

# Communicating Corporate Social Responsibility through Green Packaging: A Case Study in Thailand

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**Abstract** – This article is to study corporate social responsibility through packaging and communicated CSR to evaluate consumer buying decisions using the packaging from coconut fibrin. Packaging was obtained from local materials in the community of Samut Sakorn Province, Thailand. Using local waste material (coconut fibrin) for green packaging, it is beneficial to the environmental issue, and can create jobs in the community by making paper and packaging from coconut fibrin. Coconut pulp paper has performed under alkaline conditions coupling a mixture of natural additives consisting of carboxymethyl cellulose and corn starch. The obtained pulp paper was tested according to The National Standard of Kraft paper. It was characteristic of the liner board. The individual packaging was fabricated and used as an instrument for the consumer perception study (258 informants). We found the consumer view of business doing CSR is an ethical organization (4.44) that deems to present responsibility to society and the environment. The decisions were agreed upon, and consumers were delighted to buy the packaging.

The CSR activity through the packaging could induce community development in job creation and reduces waste in the community by adding value to green packaging. The CSR activity of business influences the positive perception of consumers.

**Keywords** – Corporate social responsibility, packaging, coconut fiber, buying behavior.

## 1. Introduction

Corporate Social Responsibility, CSR is the conceptual attempt of an organization to have an accountability responsibility or a positive influence on the community, environmental, and social issues. CSR aims to build a business to grow sustainability, coupling to return profits to the community and society. Previous practice was voluntary. Nowadays, the activities that cover social and environmental issues are moved into compulsory activities by law and regulation. Therefore, the importance of CSR has increased due to the legal and regulations that transform CSR practices into compulsory practices are considered to be the most crucial factors. [1]. The point of CSR led companies to realize and start adapting strategies for doing business in the way of responsibility. Committing CSR practices of a company positively impacts employee satisfaction and helps bolster consumer satisfaction and public respect.

However, talking about CSR practices, we generally think of environmental or social activities such as reforestation, zero waste, carbon reduction, or funding. Thus, it seems CSR activities only benefit society and the environmental issues and look far away from consumers' lives. Few groups of people had the opportunity to participate in CSR activity. Allowance CSR efforts, CSR must be directly relevant to the consumer to make positive feelings for the brand or company. Packaging is certainly beneficial to benefit the consumers to enter the CSR activity of the brand and business.

Concerning to environment, the use or production of reused- or recyclable packaging, called green packaging, does not only create a good image of the

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brand in terms of consumer care or being an environmental friend but also spot-on ideas or technology of the company for the public respective. Green packaging is a tangible means to communicate CSR on the environmental issue directly relevant to consumers.

Communicating CSR through packaging can be used in various elements such as creating text, symbols, or graphics from nature to show the impact of the product on the environment. Reducing material packaging or reusing packaging can be done to explain the CSR efforts of the companies. Several global brands have prosperously transferred their sustainable attempts through products including packaging. For example, Converse, an international brand of shoes, announced that most shoes and clothes now source from recycled materials. The “Chuck Taylor All-Star” is starting an enduring footwear icon, featuring renewal processes of upcycled textiles, recycled PET, and cotton canvas blend. Converse also applies more recycled fiber of polyester than other brands. Adidas, the largest manufacturer of sportswear in Europe, ended up plastic bags using in stores in 2016. Adidas shoe packages are capable recyclable. Increasing shoe models containing recycled plastic and developing a recycled shoe was found in 2019. H&M, a fashion and design business, announced that materials of products are being produced from recycled or other sustainable sources of filaments and provided a strategy to reduce the amount of reuse and recycling packaging. H&M also has a policy that any paper used from fiber contrived with tropical rainforests must be Forest Stewardship Council Certificate [2].

To our knowledge, we aimed to study corporate social responsibility through packaging and consumers' buying behavior. The work provided information on how CSR packaging impact consumers. We conceived the green packaging preparation from agricultural waste by a community enterprise group in Samut Sakorn Province. The packaging was then a tool for investigating the consumers' perception and buying behavior and reporting the finding from questionnaires to determine their satisfaction. The result was the proposition for businesses to communicate CSR to consumers.

## 2. Literature review

Corporate social responsibility (CSR) is a significant policy in business for taking responsibility for environmental, economic, and social issues and actions beyond their obligations and business aims. CSR concept presents a valuable tool for better business management and retaining customers. CSR

implementation of business can increase consumers' perceived value, trust, commitment, satisfaction, and loyalty towards the firm. Packaging is a tangible way of communicating CSR to customers. Firms can make a competition and retain customers using the packaging as a tool to communicate CSR efforts.

### 2.1. Packaging

According to the Encyclopedia Britannica, the term “packaging” refers to the technology and art of preparing a commodity for convenient transport, storage, and sale [3], while a visual or design of packaging can capture customers' attention. At the most basic level, household packaging in the consumer product market serves the dual purpose of storage and preservation [4]. Packaging is pointed out as communication element of the product within the 4Ps marketing mix (Product, Price, Promotion, and Place). Packaging is a part of communication in promotion, mixed with personal selling, advertising, sales promotion, direct marketing, publicity and public relations, sponsorship, exhibitions, point-of-sale merchandising, word of mouth, e-marketing, and corporate identity [3]. Draskovic, [3] also mentioned that packaging is may be referred to as “the fifth P, 5Ps” of the marketing mix, besides the 4Ps marketing mix (Product, Price, Promotion, and Place). Packaging is the application of art, science, technology, and business to enclose or protect products. Warehouse transport, sales, and use are categorized following their functions. The functions of packaging are to protect and preserve products from damage, facilitate distribution, promote consumer choice, sell, inform and instruct, provide consumer convenience, and present innovations. Packaging can be made according to the materials, purpose, durability, and function [5]. The materials used for packaging are plastic, wood, paper, cardboard, glass, and fabric. The materials; hollow trees, tickles, and animal bladders or skins were used as packaging in the historical period. A glass appeared as an object for holding food and was come out around 3000 BC [6]. Metal is the most versatile of packaging forms in which the two metals (aluminum and steel) are most predominantly used in packaging [6]. Glass and metal packaging are used to contain in the drinks or beverages categories. Paper is the most widespread material for producing packaging, coupling the new materials (textiles, plastics, or ferrous materials) for development in packaging. Nowadays, changes in retailing and marketing have given packaging a significant role in the advancement of the packaging industry in the coupling consumer society, and due to the rising living standards and packaging requirements [5].

The printed packaging also moved following packaging production. Gravure printing began and later became the offset technology. Today, the design and color are significant due to their attractiveness as advertising tools affecting consumers' attention and buying decisions.

Today consumers continuously accept the need to be concerned about the environment and society, and this tends to increase than before. Therefore, the company must produce products to be aware of their responsibilities toward the environment and society as similar doing to shareholders and employees. Environmental awareness is a global topic today as many societies and countries' governments have to be more seriously concerned. Producing environment-friendly packaging is required by consumers in the green market. The green markets' purpose is to develop goods that can appeal to the consumer, reasonably affordable prices, and environment-friendly products with less damage. Another is to reflect an image of high-quality and environmental care, and hence the production of products compatible with the environment is required [7]. Environmental awareness leads to the green consumer who supports eco-friendly attitudes or who purchases green products over standard alternatives [7]. Therefore, green packaging plays a crucial role in the product's sustainability, especially in the green market. Research of packaging has become one of the companies' objectives to adapt to the new packaging trend and is increased attention from researchers. The consumer now demands increasingly safe, healthy products and sustainable packaging such as green packaging. The new materials have been interested in product packaging because consumer awareness led to companies paying attention to packaging. Green packaging is more sustainable and more respectful toward nature, making a positive consumer perception of the brand and company. The new materials have been interested because the consumers' awareness led to the companies paying attention to packaging. Green packaging is more sustainable and more respectful of communication toward nature which can be made a position of the brand and company. The new materials are extracted from biomass, like cellulose and starch, or derived from natural monomers that are recyclable and biodegradable materials have been found [8], [9], [10].

## 2.2. Consumer buying behavior

Consumer buying behavior refers to the decision and actions taken by a consumer before buying a product or service for individual or group use.

Consumer buying behavior generally includes four influencers; cultural-, social-, personal-, and psychological factors.

1) Cultural factor is a more complicated factor in consumer buying behavior than others. A culture is a particular group of people's characteristics and knowledge, including language, religion, cuisine, social habit, music, and the arts [11]. Different cultures present different consumer demands. A company needs to pay concentration on the cultural values in each country to understand the existing products in the market and to find opportunities for new products. In Turkey, Durmaz, [12] studied the effect of cultural factors on buying behavior of consumers. The majority (around 60%) of survey respondents' beliefs, culture, and traditions are the most significant factor in buying goods and services in Turkey [12].

2) Social factors are wealth, family size, friends, social roles, religion, and status that affect a consumer's purchasing of products and services. Word-of-mouth from family points out a social factor influencing consumer buying behavior [13]. Al-Azzam, [14] presented the example of the study of the impact of social factors on consumer buying behavior in evaluative criteria of purchased home furnishing in Jordan. The study addressed that home furnishings goods were personal products associated with consumer emotions. The reference group, family, price, quality, and color factors were significant predictors of behavioral intention [14]. The result allows the researcher to further recommend to Jordan furniture manufacturers and retailers.

3) Personal factors are aging, life cycle, occupation, personality, education level, background, lifestyle, health, or economic class influence consumer buying behavior. Firstly, a company should focus on the different ages and stages of the life cycle to change the taste of consumer buying due to changing the taste of buying goods at different ages. Secondly, a company should keep on the life cycle stages of relationships, including marriage, retirement, and so on [13]. While occupation is a personal factor, a company should address it in setting prices or developing products. In Turkey, the consumer (about 54% of respondents) believes that the most significant factor in buying products and services is related to the job and occupational social group effects [15].

4) Psychological factors; motivation, perception, learning, and attitude; play a role in consumer behavior. Finding out about consumer buying behavior is essential because marketing starts with the needs and ends with the satisfaction of consumers.

The company must be confident that producing the products or services attracts targeted consumers. Everything revolved around the consumers then the study of consumer behavior become a necessity [15]. For example, Nguyen & Truong, [16] investigated consumer buying behavior affecting the purchasing decision of organic foods in Hanoi, Vietnam. The work suggested that psychological factors (health concerns and environmental concerns, and consumer awareness of organic foods) significantly and positively influenced consumers' purchase attention toward organic food.

### 2.3. *Corporate social responsibility*

At the turn of the 21st century, the concept of social marketing led consumers of this era to be more concerned about ethical issues and business activities on environmental and social responsibility. The company should produce the goods and services to fulfill consumer needs in ways of ethics that can increase the well-being of the targeted group in this era. To succeed in today's competition, the corporate social responsibility (CSR) of businesses is a movement that aimed to approach the sustainable development of businesses by transferring economic, social, and environmental benefits for all stakeholders [1]. CSR is a broad concept that is provided many meanings given to this term. Kandelin Koon, [17] defined CSR as crucial for sustainable development in the future. Because of the increasing world population and awareness of the environment, the operations of company more related to their social and environmental impacts. Fernando, [18] extends CSR as a self-regulating business model that helps a company be socially accountable to itself, its stakeholders, and the public. CSR includes four kinds of responsibilities or dimensions: economic, legal, ethical, and philanthropic [19]. The conclusion is that CSR is a business concept to move companies' operations in ways that enhance their environmental and social responsibility. When a business commits to CSR practices, CSR benefits the positive promotion of the business and enhances employee satisfaction and retention in its operation. CSR is suitable for brand identity and initiatives to boost consumer trust, public respect, employee satisfaction, and the brand image of companies.

Green packaging is also known as eco-green, eco-friendly, sustainable, or recyclable packaging made from ecological materials for environmental purposes while keeping in mind that products must be effective and safe for use, human health, and the environment [20]. Thus, green packaging seems to be a part of the CSR under environmental issues, which is responsible for protecting the environment, reducing waste and pollution, controlling gas emissions, and complying with government regulations [1].

Socially responsible packaging is packaging by a company that is aware of environmental responsibility and means a company presents the belief in a long life, sustainable future for generations to come. The sustainable operation of the company should not focus on its short-term profits, but also on long-term benefits that impact society and the environment. The company can do this through different areas such as philanthropic, ethical, economic, and legal [17]. Companies recognize sustainability in an environment that affects the environment and humans, creates long-lasting impacts, and benefits communities using ethical and economic means. An aspect implemented in socially responsible packaging is an example of utilizing local resources or unvalued material. Products of companies that source their material locally can help the communities with jobs in an economic issue to the community and give environmental protection in an ethical issue. In terms of philanthropy, companies can donate part of their profit to community improvement. Social responsibility is under the government's regulations or laws to promote sustainability. The companies can probably push positive changes to present a trying to increase environmentally friendly policies. Therefore, the social responsibility of the company is doing business in a way that maintains or improves both the consumer's and society's well-being and environmental protection.

#### 2.3.1. *Corporate social responsibility on packaging*

Over the past 20 years, many packaging companies have taken an interest in making their packaging product in a socially responsible way. The companies inquire about the four social responsibilities (philanthropic, ethical, economic, and legal) for designing and making their products. One of the most common factors of social responsibility is the sustainability of environment. Companies can operate a social responsibility by producing packaging from renewable, recyclable resources, material-efficient package designs, or using renewable energy sources [17]. Environmental initiatives and sustainable packaging ideas as recyclable packaging that is designed and manufactured using recycled materials and environmentally friendly processes.

CSR is also concerned with social and environmental issues because CSR practices are compulsory practices (instead of voluntary practices) under by-laws and regulations and lead to an increasing CSR due to the laws and regulations [1]. Companies have realized how important CSR is and started to adapt their strategies for doing business in the way of responsibility.

Packaging is part of the CSR in environmental issues that do not harm the environment, reduce waste and pollution, control gas emissions, and comply with government regulations [1].

Packaging from the awareness company of social responsibility, called socially responsible packaging, is a message from the company to present their believability in a long and sustainable future for the next generations. Kandelin Koon, [17] suggested that companies should focus on their long-term beneficial impacts on society by doing this through different areas (philanthropic, ethical, economic, and legal means). As mentioned, the company's utility of environmental sustainability for creating long-lasting impacts in producing packaging to benefit local communities regard as both ethical and economic means of CSR. The use of local materials for production can support communities with jobs and economic benefits. The ethical benefit is environmental protection for sustainability. Donation or funding is part of philanthropy issues, while social responsibility depends on law and government. Thus, socially responsible packaging is a way to maintain or improve both the consumers'- and society's qualities.

### 2.3.2. *Corporate social responsibility business in Thailand*

In Thailand, the philosophy of the "Sufficiency Economy" of H.M. King Bhumibol Adulyadej (King Rama 9) is a guideline for the Thai people in balancing their way of life. The philosophy guidance provides a fundamental idea of CSR in Thailand. The idea is not only a guide for economic growth but also for social development and environmental protection for the well-being of people in the country. Referring to the life of the Thai way and traditional beliefs, culture is considered an initial step of CSR activity by performing through donation or philanthropy. However, the donation does not expect long-term results. Therefore, the company should design and operate CSR activity on how business improves the quality of life through its operation to success in the long term, called "Sustainable Development" or "Sustainable Business". Today, many corporate activities are in different levels of CSR starting from the initial step of donations to the integrated step of sustainable development into their business strategy. The SMEs (Small and Medium Enterprises), which are 90% of all businesses in the Thai economy, have produced goods based on traditional culture, donations, and philanthropy. Holding companies have realized that social investment can strengthen their potential competitive success in the longer term.

Then, holding companies can put CSR statements in their missions to reach "sustainable development" and CSR in their business strategies. "MarketingOops", the top leading digital media and advertising publisher in Thailand, gave examples of leading organizations in Thailand that have the strength to help alleviate suffering through CSR projects [21]. King Power International Group, a Thai duty-free retail company, supports and promotes CSR projects under the business concept of the "King Power of Thai Power". The project focused on areas including sports, music, and community, for example, promoting Thai youth's football potentiality in a comprehensive manner ranging, giving funds to talented youngsters, or building a new training center for The Football Association of Thailand in Saraburi Province. These CSR efforts of King Power Group not only reflect the success of society's sustainable development and guarantee the Asia Responsible Enterprise Award for two consecutive years in 2019-2020, the International CSR Excellence Awards 2022, and the Global Good Governance (3G) Awards 2022 [21].

Charoen Pokphand Group (C.P. Group), a subsidiary in Thailand and overseas, operates a business in food and agriculture across industries ranging from industrial to the service sector. The group is one of the organizations that puts CSR as the key strategy. The three areas of sustainability goal are called 3Hs, which consist of Heart-Living Right, Health-Living Well, and Home-Living Together to drive sustainability of the organization, ecosystem, and society. C.P. Group efforts CSR projects through all affiliates and various dimensions, for example, providing sustainability training for leaders and employees, funding for children to access education, reducing carbon oxide production, or donating financial support and medical equipment for medical staff against Covid-19 [22].

Singha Corporation, a subsidiary of Boon Rawd Brewery, does businesses with affiliated companies that go down to the level of employees, including food, snack, beverages, and non-beer products such as packaging, logistics, property development, and energy. Key projects are built in every factory to do a comprehensive wastewater treatment center within the factory through natural methods for use in golf courses. The real estate business under the Singha Estate Public Company limited the use of plastic to benefit instead of letting it decompose. The project "Sing Asa" joins forces between people in the Singha organization, various alliance networks, and people in the community to participate in social assistance projects to take care of the environment and education [21].

Toyota Thailand carried out CSR activities to support the needs of the community. A well-known activity is the “Write Road Project” which has been operated since 1988 to remind everyone of how the importance of respecting traffic rules and being kind to each other on the road to build a safety culture. We can see CSR activities are most efforts by large business groups that set the goal to enhance social sustainability and provide support to targeted groups. It has not yet reached the perception of consumers in general. CSR packaging is the best way to make a perception of the consumer in regular life [21].

To gain knowledge, we evaluated the CSR activity to provide the idea for the company to get more benefits, create a job in the community, and protect the environment.

### 3. Research design and methodology

Packaging from coconut fibrin was produced in the community, and it was used as a tool to communicate CSR to customers. It is a product for evaluating the customer perceives' s toward businesses doing CSR in packaging.

#### 3.1. Conceptual work and research hypothesis

The objective of the work was to study the consumer perception towards CSR activity of business through green packaging from coconut fiber. Green packaging production in the community from local residue is the guideline for doing the CSR activity that represents the business's responsibility to the community and environment, as a conceptual model in Figure 1.

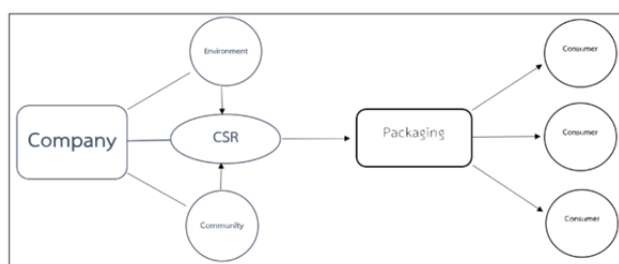


Figure 1. The research model (Source: Designed by authors)

According to the problem and objectives, we can specify the hypothesis of this work as follows;

- H1** CSR activity through packaging influences consumer
- H2** CSR activity through packaging impact to buying behavior of the consumer
- H3** CSR activity through packaging induces community development

#### 3.2. Study of consumer perception towards green packaging

This study is objected to evaluating consumer perception towards CSR activity of business through green packaging from coconut fiber, which surveyed 159 respondents through a questionnaire. The results were an idea for preparing green packaging from coconut fiber and using the packaging as the instrument for CSR. The analysis of responses was performed using the Likert scale with 5 points to evaluate their attitudes;

Part 1 was the demographic information of informants with personal characteristics; gender, age, education level, occupation, and income.

Part 2 was the static data evaluated under the criteria including administration/corporate governance, operation, and responsibility to consumers. The interpreted data were using the Likert scale as follows

1. Mean 4.51-5.00 means strongly agree
2. Mean 3.51-4.50 means agree
3. Mean 2.51-3.50 means neutral
4. Mean 1.51-2.50 means disagree
5. Mean 1.00-1.50 means strongly disagree

#### 3.3. Preparation of packaging from coconut fiber

Coconut fibrin, a local raw material, was used for paper making process. Chemical pulping was performed to treat coconut fibrin to coconut pulp. Then, coconut pulp paper was fabricated into green packaging as the community's product for evaluating the customer perceives' s toward business doing CSR.

##### 3.3.1. Preparation of pulp from coconut fiber

Chemical pulping with sodium hydroxide solution is basically used to separate cellulose fibers from natural raw materials for paper making process. We used the local raw material (coconut fiber) and natural additives to prepare coconut pulp in the pulping process. The ratio of coconut fiber: 5.0 M sodium hydroxide solution as 10:1 was obtained in the process. The mixture of coconut fiber and the alkaline solution was heated at 90-100 0C for 2 hours, and the paper pulp was obtained and later washed with water. The natural additives (corn starch and carboxymethyl cellulose) were selected. The additive solution of 5.0 wt.% corn starch and 1.0 wt.% CMC was optimal. The mixture was blended for 3 min to obtain a homogeneous flask of ice. The coconut pulp paper was panned on the sieve and let dry in the air for 1-2 days. Under optimal conditions, the coconut pulp papers were characterized according to the National Standard Thai Industrial Standard (TIS) No. 170. The results were guild to prepare the packaging prototype.

### 3.3.2. Characterization of coconut pulp paper

According to the Thai Industrial Standard (TIS) No. 170 for Kraft paper, it is the National Standard of paper for packaging [23]. The coconut pulp paper was characterized by the government unit, named the Department of Science Service (DSS) under the Ministry of Higher Education, Science, Research, and Innovation. (DSS is a government organization that provides science and technology services for standards). The obtained results were a concept for the packaging preparation of community enterprises to study the CSR activity of businesses in collaboration with the community.

### 3.3.3. Study of the consumer perception towards CSR activity of business through green packaging

This study is objected to evaluating the consumers' perception towards green packaging and studying the consumers' opinions on CSR through packaging. The data from 200 informants through an online questionnaire was collected and computationally calculated in terms of frequency, mean and standard deviation. The questionnaire was divided into two parts; Part 1 was the respondents' demographic information and Part 2 was the perception scale. The Likert scale method with 5 points was applied to integrate consumer perception.

## 4. Results and discussion

Coconut fibrin, a local raw material, was used for paper making process via chemical pulping. Coconut pulp paper was accomplished and characterized according to the Thai Industrial Standard (TIS) No. 170 for Kraft paper. The standard presented the quality of packaging. Packaging from the community was used for evaluating customer perceives' s toward CSR activity and customer decisions towards green packaging.

### 4.1. Preparation of packaging from coconut fiber

#### 4.1.1. Preparation of pulp from coconut fiber

We collaborated with the group of “Kala Ake-Ban Krachom Thong” community enterprise in Ban Phaeo District, Samut Sakorn Province for preparing the coconut pulp paper from coconut fiber. Coconut fiber is agricultural waste material in the Samut Sakorn Province area, and we would like to add value to packaging preparation (Figure 2a-2b). The process emphasized to use the of local materials and to consumption of a small number of chemicals. Coconut fiber was collected and cleaned up before pulping (Figure 2c-2d). The pulping conditions under an alkaline solution (NaOH) in various concentrations (1.0-3.0 M) were studied (Figure 3).

We found the optimal pulping using 10.0 g coconut fiber weighting, and a 5.0 M sodium hydroxide solution was mixed. The mixture was boiled at 90-100 °C for 2 hours (Figure 3a-3b). After bleaching, the pulp was obtained and then washed with water (Figure 3c) while the draining was adjusted to pH 7 with hydrochloric acid before releasing. A pulping procedure provided rude and rigid cellulose in fibril. The cellulose fibril (coconut pulp) was mixed with natural additives, consisting of corn starch (an adhesive agent) and carboxymethyl cellulose; CMC (a formation aid). The solution of 5.0 % w/v corn starch and 1.0 %w/v CMC was filled with coconut pulp. The mixture was later blended for 3 min to obtain a homogeneous flask. The coconut pulp paper was panned on the sieve and let dry for 1-2 days (depending on the weather). The cellulose yield was found at 18.80±2.90%. The coconut pulp papers (as Figure 3d) were characterized according to the National Standard Thai Industrial Standard (TIS) No. 170.



Figure 2 Coconut sampling and preparation (Source: Experimented by authors)



Figure 3. Coconut pulp paper process (Source: Experimented by authors)

#### 4.1.2. Characterization of coconut pulp paper

The coconut pulp paper was qualified compared to The National Standard (TIS.) for Kraft paper No. 170 (ISBN. No. 978-974-292-281-8). Kraft paper is covered various packages for cement, food, chemical, consumer goods, flour bag, envelopes, gift wrapping, and so on [24]. The results were Table 1. From the results, coconut pulp paper was equivalent to Kraft paper as a liner board type. The paper's properties of grammage and bursting strength were similar to the liner board (Table 2). The obtained feature of coconut paper was hardy and a little sticky, considering its bursting strength (506 kPa). The water adsorption was lower, while the strength and resistance were higher than a liner board.

The coconut pulp paper was optimally designed packaging for holding material, and packaging should be durable but easy to decompose. The blocks of products as bags or boxes would be made and designed.

We designed individual packaging prototypes from coconut pulp paper. The idea of packaging

production was passed to the community for preparation (Figure 4), and we used it to study the consumers' perception of CSR activity through green packaging.

Table 1 Characterization results of coconut pulp paper according to TIS .No.170  
Source: Tested by the DSS government service sector

Parameter	Results	Test method
Grammage, g/m <sup>2</sup>	353	ISO 536: 2012
Moisture content, %	14.2	ISO 287: 2017
Water absorption, sec./0.05 cm <sup>2</sup>	2.88	TAPPI T835 Om - 14
Bursting strength, kPa	506	ISO 2759: 2014

Table 2 Comparison of results of paper pulp from water hyacinth to Kraft paper  
Source: Compared by authors

Parameter	Coconut paper	Kraft paper
Grammage, g/m <sup>2</sup>	353	125 - 335
Moisture content, %	14.2	10
Water absorption, sec./0.05 cm <sup>2</sup>	2.88	30
Bursting strength, kPa	506	339-905

Compared to the Kraft paper type, the quality of coconut pulp paper was equivalent to a liner board (Table 2). The properties of water adsorption were lower than a liner board. The strength and resistance were higher than a liner board. The quality of coconut pulp paper could be possible for design as individual packaging. The packaging from the community was obtained (Figure 4). The survey of the consumer perception and buying behavior toward CSR activity was later done using the packaging.



Figure 4. The design of individual packaging from the community (Source: Designed by authors)

#### 4.2. Study the consumer perception towards CSR activity of business through green packaging

Our University is a public unit that supports SMEs to make goods based on traditional culture and local materials. The idea of CSR activity through packaging led to community development and environmental protection for the well-being of people and led to the business of global market competition. We were an educational company that could be studied how the importance of CSR packaging for sustainable development. The idea of doing CSR packaging from the local resource to packaging production can help support communities with jobs

and benefit the community. The study evaluated the consumers' perception of CSR through the packaging of coconut fiber using both online (168 samples) and onsite (100 samples) questionnaires (Figure 5). We found the demographic informants that 56.0% of the informant was female. 74.4% were aged in the range of 18-25 years, mainly university students in Bangkok, Thailand. This generation is recognized for environmental impact coupling business operations.



Figure 5. Sample of onsite survey (Source: Surveyed by authors)

The questionnaire was divided into 3 factors: administration/corporate governance-, operation-, and responsibility to consumer factors that represented the consumers' perception towards the business doing the CSR activity. From our survey, the consumer view of business doing CSR is an ethical organization, considering the maximum point at 4.44 on the administration/corporate governance. However, the transparency of the organization was the least at 4.01. The reason might be that consumers have less information on CSR activity through the packaging. The average score for administration/corporate governance criteria was 4.20±0.18 (Table 3), and consumer perception agreed on the administration and corporate governance of businesses doing CSR.

The result of the consumer view on operation criteria of business doing CSR viewed a company invents goods or services according to its standard, considering the maximum point at 4.25. According to the business operation, the consumer did not believe that the company repays the employee with their performance was minimal at 3.61. The reason might be the replay is operating inside the organization while CSR activity is outside presenting. The average score for the operation criteria was 4.04±0.30 (Table 4), and consumer perception still agrees with the operation of businesses doing CSR.

The result of the consumer perception of responsibility of business doing CSR viewed A company is an organization that creates the community and society to have the conscience and value of environment and resource, considering the maximum point at 4.38.

The businesses make consumers believe that a company is concerned about society and the environment. However, consumer opinions still not confident that a company provides accurate information without distortion due to the minimum score of 4.04. The average score for the operation criteria was 4.28±0.11 (Table 5), and consumer perception agrees with the responsibility of businesses doing CSR.



*Table 3 Consumer perception towards CSR activity of Administration/Corporate governance criteria*  
 Source: Calculated by authors

Perception towards CSR activity of business through Packaging	Percentage of each score					Mean	Interpretation
	1	2	3	4	5		
1. A company is an ethical organization			11.3	30.4	57.7	4.44	agree
2. A company is a transparency organization	1.2	3.0	20.2	44.6	31.0	4.01	agree
3. A company is an audited organization		0.6	17.9	41.7	39.9	4.21	agree
4. A company is a good manner organization that operates to meet the consumer's need	0.6	1.8	19.0	39.9	38.7	4.14	agree
<b>The average score of the administration/corporate governance criteria</b>						<b>4.20±0.18</b>	<b>agree</b>

*Table 4 Consumer perception towards CSR activity of the operation criteria*  
 Source: Calculated by authors

Perception towards CSR activity of business through Packaging	Percentage of each score					Mean	Interpretation
	1	2	3	4	5		
5. A company invents goods or services according to its standard		0.6	16.1	41.7	41.7	4.25	agree
6. A company sells goods or services at a fair price that does not take advantage of consumer		1.8	23.2	38.1	36.9	4.10	agree
7. A company repays for their performance		1.2	23.2	44.6	31.0	3.61	agree
8. A company focus on building stability and sustainability		1.2	17.3	40.5	41.1	4.22	agree
<b>The average score of the operation criteria</b>						<b>4.04±0.30</b>	<b>agree</b>

*Table 5 Consumer perception of the responsibility of business for consumer criteria* (Source: Calculated by authors)

Perception towards CSR activity of business through Packaging	Percentage of each score					Mean	Interpretation
	1	2	3	4	5		
9. A company produces quality goods or services		1.2	22.0	38.1	38.7	4.14	agree
10. A company is an organization that provides accurate information without any distortion		4.2	19.0	45.2	31.5	4.04	agree
11. A company is an organization that provides a channel to complain or inquire about products		3.0	19.0	40.5	37.5	4.13	agree
12. A company is an organization that focuses on creating satisfaction for the consumers			20.8	35.7	43.5	4.23	agree
13. A company is an organization that helps promote the awareness of the community or society to conserve the environment and resource		1.8	14.3	31.0	53.0	4.36	agree
14. A company is an organization that creates the community and society to have the conscience and value of environment and resource		0.6	14.3	31.5	53.6	4.38	agree
15. A company is an organization that promotes the community and society to partake in environmental and resource conservation	0.6	0.6	13.7	36.9	48.2	4.31	agree
16. A company is an organization that supports the community and society to make the most benefit out of their environment and resources		1.2	16.1	29.2	53.6	4.36	agree
17. A company is an organization that can provide the environmental and resource knowledge		1.8	15.5	35.1	47.5	4.28	agree
18. A company is an organization that has the policy to promote and contribute to environmental and resource conservation		1.2	19.6	31.5	51.2	4.36	agree
19. A company is an organization that operates a business by using the concept of 3R (Reduce, Reuse, Recycle)	0.6		13.1	35.1	51.2	4.36	agree
20. A company is an organization that produces eco-friendly products and services		0.6	13.1	35.7	50.6	4.36	agree
<b>The average score of the responsibility for consumer criteria</b>						<b>4.28±0.11</b>	<b>agree</b>

Concluding the consumer perception towards the CSR activity through the packaging on three criteria, we found the CSR activity presented the responsibility of the business that they realized to society and the environmental issues (Figure 6). It made the highest view of the consumer. The operation was the lowest. It assumed that the CSR activity did not present consumer confidence in the business operation. The CSR activity might be done by law or regulation, not by their intent.

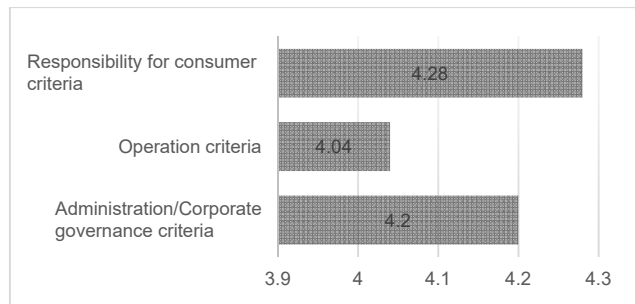


Figure 6. Scoring representation of CSR evaluation (Source: Computed by authors)

### 4.3. Study the buying decision of consumers toward green packaging

The consumers' buying decision toward green packaging was presented. The result was ideal for developing the packaging from coconut fiber to be a community packaging in the future.

The packaging from coconut is green- or eco-packaging using raw materials from the community. Creating jobs, and reducing and adding the value of agricultural waste in Samut Sakorn Province were beneficial. From the results of the consumer opinions towards the buying decision of green packaging as in Table 6, we found that consumers agree and prefer to buy the green packaging when the CSR activity was clear (4.49), with no doubt in operation. The packaging pricing should be the most careful, considering number 9 of the radar plot in Figure 7. The consumer accepted the higher cost of green packaging as a bit more expensive than regular packaging.

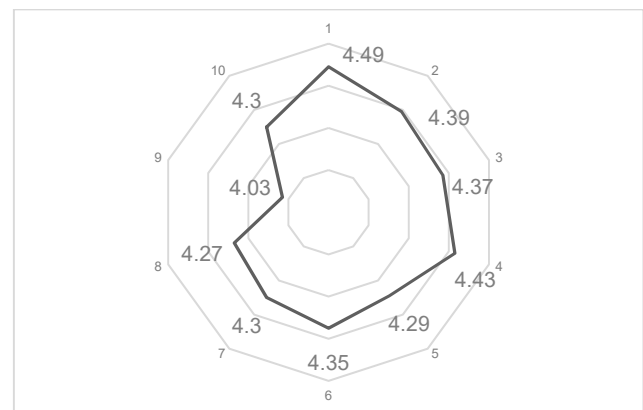


Figure 7. Schematic of CSR evaluation (Source: Computed by authors)

Table 6 Consumer opinions toward the buying decision of products through green packaging  
Source: Calculated by authors

Consumer opinions toward the buying decision of products through green packaging	Percentage of each score					Mean	Interpretation
	1	2	3	4	5		
1. Willing to buy products when the CSR activity of a company is clear	0.6	0	10.1	28.6	60.7	4.49	agree
2. Buying products when the CSR activity of a company is beneficial for the community and society	0	0	11.3	38.1	50.6	4.39	agree
3. Buying products when the CSR activity of a company is willing	0	1.2	13.1	33.3	52.4	4.37	agree
4. Supporting when a company proceeds with CSR activity through packaging, for example, giving money back to discount products	0	1.2	10.7	32.1	56.0	4.43	agree
5. Supporting products when CSR activity is advertised to the consumers, and let them aware of the importance of the activity	0	1.8	12.5	40.5	45.2	4.29	agree
6. Buying products when the CSR activity of a company does not cause to damage life and community qualities	0	1.2	10.7	39.9	48.2	4.35	agree
7. Recommending others to support a company that doing CSR activity	0	1.2	16.1	34.5	48.2	4.30	agree
8. More buying green packaging than in previous	0	0.6	18.2	35.2	46.1	4.27	agree

9. Willing to pay more for eco-packaging that costs a bit more than regular packaging	1.2	0	26.1	40.0	32.7	4.03	agree
10. Using green packaging is important to you	0.6	1.2	14.5	34.5	49.1	4.30	agree
<b>The average score on buying decision</b>						<b>4.32±0.12</b>	<b>agree</b>

## 5. Conclusions

The work was ideal for the CSR activity of business through packaging which packaging was from community and local materials. The CSR activity through the packaging could induce community development in job creation and reduces waste in the community by adding value to green packaging. CSR activity of business influence consumers' positive perception of businesses doing CSR. The CSR activity through packaging impacts the consumer buying behavior that was welcome to buy green packaging at a higher packaging than the regular one. The willingness in buying at a higher price packaging was cost-effective for environmental protection. . The business should realize doing CSR, putting CSR in the policy. CSR activity of the business is beneficial in law or regulation and is taking advantage of positive view for competition in the global market.

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