two categories are suggested by Silayoi and Speece (2004, 2007): visual package components (such as graphics, color, shape, and size) and informative package elements (technology and information supplied). When it comes to sustainable packaging, we presume that customers classify the package as sustainable based on visually processed design components like color and substance. Yet, customers are only able to classify products correctly if the visual design features make sustainability obvious.

The term sustainable packaging arises from the eco-conscious customers, In this situation, they are increasingly looking for companies that value ecologically friendly behaviors, considering sustainable packaging a vital component in business achievement. Due to the increased factor of plastic pollution and climate change in recent times, sustainable packaging can bring an appealing alternative for consumers as well as businesses. Additionally, businesses may dramatically minimize their environmental impact by adopting recycled, biodegradable, or renewable products (Saveth, 2023). Recyclable packaging is defined as any sort of packaging material that may be collected and turned into new products (Lena, 2023). In this way, the demand for unethically extracted resources can be minimized and it also can contribute to the global trash reduction.

Environmental Concern

People are growing increasingly worried about the environment. In industrialized nations, environmental concern is a strong indicator of sustainability purchasing (Datta and Ishashwini, 2010). According to several scholars, environmental concern is a common term used to describe consumers' attitudes toward sustainability (Bickart & Ruth, 2012; Kilbourne & Pickett, 2008; Mohr, Eroglu, & Ellen, 1998). An individual's environmental awareness is also crucial and linked to their desire to purchase items with sustainable packaging. After consumption, the packaging creates garbage, which if not properly managed, can be dangerous to the environment. Some research identified that to address this issue and adopt sustainable packaging solutions, companies have increasing incentives from emerging legislation and taxation, which is considered a helpful resource regarding environmental concerns (Rossi, 2015).

Knowledge about Sustainable Packaging

Environmental knowledge is defined as understanding and concerned about issues related to the environment(Yadav, 2016). As environmental awareness grows, buyers become more educated, which improves the probability of increased purchasing intent as well as concern about the environment (Mahesh, 2012).In Brazil, looking to validate the influence generated by the consumer's level of environmental awareness and their views toward environmentally friendly consumption according to their intentions to purchase sustainably packaged products, it was discovered that customers with greater amounts of environmental consciousness would be far more willing to buy these products(Bedante, 2004).

Willingness to pay

(Anderson et al, 2019) claimed in an early research "that customer willingness to pay (WTP) is an essential component of the advertising approach that drives key marketing decisions." According to Prakash and Pathak (2017), pricing is an essential factor in customer purchase decisions. Furthermore, they suggest that sustainable packaging is seen to be more expensive than traditional ones. However, environmentally conscious consumers tend not to be price-sensitive and are willing to pay higher costs(Prakash and Pathak, 2017).

Purchasing Intentions of Sustainable Packaging

Purchase intent is like an expectation that buyers in a given buying situation will select one particular brand from a product category (Crosno, 2009). According to Sekhokoane, (2019), environmentally conscious consumers are more inclined to change their purchasing habits in favor of ecologically friendly items. Similarly, Wang, Li, and Zhao, (2017) observe that environmental knowledge influences customer behavior toward sustainable products and services, which will also support the decision while purchasing to incline with the intention towards sustainable packaging.

Proposed Hypothesis

The following hypotheses are identified from the above discussion:

H1+: Environmental concern will have a positive influence on the purchase intention of sustainable packaging

H2+: Knowledge about sustainable packaging will have a positive influence on the purchase intention of sustainable packaging

H3+: Willingness to pay will have a positive influence on the purchase intention of sustainable packaging

Conceptual framework

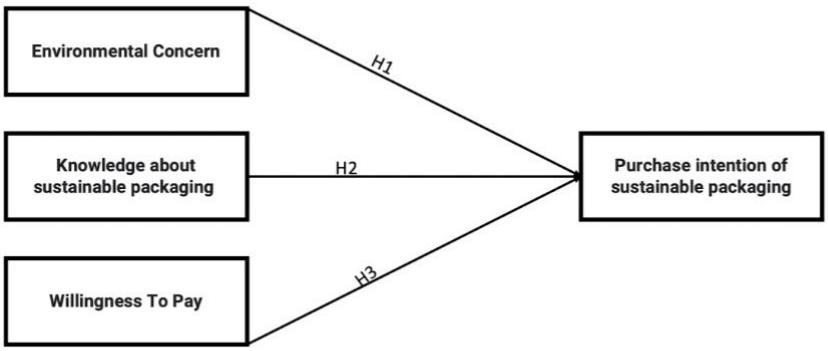

Figure 2: Proposed Conceptual Model

METHODOLOGY

Research Design

To validate the information related to sustainable packaging, this study used the cause-and-effect quantitative research approach to discover sustainable packaging awareness and purchase intentions among Thai university students. Researchers normally use an online survey to assess customers' buying intentions (Alyami and Spiteri 2015). The dependent variable is sustainable packaging purchase intention, which includes demographic information such as gender, age, nationality, educational background, income, occupation, and awareness of sustainable packaging. The information will be evaluated to provide inferences and recommendations for future improvements. There is a reason for conducting this investigation. Further research is recommended on the topic with a larger scope to discover relevant concerns to gain in-depth results and draw informed interference.

Sample and Data Collection

An internet-based survey was done at the international colleges of public and private universities in Bangkok, Thailand. The sample frame included international students enrolled in undergraduate and master's level English and Thai courses. The participants represented several Asian, European, and African countries like Afghanistan, Australia, Austria, Canada, Germany, India, Myanmar, Pakistan, Sri Lanka, Thailand, and Vietnam. International students who use or are aware of sustainable packaging throughout their stay in Thailand were eligible to participate in this study. Purposive convenience sampling was used to examine a specific population. To maximize participation, the snowball sampling approach was used. 115 questionnaires were sent via line, WhatsApp, and Instagram, with 73 international and Thai students from private and public colleges took part in the study. The respondents were basically from the Bachelor of Business Administration program.

Data Analysis Technique

The data was examined using version 25 of the Statistical Package for the Social Sciences (SPSS). The responses were entered and stored in the (.sav) format for SPSS calculations. Following that, a mean comparison was performed using SPSS between demographic information and online shopping intentions. Pearson's bivariate correlation was also used to investigate the relationship between the independent and dependent variables. Adding a control variable, the results were evaluated to determine the interference for evaluating the proposed hypothesis

RESULTS AND DISCUSSION

Demographic Information

The demographic information table gives an in-depth view of the respondents' characteristics, concentrating on gender, academic year, educational background, and knowledge and activities related to sustainable packaging. The majority of respondents are women (68.5%), with men accounting for 31.5%, indicating that more women participated in the study. In terms of academic year, third-year students are the most represented (37.0%), followed by second-year students (35.6%). First- and fourth-year students account for 12.3% and 15.1%, respectively,

demonstrating that the majority of participants are in their middle years of study. In terms of educational background, 93.2% of respondents hold a Bachelor's degree, while only 6.8% have completed high school, indicating that the group is largely educated. In terms of sustainable packaging knowledge, 86.3% of respondents are familiar with the term, indicating a high degree of awareness.

Table 1: Demographic Characteristics

Aspects	Statistics
Gender	Male:23 (31.5%) Female: 50 (68.5%)
Academic Year	First Year:9 (12.3%) Second Year:26 (35.6%) Third Year:27 (37.0%) Fourth Year:11 (15.1%)
Educational Background	Highschool:5 (6.8%) Bachelor's Degree:68 (93.2)
Do you know what is sustainable packaging	Yes:63 (86.3%) No:10 (13.7%)
Actions taken after using sustainable packaging	Dispose:9 (12.3%) Reuse:28 (38.4%) Both:36 (49.3%)

To understand the post-purchase Behaviour, questions like “actions taken after using sustainable packaging material” were asked. From the responses (n=73), it was identified that they dispose and reuse both but the majority of the respondents reuse the sustainable packaging.

DATA ANALYSIS

Exploratory Factor Analysis and Reliability Test

Variables	**Cronbach Alpha**	**KMOT Bartlett’s Test**
Environmental concern	.928	.825
Knowledge about sustainable packaging	.855	.777
Willingness to pay	.865	.500
Purchasing Intentions	.917	.500

The result of the Cronbach Alpha Measure of Sampling Adequacy (KMO and Bartlett's Test) shows that for Sustainable packaging awareness, environmental concern had a high level of factor loading with .825, followed by Knowledge about sustainable packaging with a factor loading of .777 and willingness to pay & purchasing Intentions had the low level of factor loading with .500. Internal reliability consistency and the reliability coefficient (Cronbach's alpha) was tested and Environmental concern was proven to be highest with the result of .928 following with Purchasing intention = .917, willingness to pay = .865 and Knowledge about sustainable packaging = .855.

Linear Regression analysis

Variables	Standardized Co-efficient Beta	P Value	Hypothesis
Environmental concern>Purchasing Intentions	.310	.008	Supported
Knowledge about Sustainable packaging> Purchasing Intentions	.207	.061	Rejected
Willingness to Pay> Purchasing Intentions	.359	.000	Supported

Simple regression analysis was used to determine the linear relationship among the variables. The coefficient beta figure for each variable was gathered after calculating Environmental concern, knowledge about sustainable packaging, and willingness to pay. They all relate and compute the actual purchase intention of sustainable packaging. From the regression analysis, it was noticed that there is an environmental concern that has a positive and statistically significant impact on the purchasing intention of sustainable packaging with the outcome of (β= 0.310, p-value < .008), This supports Hypothesis 1. As for the knowledge about sustainable packaging, the outcome is (β= 0.207, p-value> 061). It also has a positive impact on the purchase intention of sustainable packaging, but it is not statistically significant. Hypothesis 2 is not supported. Lastly, willingness to play also has a positive effect on the purchase intention of sustainable packaging with the outcome of (β=0.359, p-value < .000), This supports Hypothesis 3. The model fit was conducted, and the result showed that adjusted R^2 was 0.474, which means 47.4 percent can be explained from this model and rest 53.6 percent can have other factors that were not included in this study.

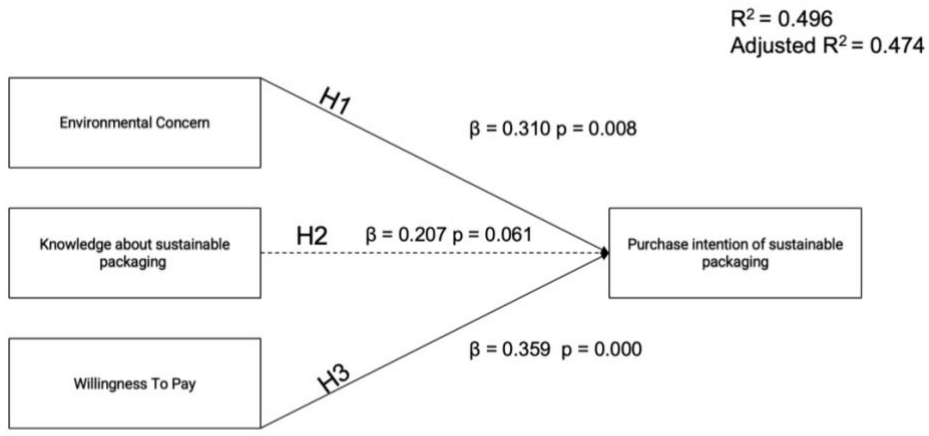

Figure 3: Research Model with Regression Analysis

Variable	R square	Adjusted r^2
Purchasing Intentions	.496	.474

DISCUSSION

The reason for this study was to examine sustainable packaging awareness and purchase intentions among university students who are studying in Thailand. This study also focused on the knowledge about the willingness to pay factor. According to the result, it was noticed that students studying in Thai universities are environmentally concerned and have higher intention to use sustainable packaging for the product purchase. Hypothesis 1 is supported and statistically significant, which means that when people are environmentally concerned, they are more protective of the environment. This is consistent with previous studies (Potsch and Farzana, 2023). In contrast, Hypothesis 2 is not supported due to the beta value being more than 0.5, which makes this data not statistically significant and that will conclude that Students who participated might not know about sustainable packaging, but they are concerned about it, so unfortunately it might not have a proper impact. Lastly, Hypothesis 3 is supported and statistically significant because as they are environmentally conscious, it is calculated that students are willing to pay the price or more for sustainable packaging, with the proper knowledge, the numbers in purchasing will increase, which is beneficial for firms and the environment as a whole. This is also consistent with previous studies.

LIMITATIONS OF THE STUDY

Despite the useful insights offered by this study, a few limitations must be noted. First, the limited sample size may restrict the scope of these findings to all pupils. Furthermore, because this survey only included overseas students, the perspectives of Thai students may have been underestimated. The cross-sectional methodology, which means that the data was collected at a single moment in time, does not demonstrate how attitudes may vary over time. Furthermore, the study was only done in Bangkok. Thus, the findings may not be representative of students in other regions of Thailand. Finally, the study concentrated on what students intended to do rather than their purchasing behavior. Understanding these limitations is critical for understanding the findings and planning for future studies.

CONCLUSION

We have more than increased the amount we invest in materials science and technology in recent years, and we are expanding our in-house expertise as we work to meet our ambitious plastic targets. “Our plastic development is industry-leading, yet we cannot become complacent," says Pablo Costa, who is our Global Head of Packaging, Says Unilever.

According to DHL, organizations are emphasizing the value of packaging. The most important conclusion of this study is that consumers’ environmental Concerns about sustainable packaging have a positive and significant impact on their purchasing intentions and decisions. This result demonstrates that consumers have become solicitude of the impact of product packaging on the environment, which will likely encourage them to promote sustainable packaging. Environmental problems in Thailand are rapidly getting attention, but significant challenges remain, particularly in terms of sustainable packaging. Despite growing public awareness of concerns such as plastic waste, many Thais continue to prioritize current economic requirements over long-term environmental advantages. This point of view is most visible in buying habits, where the practicality of plastic packaging frequently overcomes a need for sustainability.

SDG 11 aims to make towns and villages more inclusive, safe, durable, and environmentally friendly by tackling issues including congestion, pollution, and insufficient facilities. Rapid

development and waste management challenges are common in cities such as Bangkok, worsening environmental consequences. One critical component of attaining SDG 11 is decreasing urban trash, which is directly related to the demand for environmentally friendly packaging. Packaging trash, particularly single-use plastics, adds to urban environmental concerns by blocking garbage systems and creating pollution. Moving to sustainable packaging options may help minimize waste, create cleaner neighborhoods, and contribute to the overall objective of building sustainable cities.

The transition to sustainable packaging will most likely need concerted efforts from the government, industry, and consumers. More effective laws, as well as improved consumer education and stricter enforcement of environmental rules, are required to overcome the challenges to the widespread acceptance of sustainable packaging in Thailand

RECOMMENDATION

The possibilities for future research include using huge amounts of data from other international-associated institutions in Thailand for broader ideas and opinions. Furthermore, Institutions or firms can organize workshops and seminars to improve their knowledge about sustainable packaging.

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