INVESTIGATING CONSUMERS' PERSPECTIVE AND IMPACT ON GREEN COSMETICS AND PERSONAL CARE PRODUCTS IN THAILAND

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การสำรวจมุมมองของผู้บริโภคต่อผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมในประเทศไทย

น.ส.ธวัลหทัย สุภาสมบูรณ์

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การศึกษานี้มีวัตถุประสงค์เพื่อสำรวจมุมมองของผู้บริโภคต่อประเด็นความยั่งยืนของผลิตภัณฑ์กลุ่มเครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลในประเทศ การศึกษาความพยายามของอุตสาหกรรมเครื่องสำอางในการผลิตสินค้าที่คำนึงถึงผลกระทบต่อสิ่งแวดล้อมและสังคม รวมไปถึงการประเมินผลกระทบของนโยบายที่เกี่ยวข้องกับเครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อม และวิเคราะห์ว่ามุมมองเหล่านี้เกี่ยวข้องกับการรับรู้คุณค่าของผู้บริโภคและส่งผลต่อความตั้งใจในการซื้อเครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมอย่างไร โดยการศึกษาได้มีการใช้แนวคิดตลอดวัฏจักรชีวิต (Life Cycle Thinking) เพื่อเป็นกรอบการวิเคราะห์ ร่วมกับทฤษฎีคุณค่าที่ผู้บริโภครับรู้ (Perceived Value) โดยมีปัจจัยด้านความห่วงใยต่อปัญหาสิ่งแวดล้อมและนโยบายสิ่งแวดล้อมเป็นตัวกำหนดเพื่อทดสอบสมมติฐาน กระบวนการวิจัยประกอบด้วยการวิจัยเชิงปริมาณและคุณภาพ โดยกระบวนการวิจัยเชิงปริมาณดำเนินผ่านการสำรวจความเห็นผู้บริโภคกลุ่มตัวอย่าง 423 รายผ่านระบบออนไลน์ ส่วนการวิจัยเชิงคุณภาพเป็นการสัมภาษณ์เชิงลึกกับผู้บริโภค 30 ราย บริษัทผู้ผลิตในประเทศและต่างประเทศ 8 แห่ง และหน่วยงานภาครัฐและเอกชน 4 แห่ง

ผลการศึกษาเชิงคุณภาพแสดงให้เห็นถึงความสัมพันธ์ที่ชัดเจนระหว่างแนวปฏิบัติด้านเศรษฐกิจหมุนเวียน กระบวนการผลิตที่เป็นมิตรต่อสิ่งแวดล้อม และการรับรองมาตรฐานและฉลากด้านสิ่งแวดล้อม เพื่อให้บรรลุเป้าหมายการพัฒนาที่ยั่งยืน อย่างไรก็ตาม การออกแบบกลไกเกี่ยวกับการกำหนดนโยบายของภาครัฐ และกลยุทธ์การบริหารจัดการองค์กรของภาคธุรกิจด้านการพัฒนาอย่างยั่งยืนถูกจำกัดด้วยอุปสรรคด้านความสมดุลขององค์ความรู้ การวางแผนทั้งระบบเพื่อให้เกิดความเชื่อมโยงกัน และการดำเนินการอย่างบูรณาการ นอกจากนี้ ผลเชิงปริมาณจากโมเดลสมการโครงสร้างโดยใช้เทคนิคการวิเคราะห์การถดถอยเชิงสถิติ โดยใช้ทฤษฎีคุณค่าที่ผู้บริโภครับรู้โดยใช้ความกังวลด้านสิ่งแวดล้อมและนโยบายสิ่งแวดล้อมเป็นตัวกำหนดเพื่อทดสอบสมมติฐานนั้น จากการตอบสนองของผู้บริโภคแสดงให้เห็นว่า การรับรู้คุณค่าในเชิงการใช้งานของผลิตภัณฑ์และความห่วงใยด้านสิ่งแวดล้อม มีผลกระทบอย่างมีนัยสำคัญต่อความตั้งใจในการซื้อของผู้บริโภค อย่างไรก็ตาม ผลการศึกษาจากสมมติฐานไม่สนับสนุนอิทธิพลของคุณค่าทางอารมณ์และคุณค่าทางสังคมที่เกี่ยวข้องกับผลิตภัณฑ์ ในขณะเดียวกัน นโยบายสิ่งแวดล้อมเป็นตัวทำนายที่ชัดเจนเกี่ยวกับความห่วงใยด้านสิ่งแวดล้อม ซึ่งส่งผลทั้งทางอ้อมและทางบวกต่อการรับรู้คุณค่าของผลิตภัณฑ์และความตั้งใจในการซื้อเครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อม

ผลการวิจัยเหล่านี้มีส่วนสนับสนุนในการขยายความรู้ในเชิงคุณค่าของผู้บริโภคในหลายมิติ ซึ่งองค์ประกอบเหล่านี้มีความสอดคล้องกันและมีอิทธิพลต่อพฤติกรรมของผู้บริโภค ดังนั้น การเชื่อมโยงคุณค่าในเชิงการใช้งานของผลิตภัณฑ์และความห่วงใยด้านสิ่งแวดล้อมเข้าด้วยกันควรมีความสอดคล้องกันกับนโยบายสิ่งแวดล้อม อาทิ การประเมินผลกระทบสิ่งแวดล้อมตลอดวัฏจักรชีวิตของผลิตภัณฑ์ มาตรการที่เกี่ยวข้องกับการจัดการขยะในกระบวนการผลิตรวมไปถึงขยะบรรจุภัณฑ์ ระเบียบข้อกำหนดสำหรับการใช้คำที่เกี่ยวข้องกับสิ่งแวดล้อมและความยั่งยืนสำหรับการโฆษณาและการตลาดเพื่อความรู้และความเข้าใจที่ถูกต้อง เงื่อนไขการจัดทำรายงานด้านความยั่งยืนขององค์กรเพื่อเปิดเผยและสื่อสารการดำเนินงานต่อผู้มีส่วนได้ส่วนเสีย และภาษีสิ่งแวดล้อมที่เหมาะสมเพื่อสนับสนุนสินค้าที่เป็นมิตรต่อสิ่งแวดล้อมและควบคุมการปล่อยมลพิษออกสู่สภาพแวดล้อม เพื่อเป็นการขับเคลื่อนเป้าหมายและแนวทางในการพัฒนาอย่างยั่งยืนต่อไป

สาขาวิชา	สิ่งแวดล้อม การพัฒนา และความยั่งยืน	ลายมือชื่อนิสิต .....
ปีการศึกษา	2564	ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

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Tawalhathai Suphasomboon : INVESTIGATING CONSUMERS' PERSPECTIVE AND IMPACT ON GREEN COSMETICS AND PERSONAL CARE PRODUCTS IN THAILAND. Advisor: SUJITRA VASSANADUMRONGDEE, Ph.D.

This study aims to investigate consumers' perspectives and impact on green cosmetics and personal care products in Thailand. Specifically, it explores the sustainability movement for the cosmetics and personal care industry, analyzes Thai consumer behavioral intention toward the consumption of green cosmetics and personal care products, and evaluates the impact of related policies that may affect green business transitions and consumers' intention to purchase green cosmetics and personal care products. The movement of industry and related policies were analyzed by means of Life Cycle Thinking approach. Hypotheses were formulated based on The Perceived Value Theory with extended factors of environmental concern and green policy. A mixed methods of qualitative and quantitative studies were conducted through online surveys of 423 consumers and in-depth interviews with 30 consumers, 8 local and international companies, and 4 governmental agencies and NGOs.

The qualitative analysis shows a strong correlation between circular economy practices, green production processes, environmental certifications, and eco-labeling schemes aligned with sustainability objectives. However, the sustainability concepts were not fully embedded and integrated into policy development and business strategies, which resulted in barriers to sustainable practices. In addition, the quantitative results from PLS-SEM show that the perceived functional value and environmental concern have significant impacts on consumer purchase intention. However, the influence of emotional value and social value was not supported. Meanwhile, the green policy is a strong predictor of environmental concern which indirectly correlates to the perceived value and purchase intention of green cosmetics and personal care products.

These findings offer contributions toward extending the knowledge on how multidimensional consumer values coincide and influence behavioral intention. Linking functional value with environmental considerations should be aligned with the proposed policy recommendations in undertaking sustainability impact assessment throughout a product's life cycle, enforcing codes of practice relating to waste and packaging waste management, regulating sustainability and green-related terms for marketing and communication, making corporate sustainability reporting mandatory, and developing green taxation system to promote green consumption and production and reduce environmental footprints, to move toward a holistic approach to sustainable development.

Field of Study:	Environment, Development and Sustainability	Student's Signature .....
Academic Year:	2021	Advisor's Signature .....

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INTRODUCTION

1.1 Background of the Study

As human activities in all industries drive worldwide consumption and production, it is undeniable that they rely on the use of natural resources which contributes to increasing environmental degradation that is unsustainable and endangering our future development. According to Agenda 21, unsustainable production and consumption patterns were regarded as the main causes of environmental degradation (Bom et al., 2019). With increasingly serious environmental threats that have now become global concerns and challenges, sustainability plays an important role in the business sector, especially in these recent years. Whereupon, all industries need to realize not just the economic benefits but also environmental protection as well as social dimensions to progress through sustainable development or the "triple bottom line" of sustainability and transform toward more sustainable consumption and production patterns which are crucial in achieving sustainable economy and society (Halder et al., 2020).

On the other hand, environmental problems incurred from the growing and irresponsible consumption have also made consumers become more aware and motivated to green consumption values and purchase more environmentally friendly products (Halder et al., 2020; Kilbourne et al., 2009; Laroche et al., 2001; Liobikienė & Bernatonienė, 2017; Paul et al., 2016). The rise of ethical and green consumerism was built upon the sense of responsibility toward environmental values and the willingness to reduce environmental impacts, which may then be achieved through green product consumption (Chen, 2001; Halder et al., 2020; Ogiemwonyi et al., 2020; Paul et al., 2016). As a result, green consumption has amplified consumer choices beyond the price and quality of the product. In accordance, the global market for organic and environmentally friendly products is evidently and continually growing (Liobikienė &

Bernatonienė, 2017; Mazar & Zhong, 2010).

In the cosmetics and beauty sector, we all use a variety of cosmetics and personal care products on a daily basis as the basic needs of hygiene practices which enhance the public health as well as well-being and good quality of living standards in today's modern world. More than 70% of consumers state that cosmetics and personal care products improve their quality of life (Cosmetics Europe - The Personal Care Association, 2017; Personal Care Products Council, 2019). Millions of cosmetics and personal care products that are produced and consumed certainly contribute to the country's Gross Domestic Product (GDP) and the economic dimension vastly. Today the global cosmetics and personal care industry remains one of the fastest-growing segments in consumer markets. In 2018, the global cosmetic industry valued $488 billion with 25% of skincare as the largest product segment. United states gained the largest market share of $48 billion in value, providing millions of jobs with $144 billion in wages and incomes (Personal Care Products Council, 2019). According to the L'Oreal Annual Report in 2018, the main global players were L'Oreal, Unilever, Estee Lauder, Proctor & Gamble, Coty, and Shiseido. Their worldwide sales are shown in Figure 1.1.

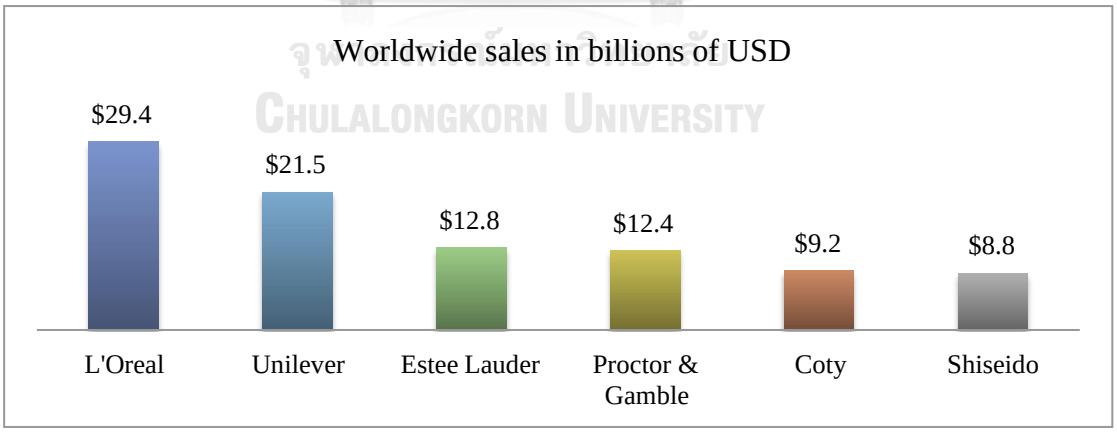

Figure 1.1 Worldwide key players in the cosmetic market

Source: L'Oreal 2018 Annual Report, from https://www.loreal-finance.com/en/annual-report-2018/cosmetics-market-2-1/

The forecasted global revenue of the total industry for 2020 is US$483,338

million or roughly US$65 per capita, and expected to grow about 5% annually (CAGR 2020-2025) (Statista, 2020b). Such strong and progressively stable market growth suggests relatively inelastic global demand, even in tough economic times (Arshad et al., 2020). However, large production comes with large footprints. Plastic packaging waste, unsustainable production processes causing water and air pollution, unethical sourcing, unfair trade, animal-testing methods, the toxicity of product ingredients, pressure from NGOs, and rising consumer ethics and health concerns toward cosmetics and personal care products have all put major threats on environmental and social impacts (Sahota, 2014). Packaging waste is surely one of the most apparent problems across all industries and everything we buy. The cosmetics and personal care industry is among the greatest contributors to the problem. 120 billion units of packaging are generated by the cosmetics and personal care industry every year globally, but only 50% are actually recycled (Erdmane, 2019; Quantis, 2020; Sherriff, 2019). These fast-moving yet short-life cycle products are used up within a certain period of time. Therefore, this implies the dynamic of repeat consumption through continuous purchases, which results in creating more waste endlessly throughout our lives. Most of these cosmetics and personal care products also come with plastic and mixed materials of packaging which cannot be easily recycled or composted. Figure 1.2 shows the Greenpeace protest movement against P&G cosmetic company for the plastic pollution that the company contributes to.

Figure 1.2 Greenpeace movement against P&G

Source: https://www.reutersevents.com/sustainability/virginie-helias-pgs-ocean-plastic-bottles-only-beginning-war-plastic

Furthermore, the cosmetic industry consumes as much resources as 8 million tons of water globally because water is the main ingredient in product formulation. The safety of other chemical ingredients used in cosmetics products is also often overlooked and has not been tested (Azoulay, 2018). Part of our everyday lives usually includes the use of cosmetics and personal care products, from washing our face with a cleanser, brushing our teeth with toothpaste, and showering with soap, to caring for our skin with moisturizer, lotion, sunscreen, and so on. The average morning routine of a person involves contact with over 100 chemicals, says the founder of Aubrey Organics (Green America, n.d.). Environmental Working Group (EWG) also stated that 89% of the 10,500 ingredients have not been evaluated for safety by the FDA or any other institutions. This can certainly pose a great health risk through the everyday use of cosmetics and personal care products. Other research studies found that pollution sources ofchemical substances and residues including microplastics from cosmetics and personal care products are found in the wastewater and wastewater treatment plants, entering the aquatic environment and potentially causing adverse effects on human and animal health (Fan & Wang, 2017; Guerranti et al., 2019; Nantaba et al., 2021; Sun et al., 2019).

Growing awareness of sustainability impacts calls for greener beauty remedies. This has driven the development of the beauty industry with an increasing demand for greener or more environmental-friendly cosmetic products. According to Quantis (2020), 50% of the US consumers and 58% in China seek for and are willing to purchase natural, organic, sustainable, environmentally friendly products. More than 75% of global consumers also look for plastic-free or reusable and refillable packaging when purchasing cosmetics and personal care products. At the same time, they want sustainably-sourced and sustainably-made products. More than 60% are also concerned about reduced carbon and water footprints. These results show that shifting lifestyles and changing expectations of consumers today have shed light on ecological and

social concerns beyond their direct personal benefits. As a result, the cosmetics and personal care industry must take action to achieve sustainability within the boundaries of our planet.

Despite the demand for green features, organic and natural ingredients have become more and more prominent in cosmetics and personal care products. The global market segment of natural and organic cosmetics products accounted for $34,500 million in 2018, increased to $36,300 million in 2019, and is predicted to reach $54,500 millionin 2027 (Statista, 2020a). Within this segment, the statistics in 2019 also suggest that skincare products generated 33.5% of the market share, closely followed by 33% from hair care, and together they represent over half of the total market. Some of the key players in the organic and natural cosmetics and personal care market are Burt's Bees, The Estee Lauder Companies Inc., Natura Cosmeticos S.A., The Body Shop International PLC, and Aveda Corporation (Adroit Market Research, 2019).

Thailand follows the same global growth trend – emphasizing the fact that environmental issues are not limited to specific regions and have been growingly acknowledged as global awareness and concern. At present, there may be lack of statistics information for the green or eco-friendly cosmetic market segment specifically in Thailand. However, the demand for organic and natural cosmetics is on the rise according to a shift in consumers' preferences and trends toward health and the environment (Hong Kong Trade Development Council Research, 2021). In the natural and organic cosmetics segment, Thailand is expected to dominate the ASEAN market share with total revenue of US$62.3 million in 2020 and is expected to grow by 7.6% annually (Statista, 2020a). The market in Thailand is evidently competitive and growing. The total revenue for the whole beauty and personal care market approximately accounted for US$4,000 million or US$57 per capita in 2020 and is expected to grow by 5.7% annually (CAGR 2020-2025). Roughly 30% of the total local production is exported while 15% of the total market came from imports (The International Trade Administration, 2019). Although natural cosmetics is still a small segment (approximately 1.56%), the growth rate is clearly higher comparing to

Thailand's total cosmetics market. This suggests a healthy demand in a similar manner as the global trends.

Nonetheless, organic and natural are not regulated terms in the market and there is no set of global standards or criteria. There certainly is a gap of opportunities where cosmetics and personal care companies may be making green product claims with no control measures or actual indicators of ingredients on their product labels or advertisements. Some products may contain a very low level of natural or organic ingredients. Their corresponding marketing and communication messages may still hide certain facts and lead consumers to believe otherwise. The role of eco-label standards and certification labels, such as USDA Organic and ECOCERT, are therefore crucial in this aspect to provide consumers with some trust or assurance when selecting natural and cosmetic products (Beerling & Sahota, 2013). Although ingredients and formulation of the products are key aspects of safety and sustainability, they do not cover all aspects of sustainability such as carbon footprints, resource usage, and waste disposal (Beerling & Sahota, 2013). Aspects of sustainability from the production perspective are in fact much more complex than that and must reflect green credentials in all stages of their life cycle, from the sustainability of raw materials to usage and safety of the products, to how the products are disposed of or released into the environment (Bom et al., 2019; Villa, 2018). Because each stage of the whole cosmetics and personal care product supply chain can have a great impact on sustainability, it can be significant for the cosmetics and personal care companies to consider and engage in green assessments and green initiatives.

A life cycle assessment (LCA) is an important tool to assess environmental impacts from cradle to grave, through all stages of a product's life, that encourage sustainability across the supply chain (Amberg & Fogarassy, 2019; Hauschild, 2018; Hellweg & Milà i Canals, 2014; Vital, 2013). Additionally, although the Sustainability Consortium released the "Beauty and Personal Care Product (BPC) Sustainability Rating System" in 2018 to help assess and improve supply chains within the supplier-retailer context, the challenge remains largely on how to accurately measure these indicators,

translate their performance, and make them a universal set of criteria.

The role of governmental support in policy and planning is valuable in pushing the industry forward to become more sustainable. Some governments in countries like the UK, France, Denmark, Sweden, Brazil, and South Africa have already made the Sustainability and Corporate Social Responsibility (CSR) Reporting mandatory while other countries are also encouraging similar policies (Sahota, 2014). Unfortunately, the cosmetic regulations and standards in Thailand subjected to the Cosmetic Control Division of the Food and Drug Administration (FDA) primarily focus on the product safety issue and are not yet contributed to sustainability practices such as biodiversity and animal protection and sustainability reporting like the EU standards. Even more so, the use of natural and organic terms on cosmetic product claims or labels is not controlled and regulated which results in prevalent greenwashing effects in society today.

To move toward more sustainable consumption and production patterns, collaborated efforts from both public and private sectors including all other stakeholders should add as a means to further educate and incentivize consumers in how we consume and dispose of the products to help encourage the cosmetics and personal care businesses on the road to sustainability for the years to come.

1.2 Statement of the Problem

The cosmetics and personal care industry has still multifaceted challenges to meet in order to enhance sustainable development and maintain long-term ecological balance. The environmental impacts such as unsustainable production causing water, air, soil pollution, plastic packaging waste, chemical substances and residues of microplastics leaking into the wastewater treatment plants, the toxicity of ingredients harming the ecosystem, as well as social impacts such as unethical sourcing, unfair trade, animal testing, and untested products causing adverse effects on human and animal health may put different levels of concern among different consumer groups. The degree in which they value green cosmetics and personal care products also differs. The investigation of consumer perceptions will fill the research gap.

While there may be several studies of sustainability in multiple fields, however, there are limited studies in the cosmetic sector especially eco-friendly cosmetics and personal care products (Liobikienė et al., 2016). There is also a lack of consumer aspect within the research area to examine green behavior and purchase intention of green cosmetic products (Chin et al., 2018). With a shorter history of environmental concern than the European countries, Thailand is in a later phase of green product adoption and deserves more research attention to respond to significant market growth in the organic and natural beauty sector.

This research focused on exploring the sustainability perspective of the cosmetics and personal care industry from a consumer viewpoint in Thailand, where none of the specific research contexts has been done before. In addition, production and policy viewpoints were also explored in order to examine all potential causes influencing consumer behavioral intention and integrate a comprehensive scope of this study.

1.3 Purpose of the Study

The research aims to investigate consumers' perspective and impact on green cosmetics and personal care products in Thailand. The objectives are to:

- Explore the sustainability movement for the cosmetics and personal care industry in Thailand.
- Analyze Thai consumer behavioral intention toward the consumption of green cosmetics and personal care products.
- Evaluate the impact of related policies that may affect green business transitions and consumers' intention to purchase green cosmetics and personal care products.

1.4 Research Questions

1. What are the environmental and social impacts and strategies that green cosmetics and personal care products recognize as targets to pursue sustainability goals?

2. What are the key factors influencing Thai consumers' purchase intention of green cosmetics and personal care products?
3. What policies are likely to promote green cosmetics and personal care products and how will they impact the interactions between the consumers and the cosmetic businesses in Thailand?

1.5 Conceptual Framework

To fill the research gap of green cosmetics and personal care industry in Thailand, a framework was unified to understand the link between consumers, producers, and policy actors. This would allow a joint assessment regarding how consumers evaluate the perceived values and their purchase decisions of green cosmetics and personal care products. Although past research studies have examined the roles of key actors in promoting sustainable development, there is still lacking a full understanding of their relationships in the context of cosmetics and personal care products. To address this gap, a conceptual framework (Figure 1.3) was developed on the basis of sustainable consumption and production to understand the extent that consumers' purchase intention might be influenced by the interactions of relevant actors. In this study, the role of producers covered local and international cosmetic companies that are engaged in sustainable development efforts. Big supermarkets and other retail stores are excluded as the objective to explore the industry's sustainability movements are based on green production aspects. The policy actors included the public sector or the governmental agencies and the voluntary sector including private voluntary, civil society, and non-profit organizations.

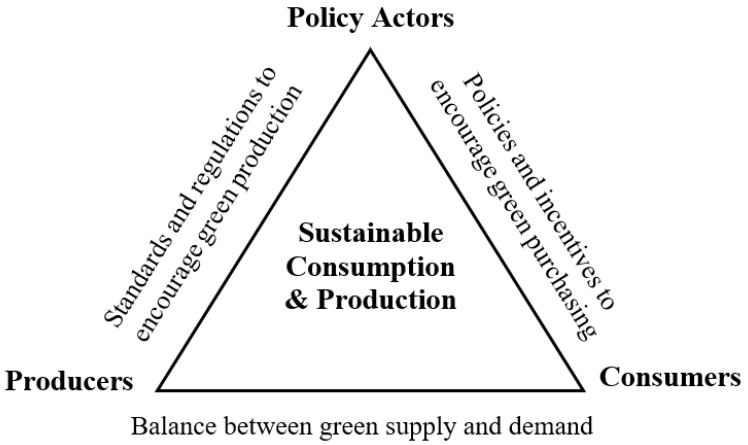

Figure 1.3 Conceptual framework in the role of producers, consumers, and policy actors

Source: Author's illustration

1.6 Research Significance

The production and consumption of cosmetics and personal care products can lead to various environmental and social problems. The dynamics of repeat consumption through continuous purchase result in creating more waste endlessly. While billions of packaging are created every year globally, the chemical substances and toxicity of the product ingredients also harm the ecosystem and pollute the environment. Unethical sourcing and animal testing also raise concerns about social issues and social impacts, not to mention there are also issues of human health regarding product safety too.

Given limited studies, the cosmetic industry needs to recognize its sustainability challenges to become viably sustainable. The significance of the sustainability concept must be built in balance to support sustainable development goals to produce and consume more sustainably, which aligns with SDG goal 12.

By having improved environmental profiles, cosmetics and personal care businesses can reduce environmental footprints, source more responsibly to protect biodiversity including life on land and below water (SDG14 and 15), reduce inequalities as well as promote social inclusion and diversity (SDG10), provide

quality education and training (SDG4) and employment opportunities, which contribute to decent work and improve sustainable economic growth (SDG8) as well as good health and wellbeing of the people (SDG3). With collaborative efforts with partners, suppliers, and stakeholders (SDG16 and 17), they could potentially make a difference.

Figure 1.4 SDGs relating to the cosmetics and personal care industry
Source: United Nations

1.7 Limitations

Firstly, with very little to no prior research specifically for the green cosmetics and personal care products in Thailand, relevant studies were limited to provide theoretical foundations. Therefore, the conceptual model was based on exploratory studies, which were subject to biases that might have influenced the outcome of this study. Nonetheless, the current study presents an important opportunity to fill the literature gap for further development in the area of study.

Secondly, the purposive sampling procedure and the scope of producers in a qualitative study will not be generalizable to all areas of cosmetics and personal care products, including the green product segment. Moreover, current data available through secondary sources may be limited and not generate significant contribution to the understanding of the issue in Thailand's market conditions.

Thirdly, the high representation and similar background of female consumer participants of high education and high household income in a quantitative study could affect the study's generalizability of geographical sample. However, women are the key target consumers as they purchase and use green cosmetics and personal care products more than men. High representation of female participants therefore

imply that their knowledge, spending power, and response are relevant and aligned with the primary target consumers of the study.

Moreover, with no specific policies designed for green cosmetics and personal care products in Thailand, the purposive sampling procedure and a relatively small sample of policy actors used for the exploratory research does not cover all areas of related policies, in which the findings might not derive conclusive insights.

1.8 Operational Definition of Terms

1.8.1 **Cosmetics** are defined as

> *"Articles intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body for cleansing, beautifying, promoting attractiveness, or altering the appearance"* (FD&C Act, sec. 201(i)) (U.S. FDA, 2020a).
>
> Products include skin moisturizers, eye and facial makeup, lipsticks, fingernail polishes, perfumes, cleansing shampoos, hair colors, deodorants or other substances intended for use as components of a cosmetic product.

1.8.2 **Personal Care Products** are a subset of cosmetic products, and sometimes referred to as cosmetics, which include a wide variety of personal hygiene and grooming products that are used in the health and beauty sections such as shampoos, hair colors, toothpaste, deodorants, and perfumes. Some personal care products may fall into other product categories such as drugs, medical devices, dietary supplements, and other consumer products (U.S. FDA, 2020a).

1.8.3 **Cosmetics and Personal Care Products** are comprised of decorative cosmetics, skincare, hair care and personal care products, and fragrances. Excluded products are professional tools and electronic products such as hairdryers and shavers, as well as products for medical purposes such as supplements and products in the pharmaceuticals segment (Statista, 2020b).

1.8.4 **Beauty Industry** includes businesses that offer cosmetics and personal care products and services in the area of cosmetics and relaxation such as salons offering haircut and hair care services, waxing, nail care, facials, spa and massages, makeup services, as well as men's grooming. Some beauty businesses include specialized products and equipment such as tattoos, piercing, laser treatment, and microdermabrasion (Australian Industry and Skills Committee, 2021). However, since the medical devices are out of the scope of this study, the beauty industry here involves the provision of products and services within the definition of cosmetics and personal care products only.

1.8.5 **Natural** generally means material harvested, mined, collected, deriving from the original nature sources, and free from artificial and synthetic additives (Bom et al., 2019; Dayan & Kromidas, 2011).

1.8.6 **Organic** also means natural but in a much stricter term to include organic agricultural restrictive processes and operations standards with no use of synthetic fertilizers, pesticides, growth regulators, additives, animal manures, GMOs, and radiation, with certain regulations and certifications (Bom et al., 2019; Dayan & Kromidas, 2011).

1.8.7 **Green** may be used interchangeably with eco-friendly or environmentally friendly, associated with environmental concern on the basis of green consumerism where consumers consciously choose products for environmental reasons (Smith, 2016). The term Green also suggests the need for a product or service to consider the environment, so that it will not cause pollution or depletion of natural resources (Chin et al., 2018).

1.8.8 **Greenness** of a product refers to the attribute or feature of the product that offers the green benefit associated with less harmful effects on the

environment (Chen, 2001; Gershoff & Frels, 2015).

1.8.9 **Sustainability** refers to the three pillars of environmental protection, social responsibility, and economic development in balance, without compromising the needs of future generations (Tolnay et al., 2018; United Nations, n.d.).

1.8.10 **Green Cosmetics**, as a type of green product, usually mean natural and organic cosmetics containing natural and organic sources of ingredients and avoiding synthetic chemicals in the formulation, focusing on environmental protection (Amberg & Fogarassy, 2019; Chin et al., 2018; Sahota, 2014).

In this study, cosmetics and personal care products refer to consumer products used for personal hygiene (such as soap, shampoo, oral products, deodorants, and toothpaste) and beautification (such as makeup products, lip products, and hair styling products), which cover both local and global brands. Product categories are listed in Table 1.1.

Table 1.1 Examples of cosmetics and personal care product types

Main Category	Sub-Category	Examples
Decorative Cosmetics	Face	Foundation, concealer, primer, mist, spray, tinted moisturizer, BB / CC cream, blush, bronzer, contour, highlighter, powder
	Eye	Eye shadow, eyeliner, eye primer, mascara, eyebrow products
	Lip	Lipstick, lip balm, lip gloss, lip tint, lip liner
	Nail	Nail polish, nail polish remover
Skincare	Facial Skincare	Moisturizer, lotion, cream, oil, toner, serum, treatment mask, eye cream
	Sun Care	Sunscreen, self-tanner, after sun care, lotion, cream, oil, gel, spray with sun protection
	Body Care	Body lotion, butter, balm, oil, cream, gel, hand and foot cream, treatment mask, deodorant
Personal Care	Facial Cleanser	Soap, cleaning gel, cleansing balm, makeup remover, scrub, exfoliator
	Body Cleanser	Body wash, bath soak, scrub and exfoliator, shower soap, bar soap
	Oral Care	Toothpaste, mouthwash, dental rinse
	Hair Care	Shampoo, conditioner, hair color, hair styling products, hairspray, gel, mousse, wax, balm, oil, hair mask, hair treatment, leave-on conditioner
Fragrance	Perfume	Perfume, body mist, scented oil, aftershave

Green cosmetics and personal care products are therefore a sub-category within the cosmetics and personal care product types. They refer to green attributes that focus on environmental protection, which are usually made with natural and organic sources of ingredients without synthetic chemicals, or often packaged in eco-friendly or reusable materials (Chin et al., 2018).

CHAPTER 2
LITERATURE REVIEW

This chapter presents a theoretical and empirical review of literature on the sustainability concepts related to the cosmetics and personal care industry in the following sections; (1) an overview of the industry concerning concepts and challenges of sustainability; (2) sustainability assessment and indicators; (3) green consumer behavior theories; (4) cosmetic legislation, regulations, and other supporting policies; and (5) research theoretical framework and hypotheses.

2.1 Cosmetics and Personal Care Industry Overview

Throughout the history, the use of cosmetics was genderless and discovered for thousands of years as body adornment and beauty statements by ancient Egyptians. Through rapid globalization after World War II during the 1950s, a modern beauty industry emerged (Jones, 2008). Influenced by the Western culture after the post-war period, the use of cosmetic products was not limited to women as it transformed men's grooming habits through the use of toiletries, such as aftershave products, deodorants and pomades, which helped them to maintain their self-confidence, good hygiene, physical appearance, and better grooming (Jones, 2008; Peiss, 1998, 2002).

Today the cosmetics and personal care industry continues to promote good hygiene to enhance the public health and standard of living of the people with millions of consumers worldwide. Infections and illnesses are often associated with hygiene and cleanliness. Thus, the importance of good hygiene practices can certainly help strengthen health. As emphasized by the World Health Organization (2020), good hand hygiene practices such as washing hands with soap can prevent and reduce the risk of respiratory infections of Coronavirus disease (Covid-19). Furthermore, health-related benefits can also be achieved by the use of cosmetics and personal care products. For example, sunscreen can help

prevent skin cancer, and the use of toothpaste can help prevent tooth decay and gum disease (Cosmetics Europe - The Personal Care Association, 2022). Cosmetics and personal care products also improve physical appearances and self-esteem that elevate the well-being of the people (Personal Care Products Council, 2019). The market penetration of cosmetics and personal care products today reflects the importance of product usage, regardless of gender. The below figures show the data sample of cosmetic use in Europe.

Figure 2.1 Consumer research published by IKW, the German Cosmetic, Toiletry, Perfumery and Detergent Association

Source: Reprinted from Cosmetics Europe, from https://cosmeticseurope.eu/cosmetic-products/you-your-products/

	Important	Very Important
Sun care products	33.0	20.8
Oral care products	29.6	64.0
Skin care products	38.0	34.5
Body care products	38.3	51.6
Perfume products	42.0	22.1
Make-up products	24.1	17.3
Hair care products	41.2	44.0
Average:	**35.0**	**36.0**
Total:		**71.0**

Figure 2.2 Level of importance regarding the use of cosmetics and personal care products

Source: Reprinted from Cosmetics Europe – https://cosmeticseurope.eu/cosmetic-products/

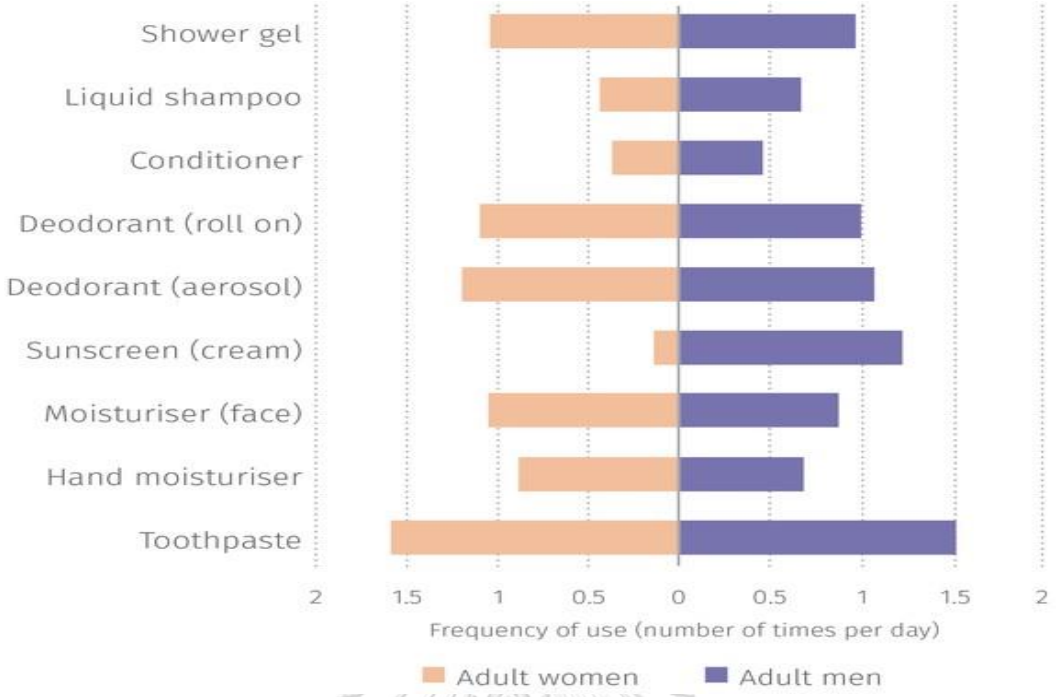

Figure 2.3 Usage of personal care products per day

Source: Reprinted from Cosmetics Europe – https://cosmetiseurope.eu/cosmetic-products

Amberg and Fogarassy (2019) suggested that the current market trends have now pointed toward natural and organic materials because notable negative effects of synthetic chemicals and substances on human health and the environment were evident while interest in healthy products for skin protection has also grown. The history of how the cosmetics and personal care products were used was shaped by human development and changes in the society. That is, it went from body adornment and beauty enhancement to hygiene and health, to being used for medical and pharmaceutical-related benefits. Today the cosmetics and personal care market is very different from its early days and became competitive globally. Consumers became more refined with product quality, efficiency, safety, as well as environmental protection. Thus, producers cannot neglect these issues in their product development (Amberg & Fogarassy, 2019).

In addition, it is vital to recognize an accelerating number of global populations that comes with increasing human consumption and production,

which leads to various environmental problems including greenhouse gas emissions, water and air pollution, overexploitation and degradation of natural resources as well as socioeconomic inequalities that threaten our wellbeing and the balance of our planet (Feil et al., 2019; Wu & Wu, 2012). The significance of the sustainability concept is becoming highly crucial. As illustrated in Figure 2.4, the three pillars of environmental protection, social inclusion, and economic growth must be built in balance (Kristjánsdóttir et al., 2017). In supporting more sustainable production and consumption (SCP) aligning with the Sustainable Development Goals (SDGs), stakeholder efforts can greatly contribute to integrating sustainable development challenges into strategies, policies, and actions that best serve today's consumers and the society as a whole.

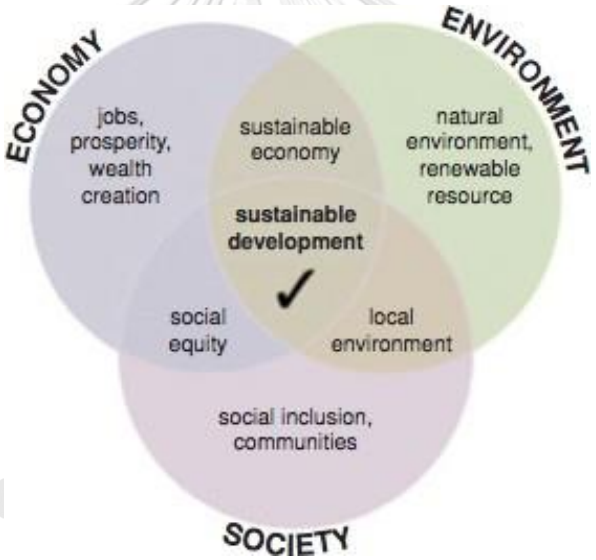

Figure 2.4 Aspects of Sustainability
Source: Reprinted from "Sustainability: How the Cosmetics Industry is Greening up" by Sahota A., 2014 (Chapter 1, p.13)

Accordingly, the multi-billion beauty and personal care industry contributes to supporting the global economy, diversity, and societal changes to improve the overall quality of life of the growing and aging population, men's grooming habits, as well as creating millions of employment opportunities for women, minorities, and people of color (Personal Care Products Council, 2019).

There are numerous Corporate Social Responsibility (CSR) programs and campaigns across the industry initiated by major cosmetic companies such as Estee Lauder's Breast Cancer Campaign (Figure 2.5), MAC cosmetics' Viva Glam Fund to support HIV, and P&G's "My Black is Beautiful" to support racism, that helped create social values for their stakeholders and communities. Many of these programs are still ongoing and also carried out across countries around the world, including Thailand, to bring global awareness and continue to inspire social contributions through the support of their employees, partners, and consumers worldwide.

Figure 2.5 Estee Lauder Pink Ribbon (Breast Cancer) Campaign
Source: https://www.elcompanies.com/en/our-commitments/the-breast-cancer-campaign

There are also waste management efforts that leading cosmetic companies like the French beauty group, L'Oreal committed to creating more sustainable packaging to ensure the recyclability and reusability of its packaging. The company's latest breakthrough innovation is the unprecedented paper packaging recently launched in early 2020 (Figure 2.6), which is pushing a step forward to improving the environmental footprint of its packaging.

Figure 2.6 L'Oreal Paper Packaging
Source: https://www.loreal.com/en/news/commitments/loreal-and-albea-launch-the-first-paper-based-cosmetic-tube/

In Thailand, apart from global players in the market, there are also attempts of green initiatives from small local entrepreneurs that produce natural and organic products. The rise of green cosmetics and personal care brands and the emergence of sustainable lifestyle concept stores with in-store recycle and refill stations (Figure 2.7) signaled a change in consumer behavioral trends toward reducing, reusing, and recycling.

Figure 2.7 Thai green cosmetics and personal care brands and refill station at Ecotopia, Bangkok, Thailand
Source: https://www.siamdiscovery.co.th/explore/BEAUTY-ECOTOPIA/251 and https://www.greenery.org/articles/report-ecotopia/

However, companies that are leading and pioneering in sustainability are only representing a fragment of the industry. The beauty sector still contributes to natural resource depletion and pollution in many ways, which is why sustainability metrics have become an increasingly important tool to evaluate the performance of cosmetics and personal care companies.

As cosmetic companies are broadening their attempts to become more environmental-friendly and sustainable, the most favored aspect could be the use of natural and organic ingredients because negative perceptions toward chemicals imply that natural is safer (Beerling, 2013). Even so, by stating organic or natural on the product labels does not necessarily mean they are better or sustainable. Many research studies showed that eco-friendly implications can put adverse effects on human health from accumulative daily use and could also create more environmental impact if not evaluated in different life cycle phases (Arshad et al., 2020; Mesko et al., 2020; Secchi et al., 2016). Reef-safe labeled products claim that they do not contain chemicals like oxybenzone and octinoxate. However, the use of the 'reef-safe' term is not regulated and therefore the company does not need to perform an actual product test. Hence, they might still be harmful to coral reefs and marine life in the ecosystem around the world because of their concentrations and possible toxicity of other ingredients used in the product (Danovaro et al., 2008; Downs et al., 2016; Secchi et al., 2016).

Indeed, green transformation of the cosmetics and personal care products put great emphasis on a variety of stakeholders. Cosmetics and personal care companies will need to manage the needs to focus efforts on the real costs of their products where they can have the biggest impact - not only to mitigate the risks that are critical to them but also to create meaningful actions toward sustainability.

2.2 Sustainability Assessment and Indicators

It is rather complex and can be very subjective when it comes to which direction the industry should be going to ensure management decisions that can refer to multiple aspects of sustainability, given different conditions and circumstances of each organization in different regions. Sustainability assessment and sustainability indicators are important tools that can be used in different disciplines that companies can conduct to support decision-making processes and policy development practices of sustainability in a broad context (Sala et al., 2015; Waas et al., 2014; Wu & Wu, 2012). Tracking and reporting also help improve the company's performance as well as facilitate transparency within the company and external stakeholders (Vital, 2013). Many studies suggest that there are a wide range of sustainability assessment and indicator frameworks that have been developed by many different organizations for different research disciplines (Bom et al., 2019; Feil et al., 2019; Garrett & Latawiec, 2015; Kristjánsdóttir et al., 2017; Sala et al., 2015; Wu & Wu, 2012). However, there is no universal set of criteria because they all depend on many factors from specific conditions and goals of an organization. Garrett and Latawiec (2015) also suggest that the selection of indicators will be influenced by the availability of resources, time constraints, and data. In general, there is no best set of sustainability indicators within a particular industrial sector or region.

On a broad term, cosmetics and personal care businesses communicate their sustainability commitments, performances, and management decisions to reflect all-encompassing practices that are embedded in their core business values through reporting. There are a variety of standards for Sustainability and Corporate Social Responsibility reports but the most common one is the Global Reporting Initiative (GRI) (Sahota, 2014). There are also several tools that support the sustainability assessment on environmental terms. Although Environmental Risk Assessment (ERA) and Environmental Management System (EMS) are among the widely used assessment tools, they do not cover the evaluation of the entire product life. While ERA focuses on consumer use and disposal and EMS focuses on the manufacturing aspect, both tools emphasize on

a particular stage of a product life cycle only. Life Cycle Assessment or LCA provides a more holistic assessment to cover the whole lifecycle of the product (Bom et al., 2019; Cosmetics Europe - The Personal Care Association, 2017). Because there may be adverse impacts between phases of a product life throughout the supply chains, the LCA concept can be used to improve environmental profiles by identifying and measuring environmental impacts in each and every stage of a product life cycle interdependently.

More practically, the LCA phases have been used widely and frequently become a common go-to method and tool for most global cosmetic companies to track their sustainability performance. They can be seen in multiple sustainability corporate reports from the big market players like the L'Oreal Group, Unilever, P&G, Estee Lauder Group, Burt's Bees, and more. Currently, there is no existing literature regarding the sustainability assessment for the cosmetic industry in Thailand.

The following subsection investigates the LCA framework as a broad concept to identify the production factors of the product life cycle phases with examples from global or international brands to illustrate a clearer understanding of the concept.

2.2.1 Sustainability Aspects of a Cosmetics and Personal Care Product Life Cycle

Because all consumer products' lifecycles create environmental impacts from sourcing, production, consumption, and disposal, the goal of Life Cycle Assessment (LCA) is to identify and assess these impacts from "cradle-to-grave" or "cradle-to-cradle" in a systematic manner to support policy and decision making (Cosmetics Europe - The Personal Care Association, 2017; Hellweg & Milà i Canals, 2014; Tolnay et al., 2018; Vital, 2013). LCA is also an international standardized framework with its procedures as part of ISO 14040:2006 and 14044:2006 environmental management standards which include the scope of life cycle analysis (LCA), life cycle inventory analysis (LCI), life cycle impact assessment (LCIA), as well as the relationship between

LCA phases (Bom et al., 2019; Vital, 2013). The cosmetic sector mostly uses the LCA concept to assess and improve environmental performance as well as to support business strategies to create a competitive advantage in a holistic aspect of their product. Figure 2.8 shows corresponding issues in the cosmetic industry in the LCA phases.

Figure 2.8 A sustainable product life cycle for cosmetic products.
Source: Reprinted from "A step forward on sustainability in the cosmetics industry: A review" by Bom et al., 2019, Journal of Cleaner Production, 255, p. 276

The first phase of LCA begins with the **design** or eco-design of a product with an approach to consider environmental impacts throughout the whole life cycle where its process can significantly add value and create innovative solutions to the product (Vital, 2013). Eco-design is also crucial to a packaging phase as it will be most effective to be embedded across all functions and critical in reducing packaging impact (Quantis, 2020). Therefore, this design phase is extremely important and dependent on other phases because it will reflect the sustainability of the finished product and final product phase (Bom et al., 2019).

A **sourcing** of raw materials phase is the backstory of product ingredients.

Natural and organic ingredients rely heavily on the natural resources and agricultural-based sourcing which can have a high environmental impact in terms of biodiversity, endangered species, deforestation, land use, water consumption, carbon emission, and pollution as well. In some cases, synthetic ingredients may have less impact on the environment. Quantis (2020) compared between 1 kg of natural glycerin derived from grapeseed oil as opposed to 1kg of synthetic glycerin, as shown in Figure 2.9. The result favors a natural alternative in terms of climate change, but when land use is considered, synthetic glycerin seems to be a more viable and a more sustainable choice.

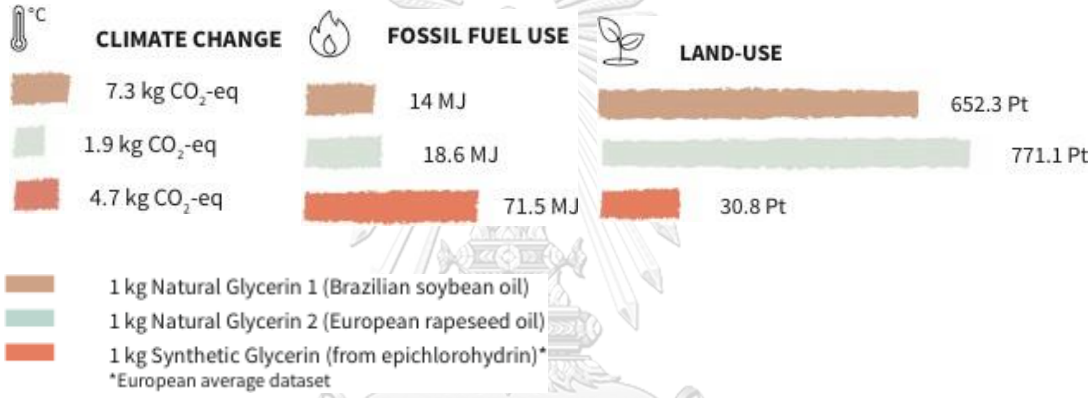

Figure 2.9 Impact of natural versus synthetic ingredients
Source: Reprinted from “Makeup the Future: Levers of Change for a Sustainable Cosmetics Business” Report by Quantis, 2020, p. 27

Furthermore, this phase also concerns the supplier in terms of fair trade as well as responsible and ethical sourcing. Various factors need to be considered from climate to availability and limits of supply as well as practices and knowledge required in particular environments and cultures (Pulverail, 2013). Innovation, economic feasibility, and respective enhancement of communities are factors that are interdependently important and inevitable. The challenge here is to follow sustainable sourcing processes that enable companies to transform traditional knowledge into scientific and industrial fields, and transparency in relationships shall be established among stakeholders (Sahota, 2014). The UK-

based brand Neal's Yard Remedies is one of the industry leaders to trade sustainably and ethically, and became the world's first health and beauty company that was awarded 100% ethics from an independent audit by the Ethical Company Organization. In ensuring responsible sourcing and trading, their rosehip harvesting is done during peak seasons between September and November in the local village of northern Serbia when there are a lot of rosehips to pick, which of those must be grown above 1 meter and always be left on the bush at least 10%. As shown in Figure 2.10, the handpicking process saves energy for the extraction of materials and conserves the environment. The village collectors then separate the rosehip seeds from the shell and are cold pressed in distilleries to preserve the antioxidant properties, which save energy for the processing of raw materials. Neal's Yard Remedies also purchased annual carbon credits to support Makira Forest Protection Project in Madagascar to help protect biodiversity by working with communities, limiting deforestation, and supporting low-impact farming practices (Neal's Yard Remedies, 2022).

Figure 2.10 Neal's Yard Remedies' responsible and ethical sourcing and trading
Source: https://www.nealsyardremedies.com/about-us/our-commitment.list

Regarding the **manufacturing** phase, opportunities to focus on greener business practices such as shifting toward renewable and efficient energy can enhance performance efficiency while promoting positive environmental and social impacts. Many global multinational cosmetic companies are successful in committing to renewable sources to save cost while reducing GHG emissions such as L'Oreal (Figure 2.11), P&G, Estee Lauder, Henkel, Unilever, and Beiersdorf (Personal Care Products Council, 2019; Quantis, 2020). As part of

ISO 22716:2007, Cosmetic Good Manufacturing Practices (GMP) also comply with cosmetics regulations that are required for all cosmetics products in the European market that guide the products to be in consistent and control to specified quality (Bom et al., 2019; ISO, 2017; U.S. FDA, 2020b). Existing solutions in the cosmetic sector include solar and wind power, rainwater harvesting, and energy recycling to reduce energy and water consumption, carbon emissions, and waste (Bom et al., 2019; Cosmetics Europe - The Personal Care Association, 2017). However, an assessment in this phase must also mitigate the negative impacts of industrial waste management and disposal as well to contribute to sustainability. Industry players like L'Oreal, P&G, Estee Lauder, Burt's Bees, Henkel, Coty, Colgate-Palmolive, and Unilever are all committed to zero waste management in landfills for their production sites (Personal Care Products Council, 2019).

Figure 2.11 L'Oreal's carbon neutral plant, combining energy efficiency and the use renewable energy
Source: https://www.loreal-finance.com/en/annual-report-2019/operations-4-1-0/environmental-performance-group-wide- engagement-4-1-4/

The high environmental impact and footprint of **packaging** have led businesses around the world to focus on this particular issue. For the European Union, the packaging is regulated under the "Packaging and Packaging Waste

Directive" with the purpose to keep packaging conditions for safety, hygiene, and acceptance of consumers as well as to ensure the packaging can be reused or recovered (Cosmetics Europe - The Personal Care Association, 2017). Growing importance of sustainable packaging is also evident in the cosmetic sector with various innovative 3R approaches of many brands such as refillable packaging, as well as numerous coalitions and platforms with other organizations such as partnerships with TerraCycle and LOOP to facilitate consumers in the reusability and disposal of empty packaging (Culliney, 2020). A joining force among the cosmetic industry players to share their vision of sustainable packaging of the Sustainable Packaging Initiative for Cosmetics (SPICE) also increases the level of commitment of the industry to tackle challenges together in a collective manner, yet bring a promising transformation and future of sustainability (L'Oreal Groupe, n.d.; Quantis, 2020). Many cosmetic companies design their packaging conscientiously to reduce the packaging waste impact on the environment, as exemplified in Figures 2.12, 2.13, and 2.14.

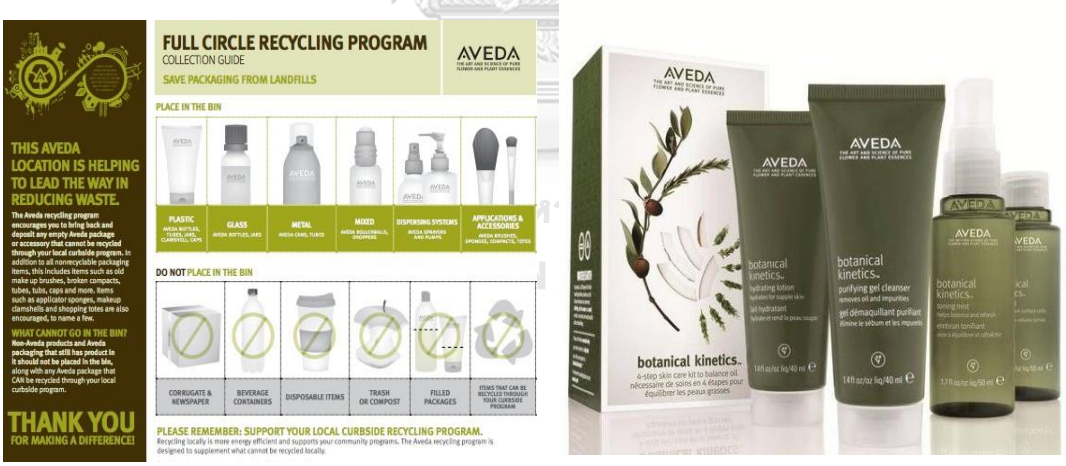

Figure 2.12 Aveda Full Circle recycling program
Source: https://www.aveda.com/living-aveda/responsible-packaging

Aveda's recycling program in the US in partnership with g2 revolution, a recycling innovations company, allows customers to deposit empty Aveda packages at Aveda Experience Center retail location to supplement what cannot

be recycled locally. 100% PCR and bioplastic combined technology for new packaging were also introduced to minimize environmental impact and maximize the use of recyclable materials.

Figure 2.13 Burt's Bees' plastic caps
Source: https://www.burtsbees.co.th/about-us/11/sustainable-packaging

Burt's Bees' plastic caps are low impact polypropylene. Lip gloss caps are made of 100% post-consumer recycled plastic. The yellow lip balm tubes converted to 50% PCR. Petroleum-based PET thermoform tray packaging is replaced with a potato starch-based paper foam tray.

Figure 2.14 Neal's Yard Remedies' 3R's initiatives
Source: https://www.facebook.com/NealsYardRemediesOfficial/ and https://www.nealsyardremedies.ca/blogs/blog/44998661-those-beautiful-blue-bottles

Neal's Yard Remedies' ideas to reuse and repurpose the brand's signature blue glass bottles and glass jars were curated and shared in its blog. In-store refill stations were also introduced in selected UK stores with a £2 off purchase offer.

Furthermore, in the **distribution** phase, transportation and logistics of raw materials, ingredients, packaging, and products are important in managing a more sustainable product life cycle as it is mainly associated with releasing of carbon dioxide and GHG into the atmosphere which contributes to global warming (Bom et al., 2019). Shifting from traditional transportation to hybrid or electric vehicles as well as consolidating distribution networks, using AI to optimize delivery routes, or even designing lighter and more compact packaging can help reduce associated emissions to ensure sustainable distribution (Cosmetics Europe - The Personal Care Association, 2017). Many companies commit to GHG reduction or even target carbon neutral and carbon positive such as Unilever, Estee Lauder, Henkel, and Burt's Bees (Personal Care Products Council, 2019). L'Oreal Thailand's also complies to the group mission to reduce environmental footprint via its first LEED-certified Silver Level green distribution center (Figure 2.15).

Figure 2.15 L'Oreal Thailand's first green distribution center, TPARK Bangna
Source: https://www.bangkokpost.com/business/1185633/loreal-opens-green-centre

The **consumption** phase of cosmetics and personal care products actually

contributes greatly to sustainability impacts (Bom et al., 2019; Cosmetics Europe - The Personal Care Association, 2017; Sahota, 2014; Secchi et al., 2016). Several studies show that large footprints occur during the water usage especially in rinse-off and wash-off products, such as soaps and shampoos, that require more water (Bom et al., 2019; Sahota, 2014; Secchi et al., 2016). A prior study from Cho (2014) also suggests that availability and access to information at the point of purchase may encourage consumers to become more conscious and engage in sustainable behaviors toward reducing the environmental impacts in relation to LCA such as reduction of water consumption, energy, and responsible packaging disposal. These factors could have reminded them about how their purchases contribute to making a difference. One of the largest personal care companies, Unilever also addressed that more than 50% of greenhouse gases and water footprint occurred at the consumption level. Therefore, the company targeted to motivate consumer behavioral change to use less water during the wash and shower by introducing innovative products like Unilever's Love Beauty and Planet dry shampoo and hair conditioner with fast-rinse technology to save time and water in rinsing (Sahota, 2014; Unilever, 2020).

Product design and information such as how and how much to use and reuse the product including how to dispose of the packaging will be fundamental in changing and motivating consumers to reduce the tendency to overuse the products and consume in a more responsible manner (Lin & Huang, 2012; Sahota, 2014). Although Love Beauty and Planet's fast-rinse technology (Figure 2.16) is the key selling attribute of the product, it contributes to green processes and sustainability goals in improving environmental and social footprints as well. For example, they reduce waste, use recycled plastic bottles, use responsibly-sourced and naturally-derived ingredients, not tested on animals, and join partners for numerous CSR projects around the world.

Figure 2.16 Love Beauty and Planet Fast Rinse Conditioners
Source: https://www.facebook.com/environman.th/photos/4-fast-rinse-technology andhttps://www.lovebeautyandplanet.com

Nonetheless, no matter how much sustainability effort companies undertake, their products will continue to produce high footprints if they cannot persuade consumers to become more responsible in purchasing, using, and disposing toward their **post-consumption** of the products (Sahota, 2014). It does not only depend on the consumers though. Linking back to packaging, if there is no system to support to either collect or recycle at the end of a product's life, then the packaging is not sustainable to start with (Haeften, 2014). Biodegradable ingredients can still have a toxic effect on the environment before degrading too (Quantis, 2020). Again, this post-consumption significantly relates to the packaging phase, the game-changing model of a recent collaboration between leading e-commerce packaging system companies and large global brands such as P&G and TerraCycle's Loop last year seem very promising in driving circular solution. Figure 2.17 shows how the system works.

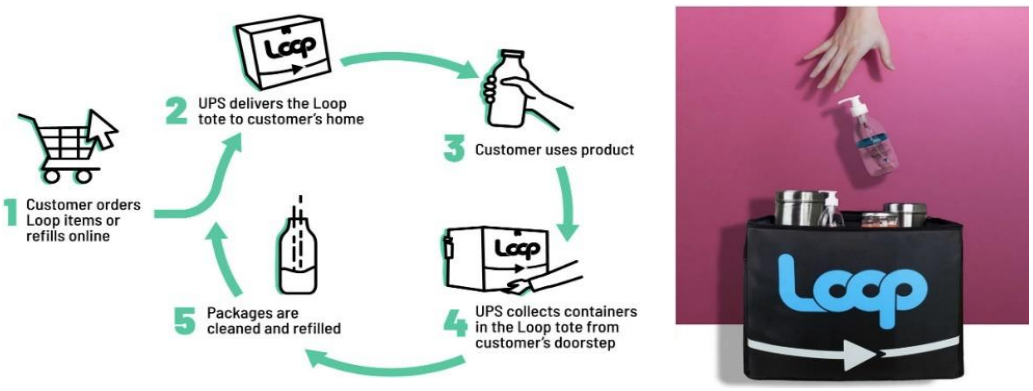

Figure 2.17 TerraCycle's Loop system

Source: https://www.terracycle.com/en-AU/about-terracycle

In addition, a rewarding scheme for customers for recycling their empty packaging helps customers to dispose more responsibly and at the same time encourages and motivates them to participate in the program with incentives of complementary products or rewarding points to further spend in store such as Boots UK's newly launched recycling scheme for beauty products (Figure 2.18) and Kiehl's Recycle & Be Rewarded program (Figure 2.19).

Figure 2.18 Boots Recycling Scheme

Source: https://www.boots-uk.com/our-stories/boots-launches-new-sustainability-scheme-rewarding-customers- for-recycling-their-empties/

Figure 2.19 Kiehl's Recycle & Be Rewarded Scheme

Source: https://www.kiehls.co.uk/world-of-kiehls/recycle-and-be-rewarded.html

Thailand's largest eco-product store called "Ecotopia" in Siam Discovery shopping mall in the capital city of Bangkok also offers a recycle station especially for cosmetic products in an attempt to reduce waste (Figure 2.20). A major challenge here depends on how well they communicate or educate their consumers to strengthen relationships with them.

Figure 2.20 Cosmetic Recycle Station at Ecotopia Store in Bangkok, Thailand
Source:
https://www.facebook.com/siamdiscovery/photos/a.157055834316375/3472779389410653

In summary, LCA mostly focuses on environmental aspects of sustainability (Hellweg & Milà i Canals, 2014). Although it provides a holistic understanding of an entire supply chain, the disaggregation of impacts can be difficult and subjective for decision makers to interpret the result altogether (Vargas-Gonzalez et al., 2019). This still raises further issues to be directly addressed such as resource depletion, animal welfare, and human health aspects which are highly associated with the sources and safety of cosmetic ingredients. As to enhance understanding and broaden the framework usage of the LCA within the cosmetics and personal care product context, a sustainability rating system for the beauty and personal care industry is explored in the next subsection to investigate if it could bring a greater alignment to the industry's sustainability

issues.

2.2.2 Sustainability Rating System for Cosmetics and Personal Care Products

The cosmetics and personal care industry has driven sustainability at the forefront to a greater extent when the "Beauty and Personal Care (BPC) Product Sustainability Rating System" was released in 2018. According to the US non-profit organization, The Sustainability Consortium, the BPC rating system has been co-developed specifically for the beauty sector to create a common assessment tool and a shared vision for product sustainability by multi-stakeholders: the Sustainability Consortium; non-profit organizations; and key industry players such as Burt's Bees, Colgate, CVS, Eastman Chemical, Environmental Defense Fund, Firmenich, Henkel, Johnson & Johnson, Method, Procter & Gamble, Sephora, Seventh Generation, Target, Unilever, Walgreens, and Walmart.

Table 2.1 summarizes key elements of KPI design whereas figure 2.21 shows corresponding guidance, for example, "Multi" means multiple responses can be selected at the same time, "OR" means mutually exclusive responses, and "IF" means that the response option requires a qualifying selection.

Table 2.1 BPC rating system's KPI table of contents summary

	KPI Title	Points
Packaging (60 points in total)	1. Design, policy, and goals	5
	2a. Sustainable sourcing (product level); or	15
	2b. Sustainable sourcing (product category level)	10
	3. Attribute communication	15
	4. Recyclability – Improving collection and recovery	5
	5. Recyclability – Sales packaging	15
	6. Stewardship list chemical management	5
Disclosure (105 points intotal)	1. Design, policy, and goals	25
	2. Fragrance allergens	25
	3. Stewardship listed chemicals – Unintentionally added	20
	4. Ingredient function	12
	5. Nanoparticles	11
	6. Animal testing	12
Human Health(130 points in total)	1. Worker health and safety	20
	2. Fragrance management	15
	3. Formulation – Stewardship list chemical management	15
	4. Formulation – Chemical selection	15
	5. Formulation – Stewardship list chemical usage	20
	6. Chemical footprint	15
	7. Risk assessment and product safety	15
	8. Ingredient disclosure to manufacturers	15
Supply Chain & the Environment (105 points in total)	1. Responsible sourcing	8
	2. Human rights – Supply chain	10
	3. Palm oil sourcing	10
	4. Greenhouse gas – Supply chain	9
	5. Greenhouse gas emissions – Manufacturing	9
	6. Greenhouse gas – Reduction goal	10
	7. Water use – Formulation raw material suppliers	7
	8. Water use – Manufacturing	8
	9. Water use – Reduction goal	7
	10. Water use – Scarcity mapping	7
	11. Use phase – Messaging and design	10
	12a. Biodegradability and environmental risk (product level); or	10
	12b. Biodegradability and environmental risk (product category level)	5

The system comprises 32 key performance indicators (KPIs) which are categorized into 4 clusters in (1) packaging; (2) disclosure; (3) human health; and (4) supply chain and the environment. Similar to LCA, although the BPC rating system is voluntary and optional, it is publicly available and can provide cosmetics and personal care brands with resulting assessments that can help them proactively create more sustainable products.

Figure 2.21 BPC rating system's KPI guidance

Source: Reprinted from the Beauty and Personal Care Product Sustainability Rating System (2019), retrieved from https://www.sustainabilityconsortium.org/tsc-downloads/beauty-and-personal-care-product-sustainability-rating-system/

This rating system can be used across product portfolios regardless of the sustainability levels the beauty retailers may currently have. The KPIs in this system consist of both qualitative and quantitative metrics. Each comes with point allocation, guidance, rules, and some calculation instructions. The topics under KPIs are also broad enough to track companies' performance throughout a product life cycle in a holistic manner. From a total of 400 points, high scoring will reflect a high sustainability level of a product. Sustainability indicators compress, simplify, and interpret the complexity of sustainability in various environmental and social fields into manageable and meaningful information (Wass et al., 2014).

The relative value of the BPC rating system therefore helps manage complex sustainability criteria and control managerial decisions in a practical real-world context. Although the KPIs are measured by internal judgment and not verified by external objectives which could be subjective, the product development concurs fully with subjective decisions. Hence, sustainability principles and standards will be helpful in better measuring the underlying values and performance of a company's product through a single system. The KPIs of the BPC rating system were developed and referenced against relevant ISO and industry standards which provide users with a common ground, reliability, accuracy, and credibility from an internationally recognized benchmark and criteria. A summary of referenced standards for each KPI cluster is shown in Table 2.2.

Table 2.2 Summary of referenced standards for BPC rating system

PACKAGING	
EN 13428:2004	Ensure minimum packaging weight and volume, packaging performance, methodology for identifying dangerous substances and heavy metals in packaging.
ISO 18602:2013	Provide optimized criteria for packaging function and system along with an assessment for hazardous substances and heavy metals.
ISO 14040:2006	Include LCA and LCI as well as conditions and limitations of packaging use.
ISO 14021:2016	Criteria for environmental, recyclable, recycled content, and recovered energy claims.
Global Protocol on Packaging Sustainability 2.0	Metrics and business frameworks on sustainable packaging.
How2Recycle Label	Guidance for consumers on how to recycle packaging.
US Federal Trade Commission Green Guides	Guidance on marketing claims to prevent greenwashing.
BizNGO Chemical Alternatives Assessment Protocol	Framework used to identify chemicals of concern and choose alternatives that reduce impacts on health and environment.
GreenScreen for Safer Chemicals	Identify chemicals of high concern and provide safer alternatives.
EPA – Safer Choice, AlternativesAssessments	Encourage industry to use safer alternatives and point out limitations to chemical substitution for use.
DISCLOSURE	
EPA Safer Choice Program	Review formulation of ingredients
Cradle to Cradle Certified Product Standard	Performance standard on product sustainability and material safety.
Grocery Manufacturer's Association – SmartLabel	Ingredient disclosure to consumers.
International Union of Pure and Applied Chemistry (IUPAC)	Unite global chemical community through collaboration to advance chemical sciences.
International Nomenclature of Cosmetic Ingredients (INCI):	Provide name list of ingredients that are used in cosmetics and personal care products.
Chemical Abstract Service (CAS)	Registration of chemicals for organization across industries.
Scientific Committee for Consumer Safety SCCS/1459/11	Provide scientific information for allergens that require disclosurewhen used in cosmetic products above specific concentrations.

PACKAGING	
EU Cosmetic Products Regulation(EC) No 1223/2009	Regulatory requirements for cosmetic products for sale in the EU.
National Toxicology Program (NTP) Alternative Methods Accepted by US Agencies	Accepted testing methodologies by US and EU regulation.
Japanese Center for the Validation of Alternative Methods(JaCVAM)	Promote non-animal testing to justify chemical safety in Japan.
The European Union ReferenceLaboratory for Alternatives to Animal Testing (EURL ECVAM)	Promote alternatives to non-animal testing.
Center for Alternatives to Animal Testing (CAAT)	
Centre for Documentation and Evaluation of Alternatives to Animal Experiments (AnimAlt-ZEBET)	
The Interagency Coordinating Committee on the Validation of Alternative Methods (ICCVAM)	Development of test methods that reduce and replace animal testing
HUMAN HEALTH	
International Labor Organization – C155 – Occupational Safety andHealth Convention, 1981 (No.155)	Comprehensive outline on mechanical health and safety risks andguidance on the safe use of and exposure to machinery.
Social Accountability International SA8000 Standard	Human rights standard for audits of workplaces across industries,based on UN Declaration on Human Rights and the Conventions ofthe International Labor Organization principles.
BizNGO Chemical AlternativesAssessment Protocol	Framework used to identify chemicals of concern and choose alternatives that reduce impacts on health and environment.
The Globally Harmonized Systemof Classification and Labeling of Chemicals (GHS)	Human and environmental health criteria and physical hazardcriteria for chemicals in the industry.
EPA – Safer Choice, Alternative Assessments	Review formulation of ingredients.

PACKAGING	
GreenScreen for Safer Chemicals	Alternatives to safer chemicals used.
The SCCS Notes of Guidance forthe Testing of Cosmetic Ingredients and Their Safety Evaluation – 9th Revision	Guidance to improve compliance with cosmetic EU legislation.
European Chemicals AgencyGuidance on Information Requirements and Chemical Safety Assessment (ECHA)	Requirements under REACH in chemical safety assessmentcontext.
Microbiological Safety andCosmetics	FDA guidance such as Good Manufacturing Practice for Cosmetics, Microbiological Methods for Cosmetics, and Product testing.
Cosmetics Europe The PersonalCare Association	Ingredient safety assessment, good manufacturing practices, marketing, labeling, and market surveillance.

SUPPLY CHAIN AND THE ENVIRONMENT	
Business Social ComplianceInitiative Countries' Risk Classification	Classify countries' risk of social injustice to help companies determine risk level of their sourcing and operations.
UN Global Compact Human Rights and Business DilemmasForum	Business recommendations for minimizing social sustainabilityrisks in the supply chain.
Social Accountability International SA8000 Standard	Human rights standard for audits of workplaces across industries, based on UN Declaration on Human Rights and the Conventions ofthe International Labor Organization principles.
International Labor Organization Declaration on Fundamental Principles and Rights at Work	Outline universal rights of all workers regardless of gender, citizenship, level of economic development.
Consumer Goods Forum Sustainable Palm Oil Sourcing Guidelines (CGF 2015)	Help companies design policies for palm oil sourcing and reduce deforestation goals.
Palm Oil Innovation Group Charter (2013)	Support innovation and improvements in palm oil plantation management.
Roundtable on	Seal of approval to ensure palm oil supply chain is traceable with

SUPPLY CHAIN AND THE ENVIRONMENT	
Sustainable PalmOil (RSPO) – Certification:	principles including transparency, regulatory compliance, financial viability, natural resource conservation, and improvement.
The Roundtable on SustainablePalm Oil – RSPO NEXT:	No deforestation, fire, planting on peat, reduction of GHG, human rights, transparency applicable to organization.
GreenPalm – CertifiedSustainable Palm Oil	Support RSPO growers and suppliers to claim RSPO certificates to offset their use of palm and palm kernel oil.
The Global Reporting Initiative	Global guidance on sustainable reporting standards.
Greenhouse Gas Protocol – Calculation Tools	Toolsets to calculate GHG inventories.
Greenhouse Gas (GHG) Protocol Corporate Standard	Guide for monitoring and accounting for GHG emissions.
CDP Climate Change Information Request	Assess company's carbon use, goals, and management.
GRI G4 Sustainability ReportingGuidelines	Standard set of metrics for companies to report on sustainability impacts, actions and outcomes.
Science Based Targets	Best practices for science-based GHG reduction target setting and assessment.
World Resources Institute, WRI Report – Target Intensity	Overview analysis of GHG targets and assessment of environmental effectiveness to achieve the goals.
CDP	Assist measuring and reporting of carbon emissions and water use.
CDP Water Information Request	Assess company's water use, goals, and management.
Water Footprint Network	Network of over 200 partners from various fields that provide tools, assessments, and information on water consumption accounting.
World Resources Institute – Aqueduct Measuring andMapping Water Risk	12 indicators to map where and how water risks and opportunities occur.
Global Water Tool	Maps of water use and assess corresponding risks.
European Chemicals Bureau – Technical Guidance Document onRisk Assessment	Assessment methodologies for notified new substances.
EPA Ecological Risk Assessment	Include planning, problem formulation, analysis, risk Characterization

SUPPLY CHAIN AND THE ENVIRONMENT	
OECD Guidelines for the Testing of Chemicals, Section 3 – Test No. 301	Steps to perform tests for ready biodegradability.
OECD Guidelines for the Testing of Chemicals, Section 3 – Test No. 302B	Steps to perform tests for inherent biodegradability.
Guidance on Information Requirements and Chemical Safety Assessment Chapter R.7b	Include REACH regulatory requirements with focus on substance properties, exposure, uses, and risk management measures.

Source: https://www.sustainabilityconsortium.org/tsc-downloads/beauty-and-personal-care-product-sustainability-rating- system/

Given high recognition on human health impacts, 130 out of 400 points, or 32.5% of a total score, is in the human health section which mostly associates with cosmetic ingredients and related safety. A compilation of below chemical lists is referenced in this cluster.

- CA EPA Prop 65 – Reproductive and Developmental Toxicants, Carcinogens
- EPA Toxics Release Inventory PBTs
- EU – Cosmetics Regulation Annex II
- EU – Priority Endocrine Disruptors (Categories 1, 2)
- EU REACH – Annex XVII CMRs (Appendices 1-6)
- IARC – Groups 1, 2A, 2B

These KPIs in the rating system align with relevant environmental and social aspects the industry is facing. The scorecard is a great tool for product sustainability improvement and identifying knowledge gaps as users will be able to

track their performance across all product portfolios.

Nonetheless, there are no specific guidelines or universal consensus on the baseline for the score in each cluster, for instance how much reduction of concerned chemicals used in cosmetics and personal care companies should aim for. There is no deduction system of points as well if a particular product does not meet certain criteria. Although the scale of companies and complexity of products may differ across the industry and countries, the definition of standards in terms of point ranges should facilitate users with a benchmark of sustainability level in regards to their performance.

In actual practices, sustainability indicators can help improve the sustainability assessment process (Garrett & Latawiec, 2015). Further conforming to Waas et al. (2014), the criteria of sustainability indicators can complement the characteristics of sustainability assessment which serve as an umbrella method for sustainability assessment and sustainability indicators by merging them, as illustrated in Figure 2.22.

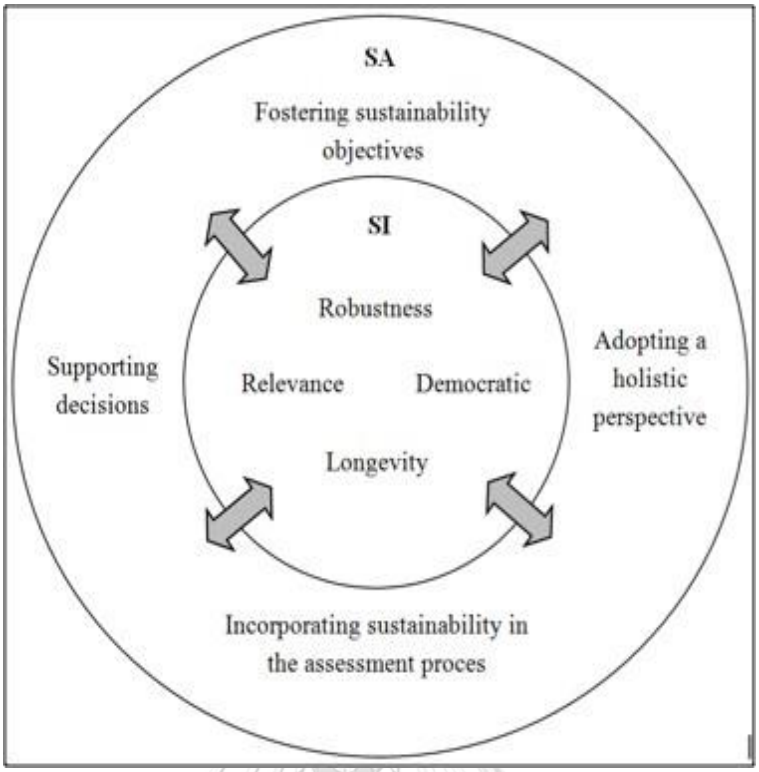

Figure 2.22 Merging of Sustainability Assessment (SA) and Sustainability Indicators (SI)
Source: Reprinted from Sustainability Assessment and Indicators: Tools in Decision-Marketing Strategy for Sustainable Development by Waas et al., 2014, Journal of Sustainability, 6(9), p. 5527

In accordance, the BPC rating system can surely be used as sustainability indicators on its own, but integrating its content into sustainability assessment in the LCA framework will cater an insight to understanding a fuller range of potential sustainability impacts. Both of them are crucial tools in supporting decision-making that will guide the cosmetics and personal care industry toward sustainability goals. Connecting their purposes with the holistic and inclusive interpretation of multi-disciplinary data will be valuable and influential for decision makers and stakeholders in support of the sustainable development of the industry. Nonetheless, it is important to recognize that the industry evolves and changes its context over time and therefore the effectiveness of

indicators in capturing certain information may change as well (Garrett & Latawiec, 2015). Selected indicators and the rating system shall be continually monitored, reviewed, and improved among stakeholders in due course.

Since the BPC rating system is intended for internal assessment, there is no evidence in an actual practice that is sufficient to further conduct a more thorough investigation in relation to how and why some companies are lacking behind or losing chances to become leaders in the green segment of the market. As earlier mentioned, there are no tools available in Thailand in indicating the level of greenness and sustainability performance especially for the green cosmetics and personal care product segment. Related green policies with which the cosmetics and personal care businesses can comply are later discussed in the policy section.

2.3 Green Consumers

As the production of green cosmetics is growing globally, the market is transitioning as green consumers seek natural additives and purchase more environmentally friendly products because of environmental concerns, chemical ingredient awareness, and demand for a healthier lifestyle (Amberg & Fogarassy, 2019; Ghazali et al., 2017). Green consumers want to satisfy their needs by making as little impact on the environment as possible, and green consumer behavior considers environmental or social issues toward purchase intention and decisions (Sharma & Joshi, 2017). In the cosmetic sector, consumers ensure that green products are safe, made out of natural or organic ingredients without harsh chemicals and animal testing, but at the same time do not compromise their skincare benefits; their wastes are non-toxic and hazard-free which will not harm or pollute the environment (Amberg & Fogarassy, 2019).

Many research studies have been conducted on understanding whether environmentally concerned consumers were more inclined toward eco-friendly products. It is beneficial for this research to examine whether certain determinants and influences vary for cosmetics and personal care product categories where their product attributes play an important role in consumer

purchase experience and decisions. The unique characteristics and dynamics of the industry compose of cultural history, beauty ideals, modernization of self, health, hygiene, and well-being enhancement, as well as innovation and technological advancement. This is why cosmetics and personal care products are not commonly comparable to other consumer products. They require tester or sample products for customers to try at the selling point, and in most cases require personal selling to elevate the shopping experience and means of marketing and communication to explain the product instructions and how these products deliver expected results. Product sensory such as skincare texture, fragrance smell, toothpaste taste, and makeup packaging also give a specific emotional product experience to each consumer. When environmental consciousness emerged, it is worth exploring how these product attributes and environmental attitudes together can influence green purchase behavior and drive green consumption.

2.3.1 Theory of Planned Behavior (TPB)

In green consumption research, it is found that most of the studies involved and widely used Fishbein's Theory of Reasoned Action (TRA) and Ajzen's Theory of Planned Behavior (TPB) proven their applicability and robustness (Hsu et al., 2016; Yadav & Pathak, 2016). Theoretically, TRA explains that human intention motivates and predicts human behavior (Ghazali et al., 2017).

On the other hand, TPB, as illustrated in Figure 2.23, was developed from TRA by including the perceived behavioral control (PBC) factor to suggest a relationship between attitude and behavior that are connected with norms, intentions, and behaviors (Amberg & Fogarassy, 2019; Sparks & Shepherd, 1992).

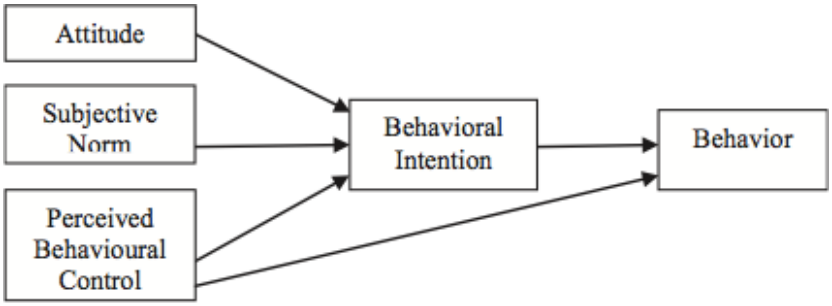

Figure 2.23 Theory of Planned Behavior (TPB)
Source: Reprinted from Young consumers' intention towards buying green products in developing nation: Extending the theory of planned behavior by Yadav and Pathak, 2016, Journal of Cleaner Production, 135, p. 733

According to Sparks and Shepherd (1992), behavior results from behavioral intention, which postulates from people's attitude, or belief in behavioral outcomes combined with an evaluation of the outcomes, and subjective norms which combine perceptions on what should or should not be performed and motivation to satisfy other people's wishes. In short, human behavior is predicted by using attitude, subjective norms, and perceived behavioral control (Lu & Chen, 2017). Intention lies at the heart of the TPB framework as the best available predictor of human behavior (Kaur, 2014; Liobikienė et al., 2016; Maichum et al., 2016).

Many researcher scholars utilized the theory in green consumption research and extended the TPB theory with other variables to better construct the research models that facilitate the interpretation of their research problems correspondingly. As Paul et al. (2016) suggests, TPB improves the theory's predictability for green products. In fact, Zhang et al. (2019) used TPB to analyze purchase intentions for different kinds of green products by including cognitive factors such as environmental concern on purchase intention to probe for utilitarian and hedonic green products. Similarly, Yadav and Pathak (2016) extended the TPB model to include environmental concern and environmental knowledge to improve the model's robustness in order to find young consumers'

intention to purchase green products. Liobikienė et al. (2016) replaced attitude toward the behavior with knowledge (environmental and green product knowledge) and confidence (level of trust and reliability) in green products in the TPB model instead, and found that these 2 factors determined the green purchase behavior significantly. In addition, Liobikiene's research also suggests applying TPB to different categories of green products such as beauty and personal care products to find out the determinants as they may be determined by distinct factors.

Specifically in the context of cosmetics and personal care products, although rather limited, there were quite a number of studies in regards to TPB as well. Ghazali et al. (2017) utilized TPB to examine Malaysian consumer perception and behavior in re-purchasing of organic personal care products and confirmed that attitude was a strong predictor, but mentioned other variables could have been further integrated into the model to examine customer satisfaction and loyalty. Kaur (2014) used TPB to predict the purchasing behavior of Malaysian Halal Cosmetics and concluded that it was an effective model but future studies should include important independent factors such as brand name, quality, promotions, and price too. Lu and Chen (2017) adopted TPB to find out what factors influence cosmetic consumption by adding brand image, involvement, consumer knowledge, and openness to experience (imagination, sensibility for art, intellectual capability) to the model where the 2 latter factors have a positive influence on purchasing intention. Moreover, Amberg and Fogarassy (2019) used TPB to find out green consumer behavior in the cosmetics market as opposed to organic foods, and found that product preferences depended on various personal and social, and not psychological, factors which determined the final decisions of consumers such as knowledge or educational level and age groups.

Because consumers do not buy the products based purely on attitudes of likes or dislikes, deeper values are differentiating factors that influence consumer choices (Yeo et al., 2016; Zhang & Dong, 2020). The research limitations show that psychological factors alone cannot answer what determinants motivate consumers to buy a particular cosmetic product or brand. TPB's assumption is

based on rationale and rather focused on psychological behavior, which often overlooks the effect of irrational factors, past purchases, and purchase habits (Zhang & Dong, 2020). Cosmetics and personal care products are not purely functional and are highly associated with emotional experiences and physical appearances. Value-based principles shall be explored in this research study, as beauty products are known for their perceived functional, symbolic, and experiential values (Ghazali et al., 2017).

2.3.2 Perceived Value Theory

Perceived value is the overall assessment of consumers regarding the utility of a product or service according to the perceptions of a cost-benefit comparison of what is received and what is given, where the benefits and components include intrinsic and extrinsic attributes of the product or service (Aksoy & Basaran, 2017; Singh et al., 2021; Sweeney & Soutar, 2001). Perceived value is discussed in several research studies in various fields, as values are considered the basis of choice selection that drives consumer purchase behavior, which can be explained by the Theory of Consumption Value (Candan et al., 2013; Qasim et al., 2019).

Theory of Consumption Value (TCV) has been widely used and verified in green purchasing behavior studies, comprising aspects of economics, sociology, psychology, marketing, and consumer behavior that determines how different values of consumers affect their purchase motivation (Yeo et al., 2016). The theory, as shown in Figure 2.24, explains why consumers buy a product or not, why they prefer one over another, or why they prefer a specific brand by using 5 elements of values, namely functional, social, emotional, conditional, and epistemic to find out such behavior (Candan et al., 2013).

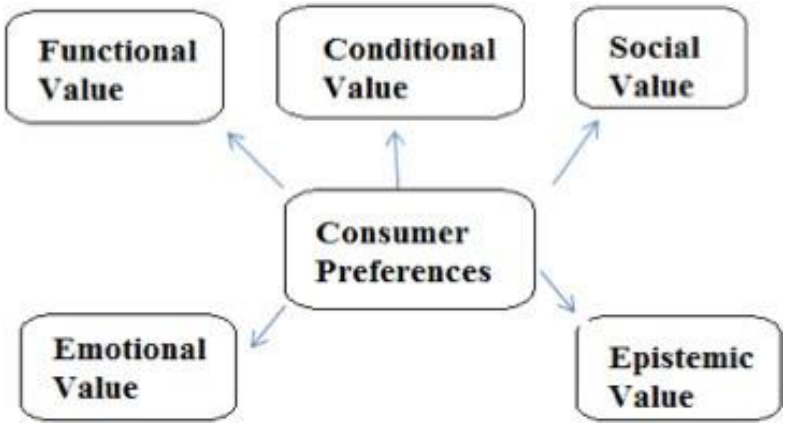

Figure 2.24 Theory of Consumption Values (TCV)
Source: Reprinted from Analyzing the relationship between consumption values and brand loyalty of young people: a study on personal care products by Candan et al., 2013, European Journal of Research on Education, Special Issue: Human Resource Management, p. 31

According to Sheth et al. (1991), the **functional value** of a product refers to the benefit obtained from the pragmatic, physical performance, reliability, and price of a product; **emotional value** refers to the benefits obtained from feelings, affection, and emotional reactions against a product component such as situations, products, brands, and advertisements; **social value** is the perceived benefits derived from an association with social groups where social values are acquired from social classes, reference groups, symbolic values, and conspicuous consumption, which persuade consumption preferences; **conditional value** is the benefits arises from external sources of a specific situation that changes consumer behavior and purchase preferences from a condition influenced by external environments; and **epistemic value** refers to the benefits in terms of desire for knowledge and novelty, which arouses the curiosity that is perceived or obtained from the product.

Mohd Suki and Mohd Suki (2015) used the original TCV to study the effect of consumption values on the environmental concern of green products and concluded that the framework allowed them to understand specific consumption values that affect consumer behavior. Consumption values show explicit and

implicit motives that are helpful in consumer research to find out consumer purchase decisions (Candan et al., 2013). Lin and Huang (2012) also applied TCV to explore influence factors toward green consumption of green products and suggested that the government could subsidize and create supporting policies to enhance the value of green products.

On the other hand, due to TCV is limitedly applicable to consumption choice decisions, Yeo et al. (2016) extended the theory to include a cognitive factor of brand value to explore the relationship between consumption values and customer satisfaction at the post-purchase stage to study Malaysian customers' purchase motivation of Halal cosmetics products. Similarly, Candan et al. (2013) added brand loyalty to the research model assuming there was a relationship between consumption values and brand loyalty in the study of personal care products toward young people, though the research was not focusing on repetitive or re-purchasing intentions. Although perceived value can be measured and evaluated in several variables through these multidimensional perspectives (Akkaya, 2021; Aksoy & Basaran, 2017), it is a dynamic construct and can vary across different consumer groups (Sánchez-García et al., 2006; Singh et al., 2021).

Furthermore, Sweeney and Soutar (2001) also argued that different value dimensions also depend on the type of products or services and further developed PERVAL or a perceived value scale that could be easily applied in various purchase situations based on four dimensions: functional value in quality and price, emotional value, and social value. Because both conditional value and epistemic value refer to the value perceptions of a specific situation, they are considered different types of values and are less critical to a general value measure. Hence, they were not included in the scale. The scale is thought to be reliable and well-accepted (Singh et al., 2021), as it demonstrates how consumers evaluate products in functional terms of quality and value for money as well as emotional pleasure and enjoyment derived from the product, to how the product communicates to others as the social consequences (Sweeney & Soutar, 2001). Accordingly, the perceived functional, emotional, and social values play an important role in the consumer purchase process and behavior as

consumers may look for quick clues on how their personal values are relevant to purchase decisions, but not focus sufficiently on the full set of personal values (Dietz et al., 2005).

In conforming to this PERVAL scale and the perceived value theory with an exploratory research standpoint, the investigation of consumer values is based on general rather than specific situations derived from the moderating effect of situational factors. As a result, the research mainly focuses on the general value measure in terms of perceived functional value, emotional value, and social value, and omitted other specific types of values.

2.3.3 Environmental Concern

It is undeniable that when it comes to green consumption and the green product segment, an association with environmental valuation and environmental-related behavior is highly concerned and crucial. Existing literature on both TPB and TCV showed that environmental concern, value, and knowledge were often used as extended factors in green consumer behavior studies. The discussion in TCV suggested that values influence how consumers think and behave toward making choices. With higher concern toward the environment, it is believed to result in a higher intention toward environmental protection, thus leading to a positive intention to purchase green products (Zhang et al., 2019).

In addition, another theory of environmental concern, the Values-Beliefs-Norms (VBN) pinpoints an indirect link between values and decisions regarding the environment, where values, or changes in values, may have the most relative influence on environmental decisions (Dietz et al., 2005).

Several research studies included this environmental concern factor to find out a positive correlation with attitude, intention, and behavior, and the results of which have different effects on different kinds of green products (Lin & Huang, 2012; Paul et al., 2016; Zhang et al., 2019). As a result, environmental concern is therefore an important factor worth clarifying dependently. Table 2.3 summarizes past research studies using environmental concern as an extended

factor to the original consumer behavior theories.

Table 2.3 Summary of studies using environmental concern as an extended factor

Author	Research Title	Extended Factor	Related Suggestions
THEORY OF PLANNED BEHAVIOR (TPB)			
Ghazali et al. (2017)	Health and cosmetics: Investigating consumers' values forbuying organic personal care products	• Health value • Safety value • Social value • Hedonic value • Environmental value • Product knowledge Intention to re-purchase	• Examine perceived product value now and then to build customer loyalty and acquirenew health-conscious customers. • More factors can be added forfuture research such as customer satisfaction, loyalty, price, availability, skepticism associated with organic product claims.
Paul et al. (2016)	Predicting green product consumption using theory of planned behavior and reasoned action	• Environmental concern	• Relationship between PBC and purchase intention may not exist in Indian context.
Zhang et al. (2019)	Extending the Theory of Planned Behavior toExplain the Effects of Cognitive Factors across Different Kinds of Products	• Environmental concern	• Comparison between differentconsumer groups or different regions may be developed. • Belief and value can be included in further research.

Author	Research Title	Extended Factor	Related Suggestions
Yadav and Pathak (2016)	Young consumers' intention towards buying green productsin a developing nation: Extending the theory of planned behavior	• Environmental concern • Environmental knowledge	• Extended factors improvedthe robustness of the framework.
THEORY OF CONSUMPTION VALUES (TCV)			
Mohd Suki and Mohd Suki (2015)	Consumption values and consumer environmental concernregarding green products	• Environmental concern	• Quantitative approach providesthorough understanding of specific consumption values that affect environmental concern regarding green product.
Qasim et al. (2019)	The Defining Role of Environmental Self- Identity among Consumption Valuesand Behavioral Intention to ConsumeOrganic Food	• Environmental self-identity	• Functional value (price) andsocial value are not significant in the study of Pakistan consumers. • Environmental value and product knowledge factors can be added for future study.
Lin and Huang (2012)	The influence factors on choice behavior regarding green products based on the theory of consumption values	• Environmental concern	• Consumption values are independent of each other

2.4 The Role of Policies and Regulations in the Cosmetics Industry

With greater supply and demand for greener beauty products, the role of governmental actions in policy and planning can strengthen cosmetics regulations and push the industry forward to become more sustainable. As the literature evidence suggests various environmental and social issues resulting from the production and the use of cosmetics and personal care products such as potential human- and eco-toxicity toward the environment, animal welfare and product safety, the role of government and legislation is at the forefront in encouraging the change and development for a more sustainable practice of the whole cosmetics and personal care industry. Examples of legal frameworks and regulations that reflect this change in developed countries are the EU legislation for use of organic terms and claims, the EU ban on animal testing, biodiversity legislation by the Brazilian government to protect its genetic assets, and reinforcement of sustainability reporting in European countries such as France, Denmark, Sweden, Brazil as well as the UK and South Africa (Sahota, 2014).

However, cosmetic products are regulated under different laws and different criteria which are not being harmonized across countries, resulting in policy gaps within the developed and developing country contexts. The next subsection discusses cosmetic legislation and regulations of the dominant global market players like the US and the EU in comparison to Thailand to explore territorial differences in the regulation standards of the cosmetics and personal care products.

2.4.1 Cosmetics Legislation and Regulation

In the United States, cosmetic products comply with the requirements of chemical and cosmetics legislation. According to U.S. FDA (2020a), cosmetic products are regulated by the Food and Drugs Administration with law enforcement through the Federal Food Drugs and Cosmetic Act (FD&C Act); Fair Packaging and Labeling Act; and Microbead-Free Waters Act of 2015. Cosmetic products and ingredients apart from color additives are not required to have FDA approval, but must be in compliance with applicable laws and

regulations in an interstate commercial market. Other related regulations include Labeling Regulations. In addition to FDA, California state has its own rules that cosmetic businesses must comply with such as the California Cruelty-Free Cosmetics Act. For the personal care product category, some products are considered cosmetic products such as shampoo, hair coloring products, toothpaste, fingernail polish, deodorant, and perfume. Some products are referred to as both cosmetics and drugs, for instance, hair shampoo is a cosmetic product whereas an anti-dandruff shampoo is both a cosmetic product and a drug regarding its cleansing usage together with treatment of dandruff. These product types must comply with both cosmetics and drug requirements. Products considered as drugs must also be pre-market approved by the FDA to be recognized as being safe and effective.

According to European Commission (n.d.), The EU Cosmetic Regulation (EC) No. 1223/2009 concerns the finished cosmetic products that are placed within the European Union market in its safety of raw materials and ingredients while taking into account the latest technological advancements including nanomaterials, ban of animal testing, the introduction of responsible person and reporting of serious undesirable effects (SUE) to national authorities, centralized notification of all cosmetic products in the EU via the EU cosmetic products notification portal (CPNP). Accountability system for the cosmetics products in the EU market requires to have a responsible person to contact whose duty is to perform product safety assessment, prepare Product Information Files (PIF), submit product notifications, and report serious undesirable effects. Cosmetic products are classified broadly in the EU, as products intended to be applied to the external parts of the human body including skin moisturizers, sun care products, makeup products, hair care products, shaving products, deodorants, and perfumes.Other related EU legislation includes restrictions on the marketing and use of dangerous substances, ozone-depleting substances in aerosol products (such as hairspray), pressure and gas relating to dispensers of aerosol products, permission for pre-packaged products, and management of packaging and packaging waste.

The cosmetic standards in Thailand are subjected to the Cosmetic Control

Division of the Food and Drug Administration (FDA) under the Ministry of Public Health, and regulated under Cosmetic Act B.E. 2558 (Year 2015) (FDA Thailand, 2016). The focal roles under the Cosmetic Act are pre- and post-marketing control as well as the effort to utilize the practice of good manufacturing guidelines. Unlike the US and EU, the very same classified as cosmetic products by law in Thailand are often considered as personal care products, for example, skin moisturizer, facial makeup preparations, lipsticks, fingernail polishes, shampoos, hair colors, toothpaste, deodorants, and perfumes. According to Thai FDA law, cosmetics are classified based on their ingredient contents, into controlled cosmetics and specially controlled cosmetics. Controlled cosmetics are products containing ingredients that are potentially harmful if the used concentrations exceed the allowed levels which require product notification before getting the permission to be put on the market, and specially controlled cosmetics are those with ingredients that are seriously harmful to human health if used concentrations exceed the allowed levels which require FDA registration. Table 2.4 shows a summarized comparison of cosmetic legislation, regulations, and other requirements between the US, EU, and Thailand.

Table 2.4 Cosmetic Legislation Comparisons between US, EU, and Thailand

CONTENT	US	EU	THAILAND
Cosmetic Legislation	Federal Food Drugs and Cosmetic Act (FD&C Act) Fair Packaging and Labeling Act (FPLA) Microbead-Free Waters Act of 2015	Regulation (EC) No. 1223/2009	Cosmetic Act B.E. 2558 (2015)
Related Regulations	Labeling regulations Toxics in Packaging Clearing House (TPCH) California Proposition 65 or the Safe Drinking Water and Toxic Enforcement Act of 1986 (list of chemicals in cosmetics that could cause cancer, birth defects, reproductive harm) California Air Resources Board (CARB) (volatile organic compounds limits in hairspray & fragrance). California Organic Products Act (COPA) California Cruelty-Free Cosmetics Act	Regulation (EC) No. 1907/2006 (REACH) (chemicals restriction to protect human health and environment). The Classification, Labeling and Packaging (CLP) Regulation (CE) 1272/2008 The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), as part of EU law Regulation No. 338/97 (Biodiversity & species protection) Access and Benefit-Sharing (ABS) (ethical sourcing	Labeling regulations
Assurance of safety required for intendeduse of a product	Yes. Manufacturer or distributor is responsible for the proof of product safety.	Yes. Manufacturer or distributor is responsible for the proof of product safety. The safety assessor reportis part of the manufacturer's technical dossier.	Yes. Manufacturer or distributor is responsible for the proof of product safety.
Good Manufacturing Practices (GMP) implementation	Encouraged, but not mandatory.	Mandatory. Legal requirement under European Regulation EC No. 1223/2009 in line with ISO 22716:2007	Encouraged, but not mandatory.

CONTENT	US	EU	THAILAND
Pre-market product approval	No. Except for color additives.	No. Except for color additivesand sunscreen active ingredients.	Yes. All cosmetics must have Thai regulated label within 30 days prior to pre-market.
Safety/technical information availableto regulatory authorities	Yes. Under FDA's Voluntary Cosmetic Reporting Program (VCRP)	Yes. Submission through the Cosmetic Products Notification Portal (CPNP)	Yes. Notify to the authority prior to producing or importing with notifying form (จ.ค.).
Regulations Enforcement	Yes. Inspection anytime by FDA without prior notice.	Yes. Responsibility under EU Commission.	Yes. Post-market surveillance by Thai FDA.
Ingredient safety reviews	Yes. By the Cosmetic Ingredient Review ExpertPanel (CIR).	Yes. By the EU scientific Committee on Consumer Safety (SCCS).	Yes. By Cosmetic Control Group under Thai FDA
Ban of ingredients from use in cosmetics and personal care products	Yes. 9 cosmetic ingredients prohibited by FDA. 11 additional cosmetic ingredients marked as notsafe by CIR 174 fragrance ingredientsbanned or restricted in fragrance products by IFRA (The International Fragrance Association)	Yes. 1,378 substances banned by the European Cosmetics Directive Annex II. A few were found safe for use by the US experts. There are minor differences between US and EU subjected to legitimate expert disagreements.	Yes. 1,387 substances are prohibited in cosmetic products by Ministry of Public Health.
Requirements to listingredients on the product label	Yes. "Flavor" and "fragrance"need only be listed as is on the label.	Yes. "Flavor" and "fragrance" need only be listed as is on the label, except for 26specific perfume ingredients must be included.	Yes. All ingredients are required to be stated on the label. The label must be in Thai language covering all aspects of requirements.
Regulate sunscreens	Yes. Considered as drugs and regulated as over-the-counter (OTC) drugs.	Yes. Considered as cosmetics inthe EU. UV filters are required in pre-market approval.	Yes. Considered as cosmetics in Thailand. SPF 50 and waterproof claims are required for inspection &approval.

Source: FDA (n.d.); European Commission (n.d.); CBD (n.d.); Personal Care Products Council (2020); Thai FDA (n.d.)

Classification of cosmetic products can be uniquely tricky, especially in the US when it comes to cosmetic products that can also be classified as drugs. Different regulations in different countries may refer to a particular product differently, which can be troublesome when it comes to international trade and commercialization. Product labeling, prohibited ingredients and substances are somewhat inline in terms of standards. However, certain substances used in the cosmetic products in the EU market must also be registered under REACH.

In general, EU cosmetic regulations can be perceived as the strictest and highest of standards to follow. While the EU cosmetic regulations also contribute to animal protection with the ban of animal testing, US FDA and Thai FDA do not specifically address this issue and still allow animal testing for product safety purposes. There is also no regulation relating to nanomaterials in the US and Thailand. Moreover, the magnitude of product inspection processes and post-market surveillance can be different and subjective in each territory which may not bring consistent outcomes.

Nonetheless, the main goal of all cosmetics laws and regulations is to ensure and strengthen the safety for consumers. Following a stricter guideline from the EU regulations as an exemplar, the governmental role to support the safety of cosmetics and personal care products with further broadening scope to include and ensure sustainability goals would sufficiently bring positive impact and sustainable development of the industry.

2.4.2 Eco-labels and Certification for Cosmetics and Personal Care Products

In addition to the importance of human health, safety and environmental concerns, green cosmetic products are becoming more influential in the global consumer market. The increasing popularity of eco-labeling and certification is a critical step to be explored as they can deliver sustainability-related information that corresponds to a shift toward sustainability impact awareness. Guidelines of eco-label standards comprise product requirements that are beneficial in protecting consumers from false comprehension to a certain extent. Widely

recognized standards for natural and organic cosmetics are originating in Europe and United States, as shown in Table 2.5. These classifications mostly differ in percentage of natural and organic ingredients including their sources and manufacturing processes. Ecocert is the most widely adopted standard globally because it is more achievable in comparison with stricter organic standards like USDA and Soil Association whose backgrounds rely on organic food regulations, which can be more restrictive to cosmetic products (Beerling & Sahota, 2013; Bom et al., 2019).

Other standards from other regions are also applicable to natural and organic cosmetics certification but the adoption and awareness are still low and rather limited within its national presence such as Instituto Biodinamico (IBD) in Latin America, Canada Organic Regime (COR) in Canada, BioSuisse in Switzerland, and Australian Certified Organic (ACO) in Australia, Japanese Agricultural Standard (JAS) in Japan, Korean Organic Certification (KOC) in Korea, including Organic Agriculture Certification Thailand (ACT) in Thailand.

Although these certifications follow similar criteria or even attained accreditation from the European standards, they are non-transferable and cannot be traded as natural or organic products according to the EU regulations. In this case, they are simply classified as general products because the national certification standard is invalid elsewhere. Each certification system is market-specific and therefore must be separately applied for. According to Future Market Insights (2020), the report showed that there was a growing number of Asian cosmetics companies especially in Japan, South Korea, and China are adopting Ecocert and USDA organic standards possibly because of their export markets. Accordingly, the adoption of European standards will remain popular for natural and organic cosmetics and personal care products in Asia (Beerling & Sahota, 2013).

Table 2.5 Certification standards for natural and organic cosmetic products.

Certification	Key criteria
Natrue (Belgium)	**I Natural cosmetics** – No organic content required. Minimum levels of natural and maximumlevels of derived natural content are specified by product type. **II Natural cosmetics with organic portion** – The product must contain at least 15% of chemically unmodified natural substances and maximum 15% of derived natural substances. Minimum 70% of natural substances of plant and animal origin must come from controlled organic farming and/or from controlled wild collection. **III Organic cosmetics** – The product must contain minimum 20% chemically unmodified natural and maximum 15% derived natural substances. Minimum 95% of the natural substances of plant and animal origin must come from organic sources.
BDIH (Germany)	- Raw materials should be natural and obtained from plants, preferably organically cultivated or from controlled wild collection. Minerals are also generally allowed. Irradiation and genetic modification are prohibited. - Only certain 'mild' chemical processes are allowed using prescribed types of natural feedstock. - Some synthetic preservatives are permitted but must be quoted on the label.
Ecocert (France)	**I Natural Cosmetics** – Minimum 50% of plant or naturally derived ingredients withminimum 5% from total are certified organic ingredients. **II Natural and Organic Cosmetics** – Minimum 95% of plant or naturally derived ingredientswith minimum 10% from total are certified organic ingredients.
CosmeBio (France)	**I BIO label** – same requirements as Ecocert organic cosmetics. **II ECO label** – same requirements as Ecocert natural cosmetics.
ICEA (Italy)	- Formulations made up of approved naturally-sourced ingredients and certifiedenvironmental sustainability standards. - Surfactants, functional principles and plant extracts are from certified organic farmingstandards. - Mandatory product and side-effect tests on finished product.

Certification	Key criteria
Soil Association  (UK)	- Organic labeled product must contain at least 95% organic ingredients by weight and onlynon-organic ingredients allowed are processing aids and water. - If water is added, 100% organic status cannot be obtained (water considered as neutral) - Products containing 70-95% organic ingredients can be labeled as 'product containing X% organic ingredients'
COSMOS (European) 	**I Organic Cosmetics** – Minimum 95% of physically processed agro-ingredients must beorganic with at least 20% of total product must be organic (10% for rinse-off products). **II Natural Cosmetics** – No requirement for minimum level of organic ingredients but mustfollow calculation rules for natural origin percentage.
USDA  (USA)	***I* 100% Organic** – Containing all organically produced ingredients. ***II* Organic** – Containing at least 95% of organically produced ingredients where remainingingredients must consist of approved substances on the National List. ***III* Made with organic ingredients** – Containing at least 70% organic ingredients.

Source: Adapted from "A step forward on sustainability in the cosmetics industry: A review" by Bom et al., 2019, Journal of Cleaner Production, 255, p. 279

Moreover, other related eco-labels also use elements from a life cycle approach for the assessment and development of their product or service standards to reduce sustainability impacts. When it comes to ethical issues, cosmetic companies are often targeted because of animal testing, unethical sourcing, chemical use and toxicity of ingredients which can pollute the environment, generate large carbon footprint, disrupt the ecosystems, and put risks on human health conditions (Beerling & Sahota, 2013). Some of the eco-labels that are gaining popularity among cosmetic companies are cruelty-free, vegan,fair trade, and carbon footprint, as illustrated in Table 2.6.

Table 2.6 Eco-labels applicable to the cosmetics and personal care industry

Other Eco-Labels	Description
Cruelty-Free	• Consumer Information on Cosmetics (CCIC) – Company and ingredient suppliers do not conduct animal testing of products. • People for the Ethical Treatment of Animals (PETA) – Company and ingredient suppliers do not conduct any tests on animals for ingredients, formulations or finished products. • Choose Cruelty Free (CCF) – None of its products and ingredients have ever been tested on animals by it, by anyone on its behalf, by its suppliersor anyone on their behalf and must contain any ingredients derived from killing an animal or provided as a by-product from killed animals.
Vegan	• Vegan Society – Products do not contain any animal product, by-product, derivative and any testing on animals by manufacturers or on its behalf orany third parties. • Vegan Action – Not containing or using animal ingredients or by-productsin manufacturing and not tested on animals.
Fair Trade	• Fair Trade International (FTI) – Fair cost paid to small farmers, fair trade premium goes toward social, environmental, economic development of the local community. • Fair Trade Commission (FTC) – Certified goods work in safe conditions, protect environment, build sustainable livelihoods, empower and uplift their communities. • Fair for Life (FFL) – Respect human rights and fair working conditions, ecosystem by sustainable agriculture practices and biodiversity promotion, betterment of impact on local beneficiaries and partners.
Carbon Footprint	• Carbon Free – Uses LCA to determine GHG. Emissions that cannot be eliminated are offset or neutralized with third-party renewable energy, energy efficiency, and forestry carbon offset projects. • Carbon Neutral – Uses LCA, green supply chain analysis, renewable energy feasibility, carbon footprint audit, recycled content and offsettingby retiring carbon credits through energy efficiencies. • Carbon Reduction – Commit to reduce the footprint over 2 years, calculated and measured based on PAS2050 standard and footprint expert,including production, use and disposal assessment.

Most of the related eco-labels in the cosmetics and personal care industry are issued by a third party or Type I. According to International Organization for Standardization (2019), the ISO 14020 series of standards for environmental labels and declarations are classified into:

- **Type I** environmental labeling ISO 14024, for eco-labeling schemes where product criteria set by a third party are clearly defined, which a logo or a mark is awarded to the products upon completing a set of criteria.
- **Type II** self-declared environmental claims ISO 14021 by manufacturers or retailers, for products and services where there are no criteria or labeling schemes in order to avoid confusion, unfair competition, and barriers to trade.
- **Type III** environmental declarations ISO 14025, for specific aspects of products based on a life cycle assessment approach, which shows quantified environmental profile to compare between similar products and generally used between businesses.

The recognizability and visibility of the logo can bring adequate attention, awareness, and trust to consumers, which may also guide and impact consumer purchase intention. In business terms, eco-labels are one way to measure a company's performance as well as its green credentials via marketing and communication, and governments can crucially encourage these tools for behavioral change of producers and consumers towards achieving long-term sustainability goals (UNEP, n.d.).

2.4.3 Eco-labeling Scheme in Thailand

According to the Department of Environmental Quality Promotion (DEQP), the Ministry of Natural Resources and Environment (MNRE), there are various environmental labels regarding sustainable consumption and production applicable to different types of businesses in Thailand such as Green Production,

Thai Green Label, Thai Green Hotel, Organic Thailand Label, Energy Saving Label No.5, SCG Eco Value Label, Cool Mode Label, Carbon Reduction Label, and Carbon Neutral Label, as summarized in Table 2.7.

However, there is only one national Type I eco-label which is the Thai Green Label, initiated by the Thailand Business Council for Sustainable Development (TBCSD) in association with the Ministry of Industry. Thai Green Label is an environmental certification standard awarded to specific product groups that have minimum impact on the environment, which is partially applicable to some personal care product categories such as shampoo, hair conditioner, and soap. The evaluation process is based on a life-cycle consideration; from resource use concerning water use, energy use, and raw materials use; hazardous substances that may affect biodiversity and safety of human health; emission release of pollutants to air, water, and soil; waste toward post-consumption; and other possible environmental impacts.

The main challenges of Thai eco-labeling schemes are the lack of awareness, promotional efforts, and multidisciplinary perspectives toward sustainability. Policies to support incentives to produce eco-labeled products will be crucial in increasing awareness as well as attracting more opportunities and collaboration from the production side. Most importantly, the scheme does not specifically include cosmetics and personal care products, which rather weakens the potential of the industry. The role of the government will be significant in bringing the eco-labeling schemes to a successful implementation.

Table 2.7 Thai eco-labels

Eco-Label	Administrative Authority	Product Groups
Thai Green Label (Type I) 	Thailand Environment Institute (TEI)	• Electrical product • Information technologies • Textile • Office & building materials • Chemicals • Services • Vehicles • Others
SCG Eco Value (Type II) 	Siam Cement Group	• Chemicals • Paper • Cement • Building materials • Others
Thailand Energy Efficiency Label (Label No. 5) (Other) 	Electricity Generating Authority ofThailand (EGAT)	• Electrical products • Brown rice
Green Leaf Label (Other) 	Green Leaf Foundation	• Hotels
Carbon Footprint Label (Type II) 	Thailand Greenhouse Gas ManagementOrganization (TGO)	• Textile • Food • Services • Business publication • Packaging • Electrical products • Building materials • Agricultural products • Others
Carbon Reduction Label (Type II) 	Thailand Greenhouse Gas ManagementOrganization (TGO)	• Undefined

Source: Adapted from Report on Ecolabelling and Sustainable Public Procurement in the ASEAN+3 Region: Development of a Feasible Study for

Regional Ecolabelling Cooperation by The Asia Pacific Roundtable on Sustainable Consumption and Production (APRSCP), 2014, p. 97.

2.4.4 Potential Supporting Policies

It is no doubt the role of government and policy support are significant in driving the industrial development forward toward going green, especially with attractive incentives to motivate and support more local businesses to participate in the scheme. Currently, incentives offered to green producers are rather limited and are not directly linked to the cosmetics and personal care industry in Thailand. As a starting point, an opportunity to fill the sustainability efforts may be achieved through sharing of the common approaches, sustainable business practices, and success stories among all other industries.

Thailand Ministry of Industry's **Green Industry** project launched in 2010 was designed to provide guidance for green factories for businesses across the country, comprising a "continuous improvement" concept and corporate social responsibility to improve the supply chain of an organization. There are 5 levels in the program: Green Commitment (corporate environmental policy formulation), Green Activity (implementation and performance measurement), Green System (ISO 14001 certification), Green Culture (ISO 26000 certification), and Green Network (stringent implementation of the environmental management system and become a business mentor) (Green Industry, n.d.). Although not directly applicable to the cosmetic sector, the Green Industry project provides free-of-charge consultation to help guide and support local businesses to start embedding sustainability values into their supply chains.

In addition, Thailand's Ministry of Natural Resources and Environment (MNRE) initiated **Green Public Procurement** (GPP) program to support sustainable consumption and production practices in Thailand. The current criteria of GPP are also aligned with Thailand Green Label, Green Leaf, and Green Hotel certification (Pollution Control Department, 2020). GPP can contribute to the development of green products while directly supporting life cycle related factors such as environmental conservation, energy efficiency,

greenhouse gas reduction, as well as waste and hazardous material reduction. GPP may not be applicable to the consumer product category, but for hotel and spa businesses, the assessment of their green product procurement may somewhat contribute to promoting green personal care product categories, such as soap, shampoo, and body lotion, to achieve stronger impacts.

Both Green Industry and GPP can be challenging due to a lack of awareness and technical knowledge to carry out green credentials, inconsistent internal management, staff training, and capacity building constraints, inadequate monitoring and evaluation systems, limited options available for purchasing environmental-friendly products, and most importantly insufficient promotion and communication among consumers. These programs should encourage small and medium businesses to be aware and take part in this to ensure inclusivity and stronger directives for green solutions.

Nonetheless, for the market to work for both the businesses and consumers, information about the products and services must be accessible, obtainable, unbiased, and accurate in order to prevent consumers from being misled by the businesses. Green marketing claims should be clear and not be ambiguous or misleading to consumers as they can negatively impact the whole market of green purchasing (Chen & Chang, 2013).

All in all, strong central government efforts, policies, or legislation will add as a means to lessen the impact on both social and environmental dimensions. Supporting strategies and monitoring will further help encourage and emphasize the importance of sustainable development for the cosmetics and personal care businesses and corresponding sustainable consumption for potential green consumers in Thailand.

2.5 Theoretical Framework Constructs and Hypotheses

As prior discussed, each theoretical model corresponds to its effectiveness in relevant green consumption studies. The influence of value in purchase behavior is evident in the **Perceived Value** Theory, whereas the role of **Environmental Concern** contributes to the prediction of behavioral intentions in purchasing green products.

Because additional variables can be added as an extension to the original framework incorporating underlying green consumer behavior assumptions which allow examination of the research problems in more depth and improve the model's robustness, this research framework is therefore grounded in fundamental principles of the perceived value (functional, emotional, and social) and environmental concern as an extended factor.

In addition, it is also important to recognize that each interaction in weighing the costs and benefits between perceived values may not necessarily translate directly to purchase intentions. How consumers evaluate their choices may also be influenced by the interpretation of **Green Policies** in relation to the benefits of the products, which are illustrated through the triangulation between key stakeholders as previously shown in the research conceptual model of this study.

The hypotheses were formed with regard to dealing with values and the environment upon the relationships between perceived values and purchase intention; environmental concern and purchase intention; and green policies and environmental concern.

Perceived Value

As higher perceived values of consumers toward the product would lead to higher attention to purchase the product, different values would influence consumer purchase intention under different circumstances (Sheth et al., 1991). The following hypotheses were proposed:

H1: The perceived **functional value** is positively associated with the **purchase intention** of green cosmetics and personal care products.

H2: The perceived **emotional value** is positively associated with the **purchase intention** of green cosmetics and personal care products.

H3: The perceived **social value** is positively associated with the **purchase intention** of green cosmetics and personal care products.

Environmental Concern

The literature and past studies show environmental factors as one of the dominant constructs which correlate to predicting purchase intention (Ghazali et al., 2017; Paul et al., 2016; Zhang et al., 2019). That is, consumers consider environmental benefits in their purchase decisions for eco-friendly products (Ghazali et al., 2017). Thus, the following hypotheses were proposed:

H4: The **environmental concern** is positively associated with the **purchase intention** of green cosmetics and personal care products.

H5: The **environmental concern** is positively associated with the perceived **functional value** of green cosmetics and personal care products.

H6: The **environmental concern** is positively associated with the perceived **emotional value** of green cosmetics and personal care products.

H7: The **environmental concern** is positively associated with the perceived **social value** of green cosmetics and personal care products.

Green Policy

How consumers gain environmental knowledge and values or concerns toward the environment can derive from various sources. As discussed in the literature review, green or environmental-related policies, whether initiated by businesses, government, or non-governmental agencies, can certainly affect corporate strategic decisions. Meanwhile, a satisfactory experience between consumers and perceived

values of the products may empower consumers to take on an active role in participating and interacting with the company's activities or decisions (Cambra-Fierro et al., 2019). Therefore, the interactions influencing environmental concern, perceived value, and purchase intention formed the following hypotheses:

H8: The **green policy** is positively associated with **environmental concern**.

H9: The **green policy** is positively associated with the perceived **functional value** of green cosmetics and personal care products.

H10: The **green policy** is positively associated with the perceived **emotional value** of green cosmetics and personal care products.

H11: The **green policy** is positively associated with the perceived **social value** of green cosmetics and personal care products.

H12: The **green policy** is positively associated with the **purchase intention** of green cosmetics and personal care products.

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In support of the relevant theories in review, the variables were identified and developed to reflect the relationships between consumer values, environmental concern, green policy, and the purchase intention. Figure 2.25 shows the research hypotheses for the investigation of the determinants of consumers' purchase intention toward the consumption of green cosmetics and personal care products that serves as a fundamental basis of this study.

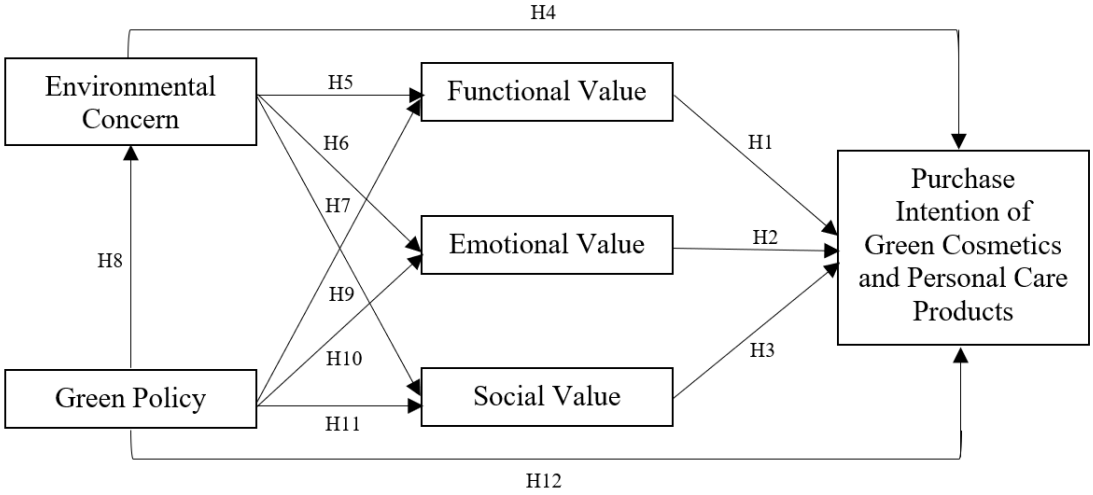


Figure 2.25 Research theoretical framework and hypothesis formation

CHAPTER 3
RESEARCH METHODOLOGY

This research aims to investigate consumers' perspective and impact on green cosmetics and personal care products in Thailand. Based on empirical and theoretical research data, mixed methods are used as a fundamental research design incorporating a mix of quantitative and qualitative consumer surveys and in-depth interviews with key stakeholders to identify insights and factors that may have an effect on influencing green consumer behavior. Integrating these research outcomes and secondary data allows the research questions to be jointly, rather than separately, answered from different perspectives while ensuring that the benefit of theoretical contribution toward sustainability for the cosmetics and personal care businesses in Thailand is achieved.

3.1 Research Design

This research study employed a mixed method. According to the research conceptual framework, as shown in Figure 3.1, the research was grouped into 3 main parts according to the stakeholder type, from the producer, consumer, and government viewpoints. Figure 3.2 illustrates the research design process accordingly.

Firstly, the literature review provides a basis to form a comprehensive concept of sustainability in cosmetics and personal care businesses, the assessment of the industry was built upon a principal research foundation based on a sustainable supply chain perspective through the life cycle thinking (LCT) approach. The research problems were pinpointed toward environmental and social impacts and strategies to form an understanding of the sustainability movements in business practices, from the perspective of the production or supply side. The addition of primary data was achieved through empirical research. The cross-validation from both sources was essential to the first research objective and question.

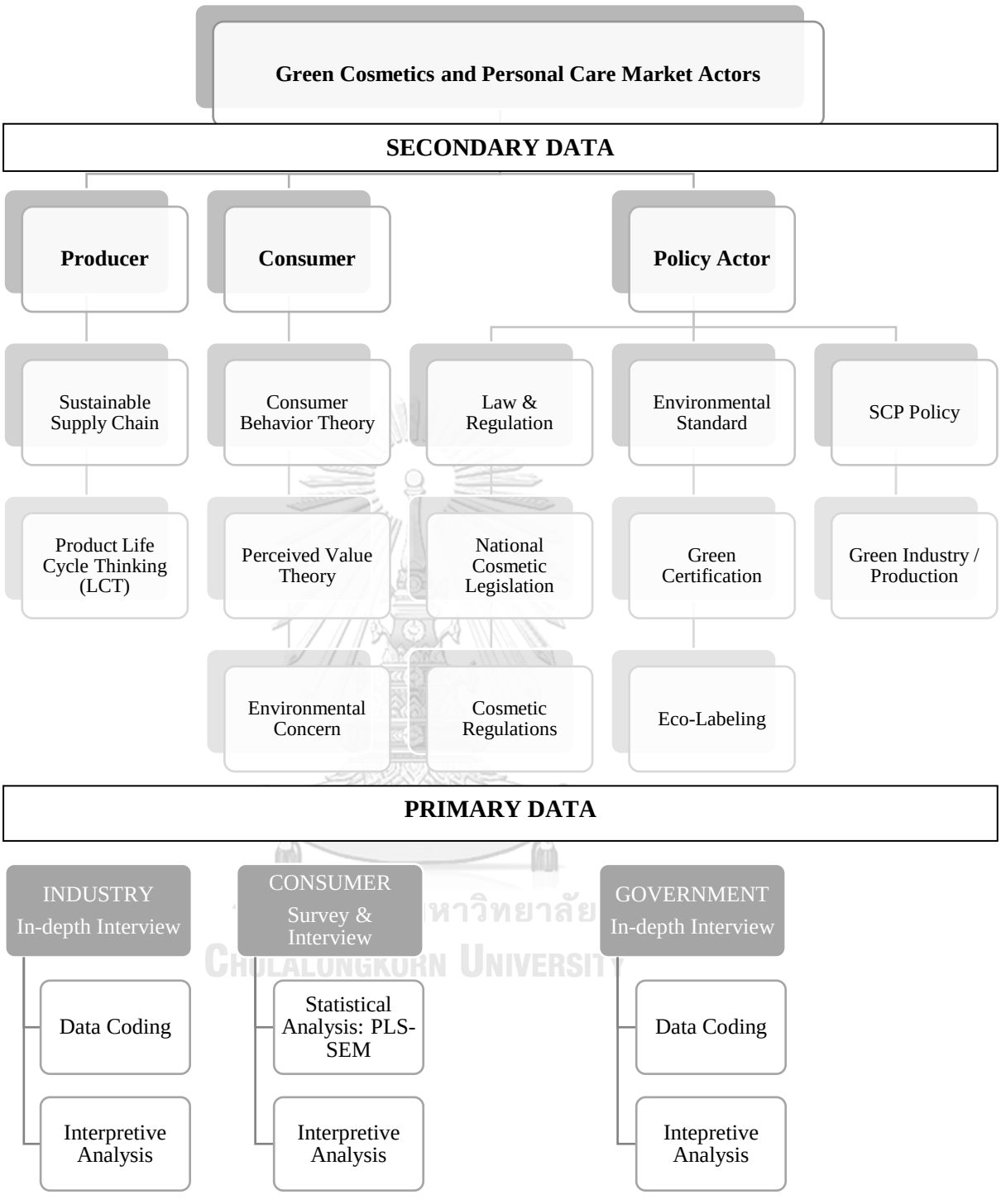


Figure 3.1 Research conceptual framework

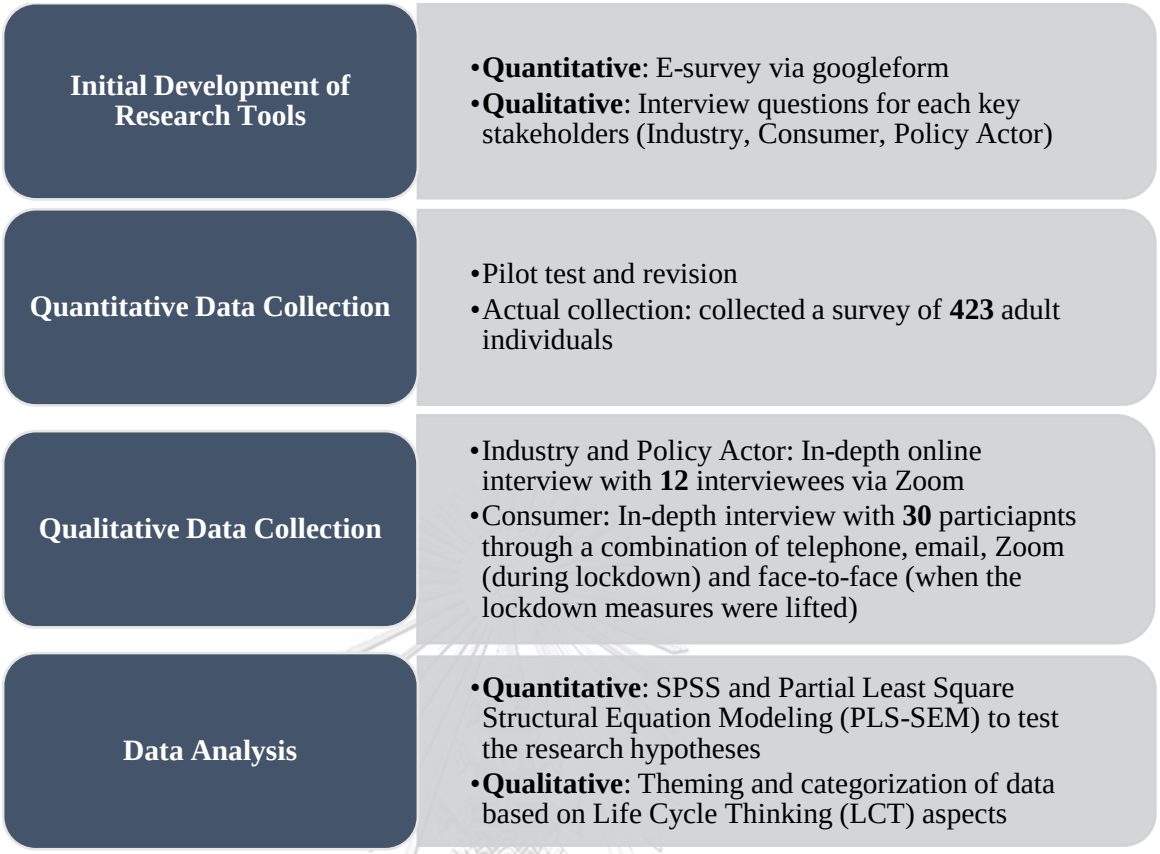


Figure 3.2 Research Design Process

Secondly, theoretical analysis from consumer behavior theories formed a research framework and formulated research hypotheses based on Perceived Value Theory (functional, emotional, and social values), with extended factors of environmental concern and green policy. The statistical analysis of survey questionnaires, utilizing the PLS-SEM method, allowed the investigation of consumer behavior in response to the research objective and question 2. Additionally, consumers were grouped and segmented according to their purchase decision factors, using FIMIX and POS procedures in PLS with crosstabulation analysis in SPSS. Further details on the statistical analysis method will be discussed later in the chapter. The segmentation helped categorize consumers' heterogeneous characteristics derived from the results, where qualitative findings from the interviews additionally provided a further understanding of the underlying consumer viewpoints and verified the hypothesis results in the research study to a further extent.

Thirdly, secondary studies on the potential and related policies and incentives were explored in the literature review. The interviews with governmental and related NGO agencies were explored based on a life cycle thinking approach to frame the analysis in responding to sustainability issues in conjunction with consumer perspectives and industry findings to provide a more aligned result in responding to the research objective and question 3.

Finally, the quantitative results and qualitative findings jointly provided integrative insights and practical implications for the businesses, consumers, and the government in responding to sustainable consumption and production practices for the green cosmetics and personal care industry in Thailand.

3.2 Inclusion and Exclusion Criteria of the Research Population

Inclusion and exclusion criteria were used for the eligible participants in the online questionnaire and in-depth interviews consisting of the parameters listed and summarized below.

Table 3.1 Inclusion and Exclusion Criteria for the research population

Type	Parameters	Inclusion	Exclusion
INDUSTRY	Product category	Green cosmetics and personal care products	Non-green or other product categories or service type
	Business characteristics	Includes process of production and distribution of finished products	Selective retailing or distribution (trading of finished goods)
	Geographic	National (locally-based) and multinational companies with operating offices in Thailand	Selling products outside the territory of Thailand
	Product distribution	Includes distribution to retail outlets within Thailand	Elsewhere (including. locally produced products for export)
	Demographic	Personnel in charge who are able to provide data within the sustainability field	Where related data are absent, unavailable on request
	Sustainability Aspects	(Thai) Includes green credentials in the supply chain (Multinational) Includes published sustainability or annual report	Sustainability information undisclosed or unavailable
	Consent ability	Consent	Do not consent or respond
GOVERNMENT	Agency characteristics	Government or public service agencies, non-profit organizations, social institutions	Commercial or for-profit businesses and private or exclusive organizations that offer a service to exclusive members
	Work scope	Work related to green cosmetics and personal care products, sustainable consumption and production	Unrelated work scope
	Geographic	National-based, nationwide or municipal	Organizations outside of geographic parameter whose services are not available locally

Type	Parameters	Inclusion	Exclusion
	Demographic	Personnel in charge who are able to provide relevant data to the field	Where related details are absent or unavailable on request
	Consent ability	Consent	Do not consent or respond
CONSUMER	Gender	Any	n/a
	Age	18 years and over	Children and youths (age below 18)
	Geographic	Bangkok (eligibility measured through screening question and survey)	Other cities and outside Thailand
	Language ability	Thai	Non-Thai, unable to read and write
	Technology requirement	(Questionnaire) Requires internet access by mobile phone, tablet, computer (any brand and any service provider)	No access to devices and internet
	Consent ability	Consent	Do not consent or respond

In addition to the criteria, secondary data such as official information on the website, official reports, sustainability and annual reports were also utilized and accompanied with the analysis process to help cross-validate data where there were inefficient responses from the primary research data.

3.3 Research Respondents

As summarized in Table 3.2, a random sampling of 423 consumers was included in a quantitative study through online questionnaires while the purposive sampling in the qualitative study covered 30 consumers, 8 cosmetics and personal care companies, 2 government organizations, and 2 non-governmental agencies in Bangkok, Thailand.

Table 3.2 Detail of respondents in each stakeholder category

INDUSTRY	CONSUMER	GOVERNMENT
• Patom (Thailand) • Thann (Thailand) • Kaff & Co (Thailand) • Neal's Yard Remedies (UK) & Burt's Bees (USA) • L'Occitane (France) • L'Oreal Group (France) • Elca (USA)	• 423 consumers in quantitative study • 30 consumers in qualitative study	• Thai Food and Drug Administration (FDA), Ministry of Public Health • Department of Environmental Quality Promotion (DEQP), Ministry of Natural Resources and Environment • Thailand Environment Institute (TEI) • The Federation of Thai Industries (FTI)

3.4 Research Instrument

3.4.1 Development of Interview Questions

The structure of questions for the semi-structured, in-depth interview was designed to address the relevancy of the research questions guided by research focus and sub-focus areas while ensuring they are open-ended to allow the respondents to respond in many ways but also encourage them to explain and justify their answers. Table 3.3 shows the sample of interview questions.

Table 3.3 Interview Sample Questions

Research Focus	Sub-Focus	Sample Questions
INDUSTRY		
Sustainability	Sustainability impacts and managerial implications	How can your company improve sustainable management and the impact on the environment that also enhances long-term business profitability and resilience?
Supply chain	Life-cycle Thinking (manufacturingand disposal)	How do you manage water-soluble, hazardous, chemical, andsolid waste?
The role of government	Policy andsupport	What are your opinions toward the role of government and/orgovernmental agency in plastic waste reduction policy and action to plastic pollution?
GOVERNMENT & NGOS		
Sustainability standards	Eco-label certification	What are your views on internationally recognized and Thaieco-labeling standards such as ingredient components, ethical sourcing, fair trade, non-animal testing, and sustainable packaging?
Supportingpolicy	Indicators and incentives for green products	What are the most important factors in supporting and encouraging more producers in Thailand to produce greenand more environmental-friendly products?
Legislation/ regulations	Consumer protection	Because “green”, “organic”, “environmental-friendly” are not regulated terms, what are your thoughts toward the adoption of these terms by the producers and level of popularity among Thai consumers?

The interview questions were originally developed and constructed in English in consistency with theoretical support and literature review, which were then translated into the local Thai language in order to reach the target language of respondents. Some terms or words may be used inEnglish transliteration, such as “organic”, in the circumstances where they might be moreconsistent with the meaning, interpretation, and common usage of terms in the business manners of the industry.

3.4.2 Development of Questionnaire

Firstly, the instrument development started with an operational definition of the key term as follows:

Green Cosmetics and Personal Care Product is a type of green product, usually mean natural and organic cosmetics or "Articles intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body for cleansing, beautifying, promoting attractiveness, or altering the appearance", containing natural and organic sources of ingredients and avoid synthetic chemicals in the formulation, focusing on environmental protection from the whole product life cycle, from sourcing, manufacturing, packaging, distribution, consumer use, to product disposal.

According to the formation of research hypotheses discussed in chapter 2, the questionnaire design was developed and constructed by the researcher with measuring itemsadapted from existing literature based on Perceived Value Theory, and extended factors of environmental value and green policy.

The structure of the questionnaire instrument consisted of 4 parts as follows:

Part I: Screening questions, using dichotomous questions asking for a yes or no answer to screen the prospective participants based on their basic knowledge of the industry, level ofinterest, and prior buying experiences.

Part II: Factors affecting purchase decision of green cosmetics and personal care products, using a five-point Likert scale measuring a person's level of agreement with the statements.

Part III Perception toward purchasing green cosmetics and personal care products, using multiple choice and short answers where applicable.

Part IV Demographic Profile, to identify the target population that will further help to segment consumers into clusters and better analyze consumer profiles in more depth.

Table 3.4 Sample statements for questionnaire constructs

Construct	Sample of statements of each construct
Functional Value	Green cosmetics and personal care products are safer than general products.
Emotional Value	I am interested in purchasing green cosmetics and personal care products because of their certified logo and label.
Social Value	I am interested in purchasing green cosmetics and personal care products when I see my friends, family, or celebrities are also using them.
Environmental Concern	Green cosmetics and personal care products are considered a healthier choice for the environment, and buying green can fulfill my environmental responsibility.
Green Policy	Green CSR policy (such as donations or other initiatives to help reduce societal and environmental impacts) raises my environmental concern that contributes to the desire to support the consumption of green cosmetics and personal care products.
Purchase Intention	I always buy green cosmetics and personal care products although it is not always easy to find them in the market.

Likewise, the questionnaire was originally developed and constructed in English as the original theoretical support for the literature review in international studies conducted in English. As the purpose of this study targeted local Thai consumers in Thailand, the questions in the questionnaire survey were translated into the Thai language to ensure respondents' understanding toward the same terms and statements was consistent.

3.5 Questionnaire Content Validity

In order to ensure the quality of the research instrument, the index of Item-Objective Congruence(IOC) (Rovinelli & Hambleton, 1976; Turner & Carlson, 2003) was used to evaluate the content validity of the questionnaire based on the score rating of -1, 0, and +1 by experts to define the level of congruence for each intended objective of the questionnaire content. The experts were asked to determine these scores as:

+1, if the expert is certain that the item measured the objective clearly.
0, if the expert is unsure if the item does measure or does not measure the objective.
-1, if the expert is certain that the item does not measure the objective.

In this circumstance, the assessment of qualified items should have the IOC mean of scores greater than 0.50 to serve the intended objectives or purposes, meanwhile any item with scores lower than 0.50 shall be removed or revised according to the experts' comments and suggestions.The IOC was completed by 4 experts and the total mean score from the evaluation is 0.83. There were 4 items with an IOC index below and equal to 0.5 that were removed from the questionnaire completely. The other 2 items with an IOC index of 0.5 were reserved, as the expert's comment did not affect and imply to the context of the questions, but rather on the category of constructs and the number of multiple-choice answers, which was revised accordingly.

Moving toward the next phase, the pilot study of the instrument was employed with approximately 20 samples which helped determine the validity and objectivity to ensure the respondents' understanding toward the questions and answers and if the consistency of results could have been produced, but also provided the study with the reliability of the instrument. The consistencyof scores from different sections of the questionnaire was determined by the application of Cronbach's Alpha Coefficient. Statistical details are presented in Chapter 4.

3.6 Data Collection

In attempts to attain diverse opinions and perspectives, a mixed method of qualitative findings was complemented with quantitative results. Both approaches engage multiple perspectives to understand complex phenomena more fully (Creamer & Reeping, 2020). A joint assessment of data collected from different angles has led this study to a valid conclusion to the research objectives.

3.6.1 Qualitative Stakeholder Interviews

As discussed in the Research Instrument section, the influence and flexibility of the life cycle thinking (LCT) concept facilitated and reflected the interpretation of data, which helped frame the analysis and reduce the risk of discrepancies in conceptualizing the context in a qualitative manner. The semi-structured, in-depth interviews were adopted to collect data to fill the research gap in sustainability movements and policies that influence consumers purchase intention. The nature of the semi-structured format is more flexible and therefore allowed probing questions that produced unanticipated knowledge that was not addressed initially. With an open-ended approach, discussions about the subject matter, insights, understanding of the complexity of the scope of sustainability, and greenness of the cosmetics and personal care products were encouraged.

Due to the global pandemic of the Covid-19 outbreak, the data collection was re-designed to accommodate the challenges of research protocol. Between August to October 2021 when the lockdown measures of Bangkok were in place, online data collection in this research study was necessitated and adapted from in-person interviews. Through purposive sampling method, the selection of participants was based on the inclusion and exclusion criteria to ensure the response from the participants was relevant and valid to the study. The industry and policy actor participants were recruited via emails with a formal letter issued by EDS program and the Ethics Review Board, Chulalongkorn University. The informed consent was obtained via email and/or via telephone. If follow-up was needed, a reminder was made via email or telephone call. Out of the total of 20 cosmetic companies contacted, 10 responded back and 8 agreed to participate in the research. Meanwhile,

6 governmental and non-governmental agencies were initially reached out by phone. 2 of the agencies were not obtainable as they were unreachable and not being referred further to the responsible department. Finally, 4 of the agencies accepted the invitation and agreed to participate in research. On the other hand, the consumer participants were recruited via personal and professional connections. They were contacted via email, telephone, and face-to-face in some cases. A total of 30 participants agreed to take part in research with informed consent.

Zoom videoconferencing platform was adopted for the data collection as it allowed the element of face-to-face interviews when the researcher was not allowed to be in a physical distance from the participants. However, the grant to access on the agreed communication platform was consented prior to the actual interview in relation to privacy and confidentiality issues. Some questions or issues were further discussed via email and telephone where additional information needed elaboration. Relevant permission to collect information by voice recording and note-taking was also obtained prior to actual interview sessions with information briefing regarding the risks, right of withdrawals, and any unexpected uncomforting circumstances that might occur. Consumer interviews were partially collected online during the Covid-19 nationwide lockdown in Thailand between September to October 2021. In November, some interviews were conducted face-to-face during the time when the lockdown measures were lifted. Additional information was also obtained via telephone, if more elaboration or explanation was needed.

3.6.2 Quantitative Consumer Questionnaires

In response to the Covid-19 pandemic data collection constraints as well as increased convenience of smartphones and digital device usage and widespread internet access where the respondent can answer the questions anywhere anytime, the online survey method was adopted. However, it is also important to note certain disadvantages of online surveys which could be biased in the representativeness of the population (Szolnoki & Hoffmann, 2013). Factors such asdevices without built-in Internet, limited access of the Internet based on the socio-demographic profile of respondents, bias from the level of motivation and Internet skills of respondents, and

misunderstanding or misreading the questions and instructions in completing the questionnaire can greatly diminish the quality of the data (dell'Olio et al., 2010). Similar to the online interviews, the participants were informed of the information to consent to take part or withdraw from the research study without any advance notice and that it would not affect the participants in any way. Otherwise, the usability, speed of information, and cost efficiency were beneficial in collecting data directly and digitally which allowed prompt responses that could organize the data systematically yet facilitated the process of data analysis.

According to the discussion in the Research Instrument section, the survey questionnaire consisted of 4 parts of multiple-choice questions, 5-point Likert scale questions, and open-ended questions. The online survey method was adopted using the Google Forms as they were effective in collecting and storing data securely in a timely manner. The sample was collected from July to August 2021 in Bangkok as it is an economic center of the country. It is also a primary emerging marketplace for the cosmetics and personal care products. The participants were recruited through a personal network, university, and work contacts. The shared link was first disseminated through email and social media platforms through Line application, Instagram, Facebook, and Facebook groups. The shared link was then referred to the existing participants' networks and contacts. All of which followed informed consent. The total data collection consisted of 430 participants but 7 samples were opted out from the unsuccessful screening process. The final sample consisted of 423 respondents.

3.7 Data Analysis

3.7.1 Qualitative Stakeholder Interviews

Qualitative data from semi-structured interviews were analyzed through the interpretive method to gain an in-depth understanding of the topic. The process of interview transcription and content analysis was done prior to coding and theming. To ensure language consistency, the data was grouped and coded in the original language, and then translated into English for the analysis process to produce research findings.

Life Cycle Thinking

Based on the literature review discussed in Chapter 2, life cycle thinking or LCT concepts follow the principles of life cycle assessment or LCA to identify life cycle stages of the product, from design to sourcing, manufacturing, packaging, distribution, consumption, and post-consumption. It is used in corporate strategies to focus on the more efficient and sustainable use of resources within the company and along the supply chain. For example, combining eco-design strategies with LCA evaluates a full life cycle of the product. This helps improve the environmental profile of the product, which also helps policymakers to understand the environmental impacts of the products as well (Civancik-Uslu et al., 2019).

LCT concepts were used as an analytical framework in this study to organize and categorize findings into production aspect (sourcing, manufacturing, packaging, distribution) and consumption aspect (consumer use and post-consumer use), which helped align the analysis from the data obtained from different types of stakeholders.

3.7.2 Quantitative Consumer Questionnaires

After obtaining all the data, translation into English and data coding were completed for the statistical process. With complete coded data set, the descriptive quantitative data was first performed through the Statistical Package for the Social Sciences (SPSS). The reliability and validity, and evaluation of the proposed research model were then performed using Partial Least Square (PLS) method through the SmartPLS 3.3 software. The research hypotheses were subsequently tested to examine multi-variable relationships for the conceptual research model.

Partial Least Square Structural Equation Modeling (PLS-SEM)

As opposed to covariance-based SEM (CB-SEM) which is used to test normally distributed data on existing theories, PLS was not only suited for nonparametric data of this study, but also appropriate when the objective was to

explore extensions of established theories from a prediction perspective, according to Hair et al. (2019). Moreover, the method concurs with the objectives of the study to explore all potential relationships in the model as it allows simultaneous estimation of multiple constructs. Therefore, PLS-SEM is also suitable in testing indirect or mediating effects of the variables. The interpretation of mediation analysis is briefly discussed below.

In the measurement model evaluation, the reliability and validity of the construct were tested using Cronbach's alpha, Average Variance Extracted (AVE), and Composite Reliability (CR). Next, the structural model assessment was performed through the discriminant validity using Heterotrait-Monotrait (HTMT), common method bias using Variance Inflation Factor (VIF), and the explanatory predictive accuracy of the structural model (R^2 and Q^2). Hypothesis testing was then tested using the bootstrap sampling method as suggested by Hair et al. (2019).

Mediation Analysis

The relationships among constructs in the model are not always straightforward and can be complex, especially when it comes to measuring multidimensional values of consumers. To gain a better understanding of the study, the mediation analysis was performed. According to Hair et al. (2016), mediation occurs when a third variable intervenes between the other two related constructs. Therefore, the third mediator variable governs the nature of the relationship between these two constructs. To accommodate the mediation analysis, the path coefficients were tested from the proposed hypotheses. The mediation can be classified into the following three types:

- *Full Mediation (Indirect-only)*

  This means that the effect is completely transmitted with the help of another variable. In other words, only indirect effect is significant but not the direct effect.
- *Partial Mediation*

  In partial mediation, this means that both direct effect and indirect effect are

significant. If they point in the same direction, it is a complementary mediation. In contrast, if they point in opposite directions, it is a competitive mediation.

- *Non-Mediation (Direct-only or No-effect)*

  This means that only the direct effect is significant but not the indirect effect, or neither direct effort nor indirect effect exists in the relationships. Hence, the mediation does not exist.

After the measurement model has been evaluated and tested, the assessment of the significance of the total indirect effect was performed in PLS-SEM of the path model in order to consider all mediators simultaneously in one model. The magnitude of mediation was further examined via the total effect. Further details of the analysis are discussed in the next chapter. In sum, the analysis helped gain a more complete picture of the correlation as well as the effect of all relationships in the structural model.

Importance-Performance Map Analysis (IPMA)

The Importance-Performance Map Analysis (IPMA) was performed to extend the hypothesis results as it is a useful analysis approach in PLS-SEM that draws on an important role in its relevance in managerial and marketing-related recommendations (Groß, 2018; Ringle & Sarstedt, 2016). The IPMA was originally devised as marketing tools for practitioners and researchers and has now been applied, with the basic application of the model remaining unchanged, to various fields as it could be useful to a wide range of industries in examining their performance and the importance of their product attributes (Minta & Stephen, 2017).

In the management filed, the IPMA analysis provides practical insights into which product or services a firm should be focusing on in order to achieve customer satisfaction (Martilla & James, 1977). The analysis contrasts between the importance and performance scores of each construct into quadrants to highlight significant areas that needs improvements in management activities (Ahmad & Afthanorhan, 2014).

In PLS-SEM procedure, the importance score derives from the total effect of

the relationship between constructs, where the total effect is the sum of direct and indirect effects in the structural model (Ringle & Sarstedt, 2016). On the other hand, the performance score is interpreted across the scale of 0 to 100, where the score of 0 represents the lowest and 100 is the highest performance (Ahmad & Afthanorhan, 2014).

The IPMA helped determine the impact of the perceived value, environmental concern, and green policy on the purchase intention. The results showed the importance and performance for each of these variables, which allowed a better understanding to make recommendations accordingly.

Segment Analysis Using Finite Mixture Partial Least Square (FIMIX-PLS) and Prediction-Oriented Segmentation (PLS-POS)

In exploratory research, the data structure in PLS-SEM modeling does not always come from homogeneous population. To avoid making incorrect or invalid conclusions based on the observed heterogeneity such as demographic differences or categorical differences which could result biases in parameter estimation, the study assumed the model might have been affected by unobserved heterogeneity.

The unobserved heterogeneity data can be checked and performed in PLS-SEM through Finite Mixture Partial Least Square (FIMIX-PLS) and Prediction-Oriented Segmentation (PLS-POS) procedures. On the one hand, FIMIX-PLS is effective in revealing the number of segments that are hiding in the underlying data. On the other hand, PLS-POS can be used to explain the structure of the segment as well as estimate segment-specific models (Wong, 2019).

In this study, FIMIX-PLS was first performed to uncover and determine the number of segments. However, it is recommended to remove segments that are too small in sizes as they are not substantial to represent a real segment. Finally, the study concludes there are 3 segments in the dataset.

In further exploring the identified segments, PLS-POS was subsequently performed to calculate the path coefficients of each segment. Within this manner, it is recommended that each segment should be differentiable. If it is not different from one another, it should be considered combining it with another segment (Wong, 2019). After the PLS-POS results were generated, the segments obtained were

analyzed and characterized using additional variables that were obtained from the questionnaire survey but not in the original model. This is to ensure that the explanatory variables match well with the PLS-POS segments and that the segments are plausible. Accordingly, crosstabulation utilizing SPSS was also performed to ensure the segment results derived from PLS were credible for the analysis.

3.8 Ethical Consideration and Approval

This study considered research involving human participants and thereby was reviewed and approved by the Office of the Research Ethics Review Committee from the Second Allied Academic Group in Social Sciences, Humanities and Fine and Applied Arts (IRB2) at Chulalongkorn University. The research project number 096/64 for this study was approved on 9 June 2021 and will expire on 8 June 2022 (see appendices).

CHAPTER 4
RESULTS AND DISCUSSION

This chapter presents the key research findings from the empirical research from qualitative studies through key stakeholders' in-depth interviews and quantitative consumer surveys. According to the research design and conceptual model framework, the discussion of results is divided into 3 main aspects in correspondence with the research questions and key data sources from the producer, the consumer, and the government, respectively:

(1) Sustainability impacts and strategies that green cosmetics and personal care businesses recognized as targets in pursuing sustainability goals;

(2) Factors influencing consumers' purchase intention of green cosmetics and personal care products; and

(3) Impacts of government policies and incentives of green cosmetics and personal care products in Thailand.

The final general discussion section summarizes and conceptualizes the key interpretations of integrative stakeholder perceptions concerning sustainability concepts toward green cosmetics and personal care products in Thailand.

4.1 Business Impacts and Strategies in Pursuing Sustainability Goals

In identifying key environmental and social impacts and strategies of the cosmetics and personal care industry, the holistic concept of life cycle thinking (LCT) principles was used as an integrative analysis framework. An assessment was carried out through an online in-depth interview using Zoom Videoconferencing with local and global businesses. Supporting and additional information from the global companies' sustainability or annual reports and information available on the websites were also presented in parts where the information could not be obtained through the local affiliates or the interviewees to avoid respondent bias and triangulate the data. The interview questions referred to supply chain, market operations and standards, management systems, corporate strategies, as well as opinions on sustainability

prospects in terms of effectiveness, impacts, and challenges on the management process, potential partnerships with multi-stakeholders, and future directions in its implementation.

4.1.1 Interview Sample

In total, 8 out of 15 companies agreed to participate in the research study where 3 companies were locally-owned businesses (I-01; I-02; I-03) and the other 5 companies were international companies operating through local offices, or affiliates, and distributors (I-04; I-05; I-06; I-07; I-08) locating in Bangkok, Thailand. Table 4.1 summarizes the respondent profiles for the industry in-depth interviews.

Table 4.1 Industry Interview's Respondent Profiles

Case	Company	Brand(s) in the research context	Position of respondents
I-01	Patom Organic Living	Patom (Thailand)	Director of Sales and Marketing
I-02	Thann-Oryza	Thann (Thailand)	Senior Brand Manager
I-03	Nature Inspire	Kaff & Co (Thailand)	Co-Founder / Partner
I-04	Natural and Organic Associate	Burts Bees (USA) Neal's Yard Remedies (UK)	Senior Brand Manager
I-05	L'Occitane	L'Occitane (France)	Marketing Manager
I-06	Yves Rocher	Yves Rocher (France)	B Corp Referent - Asia
I-07	L'Oreal Group	L'Oreal Group (Headquarters / France) L'Oreal Paris (France) Maybelline New York (USA) Garnier (France) Kiehl's (USA) Biotherm (France) Lancome (France) YSL Beaute' (France) Giorgio Armani Beauty (USA) La Roche-Posay (France) CeraVe (USA) Vichy (France)	Corporate Communications and Public Affairs Director
I-08	Elca (Estee Lauder Companies)	Clinique (USA) Origins (USA) Aveda (USA)	Brand Manager

4.1.2 Life Cycle Thinking (LCT) in Green Cosmetics and Personal Care Products

Based on the analysis of industry interview findings and other supporting reports and documents, the essential dimensions of life cycle stages in a production system were identified and evaluated from aspects of sourcing, manufacturing, packaging, distribution, consumer use, and post-consumer use, linking sustainability impacts and strategies together based on the three pillars of sustainable development dimensions in the environment, social, and economic, in sync with the triple bottom line of planet, people, and profit, as illustrated in Figure 4.1.

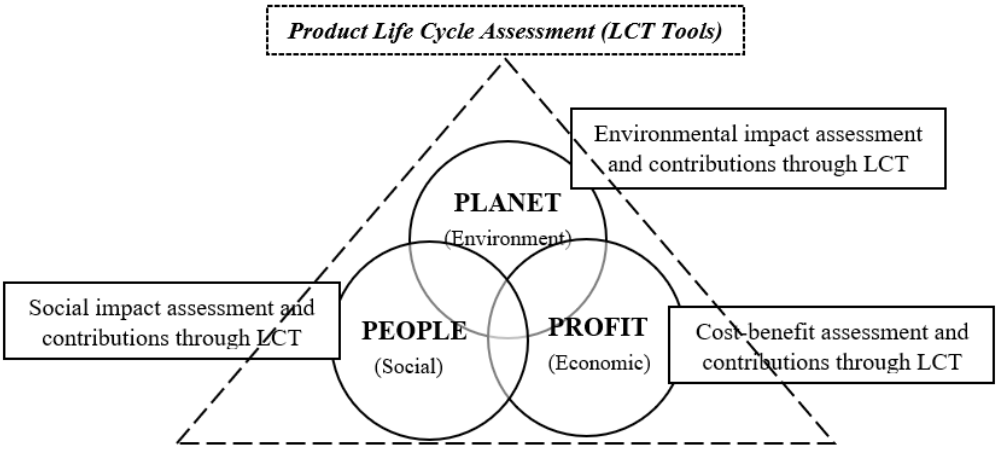


Figure 4.1 LCT Assessment through the Triple Bottom Line
Source: Author's Illustration

Sustainability concepts and practices were observed and carried out by the cosmetic companies, including small local ones. While a few global companies are considered to have much more advanced practices, some initiatives at the local level are still represented as barriers. Table 4.2 summarizes key findings from each of the industry interview participants and Figure 4.2 illustrates a graphical summary of key points in each phase of the life cycle accordingly. Key findings in each phase are noted and detailed as follows.

The **sourcing** phase provides a clear statement for environmental protection and biodiversity preservation, which are consistent with the literature

review suggesting a circular approach (Fortunati et al., 2020; Morea et al., 2021). All the companies focus on a green formulation that relies on organic and natural-origin ingredients to a great extent as it can play a significant role in differentiating a particular product or brand. In line with Kolling et al. (2022), the companies mentioned how their customers' demands were the main drivers, their main initiatives were to source and develop green products with less environmental and health impacts. This is because natural ingredients imply that they are safer as opposed to chemicals (Beering, 2014). Although not directly linked to the economic benefits of the companies, social concerns such as worker welfare were also noted alongside special programs to ensure wellbeing as well as fair and inclusive opportunities for their suppliers and employees and implemented by both global and local companies on different terms. In addition, as the majority of local companies were OEM-based, they do not have direct control over sourcing in particular so it largely depends on the supplier they chose. However, overall companies comply with environmental and social impacts interpedently in this phase.

In **manufacturing** processes, environmental standards and certifications are fundamental and particularly relevant for cosmetic companies. Consistent with the literature review, the majority of companies aim for Good Manufacturing Practices (GMP) and ISO 14001 standards which provide general guidelines that are fundamental to product quality and safety within a safe environment (Bom et al., 2019). Despite the outsourced production of locally-based companies using OEM, the practicality of water and energy consumption and footprint assessment was therefore not possible to be recognized as reduction goals. Unlike global companies with their own factories and monitoring systems, the water-loop system of a 'Dry Factory' is among the pioneering circularity efforts to achieve more sustainable production. In terms of social impacts, equal job opportunities, training, as well as maintaining a good quality of life for the employees were also regarded in this phase. Social contributions such as community investment and donations were made by all local and global cosmetics and personal care companies to promote a positive impact across stakeholders, as well as the society such as people in need or frontline workers during the Covid-19 pandemic crisis.

Packaging of cosmetics and personal care products has a high adverse effect on the environment and pollution on land and marine (Bom et al., 2019). Plastic remains a prime choice of packaging material because of its lightweight, recyclability, and product shelf-life stability. To alleviate the plastic pollution problem, the use of biodegradable, recycled, recyclable, and refillable packaging is becoming the forefront of a greener packaging solution. Post-consumer recycled plastic or PCR has been adopted by numerous cosmetic companies (Bom et al., 2019; Beering, 2014; Sahota, 2014). The research also suggests reducing volume, weight, and materials used can be significant alternatives to achieving sustainability (Morea et al., 2021). For instance, the innovation of paper tubes derived from sustainably-sourced cardboard by the L'Oreal group in collaboration with the world's leading cosmetic packaging company Albea is very promising in replacing plastic packaging in the near future. As alternatives to plastics, glass bottles and other reusable and refillable packaging were also committed by the analyzed companies, which also contribute to a sustainable solution effectively (Bom et al., 2019; Sahota, 2014). The findings were in line with recent studies (Morea et al., 2021). While there may not be an advanced packaging innovation in the local level product in a developing market like Thailand at the moment, the attempts in integrating 3Rs approaches around the packaging design continue to facilitate the high environmental impact and footprint of cosmetics and personal care packaging at a certain level. These actions align with a circular approach as suggested by previous studies (White et al., 2015; Fortunati et al., 2020). However, the key barriers were investment costs to change over the whole production, commitment to recyclability or waste targets, and low willingness of consumers to actually reduce, reuse, and recycle the cosmetic packaging due to perceptions of inconveniences.

The goal in a **distribution** phase is mainly concerning carbon footprint and emissions reduction to reduce the impact on the environment. The findings revealed that some carbon reduction and neutrality efforts were made by international companies in the local distribution and transportation such as the use of sea freight instead of air freight, recycling water systems, biodiesel for travel and transport, and eco-friendly materials for packing. Consistent with a previous study,

the main factor to consider is the type of fuel used for transportation which is dependent on carbon emissions, as greenhouse gas contributes to global warming (Bom et al., 2019). Unfortunately, the reduction of carbon emissions only brought to the attention of the companies that pay attention to this factor (Morea et al., 2021), and none of the efforts were made by the locally-based cosmetics and personal care companies at present. Distribution was rather out of their focal point as they do not have any plan regarding this phase just yet. Strategic distribution with optimized delivery packing and transportation route planning should have and could have been applied to minimize more environmental impacts as much as possible.

As the literature review suggests, the **consumption** phase of a cosmetic and personal care product hugely contributes to sustainability impacts (Organic Monitor, 2013; Sahota, 2014; Secchi et al., 2016; Cosmetics Europe, 2017; Bom et al., 2019), as large water footprints occur during rinsing off and washing off of the products like soap and shampoo (Sahota, 2014; Secchi et al., 2016; Bom et al., 2019). Yet again, locally-based cosmetics and personal care companies from the research did not address enough importance to their consumers. Although they tried to advertise and educate the consumers in terms of product usage, such information was rather related to personal benefits and inefficient in encouraging consumers to become more conscious about their choices and consumption in general. Green efforts from the international companies could be encouraging for local business practices. Information like the environmental and social footprint of the product at the point of sale or on the label could be more impactful in reminding them about their purchase and consumption impact (Cho, 2014), such as the product impact labeling initiative. Lower impact products that consume less water such as solid shampoo bars and concentrated product formulas were also another strategy to minimize the environmental impact, but how consumers interact with the product still depends on the product design and marketing (Mahler et al., 2012, Bom et al., 2019).

In **post-consumption**, international companies commit to zero or reduction of waste in landfills which is in line with a circular approach (Kirchherr et al., 2017; Kolling et al., 2022; Morea et al., 2021). Unfortunately, none of the

locally-based companies have stated this goal. On the other hand, the disposal of the products will continue to contribute to high footprints if the producers do not communicate to persuade responsible post-consumption practices to their consumers (Sahota, 2014). Without a sufficient system to recycle or collect the product packaging, then the packaging is not considered sustainable (Haeften, 2014). In line with a circular economy approach, all cosmetics and personal care companies from the research engaged and committed to recycling efforts with their own recycling and rewarding schemes (e.g., discount or free product giveaway) when customers return the empty bottles to the stores, and joined partnerships with other recycling companies in some cases to drive a circular solution. Nonetheless, the research findings might cover major companies that gear toward sustainability and circular economy approaches, but these companies only represent a fragment of the cosmetics and personal care sector in Thailand. The recycling scheme to collect product packaging is still very small and limited in the market at present. Some companies are still in the initial launching phase and testing stage of the recycling program where there were only a few participating retail outlets. Once there are more supporting systems or schemes from more industry players at the local level, it will be more influential and impactful for consumers to take part.

Table 4.2 Summary of Cosmetics and Personal Care Companies' Life Cycle Phases

	Sourcing	**Manufacturing**	**Packaging**	**Distribution**	**Consumer Use**	**Post-Consumer Use**
I-01	Sustainable agriculture Certified organic: IFOAM (EU and Canada)	Sampran Model (3rd party audit) Circular economy and sufficiency economy philosophy for agriproduct processing Not tested on animals	Recyclable materials and recyclable packaging	n/a	Educate consumers about product benefits & usage through brand communication	Reuse & recycle as much as possible
I-02	(OEM) Organic ingredient sourcing in Thailand to support local farmers and communities USDA, ECOCERT, Soil Association UK certified ingredients	(Outsource) GMP & ISO14001 certified production Not tested on animals	Recyclable packaging	n/a	Educate consumers about product benefits & usage through brand communication	In-store recycling program Upcycling in other business channels
I-03	(OEM) Use Thai herbs to support local agriculture	(Outsource) GMP & ISO14001 certified production Not tested on animals	Recyclable packaging	n/a	Educate consumers about product benefits & usage through brand communication	Reuse & recycle as much as possible
I-04	Protect biodiversity Responsible sourcing Ethical & fair trade certified Organic & Natural origin ingredients: COSMOS & ISO16128 certified	CarbonNeutral certified Eco factory; recycle water, use renewable energy system, 100% renewable electricity, zero waste to landfill Cruelty-Free (Leaping Bunny) certified	Recycled plastic packaging (Sustainably sourced, FSC & PEFE certified, 100% PCR) Recyclable, reusable, refillable, compostable packaging	CarbonNeutral certified: carbon emissions offset from the transportation of materials and finished products and employee travel	Raise awareness through the campaign to encourage consumers to change small habits suchreducingduce water consumption, waste & single-use plastics	In-store recycling program Recycling partnership

	Sourcing	Manufacturing	Packaging	Distribution	Consumer Use	Post-Consumer Use
I-05	Preserve & restore biodiversity Organic certified farming Fairtrade certified Traceable plant-based & natural origin raw ingredients: ECOCERT, COSMEBIO & COSMOS certified	ISO14001 and B Corp certified; use renewable energy, reduce waste and water footprints in all industrial sites, zero waste to landfill Eco-design (biodegradable) formula to reduce the environmental impact of rinse-off products Cruelty-Free	Recycled & recyclable packaging (sustainably sourced) Reduce packaging, develop refill & bulk-sized products	Reduce GHG & carbon footprints by reducing air freight & using intermodal & piggybacking route	Refillable product (reduce single-use plastics) Solid shampoo bar (plastic-free & less water consumption)	In-store recycling program Refillable packaging
I-06	Protect & preserve biodiversity Sustainable agriculture Fairtrade	ISO22716, ISO9001, ISO14001, B Corp certified Reduce water consumption, use renewable energy Cruelty-Free	Recycled & recyclable packaging (sustainably sourced) Reduce plastics	Reduce GHG & carbon emissions by using sea freight instead of air freight	Concentrated formula (for consumers to use fewer products and consume less water)	In-store recycling program Concentrated formula (reduce plastics, weight & size of packaging)
I-07	Sustainable agriculture (with respect of biodiversity) Fairtrade certified Employ vulnerable people Bio-based & green chemistry formula	ISO22716, ISO9001, ISO14001 certified Water-loop / Dry factories (water & waste recycled & reused, zero waste to landfill) Reconstructed skin innovation & Cruelty-Free (Leaping Bunny) certified	Reduce weight & size of packaging Recycled & recyclable, reusable or compostable packaging (derived from sustainable sources)	(Global DC & Transport) Reduce carbon emissions, waste, water consumption (Thailand DC) The recycling water system, carbon neutral (REC), reduce waste & use eco-friendly materials, use biodiesel for transport	Product impact labeling (show product footprints) Innovation to enable consumers to reduce GHG emissions from the use of products	Recycling program Use recycled and renewable materials for packaging to promote a circular economy
I-08	Responsible sourcing Fairtrade	Renewable energy, zero waste to landfill Cruelty Free (PETA) certified	Recycled (PCR) & recyclable packaging	Efficient distribution network & DC on-site waste reduction	Encourage consumers to reduce & recycle (brand's local activities)	In-store recycling program

Source: Research findings from in-depth interviews and official companies' reports

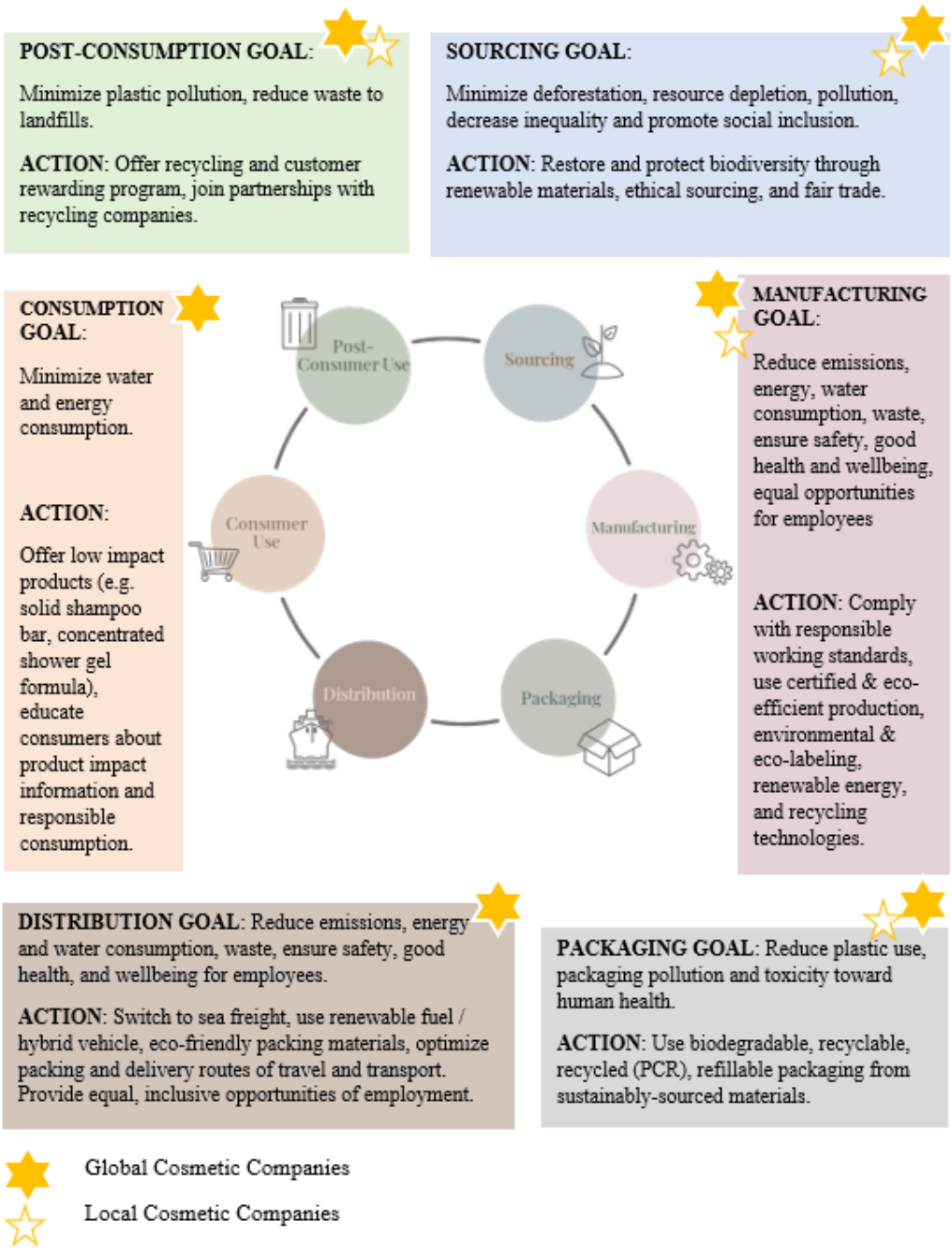


Figure 4.2 Life Cycle Thinking of cosmetics and personal care products in each phase
Source: Author's Illustration

In comparison between locally-based and internationally-based companies, it is found that their strategies and implementation throughout the product's life cycle differ on a national versus global level. With the touchpoints on all phases being more pronounced in the global companies which were based on a developed country context, their goals and activities mediate and commit to the sustainability concept more fully. On the other hand, the local producers mostly focus on their product

ingredients in the sourcing phase and generally provided no focal point in improving green logistics and distribution at the moment. Product benefits and usage were communicated, but these were more related to marketing and sales purposes rather than a direct linkage toward responsible consumption. Unfortunately, green initiatives are less elaborate on a local business scale at present. Only a few international companies state the quantifiable impacts and strategies clearly, meanwhile the locally-based companies explicit a more traditional or linear business model as they are still in transition towards going green in some phases. A comparative summary is further presented in Table 4.3 and Figure 4.3.

Table 4.3 Comparative Summary of Sustainability Initiatives

Life Cycle Stage	**Sustainability Criteria**	**International Companies**	**Local Companies**
Sourcing	Protect biodiversity through renewable materials, ethical sourcing, and fair trade	Yes	Yes (but not quantified)
Manufacturing	Comply with responsible working standards, reduce emissions, certified and eco-efficient production, renewable energy, recycling technologies	Yes	Yes (GMP, ISO, but not close-loop)
Packaging	Reduce plastic volume (low impact), use recycled and recyclable materials	Yes	Yes (recyclable)
Distribution	Reduce emissions, energy and water consumption, health and safety of employees	Yes	No
Consumption	Promote responsible use of products	Yes	No
Post Consumption	Zero waste to landfill, consumer recycling program (disposal)	Yes	Yes (only recycling program)

Source: Author's Illustration

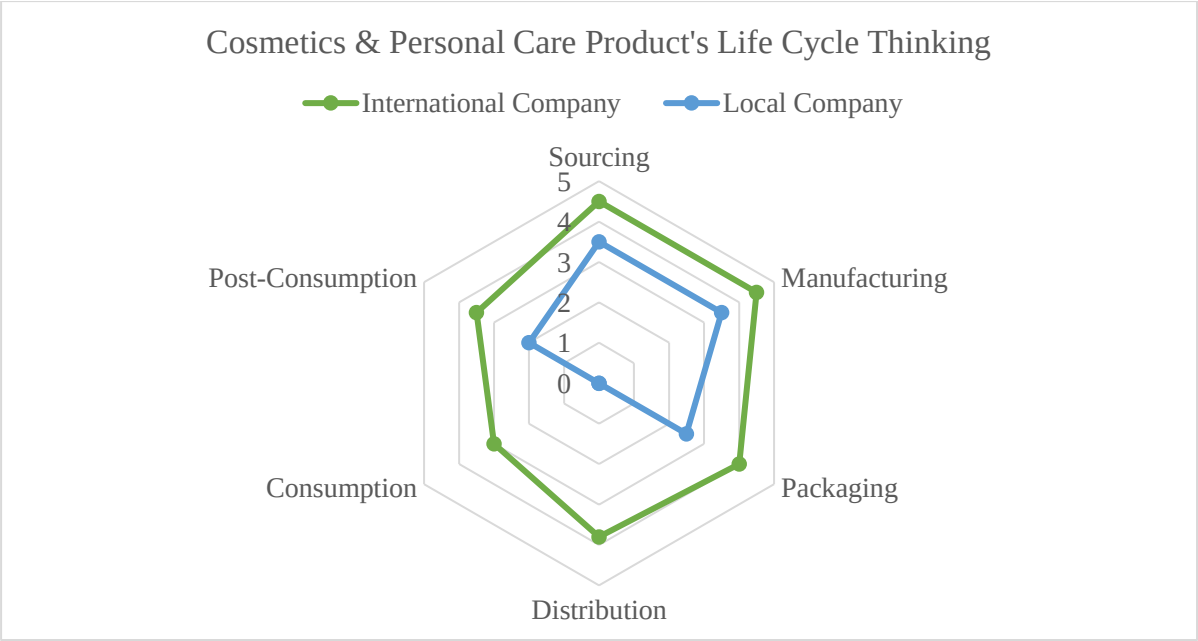


Figure 4.3 Comparison of LCT aspects between international and local cosmetics and personal care companies from the research findings
Source: Author's Illustration

Although the findings indicated different levels of commitments and objectives, it is interesting to observe and synthesize that the practices of circular economy and the integration of eco-centric activities were pursued by all 8 companies in this study along the supply chain in relation to the product's life cycle stages, but these elements are not entirely linked and correlated in between all stages of the life cycle. These findings demonstrate parallels between the emergence of four main categories of themes accordingly as illustrated: (1) circular supply chain; (2) eco-centric value; (3) socially responsible human resource management, and (4) sustainability in corporate governance.

As illustrated in Figure 4.4, the first theme is related to the characteristics of a circular economy and sustainable supply chain management based on a life cycle thinking approach. The second theme refers to environmental aspects of the supply chain, while the third theme relates to social aspects regarding human resources. The last theme depicts the sustainability concept beyond the life cycle and supply chain, reflecting on the macro-level of corporations and wider society. Through the illustrated framework, the emerged themes can be observed from a holistic viewpoint

and assumed that they are not mutually exclusive. In fact, they are dependent on each other, representing the complexity of sustainability assessment that involves different tiers and levels of interrelated concerns in the corporate structure.

Figure 4.4 Emerged themes in Sustainable Life Cycle Thinking from the industry interviews Source: Author's Illustration

4.1.3 Circular Supply Chain

The circular supply chain theme considers the circular economy (CE) concept and contributes to circularity efforts of the cosmetic companies reflected in eco-design, green production processes and logistics, consumption, and waste management, based on 3R principles of reduce, re-use, and recycle, as shown in Figure 4.5.

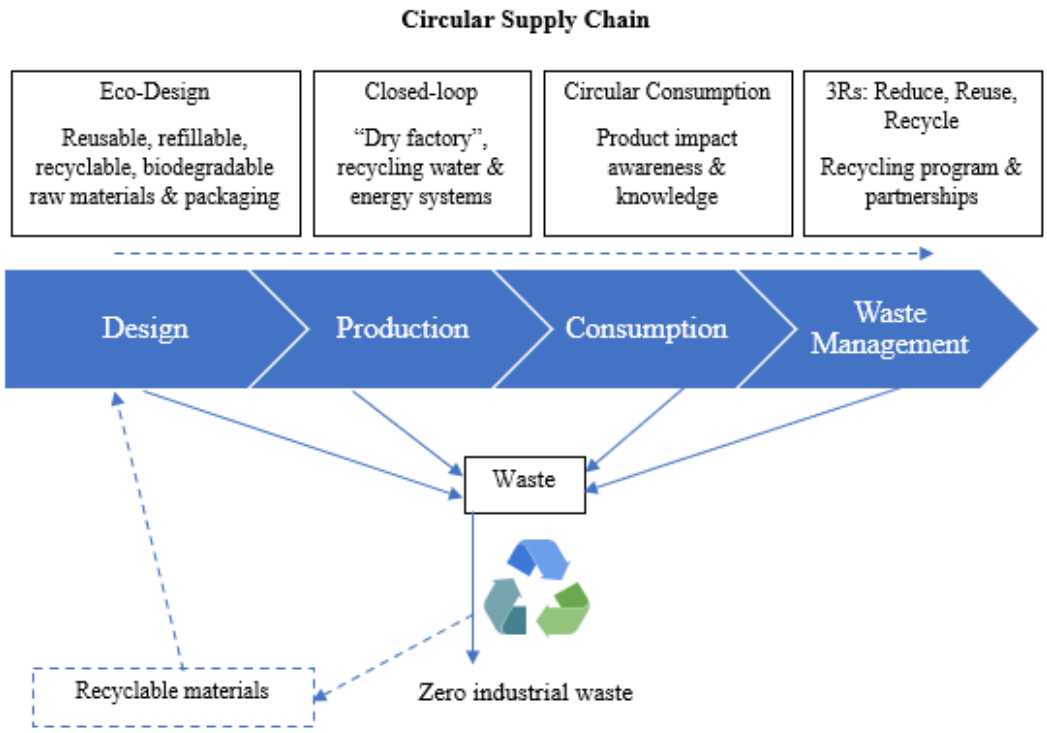


Figure 4.5 Key findings in circularity efforts along the supply chain
Source: Author's Illustration

In line with the literature in the circular approach (Civancik-Uslu et al., 2019; Fortunati et al., 2020; Morea et al., 2021), integrating CE in the supply chains of the included studied companies suggested commonalities in the incorporation of green business credentials toward a circular production and consumption such as environmental protection, resource efficiency, energy conservation, waste reduction to promote greener and cleaner production. The circular economy approach also addresses the importance of the reuse, renewal, and recycling of the product which reduces the environmental and financial costs (Mavridou and Vasilaki, 2019; Mikroni et al., 2022). As earlier discussed, a strong circular approach is greater for observed global companies such as product eco-design, a closed-loop production system, circular consumption tools (Figure 4.6), sustainable product packaging (Figure 4.7), and recycling programs (Figure 4.8).

Figure 4.6 Product Impact Labeling

Source: L'Oreal Sustainability Report 2020

Figure 4.7 Cosmetic Paper Tube

Source: cosmeticsdesign-europe.com

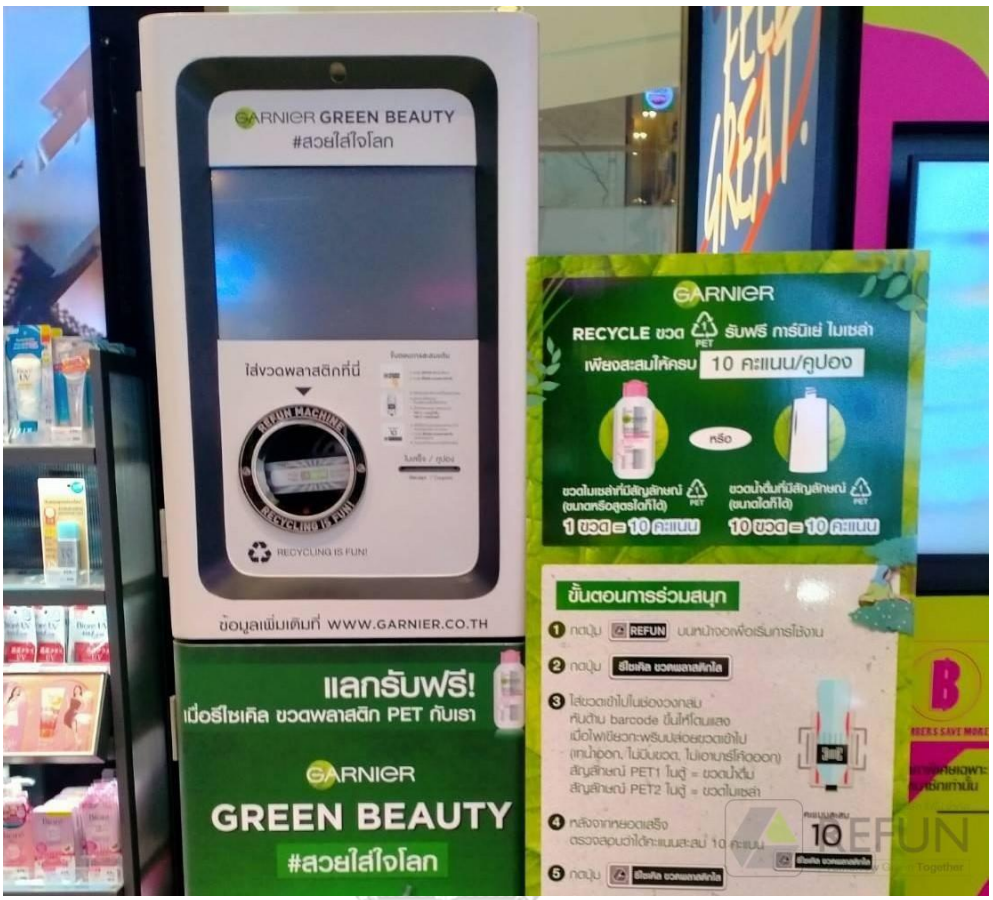


Figure 4.8 Recycling Collection Campaign and Machine
Source: Refun Machine

On the other hand, local companies are particularly more traditional and might be constrained to having such advanced technology or product innovation to deal with resource conservation or recyclability of materials. Therefore, product communication and the knowledge about the product quality and effectiveness in regards to shelf-life are important factors in educating their targeted customers to be aware that they should not waste the products. Nonetheless, no matter how much the producers want to protect the environment or educate their customers in adopting sustainable consumption approaches, education alone might not be sufficient in transitioning the consumption changes toward CE. Partnerships within and across the industry would create larger impacts. Environmental standards and criteria such as eco-labeling and collaboration of stakeholders and partners along with the areas of the supply chain or for a particular life cycle stage could be a primary factor for local

firms to better promote environmentally and socially responsible practices of their supply chains both upstream and downstream. Yet, small firms often lack the human expertise for the implementation to be successful in promoting sustainability and would require certain facilitations from the government (Menon & Ravi, 2021). The findings further revealed that the interviewed stakeholders from the industry sector all mentioned their concerns and barriers toward existing measures, accessible information, taxes, and other supporting incentives of a recycling system that are currently absent to close the loop and motivate consumer behavioral changes. The producers all bear the costs of their green production and packaging development meanwhile the actual practices or recycling campaigns are still very limited without sufficient support on the national level. Local producers especially expressed concerns about financial investment costs and were therefore reluctant to keep improving their green production chain if they did not see how any of their attempts would help reduce costs in the long run and maintain their feasibility without an actual viable recycling system or support from the government policies and legislation. Although combining LCT with CE strategies such as eco-design is an efficient way to economic benefits and environmental protection (Civancik-Uslu et al., 2019), they are merely based on the concept of resource conservation along the supply chain where the producers are the ones pushing for improvements. A collaborative relationship between producers, consumers, and the government could have been identified if there were specific solutions for managing plastics and other packaging wastes to ensure that they would not end up in landfills at the end of life and harm the environment, which is yet to be addressed in the product life cycle assessment.

4.1.4 Eco-Centric Value

In respect of biodiversity, the companies included in the study identified a focus on the environmental aspects, which is consistent with previous research studies (Kolling et al., 2022), to engage their efforts toward greener product formulation and greener supply chain to reduce environmental impacts that also enhance long-term profitability and strengthen business resilience, as illustrated in Figure 4.9.

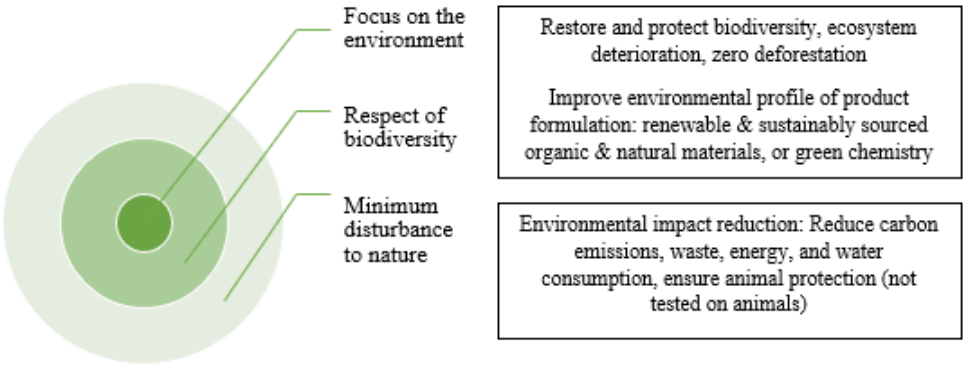


Figure 4.9 Eco-centric value driven of cosmetics and personal care companies
Source: Author's Illustration

For example:

> "Our brand has a commitment in ***respecting biodiversity***. The ingredients of our products are ***all natural*** therefore we must ensure sustainable agricultural farming practices such as when we sourced the raw materials ***it will not deteriorate the ecosystem*** there." (I-05: International Firm).
>
> "…redesigning products with an ***improved environmental profile*** where raw materials came from certified sustainable sources and of course, we need to produce sustainably to ***reduce environmental footprint*** […]. Most of our beauty product ingredients are natural so our goal for 2030 is to have 95% ***bio-based ingredients*** that came from abundant natural resources" (I-07: International Firm).
>
> "If there is one tree cut down, one will be replanted. There will be absolutely ***no natural degradation or destruction***. […]. It is also as equally important that our suppliers and the supply chain also ***focus on environmental impacts***, even not at the same level but some kind of the same perspective." (I-06: International Firm).

The key terms in green product formulation are organic and natural ingredients but some companies also offer consumers more advanced technology in

green chemistry formulation or lower impact products such as solid shampoo bars or concentrated shower gel formula. It is worth mentioning that these advanced eco-centric formulations also contribute to reducing water and energy consumption as well as interrelating in the circularity efforts in terms of eco-product design and waste reduction mentioned in the previous theme. Moreover, in reducing environmental impacts, carbon emission reduction is crucial especially in green logistics and distribution. Consistent with existing studies, as far as the environmental dimension is concerned, focusing on the efficient and sustainable use of natural resources along the supply chain must be encouraged to reduce environmental impacts, improve social impacts, and contribute to economic development in the long term (Ciccullo et al., 2017; Marshall et al., 2014; Pagell & Wu, 2009). Avesani (2020) further suggests that although the three-pillar approach of sustainable development focuses on environmental, social, and economic dimensions equally, addressing the same level of importance on all three dimensions can lead to trade-offs among different sectors and therefore can result in weak sustainability. By setting the environment as the priority, the ecological approach affirms strong sustainability because the social and economic systems cannot subsist without ecological services from natural resources. Although the Triple Bottom Line perspective of sustainability strategies should consider environmental, social, and economic goals simultaneously, the financial outcome derived from the exploitation of resources is no longer a focal point of business sustainability, but rather on the prosperity and development of the people and the planet (Avesani, 2020). In line with the problem statement, negative impacts on the environment such as natural resource depletion, deforestation, climate change, water and air pollution were mainly accounted for by the responsibility of businesses while the social impacts such as social inequalities and poverty occurring along the supply chain are also paramount, which is why corporate social responsibility is often supported by non-governmental organizations (Avesani, 2020).

It is rather possible to affirm that there has been an increasing intention to improve and refine environmental practices, but it was clear that the approach was greater ensured by international cosmetic companies. More efforts are needed to be addressed for locally-based firms as the progress and goals for carbon emission reduction were not clearly defined, although the overall footprint reduction of the

company might have been partially achieved through other business channels under the company's portfolio. Employee and stakeholder engagement could be encouraged in making efforts toward achieving the same goals.

4.1.5 Socially Responsible Human Resource Management

The socially responsible human resource management theme refers to suppliers and employees working in the supply chain, which also contribute to positive social impacts on the communities and society. With the suppliers, the most highlighted criteria are responsible sourcing and fair trade, whereas the most highlighted criteria for employees are training and financial benefits, as summarized in Figure 4.10.

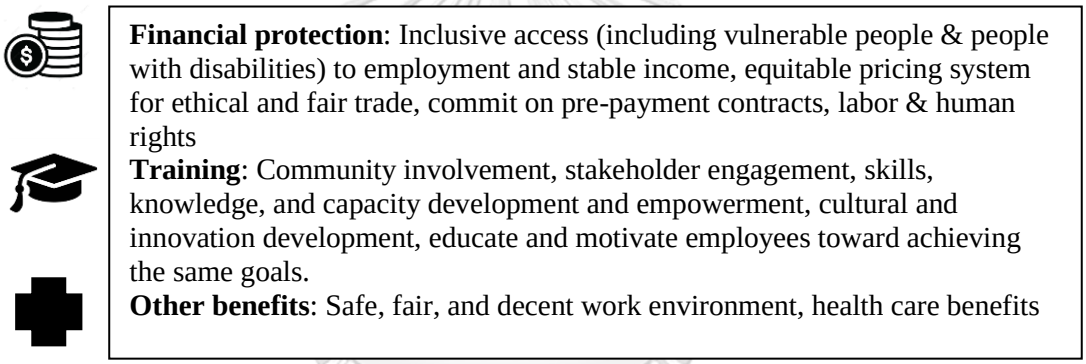


Figure 4.10 Socially responsible criteria for the human capital of cosmetic companies
Source: Author's Illustration

The process of sourcing to reduce environmental impacts and ensure respect for biodiversity did not only involve how the businesses select and work with the suppliers on the basis of eco-centric value in environmental performance, but also how socially responsible they are. The research findings further suggested that an agricultural-based sourcing system from sustainable organic farming supported both the environment for organically produced materials as well as the local farmers, workers, or producers to ensure ethical sourcing and fair trade while strengthening relationships with them for their improved livelihood and knowledge-based development in a learning and training context to develop their skills and capabilities

as they are the essential component of how the products were made, which are consistent with recent studies (Kolling et al., 2022). It can be observed that a human-centric approach was embedded and considered in companies' supply chain strategies which support empowerment and social inclusion reflected in various CSR programs of the cosmetics and personal care companies. In addition, being fair means ensuring all suppliers, communities, and employees are treated equally, from fostering diversity and inclusivity of opportunities, to decent working conditions, to access and stability of income, as expressed by the interviewees as follows:

> "We wanted to support and empower women by working together with them through ***fair trade, foundation, and educational programs*** as well as developing their entrepreneurial activities to ***improve their social and financial status***. In terms of responsible sourcing, we support our producers with committed purchase contracts as well as working with them on how to grow organically and how to dedicate themselves to replanting to protect the environment. It is how we produce responsibly and sustainably together, which is to ***ensure fairness and improve their quality of life***." (I-05: International Firm).
>
> "…As these local farmers, workers, and communities do not normally have access to big multinational firms, how we sourced from them gives them ***access to employment*** as well as ***generate stable income***. We have an inclusive purchasing program that we work with suppliers who ***employ people with disabilities, vulnerable people, and communities***." (I-07: International Firm).
>
> "We support Thai farmers and local communities with our product ingredient sourcing. We also try to ***develop our products with them*** by working together in finding new product ideas and building on new product functions while using the very same materials that they have." (I-02: Local Firm).

Considering the importance of the social sustainability angle in the supply chain, all studied companies attempted to minimize social impacts in the product's life cycle but at the same time they also provide income, training, and social support programs in a healthy and safe environment to its employees, which ensure

indirect economic benefits and additionally increase the value chain through philanthropy for the public good. In line with the literature, health and safety standards and protocols might have incurred additional costs but they can also positively affect social sustainability in a supply chain as well as workers' physical and emotional well-being that reduce workplace risks, and promote sustainability in the long run (Menon & Ravi, 2021). Training and literacy can enhance sustainable development and resource management which facilitates sustainability-related knowledge in the supply chain. However, specific practices are still lacking for the local cosmetic companies in improving sustainability aspects such as experts in the sustainability field that are skilled and experienced in sustainability research, analysis, strategies, supply chain assessment, understanding of company capabilities, improving existing activities and programs, training within the organization, as well as sustainability reporting and measurement which certainly require human expertise to strategize and implement sustainability successfully.

4.1.6 Sustainability in Corporate Governance

In the corporate governance theme, the research findings could be classified in terms of assessment and measurement and compliance with standards, sustainability policies and strategies, and corporate responsibilities and philanthropies, as shown in Figure 4.11.

Figure 4.11 Sustainability elements in corporate governance

Source: Author's Illustration

International cosmetic and personal care companies discussed that an assessment of the production sites that are transparent, measurable, and quantifiable is fundamental to a sustainable transition to greener solutions. The metrics and audit of performance indicators were either specifically developed for internal use or the audit was undertaken by a third-party organization. On the other hand, it was not a common practice for local companies, especially they are still lacking human expertise in reporting and measuring sustainability as mentioned in the previous theme discussion. Not to mention there are still policy gaps to influence the implementation of sustainability reporting in Thailand. Moreover, most of the interviewed local companies worked with an outsourced production so they were not accessible to information in regards to quantifiable measurements or to set reduction goals for themselves. Instead, environmental certification and eco-labeling came into play in accredited their manufacturing and product standards. Whether for production and processes, organic ingredients, or environmental management system, there were different standards and criteria on both the local and global market level that all firms recognized and pursued as metrics and indicators for their manufacturing performance. Local Thai brands with exported markets aimed for internationally recognized eco-labeling such as USDA and ECOCERT for their organic ingredients as their focal point. Global brands covered more aspects of sustainability such as certification for social and environmental performance and footprint reduction, such as B Corp, as a sustainable company, not just aspects of ingredients. In addition, with overseas manufacturing, the local affiliates of the global brands also revealed that they follow the global guidelines aligning with sustainability visions by pursuing and implementing reduction goals in their local offices where possible and applicable as well, as part of sustainability corporate policies, such as reducing resources used and waste, limiting the use of plastics, converting to LED lights or operating at LEED-certified green building.

In terms of corporate governance, businesses also thrived in contributing to the environment and society through corporate social responsibilities (CSR) and corporate philanthropies, such as empowerment and engagement programs and charities among vulnerable communities, as a way to give back to the society. These

actions are not only limited to social issues, which indirectly relate to the local economy with the provision of jobs and income. Their philanthropies also aimed at contributing positive environmental contributions to help preserve, protect, and restore the planet, such as ecosystem restoration projects or wildlife and habitat funding as well. Table 4.4 summarizes industry contributions from the research findings. How environmental sustainability is embedded in the core business is also connected to the eco-centric value theme discussed earlier. Moreover, these actions can build a bridge between the businesses and other stakeholders as well in the form of capital and funding enhancement in the forms of cooperation, partnerships, or collaboration projects. Within this manner, it is important to note that corporate governance and top management decisions are essential in strengthening a supply chain toward sustainability as sustainable development cannot be implemented effectively without active participation from the top management (Menon & Ravi, 2021).

Table 4.4 Examples of Business Contribution Strategies

	Environmental contribution	**Social contribution**	**Economic contribution**
I-01	Partnership to co-develop sustainable agriculture practices to support organic farming in the communities	Established a foundation to support local farmers to practice organic agriculture and created a market platform to connect them through businesses or end consumers (no middlemen) for fair trade.	Encourage healthy, decent work, and increased economic productivity for farmers as well as offer a market platform for organic markets for producers and consumers through business expansion & collaboration.
I-02	Established a campaign to raise funds to support Thai elephant foundations. Proceeds from sales of products also go to the foundations.	Make charitable donations to various foundations i.e., Tsunami relief fund, product donations to temples, AIDS patients, doctors and medical personnel during the Covid-19 pandemic.	Extended into hospitality channel (hotel amenities); business extension to wellness resort & tourism through local activities and workshops, and creation of jobs and incomes through hotel and spa.
I-03	Increase added values for Thai herbs through a partnership with the Office of Small and Medium Enterprise Promotion.	Turn old stock (haircare) products into cleaning products and donate them to charities and foundations.	Innovate more products using Thai herbs that solve skin and health problems to reach wider consumer groups to support better health and wellbeing while creating economic profits.
I-04	Established campaigns to ban neonicotinoid insecticides and create awareness of the decline in bee populations. Additional investments & proceeds from sales also go to charities, foundations, and non-profit organizations.	Investment in communities, provide them with access to safe and clean water, health and safety, empowerment of women and children, and diversity and equity in black communities; Donate products to frontline workers and vulnerable people during Covid-19.	Founded a program designed to mentor and support natural products start-ups and entrepreneurs to promote economic development and contributions to the market as a whole.

	Environmental contribution	Social contribution	Economic contribution
I-05	Promote sustainable palm oil production; protect shea resources and preserve biodiversity and fight against deforestation; created the restoration of ecosystems fund for the wildfires in Australia and Brazil; replant almond trees in France, donate to help restore the ecosystem lost from wildfires in Chiangmai.	Co-created a Fair-Trade Agroecology Collective; support local communities through sustainable farming practices; founded Lavender Endowment Fund to support lavender farmers toward sustainable production; engaged with other NGOs, etc.	Contributions made to driving social progress such as foundations that support local women with funding, networking, or starting up businesses also generated sustainably and economically secured income for them, which contributed to socio-economic development.
I-06	Established a foundation to safeguard botanicals and protect biodiversity; supported agroforestry, tree-planting, organic farming; reforestation projects; reduce, reuse, recycle plastics; reduce trash on the beach and in the ocean campaigns.	Supported lavender producers for sustainable agricultural practices; implemented a sustainable livelihood program; established an Academy to train employees on sustainable development; donate products to foundations.	Apart from significant contribution to the economy as a key player in the sector, its 100% eco-designed hotel spa that incorporates sustainability initiatives also promotes sustainable tourism birthplace of the brand), wellbeing, and also generates more employment and economic profits.
I-07	Impact investment fund and numerous contributions across the globe to restore degraded land, mangroves, marine, forests, wild plant; rebuilt wildfire diversity in the UK, etc.	Training program to help and engage suppliers on improving environmental and social profiles. Charitable endowment fund and investment to support vulnerable women around the world; offers free training for vulnerable people in beauty fields such as hairdressing and makeup.	Workshop sharing and knowledge on sustainability throughout supply chain among suppliers; Provide inclusive access to employment for vulnerable people and communities; Youth program provides career opportunities for young people in relation to post-Covid 19 situations.
I-08	Invest in green energy	Breast Cancer Campaign	Financial aid, scholarship

	Environmental contribution	Social contribution	Economic contribution
	solutions and partner with US government program to improve energy efficiency across the industry; Fund to support tree-planting, restore ecosystems, fight climate change, global warming, provide, protect clean water.	funding; financial donation for Covid-19 relief; supported racial justice and equity for the Asian and Pacific Islander Community; helped address child labor with Kailash Satyarthi Children's Foundation.	programs, loans for beauty school students by Aveda institute contributed to economic growth by generating knowledge and productivity to human capitals as well as job opportunities.

Source: Research findings from in-depth interviews and companies' reports or official website information

4.1.7 Contribution to Sustainable Development Goals (SDGs)

In compliance with the SDGs, cosmetics and personal care companies showed their sustainability strategies as commitments and contributions toward multiple goals along the supply chain. As discussed in the emerged themes, the key strategies, actions, policy gaps, LCT aspects can be further categorized into the triple bottom line aspects, in the dimensions of the planet, people, and profit, as summarized and illustrated in Table 4.5. In regards to governmental policy, the studied companies highlighted reasonable tax rates and incentives on green cosmetics and personal care products to support the business sector in terms of accessible pricing that encourages end consumers to buy more green products. Moreover, regarding the advocacy of more sustainable production and consumption, they all pointed toward a call on the government to adopt a better waste policy and action plan during the interview sessions. Although the recycling scheme for packaging as part of the extended producer responsibility was already implemented by some brands, more incentives from the government could persuade more businesses in the sector as well as educate consumers to join and take part in plastic recycling and waste segregation correctly, which eventually would make a bigger impact and behavioral transition for consumers. In terms of consumer awareness, the research findings suggested that impactful strategies might have been executed through social media influencers such as beauty bloggers or celebrities with green attitudes and lifestyles.

Table 4.5 Summary of key findings based on the triple bottom line aspects

	PLANET	PEOPLE	PROFIT
Strategy	Manage impacts, limit footprints, optimize resources use (with respect of biodiversity) Develop circularity initiatives to improve the environmental profile and invest in R&D to improve product efficacy.	Promote social diversity and inclusion throughout the supply chain Develop CSR initiatives to create a positive impact on social and environmental issues to maximize business value.	Cost & margin management through sustainability goals, actions, and R&D development to drive sales. Use contribution margin to build sustainability value or co-creation effort, through investment or partnership.
Responsible Marketing	Transparency in reporting sustainability impacts and performance, improving sustainable consumption practices around the products, and creating more awareness through social media marketing and key influencers in the market.		
Policy Gap	Waste management policies and recycling support schemes.	Access to information and effective participation for SCP.	Tax exemptions, reductions, incentives for green cosmetic products.
LCT Aspects	Sustainable sourcing of renewable raw materials; cruelty-free, organic or green chemistry formula; green manufacturing, distribution and transport (energy, water, waste consumption & carbon reduction); recyclable and eco-friendly packaging.	Social responsibility involving suppliers in sustainability efforts; social inclusion, diversity and human rights in employment; employee engagement and empowerment through financial and healthcare support, and training.	Raising consumer awareness through sustainable consumption choices toward responsible use and post-use of products that support their health and wellbeing, which also contribute to economic development and long-term business profits.
SDGs			

	PLANET	PEOPLE	PROFIT
			

Source: Author's Illustration

Nonetheless, cosmetics and personal care businesses as investigated are not completely all green. Environmental and social attention and the circular economy approach were greatly presented by the big global industry players who published sustainability reports, and declare specific and quantifiable objectives toward sustainability and circularity. Given limited literature review regarding sustainability for the cosmetics and personal care industry in Thailand, the findings of this study show specific dimensions in life cycle stages that some circular economy practices are introduced and adopted along the supply chain to decrease environmental and social impacts, but they could have a less favorable environmental profile when assessed and interpreted in all life cycle stages altogether, especially when it comes to a matter of waste management. While most cosmetics and personal care products mainly focus on the use of natural-origin and sustainably sourced ingredients, not all companies would reuse and recycle materials, energy, and waste in their production and distribution. Although some use recycled and recyclable materials for their packaging, they are not actually recycled at the end of their disposal because there are still not many supporting schemes on the supply side, and it heavily links with consumer behavior on the demand side in the post-consumption phase. Locally-based producers shall consider

converging toward a circular approach and bridging the gap between sustainability impacts and strategies holistically along the supply chain, especially in the manufacturing and distribution phases. Life cycle impact assessment and circular economy approach are still limited and discouraged by smaller companies, indicating a more traditional business focusing on financial performance without synthesizing the 3 pillars of sustainability. Concerns toward potential extra costs incurred to support the changes in their business model are possibly financial status and obstacles in the short term. However, the advantages of life cycle impact assessment and inclusive circular economy approach are more significant in the mid and longer term as they will be able to enhance the company's image, attract new and more investors, and improve loyalty toward their employees (Fortunati et al., 2020). Support from the government would be vital in influencing this transformation.

However, sustainability commitments on a corporate level alone are not sufficient in bringing about the changes in human ecological footprint. It takes time and effort for businesses and consumers to engage in sustainable consumption and production on a larger scale. Exploring consumer behavior and determining factors that affect their purchase intention would help cosmetics and personal care businesses to further develop and produce a more sustainable product that better corresponds to consumers' growing demand as a way forward.

4.2 Factors Influencing Purchase Intention

In determining the factors that affect consumers' purchase intention, this research study explores the relationship between intention to purchase green cosmetics and personal care products and relevant perceived values (functional, emotional, and social), environmental concern, and green policy. The consumer research was conducted in a mixed-method in 2 phases. Firstly, the data collection of 423 online survey questionnaires, drawn from Bangkok, was included in the quantitative data analysis to test the hypotheses based on a positive association between perceived values, ethical concern, and consumer purchase intention of green cosmetics and personal care products. Secondly, the data collection of 30 participants

in Bangkok through a combination of online, telephone, and face-to-face interviews was included in the qualitative data analysis in conjunction and in support of the theoretical framework and the results of hypothesis testing to provide a more in-depth insight that explains the effects altogether.

4.2.1 Quantitative Sample Demographics

Table 4.6 Demographic Profile of Respondents

Profile	Category	N	%
Gender	Male	105	24.8%
	Female	312	73.8%
	Unspecified	6	1.4%
Age Groups	18-25	39	9.2%
	26-35	104	24.6%
	36-45	211	49.9%
	46-55	41	9.7%
	56 and above	28	6.6%
Education	Diploma or equivalent	6	1.4%
	Bachelor's degree or equivalent	159	37.6%
	Master's degree or equivalent	233	55.1%
	Doctoral degree and above	25	5.9%
Occupation	Student	33	7.8%
	Employee	157	37.1%
	Government or state enterprise officer	36	8.5%
	Academic staff or researcher	22	5.2%
	NGO officer	3	0.7%
	Freelance or general trader	20	4.7%
	Business owner	111	26.2%
	Unemployed, retired, housewife	31	7.3%
	Other	10	2.4%
	0-15,000 THB	19	4.5%
	15,001-25,000 THB	13	3.1%
	25,001-35,000 THB	19	4.5%

Profile	Category	N	%
Monthly Household Income	35,001-50,000 THB	47	11.1%
	50,001-75,000 THB	35	8.3%
	75,001-100,000 THB	49	11.6%
	100,001-150,000 THB	62	14.7%
	150,001-200,000 THB	42	9.9%
	200,001-300,000 THB	34	8.0%
	> 300,000 THB	103	24.3%

The respondent profile showed 24.8% of male respondents and 73.8% of female respondents. Approximately half of the respondents are within the 36-45 age group, which is aligned with the average age of adult population in Thailand which is 40 years of age (worldometers, 2020), followed by 26-35 (24.6%), 46-55 (9.7%), 18-25 (9.2%), and 56 and above (6.6%). The majority of the respondents are well educated and obtained a Master's degree (55.1%), followed by a Bachelor's degree (37.6%), a doctoral degree (5.9%), and a diploma or equivalent at the least (1.4%). 37.1% of the respondents are company employees, followed by 26.2% as business owners, 8.5% as government or state enterprise officers, 7.8% as students, 7.3% in unemployment, retirement, or as a housewife, and the rest in others. The respondents' monthly household income is mostly within the highest range of the survey which is over 300,000 THB (24.3%), followed by 100,001-150,000 THB (14.7%) as the second-largest monthly income range.

In addition, the user experience screening questions showed approximately 80% of respondents have heard of green cosmetics and personal care products before, and roughly 65% of them have purchased the products, as shown in Table 4.7 and Figure 4.12.

Table 4.7 User experience of the respondents

Profile	Category	N	%
Heard of “green” cosmetics and personal care products	Yes	343	81.1%
	No	80	18.9%
Purchased “green” cosmetics and personal care products	Yes	274	64.8%
	No	149	35.2%

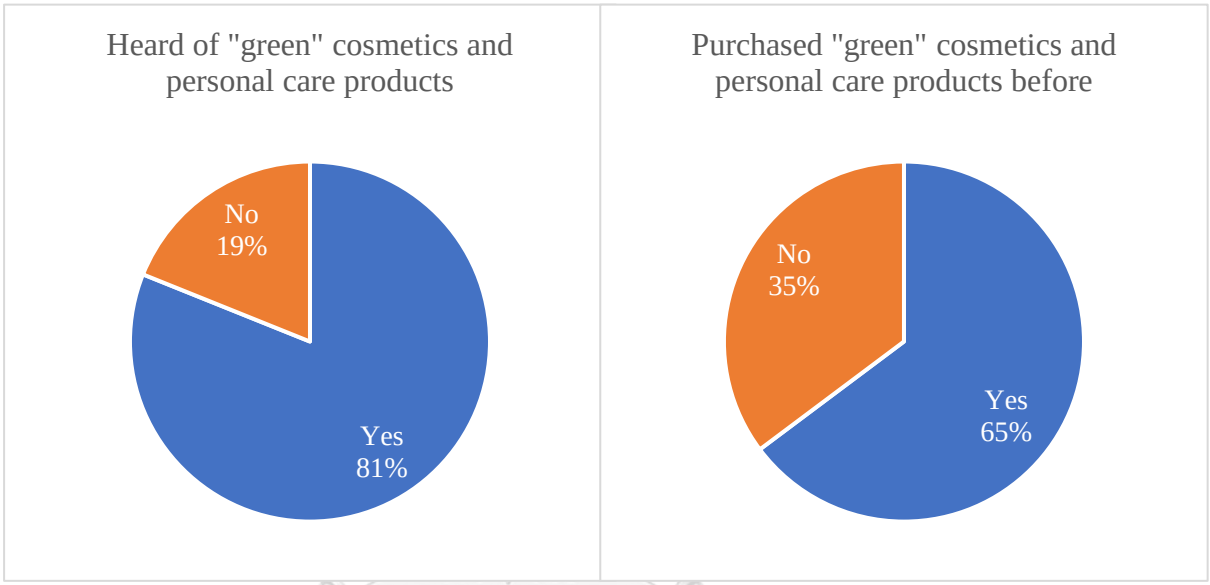


Figure 4.12 Percentage of respondents regarding user experience

As shown in Table 4.8 And Figure 4.13, hair care and body care are the product type categories that the majority of the respondents bought (65.7% and 63.9% respectively), followed by facial (58%) and make-up products (29.6%). Roughly 20% purchased oral care and sun care products (22.6%). The fragrance is the category with the least purchase (5.5%).

Table 4.8 Purchasing experience of the respondents

Profile	Category	N	%	% (cases)
Green cosmetics and personal care product types bought in the past 3 months	Face	159	21.6%	58.0%
	Make-up	81	11.0%	29.6%
	Body	175	23.8%	63.9%
	Hair	180	24.5%	65.7%
	Oral	62	8.4%	22.6%
	Sunscreen	62	8.4%	22.6%
	Fragrance	15	2.0%	5.5%
	No purchase in the past 3 months	2	0.3%	0.7%

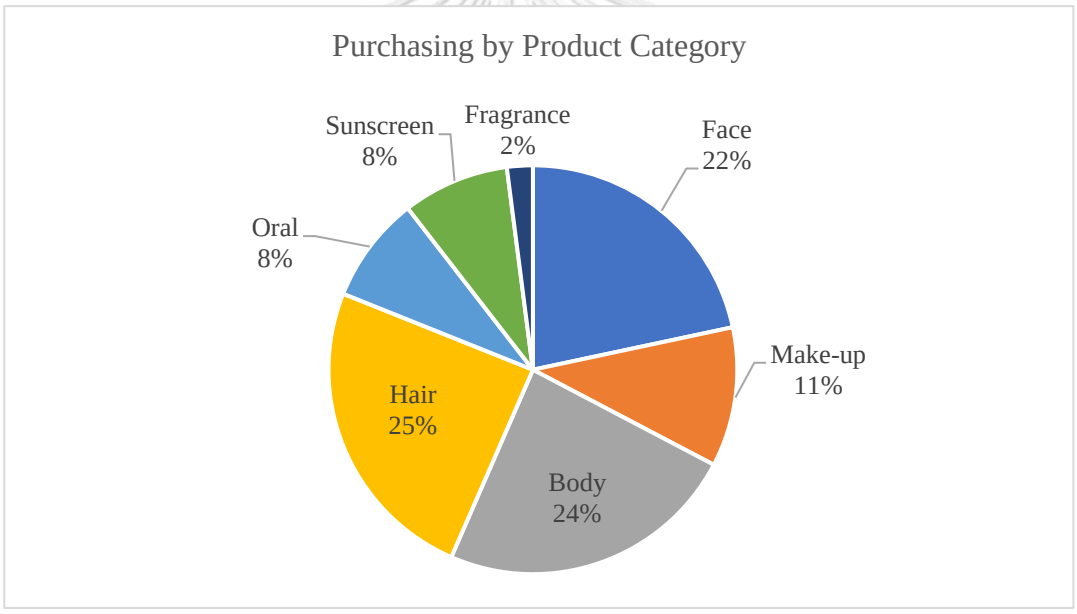


Figure 4.13 Purchasing Experience of Respondents by Product Categories

The shopping experience data of the current users indicated, in Table 4.9, that the most prevalent purchase channels are through direct brand counter (60.6%) and online (57.3%), followed by eco-friendly stores (51.1%), and supermarkets (48.2%).

Table 4.9 Shopping experience of the respondents

Profile	Category	N	%	% (cases)
Green cosmetics and personal care products purchase channel	Brand counter	166	27.7%	60.6%
	Supermarket	132	22.0%	48.2%
	Eco-friendly store	140	23.4%	51.1%
	Online	157	26.2%	57.3%
	Other outlets	4	0.7%	1.5%

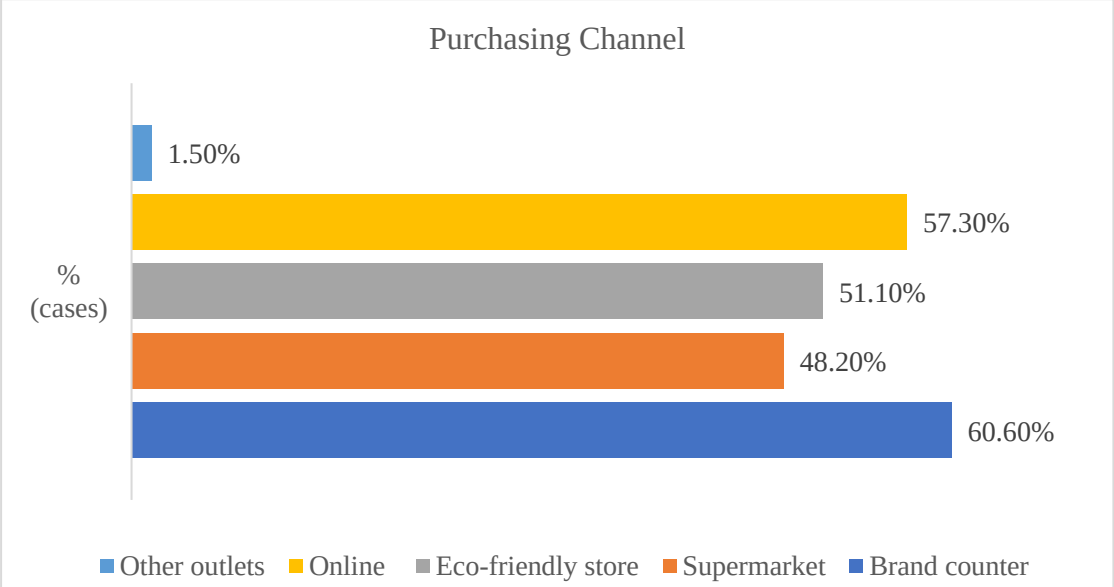


Figure 4.14 Shopping Experience of Respondents by Purchasing Channel

On contrary, Table 4.10 showed that the majority of respondents who have never purchased green cosmetics and personal care products mostly do not know about green product types (65.1%) and do not want to change the products from what they are currently using (35.6%), as well as green cosmetics and personal care products are equally perceived as high price (20.8%) and hard to find (20.8%). 12.8% of cases showed no interest in the green product types, while another 10.1% did not believe that buying green contributes to saving the environment. Less than 10% were afraid of possible allergic reactions to green cosmetics and personal care products (8.1%).

Table 4.10 Reasons for never purchasing green cosmetics and personal care products

Profile	Category	N	%	% (cases)
Reasons for never purchased green cosmetics and personal care products	Not knowing about green cosmetics and personal care products	97	37.6%	65.1%
	Green cosmetics and personal care products are high prices	31	12.0%	20.8%
	Not wanting to change from current products or brands in use	53	20.5%	35.6%
	Green cosmetics and personal care products are hard to find	31	12.0%	20.8%
	No interest in green product types and their features	19	7.4%	12.8%
	Afraid of possible allergic reactions to the products	12	4.7%	8.1%
	Not believing buying green helps the environment	15	5.8%	10.1%

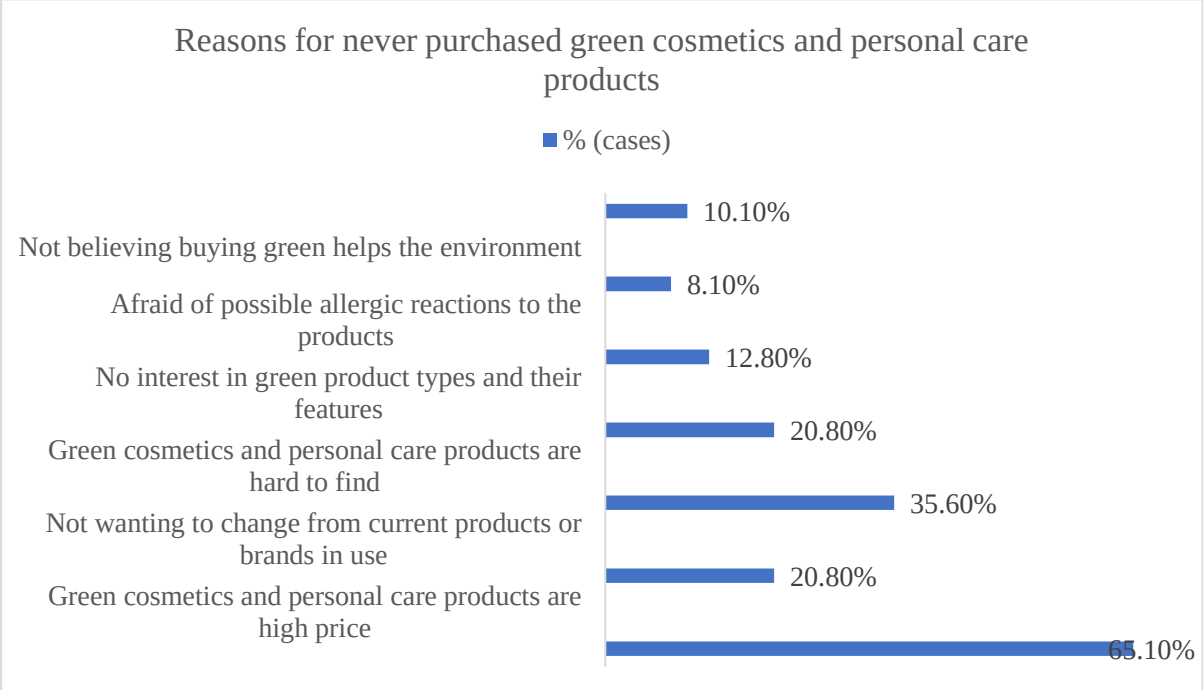


Figure 4.15 Reasons for never purchasing green cosmetics and personal care products

4.2.2 Quantitative Analysis

Tests of Normality

A Shapiro-Wilk test was conducted to determine whether the data set could have been normally distributed. The results were significant with $p < .001$. These results in Table 4.11 suggest that the data obtained is unlikely to have a normal distribution, and therefore align with Partial Least Squares (PLS) Structural Modeling Equation (SEM) assumptions (Hair et al., 2014).

Table 4.11 Shapiro-Wilk Normality Test

Variable	df	Statistic	Sig.
Functional Value 1 (FV1)	423	0.848	<.001
Functional Value 2 (FV2)	423	0.741	<.001
Functional Value 3 (FV3)	423	0.845	<.001
Functional Value 4 (FV4)	423	0.725	<.001
Emotional Value 1 (EV1)	423	0.817	<.001
Emotional Value 2 (EV2)	423	0.778	<.001
Emotional Value 3 (EV3)	423	0.805	<.001
Emotional Value 4 (EV4)	423	0.717	<.001
Social Value 1 (SV1)	423	0.894	<.001
Social Value 2 (SV2)	423	0.886	<.001
Environmental Concern 1 (EC1)	423	0.761	<.001
Environmental Concern 2 (EC2)	423	0.737	<.001
Environmental Concern 3 (EC3)	423	0.793	<.001
Environmental Concern 4 (EC4)	423	0.767	<.001
Purchase Intention 1 (PI1)	423	0.849	<.001
Purchase Intention 2 (PI2)	423	0.840	<.001
Purchase Intention 3 (PI3)	423	0.894	<.001
Purchase Intention 4 (PI4)	423	0.901	<.001
Green Policy 1 (GP1)	423	0.792	<.001
Green Policy 2 (GP2)	423	0.790	<.001
Green Policy 3 (GP3)	423	0.822	<.001
Green Policy 4 (GP4)	423	0.832	<.001
Green Policy 5 (GP5)	423	0.813	<.001

[a] Lilliefors Significance Correction

In addition, whereas the skewness and kurtosis of zero values or within the range between +1 and -1 indicate normality of data, this study shows the values to be out of the limitation range in Table 4.12, and therefore indicates the data set to have multivariate non-normality.

Table 4.12 Multivariate Skewness and Kurtosis

Variable	Mean	Skewness	Kurtosis
FV1	4.00	-.486	-.286
FV2	4.40	-1.088	0.484
FV3	4.01	-0.503	-0.423
FV4	4.41	-1.409	2.070
EV1	4.14	-0.739	0.262
EV2	4.20	-1.114	0.683
EV3	4.13	-1.035	1.026
EV4	4.38	-1.433	1.712
SV1	3.50	-0.281	-0.564
SV2	3.43	-0.369	-0.195
EC1	4.28	-1.084	0.450
EC2	4.37	-1.388	2.025
EC3	4.24	-0.922	0.398
EC4	4.32	-1.123	1.104
PI1	3.96	-0.734	0.371
PI2	4.04	-0.644	0.123
PI3	3.52	-0.493	-0.299
PI4	3.35	-0.314	-0.450
GP1	4.21	-1.033	1.641
GP2	4.22	-1.111	1.550
GP3	4.11	-0.720	0.546
GP4	4.03	-0.735	0.785
GP5	4.15	0.729	0.237

4.2.3 Evaluation of Reflective Measurement

This research study facilitated the SmartPLS3 software program to conduct the evaluation of the measurement model and the structural model of Structural Equation Modeling (SEM). Firstly, the PLS Consistent Algorithm was reported and indicators with outer loadings below 0.5 (FV4, EV4, and PI4) were removed from the scale for a model adjustment, as shown in Table 4.13.

Table 4.13 Factor Loading

	FV	**EV**	**SV**	**EC**	**PI**	**GP**
FV1	0.528					
FV2	0.588					
FV3	0.569					
FV4	0.493*					
EV1		0.627				
EV2		0.512				
EV3		0.763				
EV4		0.496*				
SV1			0.803			
SV2			0.657			
EC1				0.587		
EC2				0.772		
EC3				0.723		
EC4				0.759		
PI1					0.651	
PI2					0.829	
PI3					0.673	
PI4					0.494*	
GP1						0.567
GP2						0.676
GP3						0.767
GP4						0.770
GP5						0.793

*Deleted item

The final constructs are summarized in the table below, and the effect of item removal is to be further examined.

Table 4.14 Final Constructs

Construct		Statement
Functional Value	FV1	Green cosmetics and personal care products are valued for money.
	FV2	Green cosmetics and personal care products are safer than general products.
	FV3	Green cosmetics and personal care products contribute to improving overall health and wellbeing more than general products.
Emotional Value	EV1	I like the design, appearance, smell, texture, image of the brand, the product itself, or the product packaging.
	EV2	I am interested in purchasing green cosmetics and personal care products because of their certified logo and label.
	EV3	I am interested in the chosen green brands because of their interesting stories and designs reflect my personality.
Social Value	SV1	Green cosmetics and personal care products can affect a good impression on others which reflects your better self-image.
	SV2	I am interested in purchasing green cosmetics and personal care products when I see my friends, family, or celebrities are also using them.
Environmental Concern	EC1	Green cosmetics and personal care products are considered a healthier choice for the environment, and buying green can fulfill my environmental responsibility.
	EC2	Animal protection is necessary and animal welfare will improve if I do not buy animal-tested products.
	EC3	I am interested in buying green cosmetics and personal care products because of their organic and natural formulation, green manufacturing processes, green packaging design which are not toxic to the environment.
	EC4	I am interested in buying green cosmetics and personal care products because I appreciate the eco-friendliness of the product.
Purchase Intention	PI1	I always buy green cosmetics and personal care products although it is not always easy to find them in the market.
	PI2	I consider buying green over normal cosmetics and personal care products.
	PI3	I am willing to pay extra for green cosmetics and personal care products.
Green Policy	GP1	The adoption of 3Rs principles (Reduce, Reuse, Recycle) raises my environmental concern that contributes to the desire to support the consumption of green cosmetics and personal care products.
	GP2	Ban of animal testing policy raises my environmental concern that contributes to the desire to support the consumption of green cosmetics and personal care products.
	GP3	Thai Green Label: Environmental label that certifies products with a green supply chain raises my environmental concern that contributes to the desire to support the consumption of green cosmetics and personal care products.
	GP4	Green Procurement Policy and Green Office Certification raise my environmental concern that contribute to the desire to support the consumption of green cosmetics and personal care products.
	GP5	Green CSR policy (such as donations or other initiatives to help reduce societal and environmental impacts) raises my environmental concern that contribute to the desire to support the consumption of green cosmetics and personal care products.

In order to determine how well the data fit the theory, the first step is to evaluate the path model with the reliability and validity of the construct measures to achieve quality evidence, before the structural model can be evaluated (Hair Jr et al., 2017).

Reliability and Validity

Cronbach's Alpha and Composite Reliability (CR) are used to determine internal consistency reliability while Average Variance Extracted (AVE) can be used to determine convergent validity. The values of both Cronbach's Alpha and CR of 0.6 to 0.7 are considered acceptable, and values between 0.7 and 0.9 are considered satisfactory (Nunnally and Bernstein, 1994; Basbeth et al., 2017; Hair et al., 2019). In this study, all values are acceptable within the range, implicating the constructs have internal consistency.

The AVE values of 0.5 or higher implicate acceptable levels of convergent validity (Basbeth et al., 2017). However, although AVE is below 0.5 but is acceptable at 0.4 if the CR is higher than 0.6, the convergent validity of the construct is still adequate (Huang et al., 2013). The table below shows the respective reliability and validity values of the data set.

Table 4.15 Reliability and Validity of Constructs

	Cronbach's Alpha	**Rho_A**	**Composite Reliability (CR)**	**Average Variance Extracted (AVE)**
Functional Value (FV)	0.69	0.70	0.69	0.43
Emotional Value (EV)	0.67	0.70	0.67	0.42
Social Value (SV)	0.69	0.71	0.70	0.54
Environmental Concern (EC)	0.80	0.81	0.80	0.51
Purchase Intention (PI)	0.78	0.80	0.79	0.56
Green Policy (GP)	0.84	0.85	0.84	0.52

Discriminant Validity (Heterotrait-Monotrait Ratio)

In order to measure discriminant validity, the Hetertotrait-Monotrait (HTMT) ratio was adopted in this research. Although the traditional method of Fornell and Larcker has been widely used, recent research indicates that the metric is not suitable to measure discriminant validity (Henseler et al., 2015; Hair et al., 2019). HTMT ratio is the ratio of the between trait correlations to the within traits correlation, where all the values should be below the threshold value of 0.85 (Hair et al., 2019; 2017). The matrix in Table 4.16 shows all HTMT values lower than 0.85.

Table 4.16 HTMT Matrix

Construct	EV	EC	FV	GP	PI	SV
Emotional Value (EV)	0.813					
Environmental Concern (EC)	0.813					
Functional Value (FV)	0.698	0.714				
Green Policy (GP)	0.411	0.547	0.394			
Purchase Intention (PI)	0.726	0.846	0.740	0.468		
Social Value (SV)	0.638	0.589	0.523	0.226	0.474	

In addition, to produce HTMT confidence interval bias-corrected, the bootstrap procedure of 5,000 subsamples was performed further. As shown in Table 4.17, both the lower and upper bounds of 2.5% and 97.5% of the confidence interval do not exceed the value of 1.00, therefore HTMT ratio is significant, signaling a discriminant validity (Henseler et al., 2015; Hair et al., 2019).

Table 4.17 HTMT Confidence Interval Bias Corrected

	Original Sample	Sample Mean	2.5%	97.5%
FV -> EV	0.698	0.701	0.563	0.833
FV -> EC	0.714	0.716	0.603	0.823
SV -> EV	0.638	0.641	0.522	0.756
SV -> EC	0.589	0.591	0.483	0.697

	Original Sample	Sample Mean	2.5%	97.5%
SV -> FV	0.523	0.524	0.396	0.651
SV -> GP	0.226	0.230	0.110	0.360
SV -> PI	0.474	0.475	0.360	0.588
EC -> EV	0.813	0.813	0.706	0.915
PI -> EV	0.726	0.728	0.617	0.835
PI -> EC	0.846	0.846	0.774	0.914
PI -> FV	0.740	0.742	0.624	0.852
PI -> GP	0.468	0.470	0.332	0.607
GP -> EV	0.411	0.414	0.295	0.537
GP -> EC	0.547	0.549	0.430	0.667
GP -> FV	0.394	0.398	0.250	0.544

4.2.4 Evaluation of Structural Model

The research model was further evaluated with collinearity, the significance of the path coefficient, coefficient of determination (R^2), the effect size of f^2, and predictive relevance Q^2.

Collinearity Assessment

To assess collinearity, the Variance Inflation Factor (VIF) was examined. The VIF values below 5, or ideally below 3, indicate that the collinearity among the construct is not a critical issue (Basbeth et al., 2017; Hair et al., 2019). The outer VIF values are below the threshold in this structural model, as shown in Table 4.18, and therefore do not signal any collinearity problem.

Table 4.18 Variance Inflation Factor (VIF)

Variable	VIF
FV1	1.328
FV2	1.330
FV3	1.409
EV1	1.356
EV2	1.229
EV3	1.349
SV1	1.387
SV2	1.387
EC1	1.408
EC2	1.960
EC3	1.690
EC4	1.764
PI1	1.532
PI2	1.649
PI3	2.042
GP1	1.450
GP2	1.670
GP3	1.541
GP4	2.679
GP5	2.630

Path Coefficient

The standardized value for the path coefficient is between -1 and +1. When the path coefficient value is close to +1, they represent a strong positive relationship that is statistically significant. As shown in Table 4.19, the most important driver for consumers' purchase intention is environmental concern (0.653), followed by the functional value (0.273). Meanwhile, the most important driver for environmental concern is green policy (0.544).

Table 4.19 Path Coefficients of Constructs

Construct	FV	EV	SV	EC	PI	GP
Functional Value (FV)					0.273	
Emotional Value (EV)					0.059	
Social Value (SV)					-0.093	
Environmental Concern (EC)	0.704	0.844	0.647		0.653	
Purchase Intention (PI)						
Green Policy (GP)	0.014	-0.053	-0.124	0.544	0.004	

However, whether a path coefficient is significant, the standard error shall be evaluated from bootstrapping to examine if a path coefficient significantly differs from zero to further test the hypotheses if they have a significant effect on this research study.

By looking at the bootstrap confidence interval from 5,000 bootstrapping samples, the significance of all structural model relationships for a probability error of a significant level of 5% of FV-> PI, EC-> PI, and GP -> EC can be interpreted as significant because zero value does not fall within the lower bound and upper bound of the confidence interval, as shown in the below table.

Table 4.20 Upper and Lower Bound of the Confidence Interval

	Original Sample	Sample Mean	2.5%	97.5%
FV -> PI	0.273	0.279	0.061	0.493
EV -> PI	0.059	0.048	-0.287	0.353
SV -> PI	-0.094	-0.094	-0.258	0.053
EC -> PI	0.655	0.662	0.369	0.992
GP -> EC	0.544	0.548	0.423	0.658

Coefficient of Determination (R^2)

To evaluate the structural model coefficient of determination (R^2), the R^2 value ranges from 0 to 1 with the implication of a higher value to be of explanatory

predictive accuracy where the value of R^2 of 0.75 for the latent variable can be described as substantial, 0.5 as moderate, and 0.25 as small (Basbeth et al., 2017; Henseler et al., 2009; Hair et al., 2011; Hair et al., 2019). As shown in Table 4.21, the structural model explains approximately 50% of the variance in functional value, 67% of the variance in emotional value, 35% of the variance in social value, 30% of the variance in environmental concern, and 75% of the variance in consumer purchase intention. This means that the explanatory power of the variables of functional value, emotional value, social value, and environmental concern can be described as relatively moderate. The R^2 value of the purchase intention is 75% and therefore can be described as substantial. As a result, all can be considered respectable according to the rule of thumb.

Table 4.21 Results of R^2

	R Square	**R Square Adjusted**
Functional Value (FV)	0.506	0.504
Emotional Value (EV)	0.666	0.664
Social Value (SV)	0.347	0.344
Environmental Concern (EC)	0.296	0.295
Purchase Intention (PI)	0.751	0.748

Effect size f^2

In order to evaluate whether to omitted constructs have a substantive impact on the endogenous constructs, the calculation of change in R^2 when it is omitted from the model can be referred to as the f^2 effect size. The values of f^2 for all structural model relationships display below in Table 4.22. The assessment for values of 0.02, 0.15, and 0.35 represent small, medium, and large effects, and any values below 0.02 indicate there is no effect (Cohen, 1998). Correspondingly, as shown in Table 4.22, it can be found that EC has a large effect size on PI, and GP has a large effect size on EC. FV has a relatively medium effect size on PI, and SV has a small effect on the PI.

Table 4.22 Effect Size of Constructs

Construct	FV	EV	SV	EC	PI	GP
Functional Value (FV)					0.136	
Emotional Value (EV)					0.004	
Social Value (SV)					0.020	
Environmental Concern (EC)	0.706	1.500	0.451		0.424	
Purchase Intention (PI)						
Green Policy (GP)	0.000	0.006	0.017	0.421	0.000	

Predictive Relevance Q^2

The predictive relevance can be used to examine the magnitude of the R^2 value as an indicator of model predictive relevance (Geisser, 1974; Hair, 2007; Stone, 1997). The Q^2 value was estimated using a blindfolding procedure with a default value of omission distance of 7, given the suggested values lie between 5 and 12 (Basbeth et al., 2017). The values larger than zero for a specific endogenous construct indicate the model has predictive relevance for a particular dependent construct, whereas the values higher than 0, 0.25 and 0.50 indicate small, medium and large predictive relevance respectively (Hair et al., 2019). Accordingly, in this study the Q^2 values of EC and PI are found to be above zero, indicating support for the model's predictive relevance.

Table 4.23 Predictive Relevance Q^2

Construct	SSO	SSE	Q^2
Functional Value (FV)	1269.00	1269.00	0.00
Emotional Value (EV)	1269.00	1269.00	0.00
Social Value (SV)	1269.00	1269.00	0.00
Environmental Concern (EC)	1692.00	1480.53	0.12
Purchase Intention (PI)	1269.00	819.73	0.35
Green Policy (GP)	2115.00	2115.00	0.00

SSO= sum of the squared observations; SSE = sum of the squared prediction errors

4.2.5 Hypothesis Testing

The evaluation of a structural model was completed to test and verify whether the proposed hypotheses were supported or not. The final structural model is shown in Figure 4.16. The running procedure of 5,000 bootstrap samples with two-tailed testing at a significance level of 0.05 shows the bootstrapping result for the structural model with hypothesis results summarized in Table 4.24.

The estimated path coefficients values closer to 1 represent strong relationships, whereas values closer to zero indicate as non-significant. Accordingly, it can be found that functional value was statistically significant and positively associated with purchase intention (H1: $\beta = 0.273$, $p < 0.05$).

In contrast, the effects of emotional value (H2: $\beta = 0.059$, $p > 0.05$) and social value (H3: $\beta = -0.093$, $p > 0.05$) were not significant and were not positively correlated with the purchase intention.

On the other hand, environmental concern shows a statistically positive influence on the purchase intention (H4: $\beta = 0.653$, $p < 0.001$). Environmental concern was also found to have statistically significant and positive effects on functional value (H5: $\beta = 0.704$, $p < 0.001$), emotional value (H6: $\beta = 0.844$, $p < 0.001$), and social value (H7: $\beta = 0.647$, $p < 0.001$).

Finally, green policy shows a statistically positive association with environmental concern (H8: $\beta = 0.544$, $p < 0.001$). Nonetheless, the effect of green policy was not statistically significant and positively correlated with functional value (H9: $\beta = 0.014$, $p > 0.05$), emotional value (H10: $\beta = -0.053$, $p > 0.05$), social value (H11: $\beta = -0.124$, $p > 0.05$), nor the purchase intention (H12: $\beta = 0.004$, $p > 0.05$).

In conclusion, hypothesis H1 and H4-H8 were supported. Meanwhile, hypothesis H2-H3 and H9-H12 were not supported.

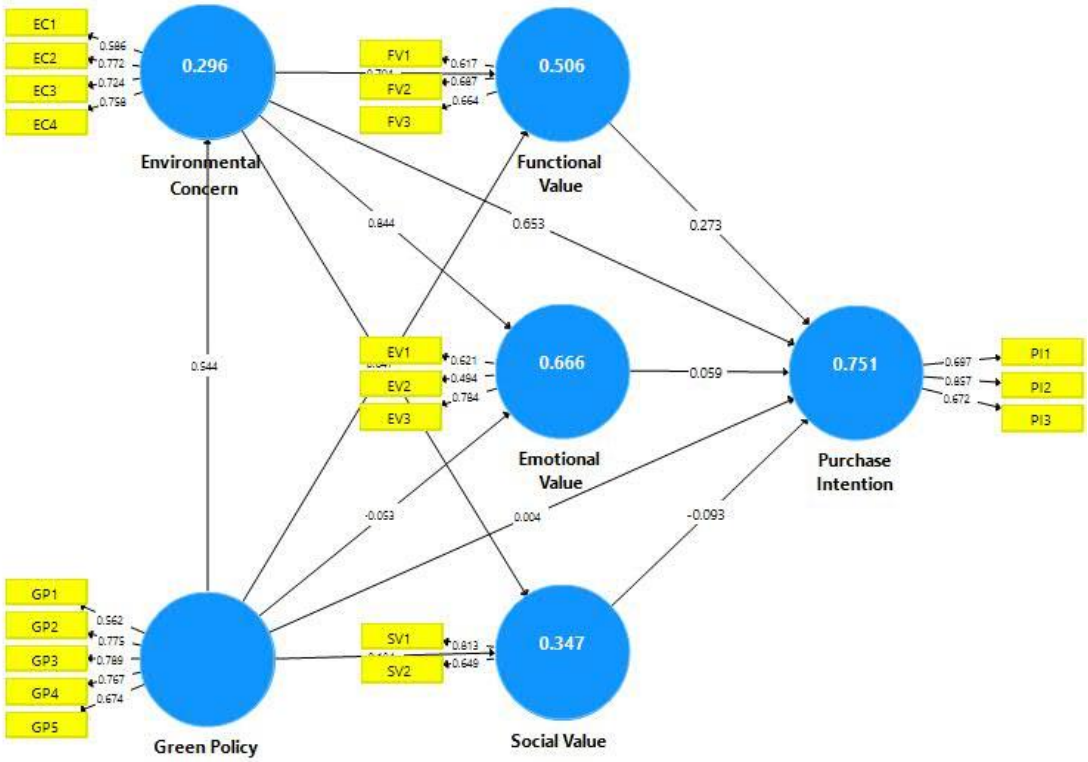


Figure 4.16 Final Structural Model Analysis Result

Table 4.24 Hypothesis Results

Path Coefficients	β	t-value	p-value	Result
H1 Functional Value -> Purchase Intention	0.273	2.395	0.017*	**Supported**
H2 Emotional Value -> Purchase Intention	0.059	0.301	0.764	Not Supported
H3 Social Value -> Purchase Intention	-0.093	1.118	0.264	Not Supported
H4 Environmental Concern-> Purchase Intention	0.653	3.389	0.001*	**Supported**
H5 Environmental Concern-> Functional Value	0.704	9.690	0.000*	**Supported**
H6 Environmental Concern-> Emotional Value	0.844	10.882	0.000*	**Supported**
H7 Environmental Concern-> Social Value	0.647	9.006	0.000*	**Supported**
H8 Green Policy -> Environmental Concern	0.544	9.030	0.000*	**Supported**
H9 Green Policy -> Functional Value	0.014	0.177	0.859	Not Supported
H10 Green Policy -> Emotional Value	-0.053	0.649	0.516	Not Supported
H11 Green Policy -> Social Value	-0.124	1.646	0.100	Not Supported
H12 Green Policy -> Purchase Intention	0.004	0.066	0.948	Not Supported

To further examine all potential relationships within the structural model, the mediation analysis was performed and proceeded with the same bootstrapping method to identify indirect effects. Table 4.25 summarizes the mediation analysis results.

Firstly, the result shows that functional value mediated the relationship between environmental value and purchase intention (β = 0.192, $p < 0.05$). As both direct and indirect effects are significant, there is a complementary partial mediation.

Secondly, a full mediation relationship was found as the indirect-only effect exists in the path of green policy to perceived (functional, emotional, social) value via environmental mediator (β = 0.383, 0.459, 0.352, $p < 0.001$). Moreover, environmental concern also fully mediates the relationship between green policy and purchase intention (β = 0.355, $p < 0.05$). The pathway from green policy to purchase intention via environmental concern and functional value was also significant and fully mediated (β = 0.105, $p < 0.05$) as the direct effect was not significant.

Finally, none of the indirect effects were found in any other path coefficients from the model. Hence, the mediation does not exist in these paths.

Table 4.25 Mediation Analysis (Indirect Effects)

Path Coefficients	β	t-value	p-value	Mediation
EC -> FV -> PI	0.192	2.316	0.021*	**Partial**
EC -> EV -> PI	0.050	0.271	0.787	No
EC -> SV -> PI	-0.060	1.060	0.289	No
GP -> EC -> FV	0.383	6.516	0.000*	**Full**
GP -> EC -> EV	0.459	5.867	0.000*	**Full**
GP -> EC -> SV	0.352	5.759	0.000*	**Full**
GP -> EC -> PI	0.355	3.037	0.002*	**Full**
GP -> FV -> PI	0.004	0.162	0.871	No
GP -> EV -> PI	-0.003	0.125	0.901	No
GP -> SV -> PI	0.012	0.774	0.439	No
GP -> EC -> FV -> PI	0.105	2.321	0.020*	**Full**
GP -> EC -> EV -> PI	0.027	0.260	0.795	No
GP -> EC -> SV -> PI	-0.033	1.026	0.305	No

Following the mediation analysis, the strength of the indirect effects can be further explored through the total effect analysis. As summarized in Table 4.26, the effects of green policy on the perceived value and the purchase intention were found to be the effects that were fully mediated via environmental concern factor. That is, green policy does not have a direct effect on the perceived value nor the purchase intention, but can indirectly impact them both if environmental concern is presented. Therefore, the magnitude of full mediating effects of environmental concern on these relationships led to accepting hypotheses H9 to H12 as a result of the total effects. Notably, green policy is positively associated with functional value (H9: $\beta = 0.397$, $p < 0.001$), emotional value (H10: $\beta = 0.406$, $p < 0.001$), social value (H11: $\beta = 0.228$, $p < 0.001$), and purchase intention (H12: $\beta = 0.471$, $p < 0.001$) via environmental concern.

Moreover, the path weight of each subfactor in green policy was relatively proportional, whereby GP2 and GP3 equally have the highest value (0.28), followed by GP4 (0.27), GP5 (0.24), and GP1 (0.20). This means that respondents were most interested in cruelty-free and green labeling, followed by green procurement, green CSR, and 3R policies respectively. These policies directly affect environmental concern and indirectly influence the perceived value and ultimately the purchase intention.

Table 4.26 Total Effect

Path Coefficients	β	t-value	p-value	Result
H1 Functional Value -> Purchase Intention	0.273	2.395	0.017*	**Supported**
H2 Emotional Value -> Purchase Intention	0.059	0.301	0.764	Not Supported
H3 Social Value -> Purchase Intention	-0.093	1.118	0.264	Not Supported
H4 Environmental Concern-> Purchase Intention	0.835	16.465	0.000*	**Supported**
H5 Environmental Concern-> Functional Value	0.704	9.690	0.000*	**Supported**
H6 Environmental Concern-> Emotional Value	0.844	10.882	0.000*	**Supported**
H7 Environmental Concern-> Social Value	0.647	9.006	0.000*	**Supported**
H8 Green Policy -> Environmental Concern	0.544	9.030	0.000*	**Supported**

H9 Green Policy -> Functional Value	0.397	5.431	0.000*	**Supported**
H10 Green Policy -> Emotional Value	0.406	6.431	0.000*	**Supported**
H11 Green Policy -> Social Value	0.228	3.475	0.001*	**Supported**
H12 Green Policy -> Purchase Intention	0.471	6.817	0.000*	**Supported**

4.2.6 Importance-Performance Map Analysis (IPMA)

As an extension of the findings, the IPMA was conducted using the purchase intention of green cosmetics and personal care products as the target construct. The rescaled performance scores are ranging from 1 to 100, as exhibited in Table 4.27.

Table 4.27 IPMA Analysis Scores

Construct	Importance	Performance
Functional Value (FV)	0.267	77.067
Emotional Value (EV)	0.157	78.760
Social Value (SV)	-0.001	61.710
Environmental Concern (EC)	0.750	82.652
Green Policy (GP)	0.477	78.469

The highest performance belongs to environmental concern (EC), followed by emotional value (EV), green policy (GP), functional value (FV), and lastly social value (SV). Meanwhile, the highest importance also goes to environmental concern, followed by green policy, and functional value. Emotional value and social value play little importance in influencing consumers' purchase intention.

According to Martilla and James (1977), the performance grid can be divided into four quadrants as:

A. concentrate here (high importance, low performance)

B. keep up the good work (high importance, high performance)

C. low priority (low importance, low performance)

D. possible overkill (low importance, high performance)

These categorizations facilitate management interpretation according to the firm's performance. They also enrich strategic marketing decisions and strategies

according to the importance defined by consumers.

In accordance, the recommendations according to the four quadrants can be considered for green strategies of the cosmetics and personal care products to be more effective and efficient based on the importance and performance of each construct. The analysis and recommended strategies for this study are as shown in Figure 4.17.

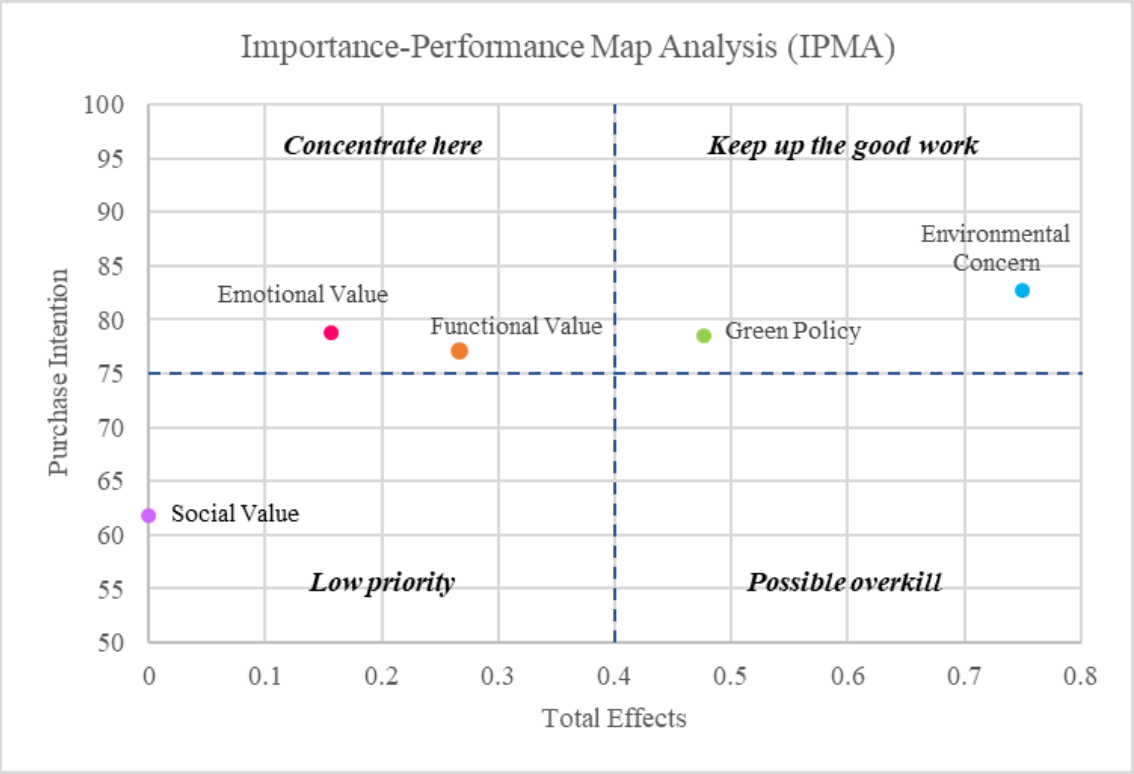


Figure 4.17 IPMA for Consumer Purchase Intention toward Green Cosmetics and Personal Care Products

Quadrant I – *Concentrate here* – Consumers considered the perceived emotional value and perceived functional value as important attributes for the green cosmetics and personal care products. However, the performance levels of these functional and emotional value are fairly low. This is where the firm's performance can be improved. These attributes need to be at least up to good industry standard to stay competitive in the market. Concentrating in this area would therefore produce

maximum results.

Quadrant II – *Keep up the good work* – consumers valued and considered environmental concern and green policy, and are pleased with the firm's performance. Hence, they are the most critical factor in providing crucial advantages to the customers and influencing purchase decisions toward green cosmetics and personal care products. Businesses should strive to focus on these factors to sustain green and environmental-related benefits as they can lead to a high purchase intention level.

Quadrant III – *Low priority* – Consumers do not perceive social value to be very important to them. This factor does not usually come into consumers' consideration. However, the performance score is rather moderate (61 out of 100), and therefore the result implies that it could become more important in the future if appropriately improved. Nonetheless, it is inadvisable to focus any related improvement effort on this attribute if the influence level remained unchanged (Groß, 2018). This is because it would influence the least positive effect.

Quadrant IV – *Possible overkill* – this quadrant implies an excessive effort that could be unrelated to consumers' satisfaction, however, none of the constructs appeared in this quadrant.

4.2.7 Segment Analysis Using Heterogeneity Modeling

As the data set does not necessarily come from a homogeneous population, especially in exploratory research, unobserved heterogeneity which may not be driven by demographic characteristics must therefore be considered (Wong, 2019). Finite Mixture Partial Least Squares (FIMIX-PLS) was used to uncover unobserved heterogeneity in the structural model to identify the number of segments. PLS Prediction-Oriented Segmentation (PLS-POS), which is a distance-based segmentation method for PLS path modeling with non-parametric data, was used to further explore the identified segments.

In FIMIX-PLS procedures, the potential number of segments was performed

with 5,000 bootstrapping. After small segments that were not substantial or relevant to the theoretical framework were eliminated from the investigation, 3 potential segments were formed with segment 1 representing 66.5% of data, segment 2 representing 24.4% of data, and segment 3 representing 9.1% of data, as shown in Table 4.28.

Table 4.28 Segment Sizes Matrix

Relative (%)	**Segment 1**	**Segment 2**	**Segment 3**
Segment Sizes	0.665	0.244	0.091

In PLS-POS procedures, the 3 segments identified from the FIMIX-PLS result were calculated and the findings in the PLS-POS model are summarized below.

Table 4.29 PLS-POS Model Summary (R^2)

	Original Sample	**PLS-POS Segment 1**	**PLS-POS Segment 2**	**PLS-POS Segment 3**	**PLS-POS Weighted Average R^2**
Environmental Concern (EC)	0.207	0.534	0.225	0.684	0.494
Purchase Intention (PI)	0.525	0.800	0.684	0.640	0.734

The results showed that the values of PLS-POS Weighted Average R^2 are more significant than the original sample's R^2 values. Therefore, the 3 segments altogether have higher predictive power than the original without segmentation.

In addition, each segment also stated their differences in their respective path coefficients as summarized below in Table 4.30. In segment 1, SV has a negative impact on PI (-0.126) but showed a positive impact on PI in both segment 2 and 3 (0.452 and 0.041 respectively). Meanwhile, the negative impact that only occurred in segment 2 was the EC path to PI (-0.134) as well as the GP path to EC (-0.474). Both path coefficients remained positive in both segment 1 (0.808 and 0.731) and segment 3 (0.444 and 0.827). Lastly, FV has a negative impact on PI in segment 3 (-0.244) but

a positive impact in segment 1 and 2 (0.180 and 0.643 respectively).

Table 4.30 PLS-POS Model Summary (Path Coefficients)

	Original Sample	**PLS-POS Segment 1**	**PLS-POS Segment 2**	**PLS-POS Segment 3**
FV -> PI	0.227	0.180	0.643	-0.244
EV -> PI	0.142	0.032	0.328	0.211
SV -> PI	-0.003	-0.126	0.452	0.041
EC -> PI	0.476	0.808	-0.134	0.444
GP -> EC	0.455	0.731	-0.474	0.827

Moreover, in order to further examine the segmentation and ensure that the PLS-POS segments are theoretically plausible, 10 additional nominal variables that were not included in the original PLS-SEM model were used to perform the SPSS crosstabulation analysis. The initial separation of data into 3 groups was based on the segmentation assignment on a prior FIMIX segmentation solution. The crosstabulation results are summarized as follows.

Table 4.31 Factors influencing purchase decision-making by segment

	Number of Respondents	PLS-POS Segment 1	PLS-POS Segment 2	PLS-POS Segment 3	Total
1. Safety of organic ingredients	Count	139	62	63	264
	% within segment	62.6%	60.2%	**64.3%**	62.4%
	% within all segments	52.6%	23.5%	23.9%	100%
2. Product performance and results	Count	153	65	54	264
	% within segment	**68.9%**	63.1%	55.1%	62%
	% within all segments	58.0%	24.6%	20.4%	100%
3. Biodegradable packaging	Count	31	10	15	56
	% within segment	14.0%	9.7%	**15.3%**	13.2%
	% within all segments	55.3%	17.9%	26.8%	100%
4. Green production process	Count	22	6	10	38
	% within segment	9.9%	5.8%	**10.2%**	9.0%
	% within all segments	57.9%	15.8%	26.3%	100%
5. Certified eco-label or logo	Count	43	14	17	74
	% within segment	**19.4%**	13.6%	17.3%	17.5%
	% within all segments	58.1%	18.9%	23.0%	100%
6. Not tested on animals	Count	20	7	8	35
	% within segment	**9.0%**	6.8%	8.2%	8.3%
	% within all segments	57.1%	20.0%	22.9%	100%
7. Good product review	Count	10	13	8	31
	% within segment	4.5%	**12.6%**	8.2%	7.3%
	% within all segments	32.3%	41.9%	25.8%	100%
8. Interesting brand stories	Count	6	9	4	19
	% within segment	2.7%	**8.7%**	4.1%	4.5%
	% within all segments	31.6%	47.4%	21.0%	100%
9. Knowledgeable salesperson	Count	6	7	5	18
	% within segment	2.7%	**6.8%**	5.1%	4.3%
	% within all segments	33.3%	38.9%	27.8%	100%

The set of nominal variables used to evaluate the crosstabulation was derived from the checkbox's questions from the consumer questionnaire where the respondents were allowed to choose up to 3 options for their responses. In general, the majority of all segments placed high importance on the safety of organic ingredients and product performance and results over all other aspects by more than 60% on average. These functional values of the products positively associate with all

respondents in all segments as the hypothesis testing might suggest. However, by looking at the percentage of the respondents within each segment and comparing each of the factors across segments, they should be differentiable.

In a comparison of all 3 segments in each particular factor, the highest values of respondents in each segment in bold showed that in segment 1, the highest values among all groups are product performance and results (68.9%), certified eco-label or logo (19.4%), and not tested on animals (9.0%). In segment 2, the highest values among the 3 segments are good product review (12.6%), interesting brand stories (8.7%), and knowledgeable salesperson (6.8%). In segment 3, the highest values in comparison between segments are safety of organic ingredients (64.3%), biodegradable packaging (15.3%), and green production process (10.2%).

To better exemplify the results, bar charts showing the percentage of respondents in each segment are displayed in the figure below.

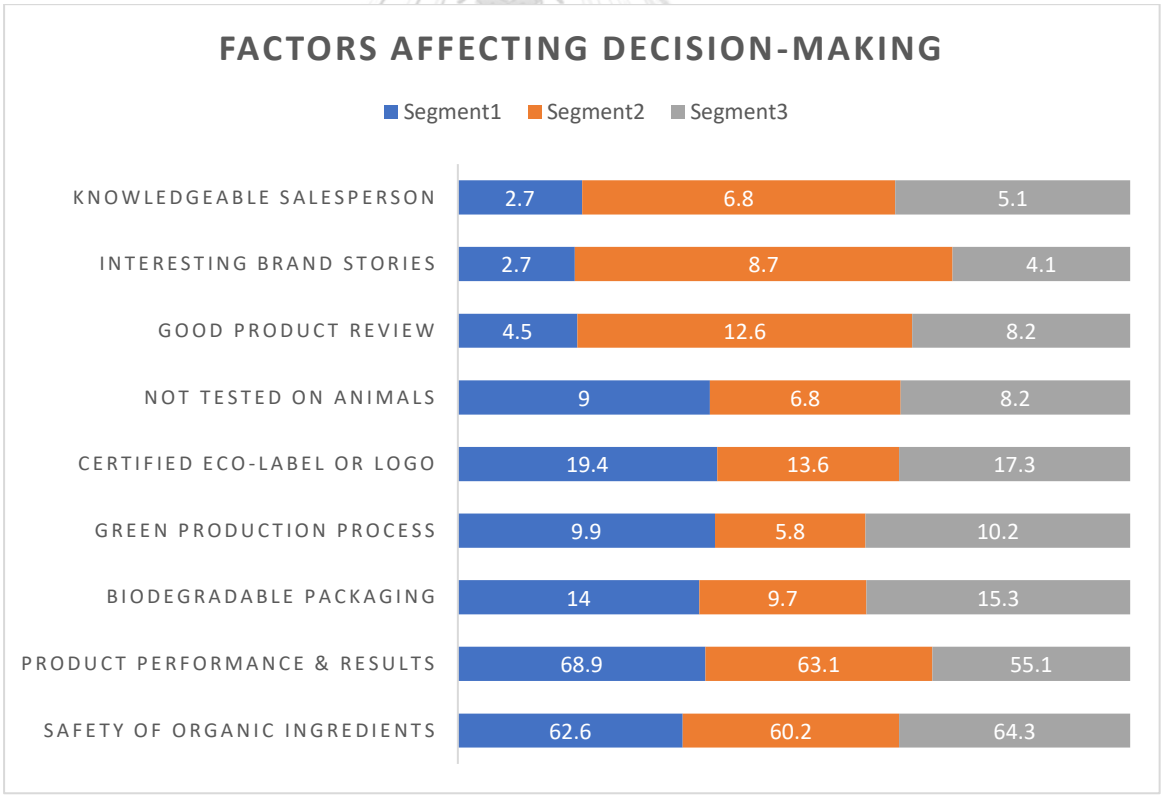


Figure 4.18 Factors influencing purchase decision-making behavior of consumer segments

Although the values of segment 1 and 3 are quite similar in terms of their percentage allocation representing responsiveness in many of their highest-valued factors such as safety of organic ingredients; product performance and results; certified eco-label or logo; biodegradable packaging; and green production process, the factors with low frequencies were investigated to find the differentiable characteristics.

It is noticeable that the percentage comparison in good product reviews, interesting brand stories, and knowledgeable salesperson factors might be relatively low for both segment 1 and 3. However, by looking closely, the values of segment 3 are higher than segment 1's by almost double (i.e., 5.1% of the respondents on knowledgeable salesperson in segment 3 as opposed to 2.7% in segment 1). The results suggested that segment 3's decision-making process on whether to buy green cosmetics and personal care products or not was also somewhat affected by external and experiential influences in purchasing behavior. Meanwhile, the extremely low scores of the first segment (2.7%, 2.7%, and 4.5% respectively) in relation to these mentioned factors suggested they were rather unimportant and irrelevant to the purchasing behavior of the respondents in segment 1.

Conversely, knowledgeable salespersons, interesting brand stories, and good product reviews were revealed to be important factors in influencing decision-making behavior for segment 2 the most as compared to segment 1 and 3. The results showed that this segment was affected by how the product or brand engaged them through communication and the total experience, as in the form of salesperson, brand stories, and reviews. Moreover, among all the factors, the functional value of product performance and results were the most important (63.1%) while environmental concern toward the green production process (5.8%) was the least significant to this segment.

To consider the characteristics of the respondents in each segment, the observed heterogeneity in demographic profiles of the respondents in each segment is summarized below in Table 4.32 for additional examination.

Table 4.32 Segment Size

Number of Respondents	**Segment 1**	**Segment 2**	**Segment 3**	**Total**

Count	222	103	98	423
%	52.5%	24.3%	23.2%	100%

In addition, the demographic profiles between segments, as shown in Table 4.33, followed similar patterns and therefore were not significantly distinguishable. Through the prior analysis of the PLS-POS path coefficients of the original model in combination with crosstabulation of additional variables beyond the original model could therefore better explain the differences between segments.

Table 4.33 Demographics by segment

		Segment 1		**Segment 2**		**Segment 3**	
		N	**%**	**N**	**%**	**N**	**%**
Gender	Male	58	26.1%	18	17.5%	29	29.6%
	Female	160	72.1%	83	80.6%	69	70.4%
	Unspecified	4	1.8%	2	1.9%	0	0.0%
Age Group	18-25	18	8.1%	8	7.8%	13	13.3%
	26-35	54	24.3%	27	26.2%	23	23.5%
	36-45	113	50.9%	52	50.5%	46	46.9%
	46-55	23	10.4%	11	10.7%	7	7.1%
	56 and above	14	6.3%	5	4.9%	9	9.2%
Education (Degree or Equivalent)	Diploma	3	1.4%	1	1.0%	2	2.0%
	Bachelor's	81	36.5%	34	33.0%	44	44.9%
	Master's	126	56.8%	64	62.1%	43	43.9%
	Doctoral	12	5.4%	4	3.9%	9	9.2%
Occupation	Student	18	8.1%	5	4.9%	10	10.2%
	Employee	81	36.5%	44	42.7%	32	32.7%
	Government or state enterprise officer	16	7.2%	10	9.7%	10	10.2%
	Academic staff or researcher	11	5.0%	4	3.9%	7	7.1%
	NGO officer	0	0.0%	1	1.0%	2	2.0%
	Freelance	11	5.0%	6	5.8%	3	3.1%
	Business owner	61	27.5%	29	28.2%	21	21.4%
	Unemployed, retired,	17	7.7%	4	3.9%	10	10.2%

		Segment 1		Segment 2		Segment 3	
		N	**%**	**N**	**%**	**N**	**%**
	housewife						
	Other	7	3.2%	0	0.0%	3	3.1%
Monthly Household Income (THB)	0-15,000	8	3.6%	4	3.9%	7	7.1%
	15,001-25,000	7	3.2%	3	2.9%	3	3.1%
	25,001-35,000	10	4.5%	3	2.9%	6	6.1%
	35,001-50,000	24	10.8%	9	8.7%	14	14.3%
	50,001-75,000	16	7.2%	8	7.8%	11	11.2%
	75,001-100,000	30	13.5%	7	6.8%	12	12.2%
	100,001-150,000	38	17.1%	19	18.4%	5	5.1%
	150,001-200,000	23	10.4%	10	9.7%	9	9.2%
	200,001-300,000	15	6.8%	15	14.6%	4	4.1%
	> 300,000	51	23.0%	25	24.3%	27	27.6%

4.2.8 Segment Interpretation and Analysis

The segment differences were observed through PLS-POS segmentation results, shown in the table below, according to the strength of relationships in path coefficients. Moreover, following the crosstabulation results, the interpretation of segments could expand the model and theoretical assumptions of perceived values according to the corresponding constructs. Consumer segments differ in their decision-making or thinking processes toward green cosmetics and personal care product preferences.

Table 4.34 PLS-POS Segmentation Results

	Original Sample	**PLS-POS Segment 1**	**PLS-POS Segment 2**	**PLS-POS Segment 3**
N	423	222	103	98
Relative Segment Size	100%	52.5%	24.4%	23.2%
Path Coefficients (β)				
FV -> PI	0.227	0.180	0.643	-0.244
EV -> PI	0.142	0.032	0.328	0.211
SV -> PI	-0.003	-0.126	0.452	0.041
EC -> PI	0.476	0.808	-0.134	0.444
GP -> EC	0.455	0.731	-0.474	0.827
R^2				
EC	0.207	0.534	0.225	0.684
PI	0.525	0.800	0.684	0.640
Weighted R^2				
EC	0.207	0.494		
PI	0.525	0.734		

First, in segment 1, EC was observed to have the greatest effect on PI (β=0.808) compared to other perceived value factors. In turn, GP also showed a relatively strong effect on EC (β=0.731). Among all perceived value factors, FV has a relatively small impact on PI (β=0.180), but still has a greater effect than EV (β=0.032) and SV (β=-0.126) which appeared to be insignificant factors for this segment. In addition, taking into account significant factors that influence decision making for this group compared to the other groups, the implication followed the same direction. These consumers in this segment were more rationalized in decision making processes and also the greenest as the rationalization process of their decision-making is highly dependent on the product efficacy (i.e. product performance and results) and the environmental certification (i.e. eco-label) of green cosmetics and personal care products. Meanwhile, retail experiential factors and social references such as the capability of sales staff or brand stories were insignificant to their decision making. Consumers in segment 1, represent 52.5% or more than half of the respondents, are therefore labeled as the **"Rational Consumers".**

On the contrary, as both EC and GP have negative and insignificant effects on this consumer segment (β=-0.134, -0.474), environmental-related factors were irrelevant to their purchase intention. In addition, the positive effect of all perceived value factors (FV, EV, and SV) for segment 2 was the most significant (β=0.643, 0.328, 0.452 respectively) compared to other segments with the noticeably strongest effect of FV to PI. This segment is considered emotion-centric as they were more responsive to good product reviews, interesting brand stories, and knowledgeable salespersons in comparison to all segments, and placed high importance on product performance and results and safety of organic ingredients as well. Although functional product values in terms of their effectiveness also matter greatly for them, the experiences around the products such as product reviews, salesperson, and brand stories induce them as equally. Compared to segment 1, this consumer segment, although paid some attention to green product standards, is much less green and is more intuitive despite non-significant beta coefficients for EC and GP. Segment 2, representing 24.4% of the total number of respondents, is characterized by **"Experiential Consumers"**. This consumer segment decided whether or not to buy a green cosmetics and personal care product based on product safety and results that must have been well communicated through brand stories, good product reviews, and social references such as the persuasiveness of a salesperson. Sustainability-related attributes were therefore rather insignificant for this experiential group.

Segment 3, which accounted for 23.2%, has great similar characteristics as compared to segment 1, and is labeled as **"Cautious Consumers"**. Similar to segment 1, both EC has a great effect on PI (β=0.444) and GP has a great effect on EC (β=0.827). In addition, FV and SV were also rather insignificant (β=-0.244 and 0.041 respectively). In support, their decision making was driven by the safety of organic ingredients, green production process, and biodegradable packaging of green cosmetics and personal care products more than other segments. However, external product factors such as good product reviews, interesting brand stories, and knowledgeable salesperson were more significant in comparison to segment 1. This distinguishable evidence is supported by the strength of EV in relation to PI, which appeared to be relatively significant when compared to segment 1. Consumers in this segment are cautious and careful as they tend to incorporate information from

various sources of factors, from the product attributes to retail experiential shopping experience to evaluate an overall product whether it is well-thought and well-designed relative to their values and their level of consciousness. Green policies were in fact most influential for this segment in relation to environmental concerns. However, their environmental concerns did not necessarily make a direct significant impact on purchase intention. Because they tend to be more cautious, environmental-related factors alone were not sufficient for them to make a purchasing decision, which is reflected in a much smaller effect of the EC to the PI path in comparison to segment 1. Nonetheless, because of their cautiousness, their concerns toward the environment do not always translate directly to purchase intention.

Combining the differentiating factors with the path coefficient results for each segment altogether helps understanding all identified types of green consumers. Table 4.35 summarized key characteristics of each group and Figure 4.19 illustrates how each consumer segment intersects.

Table 4.35 Characteristics of Consumer Segments

Consumer Segment	**Differentiating Factor**	**Common Factor**	**Environmental Level**
Rational Consumers (52.5%)	• Green Attributes (Product performance, certified label, cruelty-free)	Functional Benefits: Product results and performance, including product safety	High interest, high concern
Experiential Consumers (24.4%)	• Product Experience (Product review, brand story, knowledgeable salesperson)		Low interest, low concern
Cautious Consumers (23.2%)	• Eco-Design (Eco-friendly packaging, certified label, green production, good product review)		High interest, moderate concern

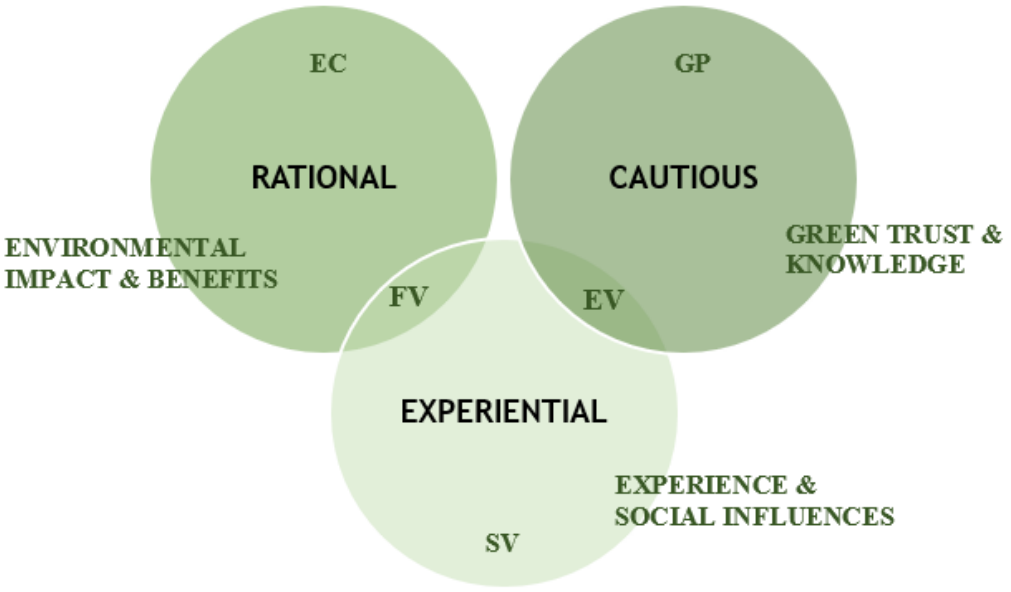


Figure 4.19 Green Consumer Segmentation

Perceived value plays roles in purchase intention across all consumer groups uniquely in different dimensions. The common ground to accommodate all groups and get a wider market base is the product performance and safety. Environmental concern and green policy play a key role in increasing the perceived value, particularly for the rational and cautious consumer groups. A targeted strategy to engage specific product benefits can be integrated to respond and cater to consumer groups correspondingly.

First, the rational consumers are the true green consumers. They strongly believe in environmental benefits, beyond other product-related benefits. The marketing strategy can be rather straightforward in communicating with this group. Focusing on the impact that the product can have on the environment will speak to their ideology directly.

Secondly, the experiential consumers do not particularly care about being green or the environmental impacts. They are heavily into emotional product experience and social influences. To target this segment, the promotion has to rely mainly on emotional benefits through the use of social influences. Social media is obviously the right channel to communicate with this group in terms of green product

benefits and product reviews. Additionally, if they believe being environmentally responsible is the right thing to do because of what others perceive or because of influences from others, they could be induced to green purchases through social references or social media influencers, as well as brand campaigns, stories, and salespersons at the point of sale.

Finally, the cautious consumers compare information from various sources to consider both product and green benefits. They could be seen as the most potential green consumers, but they are also the most skeptical. The marketing strategies to appeal to this segment are by product knowledge, data, statistics, as well as promotional messages that are reliable and trustworthy for them to make smart choices.

4.2.9 Qualitative Sample Demographics

In support of quantitative results, qualitative consumer studies additionally contributed to enhancing the reliability of the data. All interviews were coded manually with open-coding, followed by selective coding, and theoretical coding to analyze the data. A total of 30 participants residing in Bangkok (Table 4.36) was included in this study. Each interview session lasted between 15 - 30 minutes.

Table 4.36 Demographic Profile of Respondents in Qualitative Study

Case	User Experience	Gender	Age	Education	Occupation	Household Income (THB)
C-01	User	Female	60	Master's Degree	Government officer	25,001-35,000
C-02	User	Female	33	Master's Degree	Employee	25,001-35,000
C-03	User	Female	25	Bachelor's Degree	Other	25,001-35,000
C-04	User	Female	32	Bachelor's Degree	Employee	25,001-35,000
C-05	User	Female	62	Master's Degree	Other	35,001-50,000
C-06	User	Female	25	Master's Degree	Employee	35,001-50,000
C-07	User	Female	24	Bachelor's Degree	Freelance	35,001-50,000
C-08	User	Female	30	Bachelor's Degree	Employee	35,001-50,000
C-09	User	Female	50	Master's Degree	Employee	50,001-75,000
C-10	User	Male	37	Master's Degree	Employee	50,001-75,000
C-11	User	Female	36	Master's Degree	Employee	75,001-100,000
C-12	User	Female	40	Master's Degree	Business Owner	100,001-150,000
C-13	User	Female	61	Master's Degree	Government officer	100,001-150,000
C-14	User	Female	37	Master's Degree	Employee	150,001-200,000
C-15	User	Female	43	Master's Degree	Employee	150,001-200,000
C-16	User	Female	36	Bachelor's Degree	Employee	> 300,000
C-17	User	Male	34	Bachelor's Degree	Employee	> 300,000
C-18	User	Male	35	Master's Degree	Employee	> 300,000
C-19	Non-User	Female	34	Master's Degree	Employee	35,001-50,000
C-20	Non-User	Female	25	Bachelor's Degree	Employee	35,001-50,000
C-21	Non-User	Female	56	Bachelor's Degree	Government officer	50,001-75,000
C-22	Non-User	Female	52	Master's Degree	Freelance	50,001-75,000
C-23	Non-User	Female	42	Master's Degree	Housewife	50,001-75,000
C-24	Non-User	Female	26	Bachelor's Degree	Freelance	50,001-75,000
C-25	Non-User	Female	55	Master's Degree	Government officer	75,001-100,000
C-26	Non-User	Male	29	Bachelor's Degree	Employee	75,001-100,000
C-27	Non-User	Female	26	Bachelor's Degree	Business Owner	100,001-150,000
C-28	Non-User	Female	36	Master's Degree	Employee	100,001-150,000
C-29	Non-User	Female	24	Master's Degree	Employee	200,001-300,000
C-30	Non-User	Female	29	Bachelor's Degree	Employee	200,001-300,000

The user experience, depicted in the second column from table 4.35, was used to differentiate between user (18 out of 30 or accounted for 60%) and non-user (12 out of 30 or accounted for 40%) who has never purchased or used green cosmetics and personal care products before.

The majority of participants who agreed to take part in the interview were female (26 out of 30 or accounted for 86.7%). Most male consumers did not agree to participate because they do not usually buy these products by themselves and are not familiar enough with the product to provide information that could meet with the research objectives. Participants' age is ranging from 24-62 with an average age of 37.8 years. All respondents are of high educational level as 12 out of 30 participants or 40% obtained a Bachelor's Degree while the other 60% obtained a Master's Degree. 60% of the respondents are company employees with monthly household income ranging from 25,000 to over 300,000 THB whereas 40% of the respondents (12 out of 30) are in between the 35,000-75,000 THB range.

The lower-income ranges of the respondents from this qualitative research approach helped justify the limitation of population sample representativeness of the quantitative research respondents that constituted the highest income bracket of over 300,000 THB.

4.2.10 Qualitative Analysis

Research findings presented how each determinant according to the research theoretical framework and hypotheses influenced consumers' purchase intention of green cosmetics and personal care products. Firstly, the main themes were categorized into functional value, emotional value, social value, environmental concern, and green policy with corresponding key words and responses from the interviews as summarized in Table 4.37.

Table 4.37 Emerged Themes from Qualitative Study

Variables	Themes	Key Words / Key Responses
General perception of 'organic'		"No chemicals", "natural", "safe", "eco-friendly", "non-toxic", "health/healthy", "(organic) food, vegetables, fruits", "cosmetics", "shampoo/hair care", "expensive/pricey"
General attitude toward green vs traditional products		"Better", "good for health", "good for environment", "good in long term", "but not as effective", "but not as good quality"
Functional Value (FV)	Quality, Safety & Health	"Product quality matter the most.", "must be safe.", "product quality is the top priority.", "safety and quality that must also deliver product results.", "I care more about how the product delivers results, rather than story behind it.", "it derives from plants, so it is safer and non-chemical.", "safer and high quality.", "milder than chemical-based products.", "good quality and results.", "worth the price and quality.", "no chemicals and safer to use continuously.", "safe to use in daily routines", "safe to use or even to sleep in.", "less side effects.", "no chemical residues." "Typically, because of health reasons and green is healthier.", "less harmful for myself.", "better personal health from product benefits.", "better and gentler to the body.", "better effects on our body.", "it really solves my scalp problem in the long term.", "it helps with my allergic reactions.", "after allergies with many over the counter products.", "it's non-chemical so it won't trigger allergic reactions."; "solve my skin problems.", "safe for my sensitive skin conditions".
Emotional Value (EV)	Aesthetics (Sensory i.e., feeling, packaging, logo/label)	"It feels good, emotionally, to choose green products.", "comfort in choosing green.", "design and story behind kept me into it." "I was in need of it. Then the packaging and natural and organic claiming on the label makes me want to try."; "I judge from the packaging first.", "feels good to see these certain standards and labels", "eco-labeling helps emotionally, but I don't really look for it that much.", "I don't know or understand all of them, but it feels good to see the products with these logos".

Variables	Themes	Key Words / Key Responses
Social Value (SV)	Social Status & Influences	"(bought organic products) when I had kids.", "because I had kids.", "I bought for my daughter so I use it too."
Environmental Concern (EC)	Sense of responsibility and care toward the environment, eco-friendliness	"I don't forget to care about the nature.", "to contribute to helping the environment.", "conserve the environment.", "that meets my objective of living to save a beautiful nature.", "contribution to environment.", "it's good for the environment.", "Good for earth and for all of us in the long term.", "I feel less guilty to the environment.", "does not affect the nature and human living.", "I feel great I didn't support the product that are tested on animals." "I love everything eco-friendly.", "using eco-friendly makes me eco-friendly too", "the benefits of eco-friendliness and more sustainable", "because it's eco-friendly, I don't feel as guilty.", "I feel at ease because it's eco-friendly to the environment.", "it will be really great if everything in this world is eco-friendly."
Green Policy (GP)	Green corporate and governmental policies i.e., 3R principles, green label, production, & procurement, animal welfare, CSR	"I buy refillable products and also return empty bottles to the store.", "of course, recycle.", "I recycle whatever that's recyclable and refill some products sometimes.", "I think we need to recycle as much as we can." "I don't use sunscreen that is harmful to coral reefs.", "I supported cruelty-free and reef-safe sunscreen products.", "sunscreen that don't harm the coral reefs." "I bought products that contribute some of their sales to charity.", "If it's for a good cause or donation, like CSR, I tend to support these products.", "I would be more interested if a product came from a social support program like locally sourced or produced products from local farmers, villagers, or communities."

Accordingly, out of the all the general perceptions toward the term ‘organic’ mentioned during the in-depth interviews, the key words that came up most frequently were: natural (18 mentions), no chemicals (15 mentions), safe (10 mentions), health (10 mentions), non-toxic (8 mentions), eco-friendly (8 mentions), food/vegetables/fruits/plants (8 mentions), shampoo/haircare (5 mentions), more expensive/expensive (5 mentions), organic agricultural practices (4 mentions), cosmetics (4 mentions), clean (3 mentions), gentle (3 mentions). Other key words received only 1 or 2 mentions.

The interview participants were then asked about general thoughts on green products and emerging conservation trends of the environmental issues, which appeared to be very positive and agreed on among all respondents. Specifically, in terms of green cosmetics and personal care products, about 80% expressed a positive attitude toward this product segment for being good for themselves and the environment in the long run while another 20% also agreed but expressed some concerns or doubts about the product efficacy and effectiveness in comparison with traditional or chemical-based products as well as the authenticity of organic product claims.

In understanding what factors influence consumers’ intention and actual behavior to purchase green cosmetics and personal care products, the themes were categorized based on perceived (functional, emotional, social) values, environmental concern, and green policy from the theoretical framework to explore the determinants of their perception in more depth.

4.2.11 Discussion

As posited in the hypotheses, the results showed that environmental concern has the greatest effect on consumers’ purchase intention, followed by the perceived functional value. Green policy has a positive and significant effect on environmental concern, which indirectly influences the perceived value and purchase intention. However, emotional value and social value show no direct association with the purchase intention. Using qualitative data analysis in conjunction, the research findings interestingly supported all the hypothesis results,

which additionally provided more in-depth insight to understand the effects altogether.

Quantitative Discussion

This study hypothesized that perceived value (in terms of functional, emotional, and social) would positively influence consumer purchase intention (H1-H3). The results showed that the perceived functional value (H1) among the three main antecedents of perceived values was found to be the most significant in green purchase intention, which aligns with findings from a number of contemporary studies in the context of natural and organic, green or eco-friendly cosmetics and personal care products (Al-Haddad et al., 2020; Kumar et al., 2021; Lavuri et al., 2022; Lee et al., 2019; Oe & Yamaoka, 2022; Sinha & Verma, 2020; Zollo et al., 2021). The significant relationship suggests that when a customer perceives that the product meets their utilitarian or practical needs, the favorable intention will increase the likelihood of purchasing green cosmetics and personal care products. This understanding places importance on creating positive perceptions of the practical considerations in product functionality among target customers such as the efficacy and safety of green formulation and health-related benefits in relation to their perceived functional value.

In contrast, hypotheses on emotional value and social value were not supported (H2-H3), which indicated that they did not have any positive direct association with the purchase intention toward green cosmetics and personal care products. Although several research studies may have suggested that perceived emotional product benefits positively correlate to consumers' purchase intention of cosmetic and personal care products and usually demonstrate strong influences in many cases (Ajitha & Sivakumar, 2017; Ghazali et al., 2017; Jaini et al., 2019; Lee et al., 2019; Sinha & Verma, 2020), this study indicates that there is no significant effect of perceived emotional value on consumers' purchase intention toward green cosmetics and personal care products. In fact, the perceived emotional value associated with green brand stories including experiential features of the products such as attractive packaging as well as green product labeling such as logos and certifications were attributes that helped consumers to conceptualize a better

understanding toward brands or products, but it was not a motive directly related to the purchase intention in most cases. In general, respondents felt emotionally good and had a positive attitude toward green products, but not necessarily linked to purchase decisions. To further verify the findings, previous studies connote emotional product features such as eco-friendly packaging design are not an important factor for consumers (Birch et al., 2018; Prakash et al., 2019). Research findings from Song et al. (2019) also partially explained this circumstance that the increased perceived emotional value in relation to branding does not increase purchase intention of cosmetic products. In contrast, other previous studies in the context of green products imply that the emotional value attached to the product would increase purchases of the consumers as a result of a positive attitude toward themselves from consuming green (Lee & Jin, 2019; Lin & Huang, 2012). Interestingly, the current findings presumably indicate that Thai consumers' perceptions may differ from other Asian consumers in general.

On the other hand, social value can reflect social self-concept and social interaction and sharing and strengthen consumers' purchase intention (Gan & Wang, 2017). Social approval also makes a good impression among reference groups of consumers (Mohd Suki & Mohd Suki, 2015). Prior literature suggests that social factors regarding positive attitudes toward cosmetics and personal care products are important and can positively influence consumer purchase intention and behavior (Liobikienė & Bernatonienė, 2017; Song et al., 2019). Word of mouth from social reference groups like friends and family members was acknowledged to be influential in the intention to try and purchase green cosmetic products (Lin et al., 2018). Although several studies emphasized the social value impact of green product purchasing among Asian consumers, as European consumers have a higher level of individualism (Bielawska & Gręb osz-Krawczyk, 2021), consumer behavior in the context of cultural differences did not confirm the results. In this study, however, the social value was found to be non-significant in consumers' purchase intention toward green cosmetics and personal care products. There are a few studies in line with the result implicating that social value is insignificant to consumers' choices of organic food and green products (Biswas & Roy, 2015; de Morais et al., 2021; Kushwah et al., 2019; Lin & Huang, 2012; Qasim et al., 2019) as well as for cosmetics and personal

care products (Ghazali et al., 2017; Lee et al., 2019). According to Sadiq et al. (2021), negative social influences such as skepticism and negative perceptions among consumers could present possible barriers to green product adoption as well. Moreover, the product choice is more driven by personal factors rather than reference groups because people have different skin types, reactions to product ingredients, and preferences for specific needs such as whitening products for instance (Ghazali et al., 2017). Ghazali et al. (2017) also pointed out that social influences usually occur at the initial stage of decision making and therefore the impact on consumers' decisions would be minimal.

Moreover, the hypothesized relationships between environmental concern and consumers' purchase intention, as well as between environmental concern and the perceived value were all supported (H4-H7). The results imply that as environmental concern increases, the perceived value and the purchase intention for green cosmetics and personal care products will also increase. Consistent with previous studies from both developed and developing countries suggest that environmental concern is important and is considered in decision-making, which also significantly influences the intention to purchase green products (Bielawska & Grębosz-Krawczyk, 2021; Khaola et al., 2014; Paul et al., 2016; Prakash et al., 2019; Yadav & Pathak, 2016; Zhang et al., 2019), as well as eco-friendly cosmetics and personal care products (Chin et al., 2018; Nguyen et al., 2019; Zollo et al., 2021). Zollo et al. (2021) also addressed that the ecological benefits of eco-friendly products are considered when consumers make a purchase decision. Thus, consumers who have high environmental concerns also concerned about the value of eco-friendly cosmetic products that reflect the welfare of the environment, which then results in the adoption of green cosmetic products (Sadiq et al., 2021). Despite several supporting literature, however, there is one study in the developed context in regards to consumers' perception toward green beauty products suggests otherwise by indicating that environmental protection was not a priority in consumers' motivation for green purchases as they were rather egocentric (Cervellon & Carey, 2011). Another study in the UK market partially supports this incidence suggesting that a particular group of consumers who paid attention to functionality did not consider green aspects as top priorities (Lin et al., 2018).

Furthermore, green policy was found to have a positive and significant impact on environmental concern (H8). This is in line with a previous consumer behavioral intention study on green skincare products that showed a high influence of green policies can increase consumer awareness of the environment (Chin et al., 2018). Nonetheless, the green policy did not have a direct influence on the perceived value and consumers' purchase intention (H9-H12). On the contrary, through the investigation via mediator variable of environmental concern, the results imply that green policy has an indirect impact on both the perceived value and the purchase intention. A strong influence of environmental concern when it is presented plays a significant role in green policy, which indirectly influenced the perceived value and the purchase intention. The research extends the study on green cosmetics and personal care products by showing that consumers evaluate not only perceived values or green attributes of the products directly but also the relative environmental benefits derived from green policies. Surprisingly, a recent study in Thailand devised by Oe and Yamaoka (2022) indicated a contradictory result. Their study suggested that CSR activities of the cosmetic companies did not impact Thai consumer behavior. Based on their demographic sample, this phenomenon indicated that the perception of young Thai consumers, mostly in their 20s, significantly differs from this study of a more mature consumer group mostly in their late 30s to 40s. This can be further interpreted that environmental concern might not be a clear factor to evaluate purchasing behavior among Thai consumers across generations. With insufficient consumer behavior studies in the cosmetic sector in Thailand at present, further investigation in a larger and more diverse data sample shall be explored in more depth.

Qualitative Discussion

Functional Benefits – Safety and Quality for Health

The perceived functional product-centric attributes of green cosmetics and personal care products from the qualitative findings were highly related to quality, safety, and product performance. Safety toward health in the long term or specific health or skin conditions such as 'allergies' or 'sensitive skin' was also associated

with gentle and milder organic, natural ingredients which are ‘chemical-free’ and ‘better for health’ in general. The product performance and effectiveness were also promising qualities as they seemed to deliver favorable results and solve specific concerns for users. In this regard, they considered product safety and quality above all other functional factors.

On the contrary, non-users perceived green cosmetics and personal care products as high priced and more expensive than traditional products. Although they also considered product quality highly, they were more price-conscious and needed more product information or actual reviews to support their evaluation process of whether green cosmetics and personal care products are worth the price and quality or not. Approximately 30% (4 out of 12) of the non-users also mentioned that they would be willing to purchase a green product, and also at a more expensive but still reasonable price if they experienced skin problems or health issues. However, in a normal circumstance, they did not feel the need to switch or pay higher for green products as traditional products also work well on them.

Accordingly, the findings suggested how consumers evaluate their decision-making processes in terms of product quality, safety, results, as well as price altogether led to the intention and actual behavior to purchase green cosmetics and personal care products.

Emotional Attributes – The First Impression

Emotional attributes of green cosmetics and personal care products could lure and attract consumers’ interests at the initial stage of decision-making processes as they are linked to first impressions of the products at the point of sale. However, they might not be a direct motive that leads to purchasing intention and behavior in all cases because they could simply be a way that raises consumers’ awareness and understanding toward the brand or product, which does not necessarily respond to what consumers are looking for.

Product packaging, logo, label, or even brand stories and advertisements at the point of sale are what consumers see first and therefore were usually linked to their first impressions and perceptions toward the brand or product. All respondents

agreed emotional attributes that are creative and unique make green cosmetics and personal care products more interesting and also attracted their interest to stop by or try the products. These emotional attributes became part of the first screening stage of the decision-making process as 'product attractiveness could make decision-making easier'. However, 'it can be a first impression and part of making a decision, but not always.' In some cases, it was more like 'raising brand awareness but it does not really matter when purchasing the product.' It is important to note that these emotional attributes might be attractive to consumers and persuade them to reach for the products, but once they do, this is when other factors came into play:

> 'It helped to learn more about the brand but I'd try to find out more from reviews and other sources online.'
>
> 'It made me interested in the product but I need more information before I decide.'
>
> 'As long as the product itself is tried and tested.'

Clearly, the perceived emotional value could be very effective in attracting consumers and capturing their interest in the products, but it does not always win when it comes to the purchase intention and actual behavior.

Negative Emotions – Skepticism of Greenwashing

Negative emotional associations also emerged when the product label, packaging, or brand stories and advertisements were not reliable enough to gain consumers' trust. Based on the interview findings, it was observed that consumers' insights and related perceptions about greenwashing and green skepticism do exist and are growing.

One-third of the interviewees (10 out of 30 respondents) expressed their concerns about the product labeling, packaging, and advertisements. Information and knowledge about green cosmetics and personal care products are relatively important for this group of consumers in making purchase decisions. They

mentioned that these eco-friendly or green claims and aspects of the products could be both beneficial and confusing at the same time. This means that these consumers suspected that many cosmetic and personal care companies might have presented themselves as being green, despite not really being green. As a result, consumer confusion and skepticism created a negative emotion toward the products. Subsequently, it made them feel that these green cosmetics and personal care products were not trustworthy enough, and that they would not trust or buy these products. The findings confirm Lavuri et al. (2022) study that pointed toward a lack of trust and knowledge on green product features, which can be a barrier to purchase organic beauty products.

Moreover, these respondents were also confused and skeptical about the certified logo and label. Although they did not question about the impact measurement or criteria of green standards, they raised questions and comments in regards to trust and understanding of such claims, such as:

> ‘Sometimes I look at them and wondered if they were all the same?’
> ‘Do they all have the same standards for qualification purposes?’
> ‘I think they’re a bit vague’.

These respondents further addressed that they would need more information from other sources as well:

> ‘I’d usually double check the ingredients and label to be sure.’
> ‘I might need to find more supporting information before purchasing.’

This indicates that they need sufficient information before making decisions. They needed to evaluate what the product has to offer from various sources. Their insights therefore align with the cautious consumer group as identified in the segment analysis as well.

Moreover, some respondents also mentioned that if they knew about greenwashed claims or activities of a particular brand or a product, they would immediately and completely stop using that brand or the product. This incidence

highlights attitudes and behavior toward consumer boycotts. There are limited literature and lack of information regarding boycott of cosmetics and personal care products in Thailand in the greenwashing context. The negative perception and potential negative impact on the business toward boycotting may become more dominant in the future as consumers are increasingly aware of their roles in consumption demand that drives corporate social irresponsibility (Scheidler & Edinger-Schons, 2020). In support, the findings from the interview showed that the knowledge of greenwashing might lead a path to boycotting. In addressing this issue would be very challenging for the cosmetic companies, as it can gradually spread through wider consumer groups and the public as well.

Additionally, despite the fact that there is lack of national regulations on green terms and labels as well as lack of greenwashing regulations for the cosmetics and personal care products, greenwashing issues would still prevail in the market. Many local cosmetic companies might not have enough capabilities to undertake green strategies with transparency. They would probably still use superficial claims and images to promote their products. Consumers' skepticism and negative product judgments would possibly lower purchase intentions from the products of greenwashing companies. Greenwashing issues are difficult to monitor and control. The best way for consumers to avoid getting greenwashed is to have sufficient knowledge and be educated about green claims, eco-labels, list of ingredients, and company' commitment. In general, companies should not only focus on green performances but also need to develop trustworthiness in consumers' minds.

Nonetheless, future works investigating the perceived greenwashing in the cosmetics and personal care products could assess potential impacts on the industry as well as effects on consumer attitudes and behavior.

Social Influences – Child-Focused

Qualitative findings suggested that social reference groups could somewhat motivate consumers to buy and use green cosmetics and personal care products. However, the reason they bought these green products in the first place did not come

directly from the interactions among social groups or social-related factors. Instead, the reasons were rather because of the perceived functional value of the products or the perceived benefits in terms of product safety and quality.

Although the quantitative results showed a non-significant association between the perceived social value and consumers' purchase intention, the qualitative findings suggested that social value could be a unique motive to buy green cosmetics and personal care products for respondents who have children. This condition of having young children therefore differentiates them from the rest of the respondents. Roughly 10% of the respondents mentioned that they bought green or eco-friendly personal care products for the first time when they had kids. They also explained further that they did not really pay much attention to what kind of products they use on themselves, but they are very picky and conscious when it comes to shopping for their children.

Due to trust in product quality, safety, and gentleness on the bodies, they specifically intend to buy green personal care products for their children and sometimes ended up using these products on themselves or for the whole family too. In addition, one male respondent mentioned he bought green personal care products sometimes because his wife asked him to, as they also have a newborn son. His wife was a great influence to him and he would *'use whatever wife dictates'*, including green personal care products in this context. This implicates the importance of social influences upon consumption of green cosmetics and personal care products.

Other respondents rarely mentioned or express social value or association with any social groups in their decision-making toward purchasing green cosmetics and personal care products, as they are more interested with product-related benefits.

From the findings of this particular consumer group, the correlation between perceived social value and green purchase intention could not be translated as straightforwardly. Although the social reference groups or families were their biggest motives to consume green, the reason they purchased these green products for their family members initially derived from the 'functional' benefits of the products in terms of safety and quality first. It was not because of the direct social values derived from an association with the social groups that persuade their product choices.

Nonetheless, if it came down to the effectiveness of how well the products

would actually work on their children or themselves, social media and social media influencers such as beauty bloggers and environmental activists could be powerful tools for the cosmetic companies in influencing attitudes and concerns of consumers as well.

A Sense of Environmental Responsibility

According to the interview, the sense of environmental responsibility and caring toward the earth was shown to be highly correlated with green consumption. In other words, having an eco-friendly attitude is highly linked to the behavior and intention to use more eco-friendly cosmetics and personal care products. This aligns with previous studies (Fallah and Ebrahimi, 2014) confirming that consumers who care about the environment show a higher interest in purchasing environmental-friendly products.

In terms of environmental responsibility, half of the respondents mentioned the term *'conserve', 'contribute to',* and *'help'* the environment in relation to their beliefs and lifestyles.

The feeling of wanting to save and give back to nature influenced the intention to purchase green products:

> 'I believe in when I take something then I need to give them back. For green products, I feel like I get a good quality item but I don't forget to care about nature'.

A sense of loving and caring for the earth also associates with consuming green:

> 'If I were to rate a normal product 10 out of 10, I would rate a green product 11 out of 10. Using green cosmetics and personal care products makes me feel more earth-loving too, because green products are very considerate about the environment in every little detail'.

In confirming the positive association between environmental concern and

green purchase intention from the hypothesis, the finding showed that a high concern toward the environment reflects a high level of purchase intention as well:

> ‘Materials that have been made by reducing the use of natural resources and the way it will be disposed of after use. If it can be reused, it will be another amazing step that meets my objective of living to save a beautiful nature’

> ‘I would rather buy green than traditional cosmetic products if they can be disposed of after use easily and do not affect the nature and human living’.

In addition, being an eco-friendly person or eco-friendly to the earth highly correlates to using eco-friendly products:

> ‘I’ll use whatever product that benefits the earth too, so it would be great if all products are made to be eco-friendly.’

> ‘I think people are becoming more interested in green cosmetics and personal care products, as well as other green product types. Environmental issues that happened around the world like flooding, wildfire, and earthquakes were all mainly because of human doing. By being labeled ‘the creator’, but humans are also ‘the destructor’. If we don’t start to act now, then when? Wouldn’t it be better if everything and every product in this world are environmentally friendly?’.

And vice versa:

> ‘Green (cosmetic) products mutually help cultivate collective environmental values in the society.’

However, non-users did not make a comment on this particular issue. They either responded ‘I don’t really know much about it (difference between green or non-green products)’ (6 mentions), ‘not really interested’ (4 mentions), or ‘neutral’ (2 mentions).

Interests in Green Policy

Based on the interview findings, consumers showed a high level of interest toward green policies initiated by the cosmetic companies, such as CSR and philanthropic actions, as well as the related policies from the governmental authorities, such as green label and production. Their underlying intents were to increase positive environmental impacts.

The non-purchase intention was also found in these findings such as the willingness to participate in green activities such as recycling, reforestation, and engaging in charitable programs and efforts to reduce negative environmental impacts, as well as word-of-mouth to persuade others to join them.

Moreover, the green policy also indirectly influenced green purchase intention. How respondents assessed green policies from businesses and governmental agencies showed a positive association with environmental concern in regards to purchasing green cosmetics and personal care products, such as:

> ‘of course, policies would definitely affect my purchase decision. Like CSR, fair trade that supports social communities, or green production, I know for sure that if I buy the product, what I get in return is more than what the physical product itself offers. It’s the value behind it, beyond it, and that will not deteriorate the environment at the same time.’

The majority of participants mostly responded in a similar manner. Although they would not be able to come up with specific policies from the top of their mind on their own, they showed a high level of interest in the green policies relating to cosmetics and personal care products and how they can contribute to making positive impacts on the environment.

Moreover, about half of the respondents, including both users and non-users of green cosmetics and personal care products, engaged in other green activities to support green policies and consumption of green products in an attempt to help reduce negative impacts on the environment such as recycle and refill (12 mentions), send plastic packaging back to the store (4 mentions), buy reef-safe sunscreen products (4

mentions), buy cruelty-free products (4 mentions), buy products that contribute sales to donations or charities (3 mentions), and reforestation for carbon offset (3 mentions). In addition, 2 respondents also mentioned a non-purchase intention in regards to green policy through word-of-mouth:

> ‘I want people to see and understand more about the value of the green product, that it is necessary to us and the earth. I’ll pass on the information to people I know so they can consume more green products like me.’

> ‘I use refillable products and I also tell people to return the empty or old packaging back to the store, so that it can be recycled or enable other people to put it into other uses.’

The research findings confirmed the association between green policy and environmental concern. In addition, it also indirectly links to the increased intention to purchase and consume more green cosmetics and personal care products.

In sum, the perceived values toward green cosmetics and personal care products can be complex and overlapping. The research findings showed that values are intertwined in ways that are dependent on consumers’ personal preferences, experiences, and values, and one factor alone might not be feasible in measuring consumers’ motives. The findings derived from the in-depth interviews also allowed further confirmation and verification of the hypothesis results. They helped explain the interrelationships between factor determinants that influence their decision-making processes for the green cosmetics and personal care products.

4.3 The Role of Policy in Promoting Green Cosmetics and Personal Care Products

Based on the LCT principles which were used as a theoretical framework, the approach works as a support tool for measuring and reducing both environmental and social impacts as well as improving standards for environmental management of green products and services throughout their lifecycles. With the goal to minimize environmental degradation throughout all products’ lifecycle phases, the intervention

of integrated product environmental policies includes measures like bans of certain substances, eco-product design guidelines, environmental labeling, and green production standards.

4.3.1 Interview Sample and Results

In total, 4 organizations agreed to participate in the online in-depth interviews through Zoom videoconferencing in this research study, where 2 of them were governmental agencies (I-09; I-10) and another 2 were NGOs (I-11; I-12), located in Bangkok, Thailand. Profiles are summarized in Table 4.38.

The interview questions referred to sustainable consumption and production policy, supporting schemes and activities concerning green cosmetics and personal care products, engagement with other stakeholders, policy adoption challenges, and future prospects that could bring the industry forward to become more sustainable.

Table 4.38 Profile Respondents from Government and NGO Interviews

Case	Organization	Type	Department	Position of respondents
I-09	Thai Food and Drug Administration (FDA), Ministry of Public Health	Governmental Agency	Cosmetics Control Division, Standards and Regulations Sub-Division	Project Coordinators (3 persons in Pharmacist - Special Expertise Level)
I-10	Department of Environmental Quality Promotion (DEQP), Ministry of Natural Resources and Environment	Governmental Agency	Green Production	Project Coordinator (Professional Engineer)

I-11	Thailand Environment Institute (TEI)	Non-Profit Organization	Thai Green Label and Environmental Label	Project Manager and Acting Director of Green Label and Environmental Label
I-12	The Federation of Thai Industries (FTI)	Non-Profit Organization	Water and Environment Institute for Sustainability (WEIS)	Department Manager

Human health and environmental conservation

For the cosmetics laws and regulations to be enacted and enforced, safety of consumers and the environmental impacts as well as consequential impacts on wildlife and plant conservation from the use of cosmetics products are crucial factors to be taken into account. Microbeads in cosmetic products and harmful chemicals in sunscreen products are not only harmful to human but also toxic to the environment. In line with the European regulations, ban of both was already imposed by the FDA and officially implemented in Thailand recently.

> "In compliance with Thailand plastic and waste management roadmap, plastic microbeads used in cosmetics are prohibited by the new law announced by FDA Thailand in 2020. In addition, national parks as well as wildlife and plant conservation, the use of coral-damaging sunscreen containing harmful chemicals was also recently prohibited in Thailand national parks, which was officially announced in June 2021." (I-09, 13th September 2021).

> "To ensure product safety standards, the control of chemical and harmful substances was under the supervision of governmental agency, such as the announcement of plastic microbeads prohibition in cosmetic products, because plastic microbeads are difficult to break down in the environment. They are polluting the aquatic animals and ecosystems, which are also harmful to consumers." (I-11, 8th September 2021).

However, animal testing procedure for cosmetic purposes is still allowed in Thailand although it has already phased out in many countries and banned in the European Union. Until now, there are still conflicting beliefs that animal testing is safe and useful to ensure safe human use, even for green labeling standards.

> "Because cosmetics and personal care products do have direct contact with skin, and some products are used for sensitive areas like eyes and lips, so it's important that these products are tested for allergic reactions

> or irritation. Animal testing in these procedures (green label) is still important because how could you ensure there would be no allergic reactions if the products were not tested… […]. If using animals for product testing seemed abusive, I think it also depends on how you communicate to consumers. The procedures were safe and were not that harmful to the animals." (I-11, 8th September 2021).

The associated high costs and difficulty in interpreting the results that come with animal testing procedure is not ideal for cosmetic purposes nonetheless. Meanwhile, the availability of other alternative methods that have been used internationally for cosmetic testing such as advanced technique in laboratories is still rather limited in Thailand.

> "… […] the limitation is that product testing alternatives in Thailand were not developed to the point that animals were not required, and those alternatives were certified or accepted in Thailand or not is another issue. The costs of sending product samples overseas for alternative testing methods would be very high." (I-11, 8th September 2021).

> "The costs of animal testing procedures are high, and it also took a long time to make an advance arrangement. The results were difficult to interpret. Therefore, it caused a lot of inconvenience." (I-09, 13th September 2021).

In response to this conflicting circumstance, Thai FDA mentioned that cosmetic companies do not need to perform animal testing as long as they followed the compliance of ASEAN and EU list of substances prohibited in cosmetic products which did not require any additional testing protocol. They also hoped that once other alternatives can be easily adopted, animal testing procedure should be phasing out eventually.

> "We have a list of prohibited substances, which aligned with ASEAN and EU… […]. There's an ethics committee for product testing procedures according to the product claims, such as how they tested for product reactions or satisfaction, which mostly involved human volunteers. But if there's no particular claims or prohibited or restricted ingredients used in the products,

additional testing procedures would not be required." (I-09, 13th September 2021).

For small businesses, animal testing was not really an issue of concern because they usually produce in small batches with fixed formula. Rather, chemical substances used would be more concerning if they were not used accurately in a proper working laboratory or environment.

> "Animal testing for SMEs is very rare because they have fixed formulation from their prior training. But once they tried to improve or add some chemicals in the production on their own, we were quite concerned because if you don't know how to use them properly, they could harm themselves and end users. We try to educate them about the safe chemical usage and basic safety conditions like gas, stoves, wires in their working space – that safety must always come first." (I-10, 21st September 2021).

Circular Economy Initiatives

Although the reinforcement of sustainable packaging and packaging waste directives in Thailand is still far from international standards, the encouragement to reuse and recycling has led to an initiation to regulate refillable products and refill station, which is also in line with the sustainability initiatives from the industry interview findings.

> "We are now working towards circular economy principles with substitution of improved laws and regulations toward resource efficiency, waste reduction, and reducing impacts on the environment. As for cosmetic product group, we initiated the refill station concepts to comply with, as partnership between private and public sectors." (I-09, 13th September 2021).

However, contamination was a main concern for the refill station, especially during the Covid-19 pandemic crisis where hygiene and safety must be prioritized among all involved parties. Global industry players might have own standards and procedures but they still need to be examined further to ensure the benefits and safety

between producers and consumers until the regulations were reinforced.

> "For refillable products, it is very risky to face product contamination problems especially for refill stations that are managed by small businesses." (I-10, 21st September 2021).

> "The products must be safe and traceable. The regulations will consider upon product safety, testability and law." (I-09, 13th September 2021).

The enforcement of refillable products and the refill stations seemed to depend solely on the company strategies. Because of extra costs and procedures, not all companies, especially local and smaller ones, would be willing to pursue this. Only the governmental support could encourage more businesses to engage in this attempt and to observe the consumer trends on how well they respond to these initiatives.

> "(Refill stations) it's up to the readiness of producers. The role of eco-labeling wouldn't have enough pressure to touch on these points. It should be a governmental campaign to pursue and install refill stations for personal care products at certain locations and see people's feedback. This is doable." (I-11, 8th September 2021).

However, circular economy is not limited to refilling or recycling efforts alone. It is how each element in production and consumption is connected and taken into account based on the balance between the 3 dimensions of sustainability.

Consumer Confusion

Based on the interview findings, the governmental and non-governmental agencies were aware that different environmental declarations, standards, and labels could be very confusing for end consumers. They do not know what kind of certifications and labels are available in the market right now and do not really know the differences. Consumers would be more familiar with self-declared labels that

might focus on one aspect such as biodegradable or recyclable. This also makes it difficult to understand the core function of an eco-label that considers overall aspects of green products as the interviewees suggested. Communication, public relation, and education from the agencies are therefore key to prevent and counteract these problems.

Product and Marketing Claims

Although not a regulated term, if a product in cosmetics and personal care segment included the term ‘organic’ on its brand name label, it must be verified and certified by the FDA since the labeling process. If consumers are doubting the product label was overclaimed, FDA also provided service to inspect and monitor as post-marketing surveillance service. In such cases, the penalty fee is applied to the producer.

However, self-declaration and claiming to be green or environmental product are not easy to inspect or certify especially for community or local level. If it involves external or third-party organization for the inspection and certification, the expense would be too high for these small local companies and therefore there are barely no controls in these circumstances, unlike big corporate companies that can certify their practices. Self-declaration labeling and standards could be useful marketing tools to help producers to better communicate with their consumers, but it would also depend on consumer trusts and producer responsibilities.

In a similar manner, there are no regulations or legal enforcements regarding how producers exhibit their environmental-friendliness. It is completely voluntary and depends on their social responsibility and transparency in their marketing communication messages. Consumers realized the importance of companies’ differentiating standpoints that influence their purchase decision-making process. Awareness and knowledge will prevent them from being greenwashed. Although green product guidelines are still limited in Thailand, social platform like green card application could somewhat help them to become more knowledgeable about the green products and services.

> "Consumers who are very conscious about health, they would normally research and find enough information to see if the products are eco-friendly and organic or not. It is also about how attentive they are to particular products." (I-11, 8th September 2021).

> "We provided all the information on the website about eco-friendly products as well as mobile application called 'green card'. All the products are listed according to categories with related information. We do not only communicate to consumers about what the producers do, but also what and why these products benefit them. There needs to be a balance in both supply and demand." (I-12, 10th September 2021).

There are still more efforts to be done in Thailand, especially for cosmetics and personal care products which are not broadly emphasized or focused by any of the agencies at the moment. Considering the scope for the discussion of green policies of cosmetics and personal care products in the next subsections, it can be looked upon in three main phases: (1) production, (2) consumption, and (3) post-consumption, or disposal, as summarized in Figure 4.20. Corresponding discussions are in subsection 4.3.2 (production aspect), 4.3.3 (consumption aspect), and 4.3.4 (post-consumption aspect) respectively.

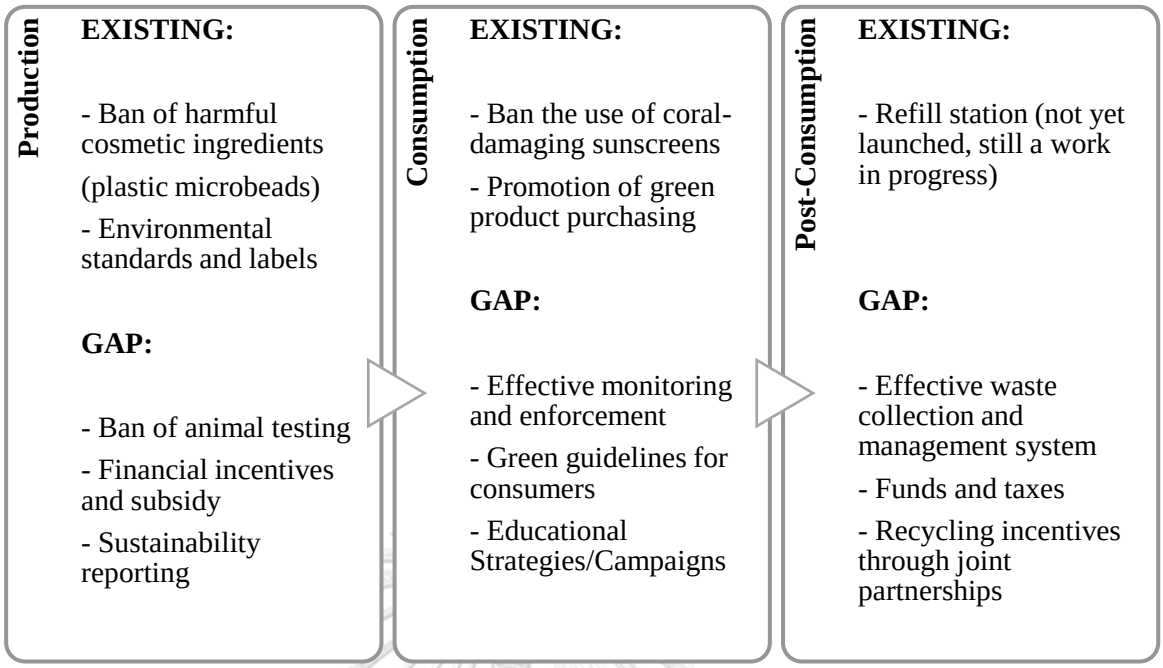


Figure 4.20 Green Policies for Cosmetics and Personal Care Products in Thailand

4.3.2 Policies in Production

4.3.2.1 Ban of Plastic Microbeads

Conferring to a circular economy approach and consistent with international restrictions, the goal of the Thai FDA was to protect public health and ensure safety by restricting the use of certain substances in cosmetics and personal care products. Cosmetics and personal care products may contain plastic microbeads, or microplastics with less than 5-millimeter diameter, for functions like cleansing and exfoliation for rinse-off products like soap, scrub, shower gel, shampoo, or leave-on products like foundations, mascara, or glitter in eye shadow which all end up in the wastewater or landfills after use (Anagnosti et al., 2021; Guerranti et al., 2019). According to the interview with the Thai FDA, the prohibition against the use of microbeads in Thailand was enacted and effective from 1 January 2020 according to the plastic waste management roadmap 2018-2030, restricting the production, import, and selling of microbeads in cosmetics intended to be used to cleanse, exfoliate and then wash off, such as facial foam, soap, body scrub products which, when washed out of the body, plastic microbeads

are washed down the drain and cause environmental and health problems for consumers. Since microbeads are very small plastics and are difficult to decay in nature, when they are washed down the drain the sewage system would not be able to filter out these microbeads of plastic. This incidence accumulates microplastics in the environment, which further affects aquatic ecosystems and contaminates the food chain through the consumption of fish, shellfish, and some mammalian aquatic creatures. Although they are considered minor compared to the worldwide microplastic pollution and threat to human health, microbeads must be banned and eliminated from the source because there is no effective method to retrieve them once they are released into the environment (Anagnosti et al., 2021).

Along with the worldwide bans and phasing out efforts in numerous developed and developing countries like France, Sweden, Canada, Ireland, Italy, Denmark, UK, USA, New Zealand, South Korea, Taiwan, and China, the prohibition of plastic microbeads in cosmetics products was successfully enacted for importing, producing, and selling in Thailand in 2020 as mentioned above. The supervision and management of microbeads prohibition in cosmetics are universal as it aims to protect the environment as well as to protect the health of the people. The local producers in Thailand are now aware of the issue and ready to cooperate in the phase-out of microbeads. Most of the cosmetic products containing microbeads as components have already been recalled from the market.

The Thai FDA further advised that microbeads alternatives from the natural source may be used as a substitute. However, it is worth mentioning that not all cosmetic companies use the same plastic microbeads alternatives (Anagnosti et al., 2021). It could take considerable time and replacement costs for the reformulation which could make some of the products with microbeads, especially from a vast number of small producers, still exist in the market without effective enforcement or monitoring system to control the ban. Even biodegradable microplastics might have been used as alternatives, recent studies pointed out that they can be as hazardous and harmful to marine organisms just like common plastics (Anagnosti et al., 2021; Green et al., 2016).

Moreover, without specific procedures to take action against protecting and monitoring the quality of the marine environment, the prohibition of

microbeads might not be justified or relevant for environmental and human health protection. Seeing the issue from a larger scale, Thailand's ban may prohibit the sale, production, and import of cosmetics with microbeads, but it is not stated that the export of such products is also restricted. Microbeads are still allowed or in the voluntary phase-out agreement in some countries such as Belgium, South Africa, and Australia (Anagnosti et al., 2021). As a result, microbeads will still end up in international waters and oceans worldwide and therefore they will accelerate environmental degradation as long as these microplastics are being released into the environment (Duis & Coors, 2016). This would be a transboundary environmental issue that poses a serious challenge to the harmonization of regulations for the global industry.

4.3.2.2 Environmental Standards

The interviews covered 4 environmental standards involving certification and labeling with different requirements, evaluation, and criteria from different organizations. All of which is voluntary-based certification, developed on different criteria as summarized in Table 4.39.

Table 4.39 Environmental Standard Criteria

Standard	Criteria	Subsidy	Partnership	Effectiveness
Green Production (DEQP)	Type III environmental standard based on 7 criteria (policy, packaging, production, chemical substances used, waste management, energy, and social	n/a	FDA (referencing soap product notification number)	• Green production tiers (gold, silver, and bronze) can encourage and motivate green improvements for factories and manufacturers. • Only cover a few types of products • Lack of technical

Standard	Criteria	Subsidy	Partnership	Effectiveness
	responsibility)			and financial support
Eco Factory (FTI)	Type II environmental standard based on 17 criteria & ISO 14026, all of which must all be achieved by 70%-80%. (Resource use, energy, logistics & transportation, green supply chain, green space, chemicals & hazardous substance management, water & wastewater management, GHG emissions, air pollution, waste management, safety & health of employees, biodiversity, income distribution within the community, and coexistence with the	Consultant & inspection fee support (non-financial)	Pollution Control Department (PCD) on GPP	• Certification can leverage business value • No incentives and quantifiable targets for each industry or business sector to make further progress or attract more partners to participate • Lack of financial support

Standard	Criteria	Subsidy	Partnership	Effectiveness
	community)			
Eco Plus (FTI)	Type II online-based eco-label; criteria based on ISO 14021. Label certification based on one or more of the criteria, but not necessarily all.	n/a	DEQP & Green Card Application	• Lack of consumer awareness • No attractive incentives for consumers • Limited features and are not up-to-date
Green Label (TEI)	Type I eco-label; criteria based on LCA and ISO 9001, 14001, 14024.	Discount fee for SMEs & incentives to be included in GPP	FDA on criteria development (for soap and shampoo) & Office of Small and Medium Enterprise Promotion (OSMEP) on GPP	• Strong reputation on the level of greenness and LCA but limited applicability to certain product groups • Budget and knowledge constraints for SMEs • Lack of international presence

Source: Research findings from in-depth interviews and official website information

To promote green and sustainable production, the implementation of environmental standards and eco-labeling can be potential in the cosmetics and personal care product segment. Green standards can be a way for businesses to communicate their manufacturing standards to consumers, which also enhances consumer choices. Eco-labels are also important tools in increasing consumers' trust and confidence in eco-friendly products (Wojnarowska et al., 2021). There are

a number of SCP activities and national policies in Thailand, however the research findings revealed that certified standards and labels were not specifically developed for cosmetics and personal care products, though some might cover products like soap and shampoo. Several ecolabels were created and introduced by different organizations in specific contexts but there has been no effort in coordinating them so the public still does not fully understand the concepts of these labels and certifications (Mungkung et al., 2021). Therefore, there is less market demand and motivation for the producers to adopt these labels. With voluntary-based conditions, incentives such as technical and financial support, tax reduction, access to market, and trade are crucial factors to help promote green products both nationally and internationally.

Moreover, the environmental standards included in this study mostly focus on only one or more aspects, such as renewable energy or product biodegradability, but do not cover the whole aspects of life cycle stages, except for the Thai Green Label which appears to have the greenest and highest standards for green products. Although green production tiers are a great way to motivate companies to do better, more financial incentives could have been included. Based on a circular supply chain concept, these standards and certifications are not yet in place to close the loop. They also need to cover more product types including cosmetics and personal care products. Technical and financial assistance would be crucial for SMEs to develop and promote more green products. Quantifiable targets for green purchasing, procurement, and other product-related activities should be considered in addition to the scope of existing labels to support a fuller implementation and progress toward sustainability. Technical knowledge and experts are still lacking in the area of auditing, reporting, and monitoring in quantifiable terms, which could be barriers to capacity building and progressive development for SCP.

Furthermore, due to its unpopularity and lack of exposure in the cosmetics and personal care market, both producers and consumers opt for internationally recognized standards and labeling that are well known within the segment such as USDA organic, ECOCERT, or Cruelty-Free. However, they are not always receptive. When there are many different types and criteria of local and

international eco-labeling and environmental certifications that are applicable for the cosmetics and personal care products, as well as self-declared ones, consumers were exposed to a great deal of information which can be confusing and difficult to recognize, differentiate and verify their preferences when it comes to consumption, as this study confirms. Declaration of one aspect alone, such as energy saving, may easily mislead public information. To support this evidence, previous studies suggest that labels that focus on a certain aspect or specific dimensions do not provide sufficient information for consumers and are thereby unable to guide consumers' choices of products (Dihr et al., 2021; Goossens et al., 2017). It is important that consumers need to be fully aware and educated about the concept of SCP as well as consideration of the product life cycle. Provision of ecological knowledge, information, and communication is therefore crucial for consumers in achieving a better understanding and an ability to consciously interpret eco-labels on their own terms to make the right product choice decisions (Wojnarowska et al., 2021). Nonetheless, information and knowledge would surely benefit the consumers but the high price of eco-labeled products would still create barriers to purchase intentions and sustainable consumption as consumers have no incentives to support these products.

4.3.2.3 Animal Testing

Despite the enacted plastic microbead ban, the prohibition of animal testing procedures has not yet been addressed in Thailand. The number of animals used in cosmetic experiments is still unknown and difficult to estimate without databases or statistics and the fact that regulatory requirements of the finished cosmetics and personal care products vary between regions and countries. The animal testing procedure is banned in the European Union but is still legal and mandatory in other parts of the world such as the US, China, and other developing and less developed countries (Taylor & Rego Alvarez, 2020). Although the findings show none of the companies performing animal testing, experiments on animals are still allowed and believed to be used to test the safety of cosmetic product ingredients for human in Thailand. There are still conflicting beliefs that animal testing is safe and useful to ensure safe human use, even for green labeling standards. In response to this

conflicting circumstance, the Thai FDA mentioned that cosmetic companies do not need to perform animal testing as long as they followed the compliance of ASEAN and EU list of substances prohibited in cosmetic products which did not require any additional testing protocol. They also hoped that once other alternatives can be easily adopted, the animal testing procedures should be phased out eventually.

According to the research findings from the interviewed organizations, animal testing might not have really been an issue of concern for small cosmetics and personal care businesses in Thailand because they usually produce in small batches with fixed formulas. The associated high costs and difficulty in interpreting the results that come with animal testing procedures are not ideal for cosmetic purposes nonetheless. Rather, chemical substances used would be more concerning if they were not used accurately in a proper working laboratory or environment. Moreover, the availability of other alternative methods that have been used internationally for cosmetic testing such as advanced techniques in laboratories is still rather limited to economic limitations in Thailand. Cosmetic companies should be encouraged to develop alternatives nonetheless to comply with the law when it is available as well as to protect animal welfare and the environment. To drive this ethical and social responsibility legislative policy, the ban on animal testing can conversely and directly drive the need to develop other methods and encourage businesses to use alternatives (Taylor & Rego Alvarez, 2020). The financial subsidy, public pressure, and knowledge of more human-relevant rather than animal testing could be important drivers to move toward alternative methods for Thailand.

4.3.3 Policies in Consumption

4.3.3.1 Ban of Harmful Sunscreens

Sunscreen products are chemicals that contribute to coral reef damage and accumulate in aquatic animals when washed off into the water directly and indirectly (Raffa et al., 2019). According to the Thai FDA, in regards to an environmental aspect to ensure water quality and aquatic environment, the ban against coral-damaging sunscreen products in all Thailand's marine national parks was imposed recently on 4 August 2021. According to the new law, sunscreen

products containing harmful chemicals of the four ingredients commonly found (oxybenzone, octinoxate, 4-methylbenzylid camphor, and butylparaben) were shown to harm coral larvae, coral reproduction, and coral reef bleaching, and therefore the use of such products is strictly prohibited and can be fined up to THB 100,000. Similar bans on harmful sunscreens were also introduced by Hawaii and the Pacific Island of Palau.

However, how the new law would be enforced was not mentioned or discussed, and to measure the impacts of sunscreen chemicals in the waters and the effectiveness of the ban itself is rather difficult. Although visitors may have become aware of the issue and the effects on coral reef ecosystems, it is not necessary that they would be able to avoid using sunscreen products if they do not know what chemicals to look for. This ban may affect the willingness and purchasing behavior of some visitors to assumingly purchase 'reef-safe' sunscreen products, but awareness may not translate into behavior without precise informed knowledge. The term 'reef-safe' is also unregulated and can easily mislead consumers. Such labels should be able to help consumers to choose a safe product, but these reef-safe sunscreens do not always guarantee if other ingredients or particles in the products might still be harmful to marine life. Moreover, product concentrations and possible toxicity of other ingredients used in the product could still be harmful to the aquatic environment (Danovaro et al., 2008; Downs et al., 2016; Secchi et al., 2016). How to actually monitor and fine visitors on-site may not be possible and feasible, but the ban could help reduce the prevalence of harmful chemicals in the ocean and help visitors to make more informed decisions about purchasing sunscreen products. Currently, there is still little literature and limited evidence regarding the safety of sunscreen ingredients that threaten coral reefs, and therefore future research should help clarify more on the safety of sunscreen products (Tsatalis et al., 2020).

4.3.3.2 Green Purchasing

In the green consumption aspect, there is a growing number of consumers looking for green cosmetics and personal care products, but unregulated terms and

vague criteria of product greenness can greatly confuse consumers. The DEQP's Green Card Application was developed and claimed to be the only green card or application consumers need across Thailand, with the purpose to encourage green purchases and act as a platform to promote a green economy for sustainable consumption and production. In principle, the application platform provides information and green purchase channels for consumers, with supporting sales promotions and rewarding activities to motivate and incentivize consumers in purchasing green products and services.

However, its low awareness and effectiveness are questioned, as the application is not working and the official website is not updated. The consumer research in this study also confirmed the lack of awareness and understanding of the mentioned platform. With insufficient information and ineffective features, official information regarding green cosmetics and personal care products, or green products in general, could not be obtained. This also affects the issue of consumer trust in the market as well. Educational strategy along with an active role of media is immediately in need to promote sustainable consumption successfully. Examples from developed world explicit efforts that can be useful in this matter. In the United States, the clarification of cosmetic terms by the FDA and green guides of environmentally friendly products by the Federal Trade Commission does not only facilitate companies on how to use environmental marketing claims like 'organic', 'hypoallergenic, 'green', 'renewable', or 'carbon offset', but also provide general principles in relation to consumer interpretation to avoid greenwashing or misleading consumers (Federal Trade Commission, n.d.; U.S. FDA, 2020a). In addition to green guides, awareness-raising campaigns could also well demonstrate the importance of responsible and sustainable consumption, and at the same time could possibly encourage more businesses to engage in this opportunity as well. Relevant organizations including the government and the private sectors could collaborate to develop targets together to promote sustainable consumption for stakeholders. On top of that, specific messages about the negative impacts on environment and society of unsustainable production of the businesses could further emphasize the importance of green cosmetics and personal care product consumption, including ways to reduce energy and water consumption.

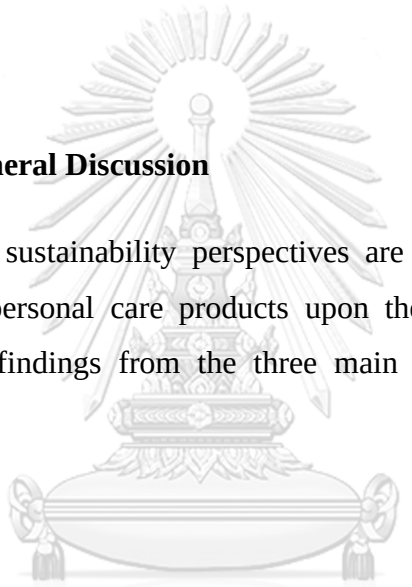
4.3.4 Policies in Post-Consumption

4.3.4.1 Refill Station

In post-consumption, the principle of reducing, reusing, and recycling is also connected to waste disposal management (Wojnarowska et al., 2021). In line with circular economy initiatives and waste prevention, the encouragement to reuse and recycle through the regulation of refillable products and refill stations seems promising, although it is still a work in process. However, the enforcement of refillable products and the refill stations seemed to depend solely on the company strategies. Because of extra costs and procedures, not all companies, especially local and smaller ones, would be willing to pursue this. Only governmental support could encourage more businesses to engage in this attempt and to observe the consumer trends on how well they respond to these initiatives. One study in Japan indicates that sales volume for refillable products such as conditioner and shampoo visibly increased due to the lower unit price of the refill products and estimated that waste was reduced accordingly (Tasaki & Yamakawa, 2011). However, the incidence is linked with repeat consumption behavior and market characteristics which could be completely different in a different market context. There is still a lack of literature to support the effectiveness of the use of refillable products and refill stations at the point of sale. More research and studies as well as statistical data are needed to address these issues. It is also important to note that in a Covid-19 pandemic circumstance, concerns toward hygiene for refilled and refillable products were expressed by both the producers and consumers in the research study, which could further regulatory delay on the refill station solution.

Concerning packaging waste at the end of use, Thailand's poor waste management is perceived to be the most apparent issue from the views of both the producers and consumers in the interviews. Although the research findings show certain recycling efforts from both industry and consumer perspectives, more incentives are required to motivate larger participation in recycling to combat plastic packaging pollution. Without specific laws and regulations on waste management at present, the implementation of EPR on packaging waste could be

potential for producers to be part of green solutions. Performance measures and costs should be shared among manufacturers and municipalities. Disincentives or taxes on the non-recyclable packaging shall also be included in the legislation to incentivize companies to create greener products or reduce wasteful packaging. In a more pressing manner, joining partnerships with potential stakeholders, private recycling companies, or non-governmental organizations while incentivizing them altogether could be ways to develop and enhance the capacity to promote a circular economy on plastic packaging waste for cosmetics and personal care products more well-timed.



4.4 Summary and General Discussion

For this study, sustainability perspectives are considered in the context of green cosmetics and personal care products upon the quantitative and qualitative discussions. The key findings from the three main stakeholders are summarized below.

Table 4.40 Summary of Key Findings

Theme	Sub-theme	Key Findings	Gap / Pain points
INDUSTRY			
Circular supply chain	Eco-design	Reusable, recyclable, biodegradable raw materials & packaging	• Local companies are lack of human expertise and advanced technological knowledge for eco-design innovation & development.
	Closed-loop production	Recycling water and energy system	• Not all cosmetic companies reuse and recycle materials, energy, waste in production & distribution. • Majority of locally-based companies are OEM-based and therefore do not involve in green manufacturing processes. • Green production transformation is perceived as extra costs and efforts.
	Sustainable Consumption	Product impact labeling system, educational campaign	• Local companies focus more on sales rather than consumer behavior (as they have limited financial resources), which could lead to overconsumption (as well as overproduction).
	Waste management	Zero waste, 3Rs, recycling program	• Local OEM-based companies do not involve in production and therefore do not consider about waste reduction along the supply chain. • Total environmental profiles (i.e. amount of waste generation) not holistically assessed through LCA • Lack of incentives, recycling system and support from government policies & legislation
Eco-centric value (Focus on the environment)	Respect of biodiversity	Protect & restore biodiversity & ecosystem deterioration, zero deforestation,	• Locally-based companies focus on environmental aspect mostly in product formulation (use organic and natural ingredients) or use some biodegradable

Theme	Sub-theme	Key Findings	Gap / Pain points
		improve environmental profile	and recyclable materials for packaging. However, they do not have footprint impact assessment system or reduction goals.
	Minimum disturbance to nature	Footprint and impact reduction: carbon emissions, waste, energy and water consumption, animal protection	
Socially responsible human resource management	Financial protection	Inclusive access to employment, stable income, equitable pricing system for ethical and fair trade, pre-payment contracts, labor & human rights	• Locally-based companies are lacking experienced and skillful experts in sustainability field to improve existing activities and programs in order to implement and integrate sustainability more holistically.
	Training	Community engagement, knowledge & capacity development, educate & motivate employees	
	Other benefits	Safe, fair, & decent work environment, health care benefits.	
Sustainability in Corporate Governance	Assessment & standards	KPIs, reporting & auditing, environmental certification, eco-labeling	• Lack of human expertise and technical support in reporting and measuring sustainability in both industrial level and governmental policy implementation. • No tax exemption / special tax rates or incentives for green products including imports, affecting product pricing. • Local companies mostly focus on aspects of product ingredients (not integrating full concept of
	Policies & strategies	Impact & footprint management	
	CSR & philanthropies	Environmental and social contributions to give back to society	

Theme	Sub-theme	Key Findings	Gap / Pain points
			sustainability).
CONSUMER			
Factors influencing green purchase	Perceived Value	Significant relationship between functional value (e.g. efficacy, safety & health benefits of green formulation) & green purchase intention. (No effects found on emotional & social value)	• No incentives in purchasing green products. • Favor green product attributes but cannot practice green consumption completely without supporting schemes for reducing, reusing, and recycling the products and packaging properly. • Non-users perceived green as high price and would not switch to green products if not experienced skin issues or health conditions. • Favorable emotional attitude (e.g. packaging design, eco-labeling, etc.) does not translate to purchase behavior. • Social influences only applicable with consumers with young children.
	Environmental / Ethical Concern	Significant & strongest relationship between environmental concern & green purchase intention.	• Environmentally concerned with favorable attitude toward green cosmetics and personal care products, but there are still limited availability and exposure of such products in Thailand.
	Green Policy	Significant relationship between green policy and environmental concern, and indirectly influences purchase intention.	• Consumers do not always know what is green and what is not. Bombarded with too much advertising which could be confusing. • Barriers and negative perceptions toward waste management in Thailand (unsure of what to do with packaging disposal)
POLICY			
Production	Ban of microbeads	Banned from selling, producing, importing	• No enforcement and monitoring

Theme	Sub-theme	Key Findings	Gap / Pain points
		cosmetic products containing microbeads, enacted on 1 January 2020.	measures to effectively control ban of microbeads. • Not stated that export of products containing microbeads is also restricted
	Environmental standards & labels	Research findings covered Green Production, Eco Factory, Eco Plus, Thai Green Label, which are all voluntary-based.	• Standards & labels do not cover cosmetics and personal care products and lack of public understanding, thereby insufficient for consumers to make informed decisions. • Certifications usually involve high investment costs, and are also lack of international presence, thereby discouraging small companies to apply. • Animal testing is still allowed in Thailand. • Insufficient technical support and financial incentives and subsidy for small local companies to make green transitions. • No regulations toward sustainability auditing and reporting.
Consumption	Ban of harmful sunscreens	Ban the use of harmful sunscreens in all Thailand national parks, imposed in August 2021.	• Difficult to control the ban and measure impacts of sunscreen chemicals in the waters. • Consumers do not know what chemical ingredients to look for when buying. • Reef-safe is an unregulated term and can mislead consumers. • Concentration and toxicity of other ingredients used in sunscreen could still be harmful to marine environment.
	Green purchasing	Green Card Application developed by DEQP, provides information,	• Low awareness and effectiveness of the application itself. • Lack of educational strategies or campaigns toward the terms and

Theme	Sub-theme	Key Findings	Gap / Pain points
		purchase channel with sales promotions to encourage green purchases	criteria of 'green' products. Green guides could be developed to provide general principles to avoid misleading the consumers. • Partnerships could have been considered to effectively develop and implement the application as well as to reach wider target consumer groups and other stakeholders.
Post-consumption	Refill station	FDA is currently working toward the new law toward CE and plastic roadmap, regarding refill station for cosmetics and personal care products, which was expected to be launched within 2022-2023	• Lack of literature to support the effectiveness of refill stations and refillable products. • Only applicable to repeat consumption behavior. • Extremely high concerns toward hygiene issues expressed by producers and consumers due to Covid-19 pandemic situation.

In accordance, the proposed framework, depicted in Figure 4.21, serves as an integrative overview of sustainability concepts and multi-stakeholder interconnections for the green cosmetics and personal care market, which are classified into six categories among the research themes and findings as (1) Circular supply chain; (2) Environmental focus; (3) Human resource; (4) Market; (5) Policy; and (6) Financial.

Considering the circularity efforts in the supply chain, the industry findings showed related efforts to minimize environmental and social impacts for all studied companies, but the concept of life cycle assessment was not holistically considered by the locally-based producers. Corporate commitments, CSR, philanthropies as well as human expertise, and health and safety standards are all beneficial to a sustainable supply chain and corporate culture. However, indicators or a set of KPIs for a comprehensive assessment of sustainability performance and sustainability reporting

would allow a better understanding of which actions shall be undertaken to tackle sustainability issues and enhance sustainable development goals. Moreover, how firms place importance on environmental certifications alone may not suffice to further encourage sustainability efforts for cosmetics and personal care companies, and therefore downstream strategy embedding CE in the production chain would enhance sustainability aspects. More specifically, eco-design and sustainable packaging solutions have become a way for cosmetic companies to improve their environmental profile that also caters to the needs of the green product market (Civancik-Uslu et al., 2019). Sustainable packaging could be a significant contribution to the cosmetic industry as it links to eco-design and can be extended to the green supply chain which can tackle plastic packaging issues including environmental impacts such as plastic littering, resource depletion, and climate change. This also reflects a push and pull strategy between producer and consumer in a collaborative relationship.

Furthermore, as the study confirms the significance of perceived functional value, as well as the level of environmental concern and green policy as important factors influencing purchase intention and behavior toward green cosmetics and personal care products, specific practices and marketing strategies aiming at comprehensive sustainability aspects in regards to environmental protection, sustainable sourcing, energy consumption assessment, waste management, and other green credentials along the supply chain and around the products, could help promote sustainability knowledge and responsible consumption. In sync with the above-mentioned sustainable packaging solutions and concerns toward waste, emphasis on green packaging and alternatives to reduce, reuse, and recycle could be influential if there are large efforts from both the producer side and effective marketing tools to focus on this issue. However, behavioral change will only come with adequate infrastructure (Steinhorst & Beyerl, 2021). For more effective recycling, it is recommended to firstly improve the infrastructure for waste collection, increase the recyclability of the packaging with quantifiable targets and implementation of incentives and fines, and educate consumers about waste separation.

Nonetheless, to effectively implement CE principles, legislative provisions are needed to promote not only the functioning of the cosmetic companies but also to

safeguard the environment through the practices of recycling and reusing as well as contributions to society (Mikroni et al., 2022). Currently there are very few policies and regulations that are designed specifically for the cosmetics and personal care product category in Thailand, where most related sustainability policies are voluntary-based with limited technical and financial support. Sustainability is seen as an extra cost and an additional effort, which can easily discourage businesses to invest in or change their whole supply chain. The availability of investment funds therefore affects all company activities, and because large corporations have more funds, they were able to engage in more sustainable practices (Menon & Ravi, 2021). Locally-based producers and SMEs are generally more sensitive to costs and focus on financial performance rather than on environmental protection. Currently, the subsidies and incentives are clearly not sufficient and attractive enough for the local businesses to become economically viable. On the other hand, fines and taxes could somewhat discourage irresponsible producers and encourage them to become greener. However, this issue might not be a sustainable solution especially when there is not enough technical support to help the whole industry move forward. Apart from funding issues, a specific scheme could have been developed for the cosmetics and personal care companies, especially for SMEs and producers who experienced high barriers to green business transformation. An all-inclusive policy or campaign could be a potential way to promote green production solutions. Green purchasing and procurement policies developed by the government might have been implemented in certain business sectors and organizations, but the effectiveness of such policy needs to be addressed and encouraged by using the concept of LCA along with green and eco-labeling standards as well as sustainability reporting to successfully enhance the environmental and social performance of the products comprehensively. The implementation plan could be targeted at a national level through a collaboration of responsible governmental and non-governmental organizations, for example, the Office of Small and Medium Enterprise Promotion (OSMEP), the Ministry of Industry, and the Thailand Environment Institute (TEI) to incorporate relevant policies altogether. Private partnerships to improve recycling facilities especially for cosmetics and personal care products could have been further implemented. This would also promote a good relationship between stakeholders. When there is

following information regarding sustainability reporting and green product databases to support the all-inclusive scheme, an information platform linking all the information about the green products as well as marketing guidelines similar to FTC's Green Guides would be useful to further educate consumers that contribute to better knowledge of responsible consumption.

There are still more efforts to be done in Thailand, especially for cosmetics and personal care products which are not brought to the attention of any of the agencies at the moment, and an all-inclusive policy recommendation is still only one piece of the puzzle. There are joint policy gaps that are needed to be addressed between various unit sectors from upstream to downstream, from agricultural, to industrial, to community, to household, and to the consumer sector correspondingly. In achieving SCP, all efforts must be implemented holistically and persistently, and even better quantifiably with specific targets and percentages, to create a chain of value of an eco-system in a loop.

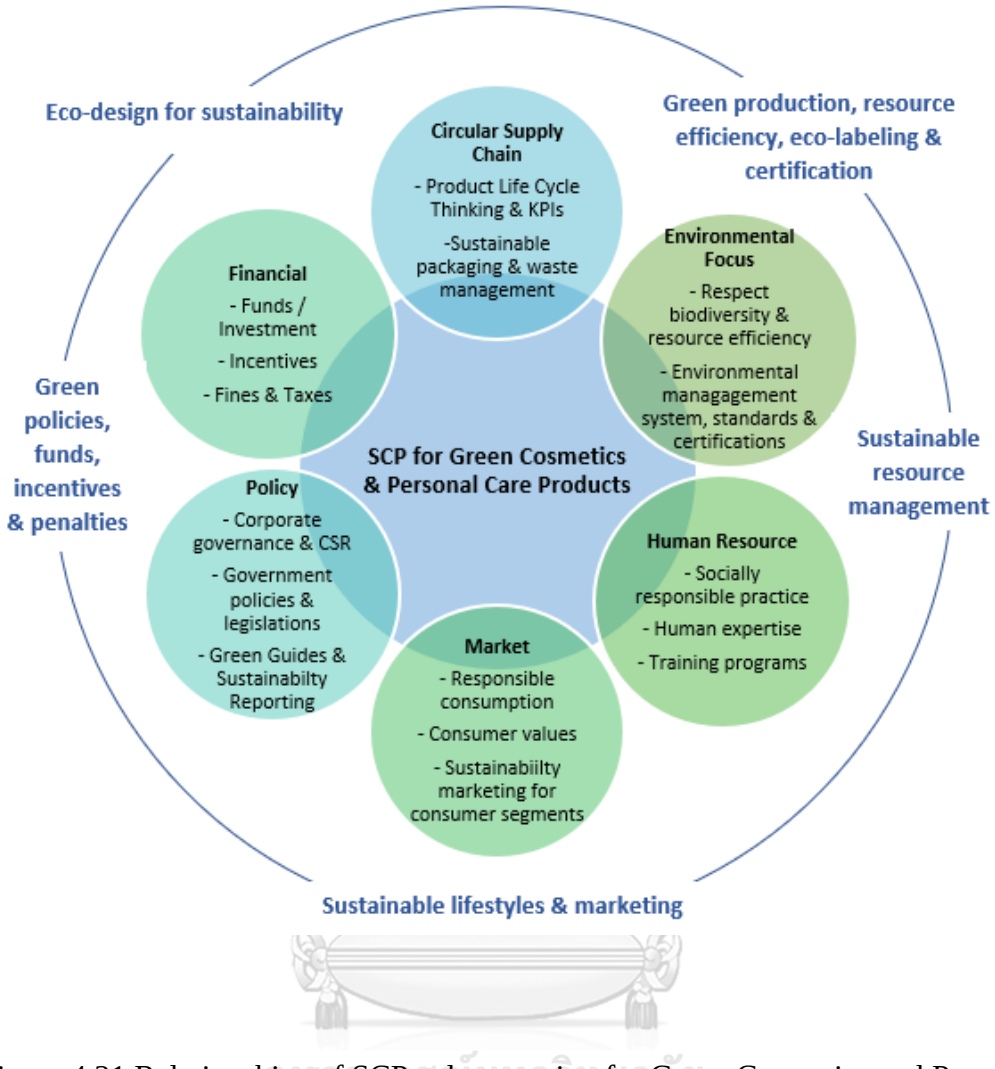


Figure 4.21 Relationships of SCP value creation for Green Cosmetics and Personal Care Products

Source: Author's Illustration

CHAPTER 5
CONCLUSIONS

This research was conducted with the aim to investigate consumers' perspectives and impact on green cosmetics and personal care products in Thailand. The research was intended to (1) explore the sustainability movement for the cosmetics and personal care industry in Thailand; (2) analyze Thai consumer behavioral intention toward the consumption of green cosmetics and personal care products; and (3) evaluate the impact of related policies that may affect green business transitions and consumers' intention to purchase green cosmetics and personal care products. This final chapter concludes the study in relation to the research aims and objectives, develops a conceptual model, and proposes policy recommendations for sustainability solutions. The chapter further discusses research implications, limitations, and directions for future studies.

5.1 Consumers' Perspective and Sustainability Impacts of Green Cosmetics and Personal Care Products

The empirical analyses were formed based on how the fundamental concept of sustainability in environmental, social, and economic aspects impacts the cosmetic industry in terms of sustainable business solutions, green consumption, and green policy development. The results indicated that sustainable behavior is influenced by both internal and external factors.

Internal factors include the perceived value and environmental concern toward the products that could bring about the changes through consumers' decisions. Meanwhile, external factors such as industry standards, policies, and regulations also influence the knowledge and personal values for green consumption transformation. Internal factors also interact with each other, which increases the multidimensionality of consumer values as well as the complexity in consumers' decision-making processes.

Figure 5.1 depicts a conceptual model of sustainable consumption and

production of green cosmetics and personal care products. The model provides insights into key factors that influence consumers' purchase intention while extending to the analysis of industry and policy pain points for the green cosmetics and personal care products in Thailand.

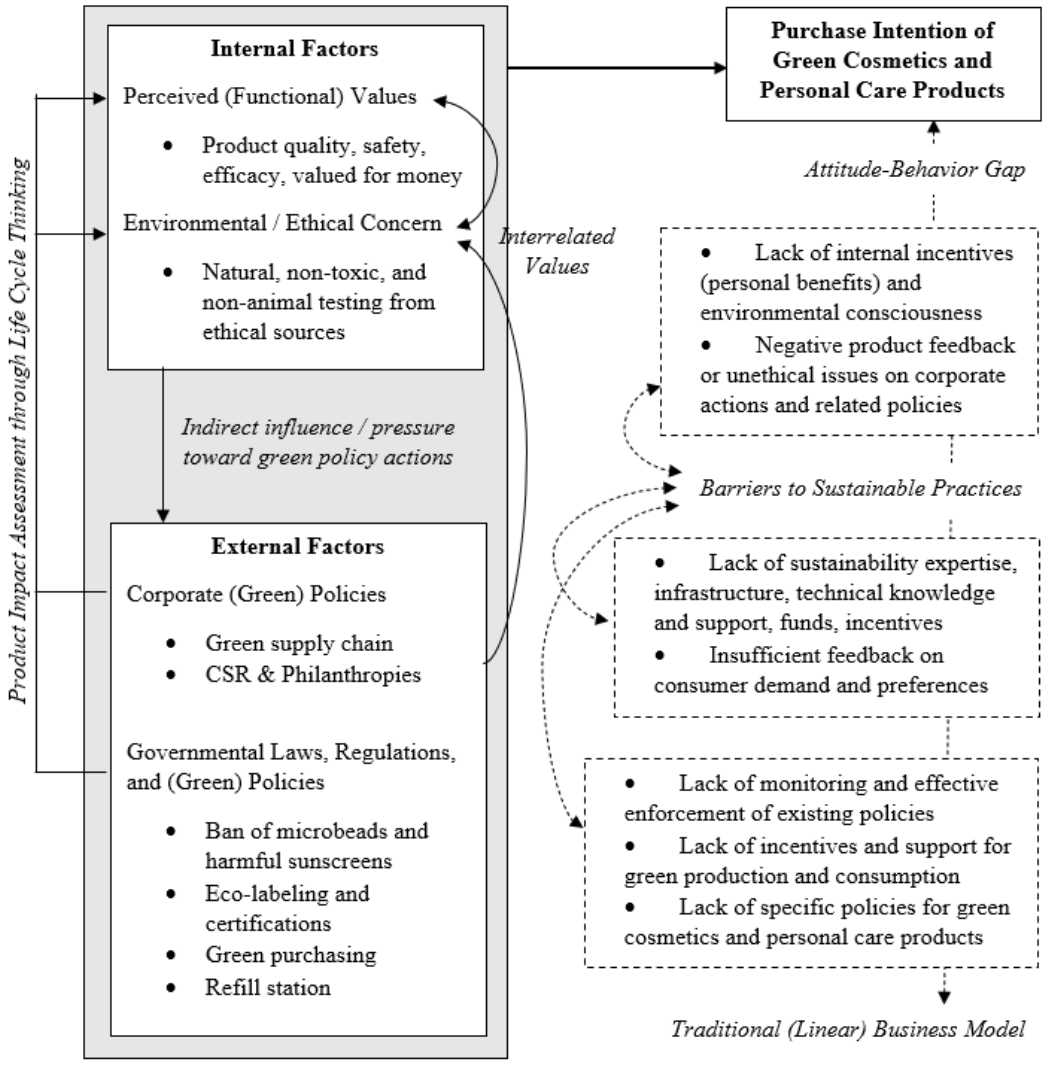


Figure 5.1 Conceptual Model for Sustainability Perspectives of Green Cosmetics and Personal Care Products in Thailand

Source: Author's Illustration

As existing literature review merely suggested, cosmetics and personal care products create environmental and social impacts throughout their lifecycles. This is why businesses recognized the need to design their products and processes that

minimize impacts such as natural resource depletion, soil, air, water pollution, unethical sourcing, unfair trade, and plastic packaging waste along the supply chain, as well as to better respond to the growing demand of green consumer segments (Ciccullo et al., 2017; Marshall et al., 2014; Pagell & Wu, 2009). Consistent with past studies (Civancik-Uslu et al., 2019; Fortunati et al., 2020; Morea et al., 2021), the empirical findings further revealed that most international cosmetics and personal care companies implemented a broad range of circular economy strategies that contribute the best practices to improving all aspects of sustainability, from sourcing to disposal. However, circularity approaches are not yet clearly stated, measured, reported, and supported altogether in all stages in the studied companies. In line with Menon and Ravi (2021), because global players have more funds, they were able to integrate sustainability and engage in corresponding practices. While smaller cosmetic companies have much more limited funds, they would be more focused on revenues rather than sustainability impacts. In particular, life cycle impacts on resource consumption, carbon emissions, and waste management are where the local businesses should start considering if they were to implement green strategies holistically in a closed loop of their supply chains. Shorter-term of sales-oriented strategies, lack of sustainability expertise, incentives, and funds, and full integration of sustainability concepts into the business presented major barriers from linear business model to green business transformation. How to educate and motivate consumers to become more responsible in their choices in consumption and post-consumption, such as reducing, recycling, and reusing attempts, also remain a great challenge when there were no sufficient educational campaigns and supporting policies to support the knowledge and facilitate sustainable practices of both the producers and consumers to encourage them to reduce impacts on the environment and the society.

In terms of market demand, the study suggested that the perceived functionality of the product and environmental concern are the most significant factors when it comes to green purchase decisions, which are consistent with several previous and contemporary studies within the context of cosmetics and personal care products (Al-Haddad et al., 2020; Chin et al., 2018; Kumar et al., 2021; Lee et al., 2019; Nguyen et al., 2019; Oe & Yamaoka, 2022; Sinha & Verma, 2020; Zollo et al.,

2021). In addition, aligned with past studies on green skincare products (Chin et al., 2018), the green policy is an exogenous factor influencing consumer environmental concern, and thereby indirectly affects the perceived value of the product and ultimately influences consumers' purchase intention. On the other hand, although the hypothesis results indicated that the perceived emotional and social values show no significant effects on purchase intentions, they also aligned with some of the previous studies on organic food and green products (Birch et al., 2018; Biswas & Roy, 2015; de Morais et al., 2021; Kushwah et al., 2019; Lin & Huang, 2012; Prakash et al., 2019; Qasim et al., 2019) as well as cosmetics and personal care products (Ghazali et al., 2017; Lee et al., 2019). This is because these values could be important in affecting consumers' attitudes but they somehow did not always translate directly to purchase intentions. Lack of brand trust and green knowledge (Lavuri et al., 2022), as well as personal skin conditions and cosmetic needs (Ghazali et al., 2017), could be barriers to purchasing green and personal care products. While a quantitative approach limits in-depth insights into consumer behavior, qualitative findings simultaneously provide deeper verification and explanatory power to the hypothesis results, as well as increasing the representativeness of the data from diverse demographics. Nonetheless, having identified gaps and barriers to sustainable consumption toward green behavior changes, the interrelationships between multidimensional values derived from internal and external factors must be considered and observed over time. As they are interrelated and mutually reinforcing one another, focusing on one perspective alone would not translate to green behavior directly. For instance, focusing on the green formulation and its efficacy, which aligned with the industry findings of locally-based companies, might have responded to consumers' perceived functional value well to a certain extent. However, without environmental and ethical sources of value in regards to the product might not be sufficient for consumers to completely switch to consuming green products while there are also other chemically-based cosmetics and personal care products available in the market which could also be more effective in terms of product performance. Similarly, focusing on environmental issues and green policy could, directly and indirectly, influence the purchase decisions. But if consumers experience negative feedback or do not perceive sufficient functional benefits of the products, consumers

might as well be reluctant to buy green, leading to greenwashing and boycotting attitudes and behavior. Given the green determinants of demand and competitiveness of the cosmetic market, the effectiveness of sustainable marketing and related policies must target within and across the whole systems from corporate governance, supply chains, stakeholder networks, and society as they are crucial in contributing to green consumption at both the individual and collective level. As discussed earlier in Chapter 4 and summarized in Table 5.1 below, targeted segmentation strategies would engage potential customers to increase purchase intentions and reduce attitude-behavior gap.

Table 5.1 Segmentation Strategy

	Segment 1	**Segment 2**	**Segment 3**
Consumer Type	Rational	Experiential	Cautious
Focus	Environmental impact disclosure	Enhanced product experience: quality & brand focused, includes customer service	Knowledge building: Understanding and trust
Tactics	Emphasize on environmental & social benefits of the product	Emphasize on personal benefits & product reviews through social influences (e.g., blogger, influencer, salesperson)	Emphasize on facts, data, statistics, credibility of product & stakeholders
Content	Professional	Highly personal	Educational
Data	Sustainability information along the product's life cycle stages	Purchase history to build personalized customer journey and increase green brand attitudes	In-depth product information: ingredients, labeling, efficacy rate, company commitment
	Functional Product Benefits: Product performance and safety		

Furthermore, there is limited literature support as well as actual policies that are designed specifically for cosmetics and personal care products in Thailand at

present. While the cosmetic laws and regulations mainly focus on product safety such as bans on microbeads and harmful sunscreens, the effectiveness of the ban themselves was difficult to control and enforce especially when product concentrations and alternatives of these ingredients can still be harmful to the environment (Anagnosti et al., 2021; Danovaro et al., 2008; Downs et al., 2016; Green et al., 2016; Secchi et al., 2016). Other related policies in sustainable production and consumption such as eco-labeling and environmental certifications are voluntary-based with limited public awareness and understanding (Mungkung et al., 2021) as well as technicality and financial support. There are also national policy gaps in a ban on animal testing and economic factors in the scope of production, lack of technical support and financial incentives in consumption, and waste management concern in the post-consumption stage. From a production standpoint, small businesses in the local market see sustainability as an additional investment and effort in relation to their costs as they were more vulnerable, and therefore unwilling to change their whole supply chain if it would not be economically viable. In consumer view, green policies can significantly influence consumer environmental concerns, but there are currently insufficient incentives and information toward green purchasing. The main issue to consider here is to consider both the producers and consumers simultaneously to have a well-balanced relationship between supply and demand as a total market approach in policy-making. Policy development that integrates internal and external factors together through a medium of core sustainability principles could remove existing barriers and bring forward greater feasibility and relevancy in practical implications. Although policy implementation might not affect each stakeholder equally, a holistic perspective addressing different levels of interests and concerns toward sustainability should facilitate the transformation process and close up the gap between policy design, organizational change, and corresponding attitudes and behavior.

5.2 Policy Recommendations

In order to eliminate regulatory and management barriers to strengthen sustainable practices, the gaps are identified in five aspects, which include: (1) lack of

industry expertise and measurement of sustainability, (2) lack of closed-loop lifecycle management, (3) lack of green knowledge and green trust, (4) lack of effective monitoring, enforcement, and control of green policy support, and (5) lack of financial incentives for green cosmetics and personal care products. Figure 5.2 shows the addressed gap analysis and corresponding recommendations.

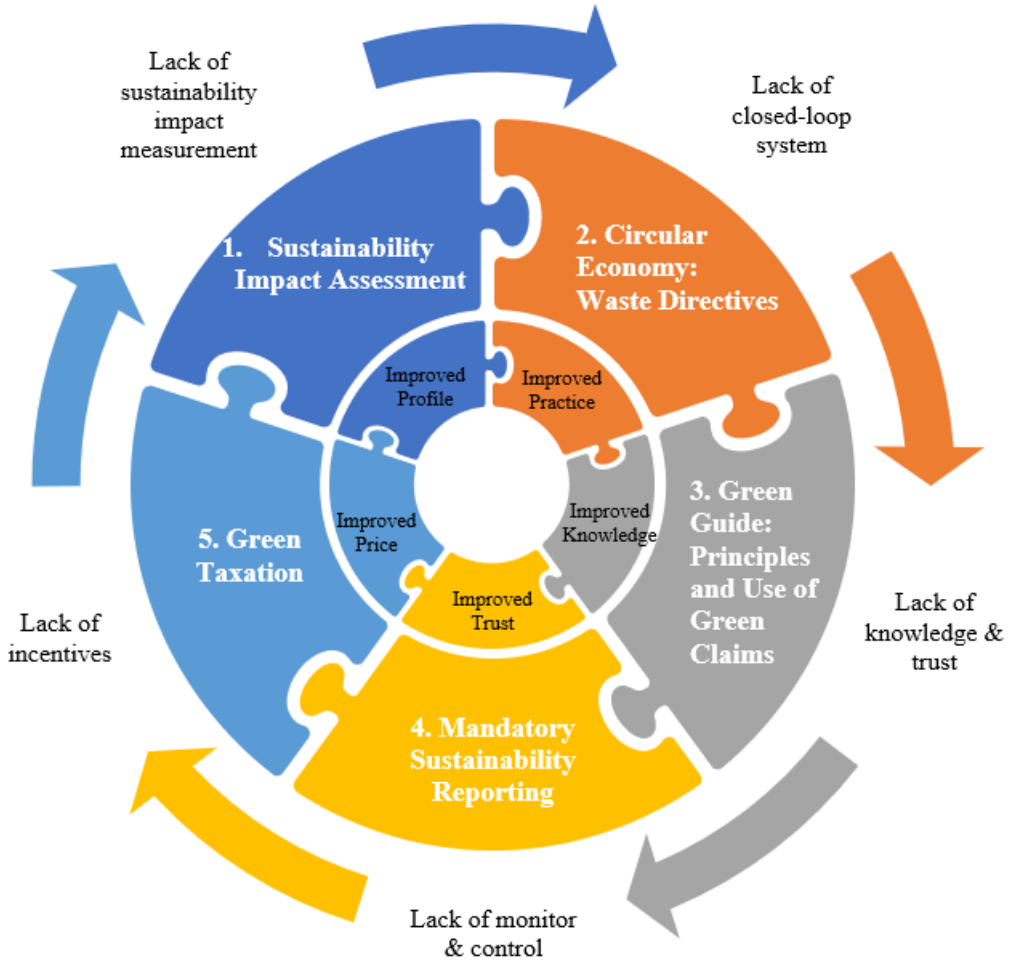


Figure 5.2 Gap Analysis and Policy Recommendations for Green Cosmetics and Personal Care Products

Source: Author's Illustration

As the empirical research findings revealed that there were no targets and indicators in measuring the sustainability impacts and reporting such performances of the local cosmetics and personal care companies, the LCT approach, which was

utilized as an analysis framework for this research study, is therefore a coherent and valuable tool serving as a benchmark to help assessing the overall impacts for the locally-based companies or SMEs as well as providing the ability to justify management decision-making and applicable to establish supporting policies at both national and local levels. Using life cycle thinking of the cosmetics and personal care products through referenced data based on a cradle-to-grave approach can help identify impacts and improvements in the production of goods and services through resource consumption reduction across the life cycle stages (Lazarevic et al., 2012). The robustness and applicability of LCT in policy development can evidently further enhance the shift to SCP that engages the key stakeholders. Some of the examples which support an assessment of environmental impacts and implementation measures during the whole life cycle are:

- Integrated Product Policy (IPP, EU)
- Waste and Resources Tools for the Environment (WRATE, UK)
- Organization for Economic Co-operation and Development (OECD)'s Sustainable Materials Management (SMM)

Moreover, as the gaps from both the producers and consumers pointed toward waste management issues along the supply chain and life cycle stages, they were presented as the main obstacles in closing the loop of sustainable consumption and production. Therefore, adopting rules on waste and packaging design could improve waste and environmental problems. Examples of regulatory frameworks driving these policy goals are:

- Packaging and Packaging Waste Directive, which includes design and waste management (EU)
- The Green Dot System, which coordinates the collection, sorting, and recycling of used packaging and requires manufacturers to take back their packaging materials for recycling. The Green Dot symbol on the packaging means that a financial contribution has been made to the national waste management company and the license fee is governed by the number of

packaging units put on to the market by the manufacturer and the weight of the materials (widely used in EU, and mandatory in Cyprus and Spain)

Furthermore, the principles of sustainability must be communicated and interpreted accurately and transparently to ensure clear and consistent messages to the targeted producers and consumers. As the analysis of the findings showed knowledge gaps in sustainability implementation and support, accessibility, and interpretation of information by different stakeholders and sectors shall be understood to the greatest extent. As labels and certifications provide knowledge and information to both producers and consumers, policies to regulate certain terms and provide sufficient information could avoid deceptive self-declared claims and public misunderstanding, as well as make it easier for companies to understand and use such claims and terms. Some of the good practice examples are listed as follows.

- Regulations on the use of the word “organic” (USDA Organic Label and The European Commission)
- Legal definition of “fair trade” and provide guidelines for all public authorities (Belgium)
- Ethical and Environmental Marketing Claims to include social and ethical issues such as child labor, working conditions, relations with third world countries (Denmark, Finland, Norway, Sweden)
- Green Guides to include general principles toward environmental marketing claims such as “degradability”, “recyclability”, “recycled content”, and recently updated to include “renewable” and “carbon offset” claims (USA)
- Virtual platform of eco-labels and certification systems with information behind every label (EU)

In addition, disclosure of the information is also one of the main mechanisms that the public, and consumers can be more well informed about the environmental and social conditions of a particular product or company such as supply chain management, environmental performance, safety and wellbeing of employees, and other stakeholder engagement efforts. Corporate Sustainability Reporting is adopted

by many companies in various business sectors, including cosmetics and personal care products. The role of government in corporate information disclosure would be useful in supporting sustainable practices of the producers as well as securing consumer protection issues. A good practice example would be:

- Mandatory / Legal Obligation on Corporate Sustainability Reporting (Austria, Belgium, Canada, Denmark, France, the Netherlands, Norway)

In a broader scope of sustainable consumption and production on a national level, tax rates and exemptions can play a part in encouraging and speeding up green transitions such as variations of taxation system that focus on the product's environmental and social performances and strengthening roles and quantifiable targets of sustainable procurement in existing green public purchasing through expert advice and support.

Nonetheless, none of the LCT and SCP related policies has been specifically designed for the cosmetics and personal care products. The current producers in Thailand are still in transition toward going green. Filling in these gaps through a combination and comprehensive policy tools to drive elevated standards for consumers and gain a broad implementation toward green credentials is crucial. When the policies are mutually supportive, the contribution to sustainable development can be enhanced. With lack of leadership and ownership toward green transition solutions, bringing together the policy actors for a common purpose through a single working party could make rapid progress and impactful contribution toward sustainable consumption and production. The UK's Sustainable Procurement Task Force involves stakeholders from all sectors from suppliers, public and private sectors, government and NGOs, and trade unions to the Sustainable Development Commission. Following the good practice, a similar framework can be established for the cosmetics and personal care products with a combination of policy instruments, which can also be built on existing activities, in moving toward sustainability goals.

Considering the addressed barriers and previous discussions, Figure 5.3 illustrates a summary and flowchart of the policy recommendations and how

existing schemes and aspects of LCT can be integrated along with the proposed initiatives. It is important to note that sustainability benefits in environmental, social, and economic terms, education and training support, control and monitoring, and possible partnerships within and across sectors shall be considered in all activities to remove possible barriers and reinforce sustainability progress.

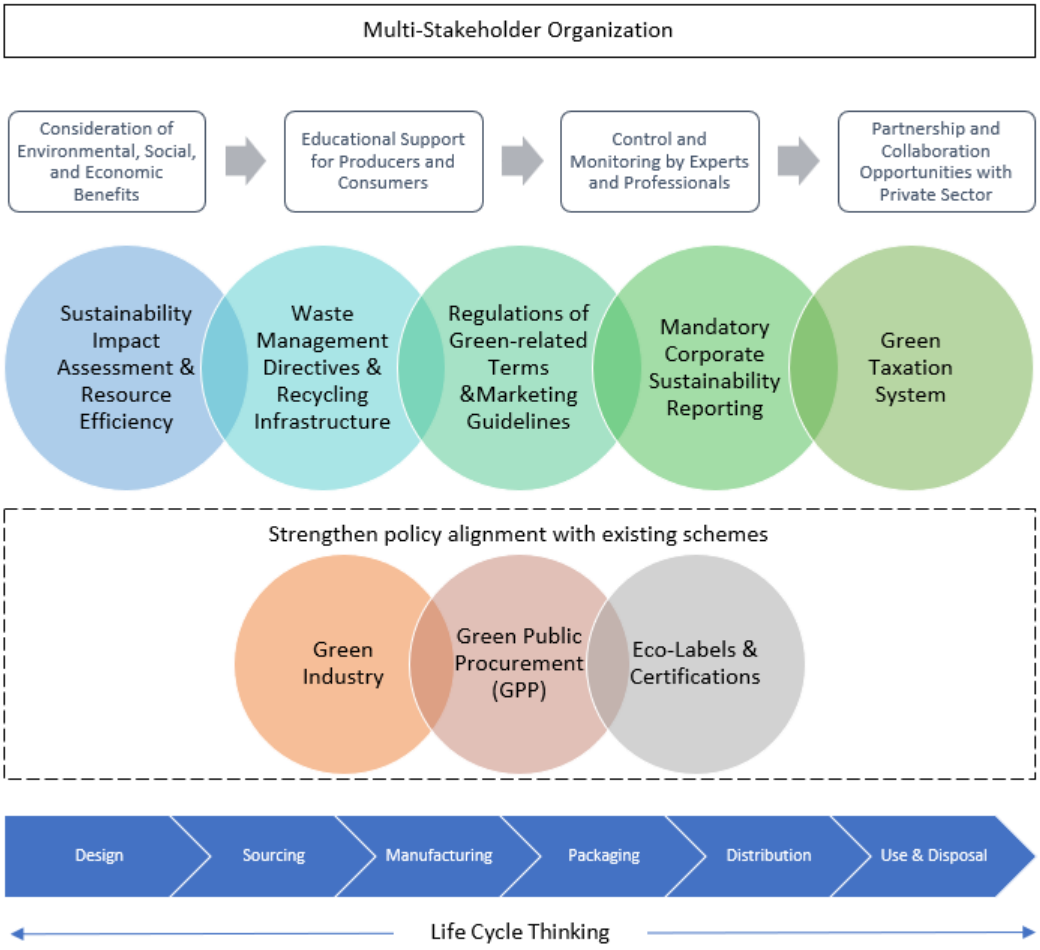


Figure 5.3 Proposed Initiatives of a Policy Framework for Green Cosmetics and Personal Care Product Transitions

Source: Author's Illustration

Five key recommendations are as follows:

1. Creation of knowledge base and product guidance on sustainability impact assessment to reduce environmental footprints and focus on long-term resource efficiency including social and ethical issues toward all life cycle stages to promote a sustainable supply chain, especially amongst SMEs. The government shall be in consultation with key stakeholders via a participatory approach to undertake an evaluation against appropriate indicators, strategies, targets and goals that are linked to target outcomes or behaviors. Initial attention and attempts should focus on potentially the most harmful impacts to the environment or where maximized contributions can be made, or where the producers are already focusing on such as product formulation and packaging to lessen the sense of burden in green transformation efforts. To assess and measure the progress, a series of tiers in the existing Green Industry or a specific percentage of green procurement targets could be further developed with possible incentives. A web-based training tool could also be considered to ensure cost-saving and resources are allocated appropriately.

2. Laws or codes of practice relating to packaging waste management, including packaging waste and effective recycling facilities targeting at reducing waste generation, landfills, emissions, and conserving non-renewable resources over a whole life cycle would be crucial in lifting barriers and constraints to circularity efforts to close the loop of sustainable consumption and production on a large scale. The recycling infrastructure can be either direct provision or via a collaboration with the private sector or leading companies with sufficient accompanying advice and widespread communication to support behavioral changes and attitudes of producers and end consumers. Within this manner, sustainable procurement and GPP towards goods and services that meet high environmental, social and economic standards could also be promoted to support wider sustainability objectives. As the targeted stakeholders from the studied samples were well concerned about the

issue and already willing to comply, the policy enforcement and measures should present opportunities that encourage further innovation and improvement of sustainable products as well. Incentives for innovation and environmental profile improvement could be taken in the form of subsidies. Similar to the recycling scheme introduced by the cosmetics and personal care companies, a broader incentive approach may be used to encourage consumers when they separate waste or take them to the recycling facility through redeemable points for discounts on green products as well.

3. Regulatory of sustainability and green-related terms mainly used in the cosmetics and personal care products such as “organic”, “fair trade”, “recyclable”, and “biodegradable” together with the development and provision of guideline principles for marketing and communication purposes would facilitate and enhance the knowledge of both producers as well as protecting consumers from being misled or greenwashed. The regulations could further link to mandatory labeling criteria of existing eco-labeling schemes. Educational programs and campaigns could drive public and media awareness and provide a better understanding of these green claims, which could in turn respond to environmental and social pressures on unethical businesses and influence societal change in time.

4. Regulations that require companies to provide sustainability-related information, impacts, and practices such as Corporate Sustainability Reporting should be made mandatory for the cosmetics and personal care product sector. Similar to regulatory of green claims, the role of government in requiring reporting and providing advice increases understanding for businesses and protects consumers from greenwashing. Corresponding guidelines could be developed in connection with global sustainability instruments such as the UN’s

SDGs, Global Compact, or Global Reporting Initiative (GRI) to ensure consistent standards and credibility of reporting.

5. Green or environmental-related taxation system such as reduced tax rates on green cosmetics and personal care products including imports to reduce the price gap could encourage consumers to make more sustainable choices in a less expensive manner. On the other hand, increased taxes and charges on less sustainable products could raise revenues for the government that can be used as funds, subsidies, or for waste management and other purposes to promote sustainability. Moreover, as carbon emissions were not at all considered by the studied locally-based companies, taxes and charges on large or high-emission vehicles, high-energy consumption of electricity, or charges on waste and wastewater could prompt them to realize cost savings in tax and increase efficiency in the longer term. In combination, subsidies or loans could be offered to more sustainable manufacturers to encourage investments and improve efficiency for cleaner and greener production.

The Role of Policy Actors

Considering the role of state and non-state actors in policy development and implementation, this study explored both state actors (governmental agencies) and non-state actors (NGOs) and found the gap in determining their respective roles as there is a lack of green policy support for the cosmetic industry. As a result, the combined influence can affect collaborative efforts and outcomes into the proposed policy framework as discussed earlier. For instance, in terms of resource distribution and decision-making, the local governmental agencies have more strength in financial and material resources, and therefore can carry out specific tasks for existing measures. Meanwhile, NGOs may have more specific technical resources and therefore can provide information, awareness, and training that facilitate local cosmetic companies toward green transformation. Based on the interviewed organizations included in this study, governmental and non-

governmental agencies can work together in shaping the policy. Considering the existing Green Industry scheme, currently there are approximately 20,000 certified green factories and 110 certified eco-friendly products whereas the Ministry of Industry targets to certify all industrial factories in Thailand to go green, or over 70,000 factories by 2025 (Green Industry, n.d.). In the role of government, existing measures can be re-evaluated and proposed the industry-specific base line with specific targets for the green growth of the cosmetic industry in a similar manner. Agency like the Federation of Thai Industries (FTI) is already working under the supervision of the Ministry of Industry, and therefore can act as a facilitator that encourage and advance the cosmetic sector in achieving green industry certification. Another plausible example is a collaboration between Thai FDA and Thailand Environment Institute (TEI). Toward the existing Thai Green Label, specific criteria for the cosmetics and personal care products could have been jointly developed through this government-NGO synergy. A separate or specific green label especially for the cosmetics and personal care products can also be further developed in collaboration with other agencies as well, such as the aforementioned FTI. Nonetheless, the interactions between government and NGO shall be considered to promote policy coherence that fulfil and complement each other with the support they need to tackle the barriers in policy development and implementation.

5.3 Theoretical Contributions

The findings of this study contribute to the interactions and integration of perspectives from the three main stakeholders, namely producer, consumer, and the government, through environmental, social, and economic aspects of sustainability.

Life cycle thinking aspects were used as an analytical framework to compare the results which assisted and provided inter-linkages between multi-stakeholder sustainability impacts and strategies that expand literature contributions toward sustainable development in the context of cosmetics and personal care products in Thailand, where the market is significantly growing and become highly competitive and deserve more research attention in a specific market-related context.

Furthermore, exploring factors influencing consumer purchase intention through Sweeney and Soutar (2001)'s perceived value theory contributes to green consumer behavior studies. Extended factors of environmental concern, generally used to explain consumer behavior toward green products (Ghazili et al., 2017; Zollo et al., 2021), and green policy initiated by the government and businesses provide a novel theoretical framework that builds on the literature of multidimensional nature of the perceived values. An integrative scope of this study facilitates a more comprehensive and contemporary understanding of the role of green consumption in consumer behavior, thereby addressing the value-action gap in purchase intentions of green cosmetics and personal care products.

As the research findings show that environmental concern is the main driver for consumer purchase intention, this suggests that environmental and ethical issues are appropriate constructs that can strengthen the theoretical framework. The interrelated relationships between internal (personal values and environmental concern) and external factors (green policy) also demonstrate a co-creation of values and strong associations with decision-making processes from multiple sources that lead to the purchase behavior of green cosmetics and personal care products.

While existing corporate and governmental green policies have been overlooked in the cosmetics and personal care sector, the proposed initiative framework also provides a holistic policy instrument that can enhance the feasibility for sustainable consumption and production and address the gaps in industrial sustainability-related literature for the cosmetics and personal care product categories.

5.4 Managerial Implications

First, the current study provides managerial relevance toward deeper implications of product life cycle thinking concepts as a decision-making support tool for the cosmetics and personal care businesses that allow a better understanding of what management actions could be undertaken to enhance sustainable practices considering environmental, social, and economic effects of a product throughout the entire life cycle, from design to production, packaging, distribution, to consumption and post-consumption.

From a policy-making perspective, the underlying concept of life cycle thinking analysis also addressed the policy gaps and supported policy development that can further encourage local cosmetics and personal care companies to start considering sustainable development goals and embedding sustainability values to the heart of their business to improve their sustainability in longer terms.

In quantitative and qualitative consumer studies, the findings contribute significantly to an improved understanding of how to enhance green consumption through perceived functional value in combination with environmental and ethical issues. Tailoring marketing efforts that are aligned with consumer perceptions and expectations can ultimately close the green gap between attitude and actual behavior.

With the hypothesis results regarding the interrelationships between variables and the purchase intentions, the findings help facilitate marketers and industry practitioners in more relevant product and brand marketing strategies to reduce barriers and improve the adoption of green cosmetics and personal care products. For example, as green policy directly impacts environmental concerns and meanwhile indirectly influences purchase intentions, promoting related strategies and incentives along the supply chain and life cycle stages such as CSR and recycling incentives could increase the perceived values of the products which will further increase purchase intentions and behavior. It is important to imply that unethical actions and negative feedback toward the brand or company could produce negative attitudes that would decrease the intention to purchase such products.

Lastly, the implications of corporate and governmental green policies conjoining functional benefits and environmental issues from the proposed initiatives could enhance multi-stakeholder perceptions that facilitate green transitions toward sustainable consumption and production of the cosmetics and personal care products.

5.5 Limitations and Future Studies

Despite the research conducted explicitly in relevant green cosmetics and personal care sector in Bangkok, Thailand, a broader range of perspectives and opinions could not be obtained from multiple managerial decision-makers within interviewed firms. The research could not reach non-green cosmetic businesses and

SMEs and other multiple potential policy actors, and therefore it is not representative of all cosmetics and personal care industry.

Moreover, the study focused on general consumer groups, and therefore additional demographic variables, cross-cultural, or different consumer segments could be employed to improve the knowledge of the study as well as to enhance managerial implications.

Another issue to be addressed is that cosmetics and personal care products consist of diverse product categories, from makeup to facial and hair care products, which may provide totally different results if explored particularly.

Future studies could also investigate specific issues such as plastic packaging waste, or focus on a single life cycle dimension, or one manufacturer as a case study, to evaluate the production side in more depth.

Meanwhile, further exploring the mediation or moderation effects of environmental concern, perceived values, or including other potential green determinants such as green trust or perceived greenwashing to the framework could enhance the richness in analyzing consumer values and provide a deeper understanding of research in future studies. Utilizing different consumer theories might be appropriate as the market changes and evolves.

With the lack of previous studies in the policy area especially in the context of green cosmetics and personal care industry, the role of policy actors including other government, non-government, and civil society organizations can be further explored exclusively.

However, the contributions of this study provided a base and strong support for the sustainability impacts of the cosmetics and personal care industry that allow practitioners, marketers, and policymakers to further explore their potential strategies, policies, and target consumers to fuel the growing market of green cosmetics and personal care products.

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APPENDICES

APPENDIX A

Certificate of Research Approval

Office of the Research Ethics Review Committee for Research Involving Human Subjects:
The Second Allied Academic Group in Social Sciences, Humanities and Fine and Applied Arts
Chamchuri 1 Building, Room 114, Phayathai Road, Wang Mai Sub-district,
Pathum Wan District, Bangkok 10330
Telephone number 0 2218 3210-11 E-mail curec2.ch1@chula.ac.th

COA No. 132/2564

Certificate of Research Approval

Research Project Number 096/64 INVESTIGATING CONSUMERS' PERSPECTIVE AND IMPACT ON GREEN COSMETICS AND PERSONAL CARE PRODUCTS IN THAILAND

Principal Researcher Miss Tawalhathai Suphasomboon

Office Environment Development and Sustainability, Graduate School, Chulalongkorn University

The Research Ethics Review Committee for Research Involving Human Subjects: The Second Allied Academic Group in Social Sciences, Humanities and Fine and Applied Arts at Chulalongkorn University, based on Declaration of Helsinki, the Belmont report, CIOMS guidelines and the Principle of the international conference on harmonization – Good clinical practice (ICH-GCP) has approved the execution of the aforementioned research project.

Signature Theraphan Luangthongkum (Emeritus Prof. Theraphan Luangthongkum, PhD.) Chairman

Signature (Asst. Prof. Nunghatai Rangponsumrit, PhD.) Secretary

Research Project Review Categories: Expedited Review

Date of approval: 9 June 2021 **Expiry date:** 8 June 2022

Office of the Research Ethics Review Committee for Research Involving Human Subjects in Social Sciences, The Second Allied Academic Group, Humanities and Fine and Applied Arts

Protocol No. 096/64
Date of Approval - 9 JUN 2021
Approval Expiry Date - 8 JUN 2022

Documents approved by the Committee

1. The research proposal
2. The researcher CV
3. The information sheet for research participants
4. The informed consent form
5. The questionnaire and guide questions for interview

Conditions

1. *The researcher has acknowledged that it is unethical if he/she collects information for the research before the application for an ethics review has been approved by the Research Ethics Review Committee.*
2. *If the certificate of the research project expires, the research execution must come to a halt. If the researcher wishes to reapply for approval, he/she has to submit an application for a new certificate at least one month in advance, together with a research progress report.*
3. *The researcher must conduct the research strictly in accordance with what is specified in the research project.*
4. *The researcher must **only** use documents that provide information for the research sampling population/participants, their letters of consent and the letters inviting them to take part in the research (if any) **that have been endorsed with the seal of the Committee.***
5. *If any seriously untoward incident happens to the place where the research information, which has requested the approval of the Committee, is kept, the researcher must report this to the Committee within five working days.*
6. *If there is any change in the research procedure, the researcher must submit the change for review by the Committee before he/she can continue with his/her research.*
7. *For a research project of less than one year the researcher must submit a report of research termination (AF 03-13) and an abstract of the research outcome within thirty days of the research being completed. For a research project which is a thesis, the researcher must submit an abstract of the research outcome within thirty days of the research being completed. This is to be used as evidence of the termination of the project.*
8. *A research project which has passed the Exemption Review, must observe only the conditions in 1, 6 and 7.*

APPENDIX B

Information Sheet for Stakeholder Interview Participants

เลขที่โครงการ	096/64
วันที่รับรอง	9 มิ.ย. 64
วันหมดอายุ	8 มิ.ย. 65

AF 04-07

เอกสารข้อมูลสำหรับกลุ่มตัวอย่าง/ผู้มีส่วนร่วมในการวิจัย
(สำหรับพนักงานในหน่วยงานภาครัฐ องค์กรไม่แสวงหากำไร บริษัทเอกชน หรือเจ้าของกิจการ)

ชื่อโครงการวิจัย การสำรวจมุมมองของผู้บริโภคต่อผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมในประเทศไทย.....

ชื่อผู้วิจัยหลัก ....น.ส. ธวัลหทัย สุภาสมบูรณ์.....ตำแหน่ง.....นิสิตปริญญาเอก.....

สถานที่ติดต่อผู้วิจัย (ที่ทำงาน)

.....

(ที่บ้าน) ...179/115 ศุภาลัยเพลสคอนโดมิเนียม ซ.สุขุมวิท 39 ถ. สุขุมวิท คลองตันเหนือ วัฒนา กทม. 10110.....

โทรศัพท์ (ที่ทำงาน) .....ต่อ ..... โทรศัพท์ .....

โทรศัพท์มือถือ .....084 422 9982..... อีเมล .....t.suphasomboon@gmail.com.....

1. ขอเรียนเชิญท่านเข้าร่วมในการวิจัย ก่อนที่ท่านจะตัดสินใจเข้าร่วมในการวิจัย มีความจำเป็นที่ท่านควรทำความเข้าใจว่างานวิจัยนี้ทำเพราะเหตุใด และเกี่ยวข้องกับอะไร กรุณาใช้เวลาในการอ่านข้อมูลต่อไปนี้อย่างละเอียดรอบคอบ ท่านสามารถสอบถามได้ หากถ้อยความใดไม่ชัดเจน หรือขอข้อมูลเพิ่มเติมได้

2. โครงการวิจัยนี้จัดทำขึ้นเพื่อสำรวจความยั่งยืนในอุตสาหกรรมเครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมจากมุมมองของผู้บริโภค ประโยชน์ที่คาดว่าจะได้รับจากการวิจัยนี้คือ การช่วยส่งเสริมและผลักดันให้อุตสาหกรรมเครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลตระหนักถึงผลกระทบต่อสิ่งแวดล้อมและจูงใจให้ผู้บริโภคในประเทศไทยตื่นตัวมากขึ้น ระยะเวลาที่จะทำวิจัยทั้งสิ้น 1 ปี จากเดือนพฤษภาคม 2564 ถึงเดือนเมษายน 2565

3. ท่านได้รับเชิญให้เข้าร่วมการวิจัยนี้เนื่องจากท่านเป็นพนักงานในหน่วยงานภาครัฐ องค์กรไม่แสวงหากำไร บริษัทเอกชน หรือเจ้าของกิจการที่เกี่ยวข้องในอุตสาหกรรมผลิตภัณฑ์เครื่องสำอาง และผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อม จำนวนผู้เข้าร่วมการวิจัยทั้งสิ้น 10 คน

4. หากท่านตัดสินใจเข้าร่วมการวิจัยแล้ว ผู้วิจัยจะขอสัมภาษณ์ท่านในประเด็นเกี่ยวกับผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อม ประมาณ 60 นาที ซึ่งมีคำถามทั้งหมด 19 ข้อ สำหรับกลุ่มเจ้าของกิจการหรือพนักงานในบริษัทผู้ผลิต และมีคำถามทั้งหมด 9 ข้อ สำหรับกลุ่มพนักงานในหน่วยงานภาครัฐหรือองค์กรไม่แสวงหากำไร

5. ข้อมูลที่ได้จากการตอบแบบสอบถามด้วยการสัมภาษณ์ ผู้วิจัยจะขออนุญาตบันทึกเสียง บันทึกข้อมูลที่สำคัญของประเด็นคำตอบที่สอดคล้องกับงานวิจัย และถอดเทปบันทึกเสียง และจะดำเนินการทำลายข้อมูลตลอดจนข้อมูลอื่น ๆ ทั้งหมดที่เกี่ยวข้องกับท่านภายหลังเสร็จสิ้นการวิจัย ด้วยการลบข้อมูลทั้งหมดภายใน 1 ปี

6. ท่านอาจรู้สึกอึดอัด หรืออาจรู้สึกไม่สบายใจอยู่บ้างกับบางคำถาม ท่านมีสิทธิ์ที่จะไม่ตอบคำถามเหล่านั้นได้ รวมถึงท่านมีสิทธิ์ถอนตัวออกจากโครงการนี้เมื่อใดก็ได้ โดยไม่ต้องแจ้งให้ทราบล่วงหน้า และการไม่เข้าร่วมวิจัยหรือถอนตัวออกจากโครงการวิจัยนี้ จะไม่มีผลกระทบต่อท่านแต่อย่างใด

7. ข้อมูลส่วนตัวของท่านจะถูกเก็บรักษาไว้ ไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นภาพรวม ผู้ที่มีสิทธิ์เข้าถึงข้อมูลของท่านจะมีเฉพาะผู้ที่เกี่ยวข้องกับการวิจัยนี้ และคณะกรรมการจริยธรรมการวิจัยในคนเท่านั้น

8. การวิจัยครั้งนี้ท่านจะไม่เสียค่าใช้จ่ายใด ๆ และท่านจะไม่ได้รับค่าตอบแทน เป็นการชดเชยค่าเสียเวลา

9. หากท่านมีข้อสงสัยใด ๆ โปรดสอบถามเพิ่มเติม โดยติดต่อกับผู้วิจัยได้ตลอดเวลา และหากผู้วิจัยมีข้อมูลเพิ่มเติมที่เป็นประโยชน์หรือโทษเกี่ยวกับการวิจัย ผู้วิจัยจะแจ้งให้ท่านทราบอย่างรวดเร็ว

10. หากท่านไม่ได้รับการปฏิบัติตามข้อมูลดังกล่าวข้างต้น ท่านสามารถร้องเรียนได้ที่คณะกรรมการพิจารณาจริยธรรมการวิจัยในคน กลุ่มสหสถาบัน ชุดที่ 2 สังคมศาสตร์ มนุษยศาสตร์ และศิลปกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย อาคารจามจุรี 1 ห้อง 114 ถนนพญาไท แขวงวังใหม่ เขตปทุมวัน กรุงเทพฯ 10330 โทรศัพท์ 0 2218 3210-11 อีเมล curec2.ch1@chula.ac.th

ลงชื่อ ..... ลงชื่อ.....

(.....น.ส. ธวัลหทัย สุภาสมบูรณ์.....)
ผู้วิจัยหลัก

(.....ด.ร. สุจิตรา วาสนาด่ารงดี.....)
ที่ปรึกษาวิทยานิพนธ์

APPENDIX C

Information Sheet for Consumer Interview Participants

AF 04-07

เอกสารข้อมูลสำหรับกลุ่มตัวอย่าง/ผู้มีส่วนร่วมในการวิจัย

(สำหรับบุคคลทั่วไป)

ชื่อโครงการวิจัย การสำรวจมุมมองของผู้บริโภคต่อผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมในประเทศไทย

ชื่อผู้วิจัยหลัก น.ส. ธวัลหทัย สุภาสมบูรณ์ ตำแหน่ง นิสิตระดับปริญญาเอก

สถานที่ติดต่อผู้วิจัย (ที่ทำงาน) .....

(ที่บ้าน) 179/115 ศุภาลัยเพลสคอนโดมิเนียม ซ. สุขุมวิท 39 ถ. สุขุมวิท วัฒนา คลองตันเหนือ กทม. 10110

โทรศัพท์ (ที่ทำงาน) .....ต่อ ..... โทรศัพท์ .....

โทรศัพท์มือถือ 084 422 9982 อีเมล t.suphasomboon@gmail.com

1. ขอเรียนเชิญท่านเข้าร่วมในการวิจัย ก่อนที่ท่านจะตัดสินใจเข้าร่วมในการวิจัย มีความจำเป็นที่ท่านควรทำความเข้าใจว่างานวิจัยนี้ทำเพราะเหตุใด และเกี่ยวข้องกับอะไร กรุณาใช้เวลาในการอ่านข้อมูลต่อไปนี้อย่างละเอียดรอบคอบ ท่านสามารถสอบถามได้หากถ้อยความใดไม่ชัดเจน หรือขอข้อมูลเพิ่มเติมได้

2. โครงการวิจัยนี้จัดทำขึ้นเพื่อสำรวจความยั่งยืนในอุตสาหกรรมเครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมจากมุมมองของผู้บริโภค ประโยชน์ที่คาดว่าจะได้รับจากการวิจัยนี้คือ การช่วยส่งเสริมและผลักดันให้อุตสาหกรรมเครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลตระหนักถึงผลกระทบต่อสิ่งแวดล้อม และจูงใจให้ผู้บริโภคในประเทศไทยหันมาสนใจผลิตภัณฑ์กลุ่มดังกล่าวมากขึ้น ระยะเวลาที่จะทำวิจัยทั้งสิ้น 1 ปี จากเดือนมิถุนายน 2564 ถึงเดือนกรกฎาคม 2565

3. ท่านได้รับเชิญให้เข้าร่วมการวิจัยนี้เนื่องจากท่านอาศัยอยู่ในกรุงเทพมหานคร และสามารถเข้าถึงอินเตอร์เน็ตได้ จำนวนผู้เข้าร่วมการวิจัยทั้งสิ้น 20 คน

4. หากท่านตัดสินใจเข้าร่วมการวิจัยแล้ว ผู้วิจัยจะขอสัมภาษณ์ท่านในประเด็นที่เกี่ยวข้องกับผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อม โดยใช้เวลาในการสัมภาษณ์ประมาณ 40 นาที ซึ่งมีคำถามทั้งหมด 30 ข้อ

5. ข้อมูลที่ได้จากการสัมภาษณ์ ผู้วิจัยจะขออนุญาตบันทึกเสียง จดบันทึกข้อมูลที่สำคัญ และถอดเทปบันทึกเสียง และจะดำเนินการทำลายข้อมูลตลอดจนข้อมูลอื่น ๆ ทั้งหมดที่เกี่ยวข้องกับท่านภายหลังเสร็จสิ้นการวิจัยภายใน 1 ปี

6. ท่านอาจรู้สึกอึดอัด หรืออาจรู้สึกไม่สบายใจอยู่บ้างกับบางคำถาม ท่านมีสิทธิ์ที่จะไม่ตอบคำถามเหล่านั้นได้ รวมถึงท่านมีสิทธิ์ถอนตัวออกจากโครงการนี้เมื่อใดก็ได้ โดยไม่ต้องแจ้งให้ทราบล่วงหน้า และการไม่เข้าร่วมวิจัยหรือถอนตัวออกจากโครงการวิจัยนี้จะไม่มีผลกระทบต่อท่านแต่อย่างใด

7. ข้อมูลส่วนตัวของท่านจะถูกเก็บรักษาไว้ ไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นภาพรวม ผู้ที่มีสิทธิ์เข้าถึงข้อมูลของท่านจะมีเฉพาะผู้ที่เกี่ยวข้องกับการวิจัยนี้ และคณะกรรมการจริยธรรมการวิจัยในคนเท่านั้น

8. การวิจัยครั้งนี้ท่านจะไม่เสียค่าใช้จ่ายใด ๆ และท่านจะไม่ได้รับค่าตอบแทนเป็นการชดเชยค่าเสียเวลา

9. หากท่านมีข้อสงสัยใด ๆ โปรดสอบถามเพิ่มเติม โดยติดต่อกับผู้วิจัยได้ตลอดเวลา และหากผู้วิจัยมีข้อมูลเพิ่มเติมที่เป็นประโยชน์หรือโทษเกี่ยวกับการวิจัย ผู้วิจัยจะแจ้งให้ท่านทราบอย่างรวดเร็ว

10. หากท่านไม่ได้รับการปฏิบัติตามข้อมูลดังกล่าวข้างต้น ท่านสามารถร้องเรียนได้ที่คณะกรรมการพิจารณาจริยธรรมการวิจัยในคน กลุ่มสหสถาบัน ชุดที่ 2 สังคมศาสตร์ มนุษยศาสตร์ และศิลปกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย อาคารจามจุรี 1 ห้อง 114 ถนนพญาไท แขวงวังใหม่ เขตปทุมวัน กรุงเทพฯ 10330 โทรศัพท์ 0 2218 3210-11 อีเมล curec2.ch1@chula.ac.th

คณะกรรมการพิจารณาจริยธรรมการวิจัยในคน กลุ่มสหสถาบัน ชุดที่ 2 สังคมศาสตร์ มนุษยศาสตร์ และศิลปกรรมศาสตร์

เลขที่โครงการ 096/64
วันที่รับรอง 9 มิ.ย. 64
วันหมดอายุ 8 มิ.ย. 65

ลงชื่อ..... ลงชื่อ.....

(น.ส. ธวัลหทัย สุภาสมบูรณ์) ผู้วิจัยหลัก

(ด.ร. สุจิตรา วาสนาดำรงดี) ที่ปรึกษาวิทยานิพนธ์

APPENDIX D

Information Sheet for Consumer Survey Participants

เลขที่โครงการ	096/64
วันที่รับรอง	9 มิ.ย. 64
วันหมดอายุ	8 มิ.ย. 65

AF 04-07

เอกสารข้อมูลสำหรับกลุ่มตัวอย่าง/ผู้มีส่วนร่วมในการวิจัย
(สำหรับบุคคลทั่วไป)

ชื่อโครงการวิจัย การสำรวจมุมมองของผู้บริโภคต่อผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมในประเทศไทย.....

ชื่อผู้วิจัยหลัก ....น.ส. ธวัลหทัย สุภาสมบูรณ์.....ตำแหน่ง.....นิสิตปริญญาเอก.....

สถานที่ติดต่อผู้วิจัย (ที่ทำงาน)

.....

(ที่บ้าน) ...179/115 ศุภาลัยเพลสคอนโดมิเนียม ซ.สุขุมวิท 39 ถ. สุขุมวิท คลองตันเหนือ วัฒนา กทม. 10110.....

โทรศัพท์ (ที่ทำงาน) .....ต่อ ..... โทรศัพท์ .....

โทรศัพท์มือถือ .....084 422 9982..... อีเมล .....t.suphasomboon@gmail.com.....

1. ขอเรียนเชิญท่านเข้าร่วมในการวิจัย ก่อนที่ท่านจะตัดสินใจเข้าร่วมในการวิจัย มีความจำเป็นที่ท่านควรทำความเข้าใจว่างานวิจัยนี้ทำเพราะเหตุใด และเกี่ยวข้องกับอะไร กรุณาใช้เวลาในการอ่านข้อมูลต่อไปนี้อย่างละเอียดรอบคอบ ท่านสามารถสอบถามได้ หากท่อยความใดไม่ชัดเจน หรือขอข้อมูลเพิ่มเติมได้

2. โครงการวิจัยนี้จัดทำขึ้นเพื่อสำรวจความยั่งยืนในอุตสาหกรรมเครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคล ที่เป็นมิตรต่อสิ่งแวดล้อมจากมุมมองของผู้บริโภค ประโยชน์ที่คาดว่าจะได้รับจากการวิจัยนี้คือ การช่วยส่งเสริมและผลักดันให้อุตสาหกรรมเครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลตระหนักถึงผลกระทบต่อสิ่งแวดล้อมและจูงใจให้ผู้บริโภคในประเทศไทยหันมาสนใจผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมมากขึ้น ระยะเวลาที่จะทำวิจัยทั้งสิ้น 1 ปี จากเดือนพฤษภาคม 2564 ถึงเดือนเมษายน 2565

3. ท่านได้รับเชิญให้เข้าร่วมการวิจัยนี้เนื่องจากท่านเป็นบุคคลทั่วไปที่สามารถเข้าถึงอินเตอร์เน็ตได้ จำนวนผู้เข้าร่วมการวิจัยทั้งสิ้น 400 คน

4. หากท่านตัดสินใจเข้าร่วมการวิจัยแล้ว ผู้วิจัยจะขอให้ท่านตอบแบบสอบถามออนไลน์ในประเด็นเกี่ยวกับผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อม ประมาณ 20 นาที ซึ่งมีคำถามทั้งหมด 33 ข้อ

5. ข้อมูลที่ได้จากการตอบแบบสอบถามด้วยการตอบแบบสอบถาม ผู้วิจัยจะขออนุญาตบันทึกข้อมูลของประเด็นคำตอบที่สอดคล้องกับงานวิจัย และจะดำเนินการทำลายข้อมูลดิจิตอลทั้งหมดภายใน 1 ปี

6. ท่านอาจรู้สึกอึดอัด หรืออาจรู้สึกไม่สบายใจอยู่บ้างกับบางคำถาม ท่านมีสิทธิ์ที่จะไม่ตอบคำถามเหล่านั้นได้ รวมถึงท่านมีสิทธิ์ถอนตัวออกจากโครงการนี้เมื่อใดก็ได้ โดยไม่ต้องแจ้งให้ทราบล่วงหน้า และการไม่เข้าร่วมวิจัยหรือถอนตัวออกจากโครงการวิจัยนี้ จะไม่มีผลกระทบต่อท่านแต่อย่างใด

7. ข้อมูลส่วนตัวของท่านจะถูกเก็บรักษาไว้ ไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นภาพรวม ผู้ที่มีสิทธิ์เข้าถึงข้อมูลของท่านจะมีเฉพาะผู้ที่เกี่ยวข้องกับการวิจัยนี้ และคณะกรรมการจริยธรรมการวิจัยในคนเท่านั้น

8. การวิจัยครั้งนี้ท่านจะไม่เสียค่าใช้จ่ายใด ๆ และท่านจะไม่ได้รับค่าตอบแทน เป็นการชดเชยค่าเสียเวลา

9. หากท่านมีข้อสงสัยใด ๆ โปรดสอบถามเพิ่มเติม โดยติดต่อกับผู้วิจัยได้ตลอดเวลา และหากผู้วิจัยมีข้อมูลเพิ่มเติมที่เป็นประโยชน์หรือโทษเกี่ยวกับการวิจัย ผู้วิจัยจะแจ้งให้ท่านทราบอย่างรวดเร็ว

10. หากท่านไม่ได้รับการปฏิบัติตามข้อมูลดังกล่าวข้างต้น ท่านสามารถร้องเรียนได้ที่คณะกรรมการพิจารณาจริยธรรมการวิจัยในคน กลุ่มสหสถาบัน ชุดที่ 2 สังคมศาสตร์ มนุษยศาสตร์ และศิลปกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย อาคารจามจุรี 1 ห้อง 114 ถนนพญาไท แขวงวังใหม่ เขตปทุมวัน กรุงเทพฯ 10330 โทรศัพท์ 0 2218 3210-11 อีเมล curec2.ch1@chula.ac.th

ลงชื่อ ..... ลงชื่อ.....

(.....น.ส. ธวัลหทัย สุภาสมบูรณ์.....)
ผู้วิจัยหลัก

(.....ด.ร. สุจิตรา วาสนาดำรงดี.....)
ที่ปรึกษาวิทยานิพนธ์

APPENDIX D

Information Sheet for Consumer Survey Participants (continued)

เลขที่โครงการ	096/64
วันที่รับรอง	9 มิ.ย. 64
วันหมดอายุ	8 มิ.ย. 65

AF 04-07

เอกสารข้อมูลสำหรับกลุ่มตัวอย่าง/ผู้มีส่วนร่วมในการวิจัย
(สำหรับพนักงานในหน่วยงานภาครัฐ องค์กรไม่แสวงหากำไร บริษัทเอกชน หรือเจ้าของกิจการ)

ชื่อโครงการวิจัย การสำรวจมุมมองของผู้บริโภคต่อผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมในประเทศไทย.....
ชื่อผู้วิจัยหลัก ....น.ส. ธวัลหทัย สุภาสมบูรณ์.....ตำแหน่ง.....นิสิตปริญญาเอก.....
สถานที่ติดต่อผู้วิจัย (ที่ทำงาน)
.....
(ที่บ้าน) ...179/115 ศุภาลัยเพลสคอนโดมิเนียม ซ.สุขุมวิท 39 ถ. สุขุมวิท คลองตันเหนือ วัฒนา กทม. 10110.....
โทรศัพท์ (ที่ทำงาน) .....ต่อ ..... โทรศัพท์ .....
โทรศัพท์มือถือ .....084 422 9982..... อีเมล .....t.suphasomboon@gmail.com.....

1. ขอเรียนเชิญท่านเข้าร่วมในการวิจัย ก่อนที่ท่านจะตัดสินใจเข้าร่วมในการวิจัย มีความจำเป็นที่ท่านควรทำความเข้าใจว่างานวิจัยนี้ทำเพราะเหตุใด และเกี่ยวข้องกับอะไร กรุณาใช้เวลาในการอ่านข้อมูลต่อไปนี้อย่างละเอียดรอบคอบ ท่านสามารถสอบถามได้ หากถ้อยความใดไม่ชัดเจน หรือขอข้อมูลเพิ่มเติมได้
2. โครงการวิจัยนี้จัดทำขึ้นเพื่อสำรวจความยั่งยืนในอุตสาหกรรมเครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมจากมุมมองของผู้บริโภค ประโยชน์ที่คาดว่าจะได้รับจากการวิจัยนี้คือ การช่วยส่งเสริมและผลักดันให้อุตสาหกรรมเครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลตระหนักถึงผลกระทบต่อสิ่งแวดล้อมและจูงใจให้ผู้บริโภคในประเทศไทยพัฒนาสนใจผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมมากขึ้น ระยะเวลาที่จะทำวิจัยทั้งสิ้น 1 ปี จากเดือนพฤษภาคม 2564 ถึงเดือนเมษายน 2565
3. ท่านได้รับเชิญให้เข้าร่วมการวิจัยนี้เนื่องจากท่านเป็นพนักงานในหน่วยงานภาครัฐ องค์กรไม่แสวงหากำไร บริษัทเอกชน หรือเจ้าของกิจการที่เกี่ยวข้องในอุตสาหกรรมผลิตภัณฑ์เครื่องสำอาง และผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อม จำนวนผู้เข้าร่วมการวิจัยทั้งสิ้น 10 คน
4. หากท่านตัดสินใจเข้าร่วมการวิจัยแล้ว ผู้วิจัยจะขอสัมภาษณ์ท่านในประเด็นเกี่ยวกับผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อม ประมาณ 60 นาที ซึ่งมีคำถามทั้งหมด 19 ข้อ สำหรับกลุ่มเจ้าของกิจการหรือพนักงานในบริษัทผู้ผลิต และมีคำถามทั้งหมด 9 ข้อ สำหรับกลุ่มพนักงานในหน่วยงานภาครัฐหรือองค์กรไม่แสวงหากำไร
5. ข้อมูลที่ได้จากการตอบแบบสอบถามด้วยการสัมภาษณ์ ผู้วิจัยจะขออนุญาตบันทึกเสียง บันทึกข้อมูลที่สำคัญของประเด็นคำตอบที่สอดคล้องกับงานวิจัย และถอดเทปบันทึกเสียง และจะดำเนินการทำลายข้อมูลตลอดจนข้อมูลอื่น ๆ ทั้งหมดที่เกี่ยวข้องกับท่านภายหลังเสร็จสิ้นการวิจัย ด้วยการลบข้อมูลทั้งหมดภายใน 1 ปี
6. ท่านอาจรู้สึกอึดอัด หรืออาจรู้สึกไม่สบายใจอยู่บ้างกับบางคำถาม ท่านมีสิทธิ์ที่จะไม่ตอบคำถามเหล่านั้นได้ รวมถึงท่านมีสิทธิ์ถอนตัวออกจากโครงการนี้เมื่อใดก็ได้ โดยไม่ต้องแจ้งให้ทราบล่วงหน้า และการไม่เข้าร่วมวิจัยหรือถอนตัวออกจากโครงการวิจัยนี้ จะไม่มีผลกระทบต่อท่านแต่อย่างใด
7. ข้อมูลส่วนตัวของท่านจะถูกเก็บรักษาไว้ ไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นภาพรวม ผู้ที่มีสิทธิ์เข้าถึงข้อมูลของท่านจะมีเฉพาะผู้ที่เกี่ยวข้องกับการวิจัยนี้ และคณะกรรมการจริยธรรมการวิจัยในคนเท่านั้น
8. การวิจัยครั้งนี้ท่านจะไม่เสียค่าใช้จ่ายใด ๆ และท่านจะไม่ได้รับค่าตอบแทน เป็นการชดเชยค่าเสียเวลา
9. หากท่านมีข้อสงสัยใด ๆ โปรดสอบถามเพิ่มเติม โดยติดต่อกับผู้วิจัยได้ตลอดเวลา และหากผู้วิจัยมีข้อมูลเพิ่มเติมที่เป็นประโยชน์หรือโทษเกี่ยวกับการวิจัย ผู้วิจัยจะแจ้งให้ท่านทราบอย่างรวดเร็ว
10. หากท่านไม่ได้รับการปฏิบัติตามข้อมูลดังกล่าวข้างต้น ท่านสามารถร้องเรียนได้ที่คณะกรรมการพิจารณาจริยธรรมการวิจัยในคน กลุ่มสหสถาบัน ชุดที่ 2 สังคมศาสตร์ มนุษยศาสตร์ และศิลปกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย อาคารจามจุรี 1 ห้อง 114 ถนนพญาไท แขวงวังใหม่ เขตปทุมวัน กรุงเทพฯ 10330 โทรศัพท์ 0 2218 3210-11 อีเมล curec2.ch1@chula.ac.th

ลงชื่อ ..... ลงชื่อ.....
(.....น.ส. ธวัลหทัย สุภาสมบูรณ์.....) (.....ด.ร. สุจิตรา วาสนาด่ารงดี.....)
ผู้วิจัยหลัก ที่ปรึกษาวิทยานิพนธ์

APPENDIX E

Informed Consent Form for Stakeholder Interview Participants

เลขที่โครงการ	096/64
วันที่รับรอง	9 มิ.ย. 64
วันหมดอายุ	8 มิ.ย. 65

AF 05-07

หนังสือยินยอมเข้าร่วมในการวิจัย
(สำหรับพนักงานในหน่วยงานภาครัฐ องค์กรไม่แสวงหากำไร บริษัทเอกชน หรือเจ้าของกิจการ)

สถานที่ .....
วันที่ ..... เดือน ..... พ.ศ. .....

เลขที่ ตัวอย่าง/ผู้มีส่วนร่วมในการวิจัย .....

ข้าพเจ้า ซึ่งได้ลงนามท้ายหนังสือนี้ ขอแสดงความยินยอมเข้าร่วมโครงการวิจัย
ชื่อโครงการวิจัย การสำรวจมุมมองของผู้บริโภคต่อผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมในประเทศไทย
ชื่อผู้วิจัยหลัก
น.ส. ธวัลหทัย สุภาสมบูรณ์
ที่อยู่ที่ติดต่อ
179/115 ศุภาลัยเพลสคอนโดมิเนียม ซ. สุขุมวิท 39 ถ. สุขุมวิท คลองตันเหนือ วัฒนา กทม. 10110
โทรศัพท์
084 422 9982

ข้าพเจ้า **ได้รับทราบ**รายละเอียดเกี่ยวกับที่มาและวัตถุประสงค์ในการทำวิจัย รายละเอียดขั้นตอนต่างๆ ที่จะต้องปฏิบัติหรือได้รับการปฏิบัติ ความเสี่ยง/อันตราย และประโยชน์ซึ่งจะเกิดขึ้นจากการวิจัยเรื่องนี้ โดยได้อ่านรายละเอียดในเอกสารข้อมูลสำหรับผู้มีส่วนร่วมในการวิจัยโดยตลอด และ**ได้รับคำอธิบาย**จากผู้วิจัย **จนเข้าใจเป็นอย่างดี**แล้ว

ข้าพเจ้าจึง**สมัครใจ**เข้าร่วมในโครงการวิจัยนี้ตามที่ระบุไว้ในเอกสารข้อมูลสำหรับผู้มีส่วนร่วมในการวิจัย โดยข้าพเจ้ายินยอมตอบคำถามและอนุญาตให้บันทึกเสียงสำหรับการวิจัยในประเด็นเกี่ยวกับผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมโดยใช้เวลาในการตอบคำถามในการสัมภาษณ์ประมาณ 60 นาที

ข้าพเจ้ามีสิทธิ์**ถอนตัว**ออกจากการวิจัยเมื่อใดก็ได้ตามความประสงค์ **โดยไม่ต้องแจ้งเหตุผล** ซึ่งการถอนตัวออกจากการวิจัยจะไม่มีผลกระทบต่อการทำงานในทางลบใด ๆ ต่อข้าพเจ้าทั้งสิ้น

ข้าพเจ้าได้รับคำรับรองและคำยืนยันว่า
ผู้วิจัยจะปฏิบัติต่อข้าพเจ้าตามเอกสารข้อมูลซึ่งเป็นคำชี้แจงผู้มีส่วนร่วมในการวิจัย และข้อมูลใดๆ ที่เกี่ยวข้องกับข้าพเจ้า ผู้วิจัยจะ**เก็บรักษาเป็นความลับ** โดยจะนำเสนอผลการวิจัยเป็นภาพรวมเท่านั้น ไม่มีข้อมูลใดในการรายงานที่จะนำไปสู่การระบุตัวข้าพเจ้า

หากข้าพเจ้าไม่ได้รับการปฏิบัติตรงตามที่ได้ระบุไว้ในเอกสารชี้แจงผู้มีส่วนร่วมในการวิจัย
ข้าพเจ้าสามารถร้องเรียนได้ที่คณะกรรมการพิจารณาจริยธรรมการวิจัยในคน กลุ่มสหสถาบัน ชุดที่ 2 สังคมศาสตร์ มนุษยศาสตร์และศิลปกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย อาคารจามจุรี 1 ชั้น 1 ห้อง 114 แขวงวังใหม่ เขตปทุมวัน กรุงเทพฯ 10330 โทรศัพท์ 0 2218 3210-11 อีเมล curec2.ch1@chula.ac.th

ข้าพเจ้าได้ลงลายมือชื่อไว้เป็นสำคัญต่อหน้าพยาน
นอกจากนี้ข้าพเจ้าได้รับสำเนาเอกสารข้อมูลซึ่งเป็นคำชี้แจงผู้มีส่วนร่วมในการวิจัยและสำเนาหนังสือยินยอมไว้แล้ว

ลงชื่อ	ลงชื่อ.....
(.....น.ส. ธวัลหทัย สุภาสมบูรณ์.....)	(.....)
ผู้วิจัยหลัก	ผู้มีส่วนร่วมในการวิจัย
ลงชื่อ	ลงชื่อ.....
(.....ด.ร. สุจิตรา วาสนาดำรงดี.....)	(.....)
ที่ปรึกษาวิทยานิพนธ์	พยาน

APPENDIX F

Guide Questions for Stakeholder Interview

ตัวอย่างคำถามการสัมภาษณ์สำหรับหน่วยงานภาครัฐ หรือ องค์กรไม่แสวงหากำไรที่เกี่ยวข้อง

1. หน่วยงานของท่านมีแผน นโยบาย หรือกิจกรรมที่จะส่งเสริมผู้ผลิต/ผู้นำเข้าเครื่องสำอางให้มีการจัดการและดำเนินงานในภาการผลิต(หรือนำเข้า)สินค้าที่เป็นมิตรต่อสิ่งแวดล้อม รวมไปถึงบรรจุภัณฑ์ และระบบการจัดการขยะหรือไม่ อย่างไรบ้าง
2. ในมุมมองของท่าน ปัจจัยใดที่สำคัญที่สุดในการส่งเสริมและผลักดันผู้ผลิตเครื่องสำอางในประเทศไทยให้ผลิตสินค้าที่เป็นมิตรต่อสิ่งแวดล้อมมากขึ้น
3. หน่วยงานของท่านมีแผน นโยบาย หรือกิจกรรมที่จะส่งเสริมผู้บริโภคเครื่องสำอางให้สนับสนุนการบริโภคเครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อม รวมไปถึงการรีไซเคิล รีฟิล เพื่อลดการสร้างขยะหรือลดผลกระทบต่อสิ่งแวดล้อมหรือไม่ อย่างไรบ้าง
4. ท่านมีความคิดเห็นว่านโยบายใดที่จะสามารถจูงใจผู้บริโภคในประเทศไทยให้หันมาบริโภคหรือสนใจผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมมากขึ้นได้บ้าง
5. มีข้อกฎหมาย ข้อบังคับ หรือนโยบายจากภาครัฐใด ที่ช่วยสนับสนุนหน่วยงานของท่านในแผนงาน หรือกิจกรรมดังกล่าวหรือไม่ หรือในทางกลับกันอาจเป็นอุปสรรคต่อการส่งเสริมผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมนั้นอย่างไรบ้าง
6. ท่านมีความคิดเห็นอย่างไรในการรับรองมาตรฐานและฉลากสินค้าที่ระบุความเป็นมิตรต่อสิ่งแวดล้อมทั้งของระดับสากลและของประเทศไทย เช่น องค์ประกอบของผลิตภัณฑ์เป็นออแกนิก ส่วนผสมมาจากธรรมชาติ ไม่ทดลองในสัตว์ จัดหาวัตถุดิบด้วยราคาเป็นธรรมอย่างมีจริยธรรม บรรจุภัณฑ์ย่อยสลายได้ หรือมีการนำรายได้ไปช่วยสังคมหรืออนุรักษ์สิ่งแวดล้อม เพื่อจูงใจให้ผู้ผลิตและผู้บริโภคพิจารณาผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมมากขึ้น
7. ท่านมีความคิดเห็นอย่างไรในเรื่องการทดสอบความปลอดภัยของสารเคมีในผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลในสัตว์ซึ่งยังคงมีอยู่ในหลายประเทศทั่วโลกรวมถึงประเทศไทย
8. เนื่องจากองค์ประกอบของความเป็นมิตรต่อสิ่งแวดล้อมของผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคล อย่างเช่น ความเป็นเกษตรอินทรีย์ หรือออแกนิกนั้น ยังไม่มีกฎหมายข้อบังคับรองรับในการตีความหมายโดยตรง ท่านมีความคิดเห็นอย่างไรต่อการนำมาใช้ของผู้ประกอบการ และกระแสความนิยมของผู้บริโภคในประเทศไทย
9. ท่านมีความเห็นว่าหน่วยงานใดจะสามารถเข้ามามีบทบาทและมีส่วนช่วยในการสนับสนุนผู้ผลิตและผู้บริโภคเครื่องสำอางที่เป็นมิตรต่อสิ่งแวดล้อมได้บ้าง และจะผลักดันให้เกิดผลลัพธ์ได้อย่างไรในระยะยาว

เลขที่โครงการ	096/64
วันที่รับรอง	9 มิ.ย. 64
วันหมดอายุ	8 มิ.ย. 65

APPENDIX F

Guide Questions for Stakeholder Interview (continued)

ตัวอย่างคำถามการสัมภาษณ์สำหรับเจ้าของกิจการ หรือพนักงานบริษัทเอกชน
ที่ผลิตหรือนำเข้าผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อม

Part I: Sustainability

1. กลยุทธ์ระดับองค์กรของท่านด้านการพัฒนาอย่างยั่งยืนมุ่งเป้าไปในด้านเศรษฐกิจ การรับผิดชอบต่อสังคม หรือสิ่งแวดล้อมมากที่สุด

2. องค์กรของท่านมีระบบการจัดการสิ่งแวดล้อม โครงการเกี่ยวกับการพัฒนาอย่างยั่งยืน กิจกรรมที่ส่งเสริมสังคม หรือการรับรองด้านการพัฒนาธุรกิจอย่างยั่งยืนหรือไม่

3. วัตถุประสงค์หรือเป้าหมายด้านความยั่งยืนขององค์กรท่านคืออะไร มีการตั้งเป้าหมายการลดของการใช้ทรัพยากรต่างๆ หรือไม่ และมีความคืบหน้าในการบรรลุเป้าหมายเหล่านี้อย่างไรบ้าง ท่านติดตามวัดผลความคืบหน้า วัดด้วยมาตรวัด หรือใช้อะไรเป็นตัวชี้วัด

4. องค์กรของท่านนำปัจจัยด้านผลกระทบต่อสังคม สิ่งแวดล้อม และการเปลี่ยนแปลงพฤติกรรมผู้บริโภคที่เกี่ยวกับการบริโภคที่มากเกินไปและขยะที่มากเกินจำเป็น มาปรับเป็นกลยุทธ์ทางธุรกิจหรือแผนการตลาดอย่างไรบ้าง

5. องค์กรของท่านจะพัฒนาธุรกิจอย่างยั่งยืนและจัดการผลกระทบต่อสิ่งแวดล้อมอย่างไรบ้างในขณะที่ยังเพิ่มผลกำไรของธุรกิจในระยะยาว ความท้าทายและโอกาสทางธุรกิจในการพัฒนาอย่างยั่งยืนนี้ส่งผลต่อองค์กรของท่านอย่างไรบ้าง มีสินค้า บริการ หรือกระบวนการใดของท่านสามารถแสดงให้เห็นถึงการให้ความสำคัญกับความยั่งยืน ต้องมีนวัตกรรมใหม่ๆ หรือไม่เพื่อให้ประสบความสำเร็จตามแนวทางที่ตั้งเป้าไว้

Part II: Supply Chain

1. องค์กรของท่านนำแนวคิดการพัฒนาอย่างยั่งยืนเข้ามามีส่วนร่วมอย่างไรบ้างในห่วงโซ่อุปทาน กระบวนการต่างๆ ตั้งแต่ก่อนการผลิตสินค้ากระทั่งนำสินค้าไปสู่ตลาดและผู้บริโภค รวมไปถึงการกำจัดผลิตภัณฑ์เหล่านั้นหลังการใช้งาน

    i. องค์กรของท่านมีการจัดหาวัตถุดิบเพื่อการผลิตสินค้ามาจากแหล่งไหน อย่างไร มีการจัดการกับความเท่าเทียมทางสังคมในการซื้อขายและจัดซื้อหรือไม่ และมีผลกระทบอย่างไรบ้างต่อชุมชนท้องถิ่น
    ii. ปัจจุบันองค์กรของท่านใช้พลังงาน น้ำ วัตถุดิบ ทรัพยากรต่างๆ มากน้อยแค่ไหน
    iii. มีการใช้พลังงานหมุนเวียนในโรงงานหรือไม่
    iv. มีการรีไซเคิลการใช้น้ำ สารเคมี ส่วนผสมของผลิตภัณฑ์หรือไม่
    v. ท่านมีการทดลองผลิตภัณฑ์อย่างไรก่อนนำสินค้าออกสู่ตลาด
    vi. มีการจัดการขยะอันตราย สารเคมี ขยะที่ละลายน้ำได้อย่างไร
    vii. บรรจุภัณฑ์ของผลิตภัณฑ์ของท่านมีกี่ประเภท มีการจัดการอย่างไร รีไซเคิลได้หรือไม่ และจัดการพวกผลิตภัณฑ์ทดลองใช้ พวกเทสเตอร์ ด้วยหรือไม่
    viii. องค์กรของท่านมีช่องทางการจัดจำหน่ายอย่างไร มีเป้าหมายในการลดก๊าซเรือนกระจกหรือไม่

2. ปัจจัยใดในห่วงโซ่อุปทานที่น่ากังวลมากที่สุดในแง่ของความยั่งยืนในมุมมองของท่าน/องค์กร เพราะเหตุใด องค์กรของท่านมีการสนับสนุนผู้บริโภคเกี่ยวกับการใช้และหลังใช้ผลิตภัณฑ์อย่างไร กลยุทธ์การสื่อสารของบริษัทได้มีการเน้นย้ำให้เห็นถึงคุณค่าที่บริษัทมีต่อสิ่งแวดล้อมและสังคมต่อผู้บริโภคอย่างไรบ้างในเรื่องนี้

APPENDIX F

Guide Questions for Stakeholder Interview (continued)

Part III: Governmental and Policy Related Issues

1. องค์กรของท่านต้องปฏิบัติตามข้อบังคับหรือกฎหมายในท้องถิ่นอย่างไรบ้าง ท่านมีความคิดเห็นอย่างไรเกี่ยวกับเรื่องนี้
2. องค์กรของท่านต้องการการสนับสนุนอะไรบ้างจากภาครัฐ เพื่อลดผลกระทบด้านสิ่งแวดล้อม และสร้างผลิตภัณฑ์ที่ยั่งยืนมากขึ้น
3. ท่านมีมุมมองเกี่ยวกับบทบาทของภาครัฐในมาตรการหรือแนวทางในการกำจัดขยะพลาสติกอย่างไรบ้าง
4. มีองค์กรด้านสิ่งแวดล้อมหรือสังคมไหนที่ท่านสามารถร่วมมือสร้างความสัมพันธ์ที่ก่อให้เกิดคุณค่าร่วมระหว่างบริษัทกับกลุ่มนักขับเคลื่อนด้านสิ่งแวดล้อมได้ด้วยได้หรือไม่ อย่างไร

APPENDIX G

Guide Questions for Consumer Interview

ตัวอย่างคำถามสัมภาษณ์เชิงลึกสำหรับผู้บริโภค

(บุคคลทั่วไป)

ส่วนที่ 1 ข้อมูลทั่วไปของผู้ให้สัมภาษณ์

1 ชื่อ/ชื่อเล่น

2 เพศ

3 อายุ

4 ภูมิลำเนา

5 ระดับการศึกษา

6 อาชีพ

7 รายได้ในครัวเรือนต่อเดือน

(ไม่ต้องระบุตัวเลข เลือกตอบใน range >15,000, 15,000-25,000, 25,000-35,000, 35,000-50,000, 50,000-75,000, 75,000-100,000, 100,000-150,000, 150,000-200,000, 200,000-300,000, >300,000)

ส่วนที่ 2 มุมมองต่อการให้ความหมายของความเป็นมิตรต่อสิ่งแวดล้อม

1 สามสิ่งแรกที่ท่านนึกถึง หากพูดถึง "ออแกนิก"

2 มีความคิดเห็นอย่างไรกับกระแสรักษ์โลกและสินค้าอุปโภคบริโภคที่ผลิตออกมาเพื่อรองรับกระแสนี้

3 ท่านคิดว่าผลิตภัณฑ์เครื่องสำอางและของใช้ส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมดีกว่าผลิตภัณฑ์ทั่วไปหรือไม่ อย่างไร

ส่วนที่ 3 พฤติกรรมและแนวโน้มการใช้

1 ท่านเคยซื้อหรือใช้ผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมหรือไม่

หากตอบว่าเคย:

1.1 อะไรที่ทำให้ท่านตัดสินใจซื้อเครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมเป็นครั้งแรก

1.2 ท่านซื้อผลิตภัณฑ์ประเภทใดบ้าง (face, body, hair, makeup, etc.) ในช่วง 3 เดือนที่ผ่านมา

1.3 วัตถุประสงค์ในการซื้อ

1.4 คุณสมบัติเด่นๆ ที่ท่านชอบในสินค้าที่เลือกซื้อ (เปรียบเทียบกับสินค้าทั่วไป)

1.5 ผลิตภัณฑ์ที่ใช้อยู่ตอบสนองความต้องการทางด้านไหนบ้าง

1.6 ช่องทางในการซื้อ

1.7 ความถี่ในการซื้อ

1.8 งบประมาณในการซื้อต่อครั้ง หรือต่อประเภทของผลิตภัณฑ์

หากตอบว่าไม่เคย:

1.9 เพราะเหตุใดจึงยังไม่เคยซื้อหรือใช้ผลิตภัณฑ์ดังกล่าว

1.10 ปกติท่านเลือกซื้อเครื่องสำอางหรือของใช้ส่วนบุคคลจากที่ใดบ้าง สังเกตเห็นผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมบ้างหรือไม่

1.11 ปัจจัยใดบ้างที่จะทำให้เปลี่ยนจากแบรนด์หรือผลิตภัณฑ์ที่ใช้อยู่มาใช้ผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมมากขึ้น

APPENDIX G

Guide Questions for Consumer Interview (continued)

2 ปกติท่านมักจะซื้อผลิตภัณฑ์เครื่องสำอางและของใช้ส่วนตัวซ้ำ หรือชอบที่จะเปลี่ยนแบรนด์หรือผลิตภัณฑ์ไปเรื่อยๆ เพราะเหตุใด

3 ปกติท่านอ่านฉลากผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลหรือไม่ และคิดเห็นอย่างไรกับผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมที่ไม่มี หรือมีตรารับรองต่างๆ เช่น USDA, green label, organic product, natural product, cruelty-free, vegan, etc.

4 ท่านจะยอมจ่ายมากขึ้นสำหรับเครื่องสำอางหรือของใช้ส่วนตัวที่เป็นมิตรต่อสิ่งแวดล้อมหรือไม่ มากขึ้นกี่ %

5 ท่านคิดว่าได้ประโยชน์อะไรบ้างจากการใช้ผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อม

ส่วนที่ 4 ปัจจัยที่มีผลต่อการตัดสินใจซื้อ

1 โดยทั่วไปแล้ว ข้อมูลใดที่ทำให้ตัดสินใจซื้อเป็นอันดับแรกๆ เพราะเหตุใด เช่น รีวิว ได้สินค้าตัวอย่างทดลอง เทรนด์ความนิยม คุณสมบัติ โปรโมชั่น ส่วนผสม ความปลอดภัย ฉลากสินค้า ตรารับรองสินค้า คำแนะนำจากคนใกล้ชิด

2 การโฆษณาผลิตภัณฑ์มีผลต่อการตัดสินใจซื้อของท่านหรือไม่ อย่างไร

3 นโยบายต่างๆ จากภาครัฐ หรือหน่วยงานใดบ้างที่รู้สึกสนใจหรือทำให้ใส่ใจต่อปัญหาสิ่งแวดล้อม และส่งผลให้ท่านอยากสนับสนุนการบริโภคสินค้าที่เป็นมิตรต่อสิ่งแวดล้อมมากขึ้น เช่น 3R สินค้าที่มีรีฟิล ห้ามทดลองในสัตว์ พลังงานสะอาด การส่งขวดผลิตภัณฑ์ที่เป็นพลาสติกคืน ปลูกป่าลดโลกร้อน

ส่วนที่ 5 ข้อคิดเห็นอื่น ๆ

1 ท่านคิดว่าแบรนด์หรือผลิตภัณฑ์ใดในกลุ่มของเครื่องสำอางและของใช้ส่วนตัวที่ทำได้ดีในเรื่องของความเป็นมิตรต่อสิ่งแวดล้อมและความยั่งยืน อย่างไรบ้าง

เลขที่โครงการ	096/64
วันที่รับรอง	9 มิ.ย. 64
วันหมดอายุ	8 มิ.ย. 65

APPENDIX H

Questionnaire for Consumer Survey

แบบสอบถามงานวิจัย

คำนิยาม

ผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคล
(Cosmetics and Personal Care Product)

คือผลิตภัณฑ์บำรุงดูแลผิวพรรณ ทั้งผิวหน้าและผิวกาย เส้นผม และส่วนต่างๆ ของร่างกาย ที่มีคุณสมบัติในการทำความสะอาด นวด ทา ถู พอก โรย ขัด พ่น ใส่ บนส่วนใดส่วนหนึ่งของร่างกาย เพื่อให้เกิดความสะอาด ความสวยงาม หรือส่งเสริมให้เกิดความสวยงาม

ผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อม
(Green Cosmetics and Personal Care Product)

หมายถึง ผลิตภัณฑ์ที่ผลิตจากกระบวนการและเทคโนโลยีที่ส่งผลกระทบต่อสิ่งแวดล้อม น้อยกว่าผลิตภัณฑ์ทั่วไป รวมถึงการอนุรักษ์ทรัพยากรและการลดการปล่อยของเสียหรือมลพิษของสินค้านั้น ๆ ตั้งแต่การคัดเลือกวัตถุดิบในการผลิต กระบวนการผลิต การใช้บรรจุภัณฑ์ ตัวสินค้า รวมไปถึงการขนส่งและจัดจำหน่ายให้กับผู้บริโภคและการจัดการบรรจุภัณฑ์หลังการใช้งานอย่างถูกวิธี

เลขที่โครงการ	096/64
วันที่รับรอง	9 มิ.ย. 64
วันหมดอายุ	8 มิ.ย. 65

APPENDIX H

Questionnaire for Consumer Survey (continued)

ส่วนที่ 1: คำถามเบื้องต้น

1. ท่านพักอยู่อาศัย ทำงาน หรือกำลังศึกษาในเขตกรุงเทพมหานครใช่หรือไม่
☐ ใช่ ☐ ไม่ใช่

2. ท่านรู้จักผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมหรือไม่
☐ รู้จัก ☐ ไม่รู้จัก

3. ท่านเคยซื้อหรือใช้ผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมหรือไม่
☐ เคย ☐ ไม่เคย

4. ท่านซื้อผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อมประเภทใดบ้างในช่วงหกเดือนที่ผ่านมา	ซื้อมากที่สุด				ไม่ได้ซื้อ
1. ผลิตภัณฑ์สำหรับผิวหน้า (ครีมบำรุงผิวหน้า)	☐	☐	☐	☐	☐
2. ผลิตภัณฑ์เมคอัพ (สำหรับแต่งหน้า ตา ปาก เล็บ)	☐	☐	☐	☐	☐
3. ผลิตภัณฑ์สำหรับผิวกาย (สบู่ ครีมบำรุงผิวกาย มือเท้า ผลิตภัณฑ์ระงับกลิ่นกาย)	☐	☐	☐	☐	☐
4. ผลิตภัณฑ์สำหรับเส้นผม (แชมพู ครีมนวด ผลิตภัณฑ์จัดแต่งและจัดทรงผม)	☐	☐	☐	☐	☐
5. ผลิตภัณฑ์สำหรับช่องปาก (ยาสีฟัน น้ำยาบ้วนปาก)	☐	☐	☐	☐	☐
6. ผลิตภัณฑ์ปกป้องผิวจากแสงแดด (ครีม สเปรย์กันแดด)	☐	☐	☐	☐	☐
7. น้ำหอม (น้ำหอม ผลิตภัณฑ์โรยตัวหลังโกนหนวด)	☐	☐	☐	☐	☐

5. ท่านซื้อ (หรือยินดีที่จะซื้อ) ผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อม ยอดเฉลี่ยประมาณครั้งละเท่าใด

☐ น้อยกว่า 1,000 บาท ☐ 1,001-3,000 บาท ☐ 3.001-5,000 บาท
☐ 5,001-10,000 บาท ☐ 10,001-20,000 บาท ☐ 20,001 บาทขึ้นไป

6. ส่วนใหญ่ท่านซื้อ (หรือคาดว่าจะซื้อ) ผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคล ที่เป็นมิตรต่อสิ่งแวดล้อมจากที่ใด (ตอบได้มากกว่า 1 ข้อ)

☐ เคาน์เตอร์แบรนด์ของผลิตภัณฑ์โดยตรง
☐ ซุปเปอร์มาเก็ต ร้านค้าปลีกอื่นๆ ที่จำหน่ายผลิตภัณฑ์
☐ ร้านค้าที่จำหน่ายผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อม
☐ สั่งซื้อจากเวบไซต์ หรือช่องทางออนไลน์
☐ อื่นๆ (โปรดระบุ)

เลขที่โครงการ	096/64
วันที่รับรอง	9 มิ.ย. 64
วันหมดอายุ	8 มิ.ย. 65

APPENDIX H

Questionnaire for Consumer Survey (continued)

ส่วนที่ 2: ปัจจัยที่ผลต่อการซื้อผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อม

เหตุผลใดที่ตรงต่อความคิดเห็นของท่านในการเลือกซื้อผลิตภัณฑ์เครื่องสำอาง และผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อม	เห็นด้วยอย่างมาก				ไม่เห็นด้วยอย่างมาก
1. ผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อม มีความคุ้มค่ากับราคา					
2. ผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมน่าเชื่อถือ ปลอดภัยกว่า และดีกว่าผลิตภัณฑ์ทั่วไป เพราะไม่มีส่วนผสมของสารเคมีอันตราย และไม่ทดลองกับสัตว์					
3. ท่านชอบดีไซน์ ความสวยงาม กลิ่น สัมผัส ความทันสมัย ของแบรนด์ ตัวผลิตภัณฑ์ หรือบรรจุภัณฑ์ของผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อม					
4. ผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อม มีส่วนช่วยทำให้สุขภาพโดยรวมของท่านดีขึ้นได้มากกว่า ผลิตภัณฑ์ทั่วไป					
5. ผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมสามารถทำให้ท่านได้รับการยอมรับมากขึ้น สร้างความประทับใจที่ดีต่อผู้อื่น และมีภาพลักษณ์ที่ดีขึ้น					
6. ท่านมีความสนใจที่จะซื้อผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมเมื่อทราบ ว่าคนในครอบครัว เพื่อน หรือเห็นดาราหรือบุคคลที่มีชื่อเสียงใช้อยู่เช่นกัน					
7. ท่านมีความสนใจที่จะซื้อผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมเมื่อเจอ ผลิตภัณฑ์จำหน่ายอยู่ใกล้ หาซื้อได้ง่าย หรือมีตัวอย่างสินค้าให้ได้ทดลอง					
8. ท่านมีความสนใจที่จะซื้อผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมเมื่อท่านมีปัญหา ด้านผิวพรรณ หรือส่วนอื่นๆ ของร่างกายที่เกิดจากการใช้ผลิตภัณฑ์อื่นๆ					
9. ท่านมีความสนใจที่จะซื้อผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมเพราะฉลากแสดง ข้อมูลเกี่ยวกับผลิตภัณฑ์และส่วนผสมมีการตรวจสอบและมีองค์กรรับรองมาตรฐาน					
10. ท่านมักจะหาข้อมูลด้านเนื้อหา ส่วนผสม ส่วนประกอบต่างๆ ที่เกี่ยวกับผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมก่อนการตัดสินใจซื้ออยู่เสมอ					
11. ผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมเป็นทางเลือกที่ดีกว่าผลิตภัณฑ์ทั่วไป และเป็นการ เติมเต็มความรู้สึกในการแสดงความรับผิดชอบต่อสังคมด้วยการรักษาสิ่งแวดล้อม					
12. การปกป้องคุ้มครองสัตว์และสวัสดิภาพของสัตว์จะดีขึ้นถ้าท่านไม่ซื้อผลิตภัณฑ์ที่ทดลองในสัตว์					
13. ท่านมีความสนใจที่จะซื้อผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อม เพราะการคัดสรรวัตถุดิบ ส่วนผสม บรรจุภัณฑ์ และกระบวนการผลิต ไม่ทำลายสิ่งแวดล้อม					
14. แบรนด์ที่ท่านเลือกใช้มีเรื่องราวและดีไซน์ ที่สะท้อนความคิด ตัวตน และความใส่ใจ ในสิ่งแวดล้อมของท่านออกมาได้เป็นอย่างดี					
15. ท่านรู้สึกดีกับการเลือกซื้อผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อม เพราะท่านพึงพอใจ กับความเป็นมิตรต่อสิ่งแวดล้อมของตัวผลิตภัณฑ์					
16. ท่านยินดีที่จ่ายเงินซื้อผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมซึ่งมีราคาที่สูงกว่าผลิตภัณฑ์ทั่วไป					
17. ท่านมีความสนใจที่จะเลือกซื้อผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมมากกว่าผลิตภัณฑ์ทั่วไป					
18. ท่านอยากแนะนำผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมให้กับผู้อื่นเมื่อท่านได้รับ ประสบการณ์ที่ดีจากทางแบรนด์ หรือได้ทดลองใช้ผลิตภัณฑ์ดังกล่าวแล้วเกิดผลลัพธ์ที่ดี					
19. ท่านสนใจที่จะเข้าร่วมกิจกรรม งานสัมมนา เวิร์คชอป หรือโครงการ ต่างๆ ของบริษัท ที่ให้ความรู้เกี่ยวกับผลิตภัณฑ์ที่เป็นมิตรกับสิ่งแวดล้อม					
20. ท่านเลือกซื้อผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมเป็นประจำ แม้ว่าผลิตภัณฑ์เหล่านี้จะหาซื้อยากกว่าผลิตภัณฑ์ทั่วไปในตลาดก็ตาม					

APPENDIX H

Questionnaire for Consumer Survey (continued)

ส่วนที่ 3: มุมมองต่อการซื้อผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคลที่เป็นมิตรต่อสิ่งแวดล้อม

1. ปัจจัยใดที่ท่านมีมุมมองว่า**สำคัญมากที่สุด**ในการตัดสินใจซื้อผลิตภัณฑ์เครื่องสำอางและผลิตภัณฑ์ดูแลส่วนบุคคล ที่เป็นมิตรต่อสิ่งแวดล้อม เพราะเหตุใด (โปรดเลือกเพียง 1 ข้อ)

☐ ความปลอดภัยของผลิตภัณฑ์ออแกนิกหรือมาจากธรรมชาติ
☐ บรรจุภัณฑ์สามารถย่อยสลายหรือรีไซเคิลได้
☐ คุณภาพและผลลัพธ์ของผลิตภัณฑ์
☐ พนักงานมีความรู้ความสามารถในการแนะนำอย่างถูกต้อง
☐ บริการถูกต้องแม่นยำ สะดวก รวดเร็ว รวมถึงขนส่งสินค้า
☐ มีการโปรโมทแนะนำผลิตภัณฑ์ให้เป็นที่รู้จักและน่าสนใจ
☐ กระบวนการผลิตไม่ทำลายสิ่งแวดล้อม
☐ มีตรารับรองมาตรฐานจากองค์กรที่เชื่อถือได้
☐ ผลิตภัณฑ์ต้องไม่ผ่านการทดลองกับสัตว์
☐ มีโปรโมชั่นส่งเสริมการขายที่ดี มีส่วนลดพิเศษ
☐ มีการบอกต่อกันในสังคมออนไลน์ และมีรีวิวสูง
☐ อื่นๆ (โปรดระบุ) _____

เหตุผล _____

2. การรณรงค์นโยบาย หรือกิจกรรมต่างๆ จากภาครัฐ หน่วยงาน หรือเอกชนในหัวข้อใดที่ทำให้ท่านรู้สึกสนใจและใส่ใจต่อปัญหาสิ่งแวดล้อมที่มีส่วนช่วยให้ท่านอยากสนับสนุนการบริโภคสินค้าที่เป็นมิตรต่อสิ่งแวดล้อมมากขึ้น

	สนใจมาก				น้อย
1. การรณรงค์เรื่องความปลอดภัยของผลิตภัณฑ์และสารเคมีอันตราย เช่นไม่มีไมโครบีดส์					
2. การนำหลัก Reduce, Reuse, Recycle, Refillable มาใช้ เช่นการแยกขยะ งดแจกถุงพลาสติก ผลิตภัณฑ์ที่มีการบรรจุใหม่ได้					
3. การรณรงค์ห้ามการทดลองในสัตว์ ผลิตภัณฑ์เป็นวีแกน 100%					
4. ฉลากสีเขียว (Green Label) ฉลากสิ่งแวดล้อมของไทยที่รับรองสินค้าที่มีองค์ประกอบ ตั้งแต่การคัดเลือกวัตถุดิบในการผลิต กระบวนการผลิต การใช้ผลิตภัณฑ์ บรรจุภัณฑ์ มีผลกระทบต่อสิ่งแวดล้อมน้อยกว่าสินค้าทั่วไปที่ไม่ได้รับการรับรอง					
5. นโยบายการจัดซื้อสินค้าและบริการที่เป็นมิตรกับสิ่งแวดล้อม (Green Procurement) และการประเมินรับรองสำนักงานสีเขียวของผู้ผลิต (Green Office / Green Industry)					
6. การนำรายได้ไปช่วยเหลือมูลนิธิต่างๆ เพื่อสังคมและการอนุรักษ์สิ่งแวดล้อม ช่วยเพิ่มพื้นที่สีเขียว ลดการทำลายป่า ลดโลกร้อน					

อื่นๆ / ข้อเสนอแนะ _____

ส่วนที่ 4: ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม

1. เพศ ☐ ชาย ☐ หญิง ☐ ไม่ระบุ
2. การศึกษา ☐ มัธยมศึกษาหรือต่ำกว่า ☐ อนุปริญญาหรือเทียบเท่า ☐ ปริญญาตรีหรือเทียบเท่า ☐ ปริญญาโท ☐ ปริญญาเอกหรือสูงกว่า
3. อาชีพ ☐ นักเรียน นักศึกษา ☐ พนักงานบริษัทเอกชน ☐ ข้าราชการ ☐ พนักงานรัฐวิสาหกิจ ☐ พนักงานในสายวิชาการ นักวิจัย ☐ พนักงานองค์กรไม่แสวงหากำไร ☐ อาชีพอิสระ ค้าขายทั่วไป ☐ ธุรกิจส่วนตัว ☐ ไม่ได้ทำงาน / เกษียณ
4. อายุ _____
5. รายได้รวมในครัวเรือน (ต่อเดือน) ☐ 0-15,000 ☐ 15,001-25,000 ☐ 25,001-35,000 ☐ 35,001-50,000 ☐ 50,001-75,000 ☐ 75,001-100,000 ☐ 100,001-150,000 ☐ 150,001-200,000 ☐ 200,001-300,000 ☐ 300,000 บาทขึ้นไป

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