

EXPLAINING BARRIERS AND OPPORTUNITIES FOR  
RECYCLED PET FOR FOOD PACKAGING IN THAILAND  
THROUGH THE LENSES OF ORGANIZATIONAL  
ENVIRONMENT THEORY



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อุปสรรคและโอกาสของประเทศไทยในการใช้พลาสติกรีไซเคิล สำหรับภาชนะบรรจุอาหารผ่าน  
มุมมองทฤษฎีสภาพแวดล้อมขององค์กร



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ในปัจจุบัน บริษัทที่เกี่ยวข้องกับผลิตภัณฑ์พลาสติกได้เสนอทางออกเพื่อแก้ไขปัญหาขยะพลาสติกของประเทศไทย โดยการใช้พลาสติกรีไซเคิล (rPET) เป็นบรรจุภัณฑ์อาหาร ดังนั้นวิทยานิพนธ์เล่มนี้ มีวัตถุประสงค์เพื่อศึกษาพฤติกรรมขององค์กรเพื่อศึกษาว่าเพราะเหตุใด บางบริษัทจึงต้องการใช้พลาสติกรีไซเคิล เพื่อใช้เป็นบรรจุภัณฑ์อาหารในประเทศไทย วิทยานิพนธ์เล่มนี้ประยุกต์ใช้สองทฤษฎีเข้าด้วยกัน อันได้แก่ ทฤษฎีสภาพแวดล้อมขององค์กร และ ทฤษฎีเกี่ยวกับสถาบันในด้านความรับผิดชอบต่อสังคม เพื่อวิเคราะห์ผลกระทบจากสภาพแวดล้อมภายในและสภาพแวดล้อมภายนอกของ องค์กรบริษัท ซึ่งส่งผลให้บางบริษัทในประเทศไทยต้องการที่จะสนับสนุนการใช้พลาสติกรีไซเคิลสำหรับบรรจุอาหาร

จากการศึกษาดังกล่าว ชี้ให้เห็นว่า ภารกิจของบริษัทเป็นส่วนสำคัญในการผลักดันให้บางบริษัทสนับสนุนการใช้พลาสติกรีไซเคิล เพื่อการบรรจุภัณฑ์อาหาร โดยเฉพาะบริษัทข้ามชาติระดับโลกซึ่งมีการกำหนดภารกิจที่ชัดเจนในด้าน การจัดการปัญหาขยะพลาสติกในประเทศต่างๆที่บริษัทเข้าไปลงทุน นอกจากนี้บริษัทข้ามชาติมักมีการใช้พลาสติกในปริมาณที่สูง ส่งผลให้บริษัทได้รับการกดดันจากประชาสังคม อาทิเช่นองค์กรที่ไม่แสวงหาผลกำไร มากกว่าบริษัทภายในประเทศไทย ในส่วนของปัจจัยภายนอก วิทยานิพนธ์ชี้ให้เห็นว่า ปัจจัยที่ส่งผลกระทบต่อพฤติกรรมของบริษัทในการที่จะสนับสนุนหรือไม่สนับสนุนพลาสติกรีไซเคิลสำหรับบรรจุภัณฑ์อาหาร มาจากปัจจัยทางการเงินและความสามารถในการหาวัตถุดิบสำหรับการผลิตบรรจุภัณฑ์รีไซเคิลสำหรับใส่อาหาร เช่น ขวดพลาสติกใช้แล้ว เนื่องจากการใช้พลาสติกรีไซเคิลสำหรับบรรจุภัณฑ์อาหารเป็นเรื่องที่ใหม่สำหรับประเทศไทย และกระบวนการจัดการขยะยังไม่มีประสิทธิภาพมากพอทำให้ยากต่อการสรรหาขวดพลาสติกใช้แล้ว ด้วยเหตุนี้การที่จะให้บริษัทต่าง ๆ หันมาใช้พลาสติกรีไซเคิลสำหรับบรรจุอาหารแทนการใช้พลาสติกใหม่ นั้นเป็นเรื่องที่ค่อนข้างยาก อีกปัจจัยหนึ่งคือเทคโนโลยีการรีไซเคิล สำหรับบริษัทที่ไม่มีเทคโนโลยีดังกล่าวนี้ถือเป็นความท้าทายของบริษัท เพราะเทคโนโลยีรีไซเคิลต้องใช้เงินลงทุนที่สูง ดังนั้นแล้ว หากธุรกิจการผลิตและการใช้บรรจุภัณฑ์พลาสติกสำหรับบรรจุภัณฑ์อาหารยังไม่มีความสำเร็จในประเทศไทย บริษัทก็จะไม่กล้าเสี่ยงลงทุนกับเทคโนโลยีรีไซเคิล ยิ่งไปกว่านั้นหากบริษัทไม่มีการกำหนดภารกิจที่ชัดเจนเพื่อการจัดการปัญหาขยะพลาสติกหรือได้รับการกดดันจากภาคประชาชน ก็เป็นการยากที่จะทำให้บริษัทเหล่านี้หันมาใช้หรือผลิตพลาสติกรีไซเคิลสำหรับบรรจุภัณฑ์อาหาร ที่มีต้นทุนที่สูงกว่าการผลิตและการใช้พลาสติกใหม่

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Currently, some plastic-related companies propose a solution of recycled plastic (rPET) for food packaging as a solution for the plastic problem in Thailand. Therefore, the objective of the thesis is to study business behavior in order to understand the rationale of why some company needs to use rPET for food packaging. This study combined two theories which are the organizational environment theory and the institutional theory of CSR to analyze the effect of the internal and the external environment that influence companies to support rPET food packaging.

The finding indicates that companies' mission creates an influence on companies to promote rPET for food packaging in Thailand, especially for global companies. Global companies usually have a clear mission to show responsibility to the plastic problem in any country they are operating. Global companies mostly produce and use massive plastic packaging, making them receive more social pressure than local companies. In terms of the external environment, findings reveal the combination between the availability of financial resources and feedstock of post-consumer PET bottle that influence plastic producers to change or resist to change to rPET production. rPET is new in Thailand, and the country has poor waste segregation system. The market of rPET packaging and the feedstock of post-consumer PET bottles are also limited. It is not easy for some producer to produce rPET food packaging. This can be explained by the second factor which is recycling technology for rPET packaging. For the company who have no recycling technology for food-grade rPET, they need technological investment which requires a huge investment. If there is no clear market for rPET packaging and enough feedstock of post-consumer PET bottle, they would not dare to take a risk in investing in the new technology. Also, if any company which does not have a headquarters mission or receive high pressure from NGOs, it is unlikely for them to change from virgin plastic to rPET which has a higher production cost as well

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## ABBREVIATIONS

CSR.	Corporate Social Responsibility
FDA	Food and Drug Administration
EFSA	European Food Safety Authority
EPR	Extended Producer Responsibility
PCD	Pollution Control Department
PET	Polyethylene Terephthalate
rPET	Recycled PET
SET	Stock Exchange of Thailand
TBA	Thai Beverage Industry Association



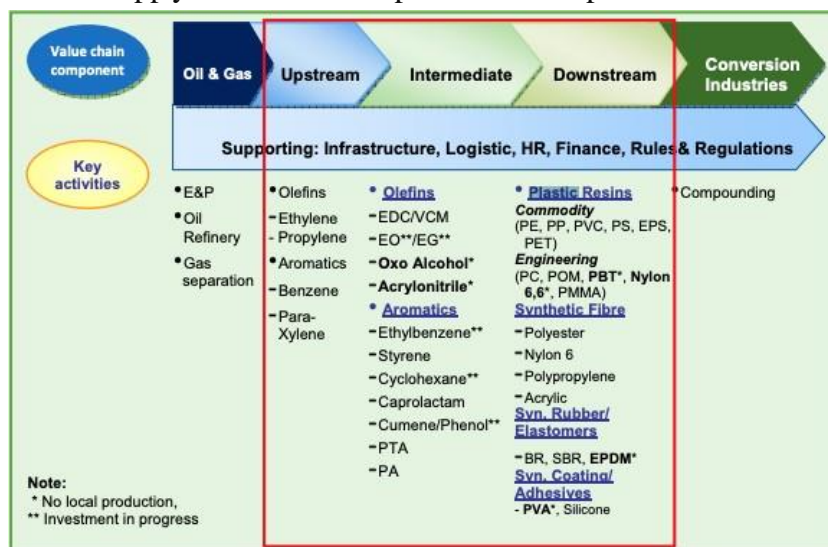
## CHAPTER 1

### INTRODUCTION

#### 1.1 Background of Study

Natural gas reserves were discovered in the Gulf of Thailand in the 1970s resulting in the development of petrochemical industries throughout the country ("Thailand's Petrochemical Industry," 2015). After the emergence of the petrochemical industry, Thailand established the Eastern Economic Corridor to support the industry and designated the Map Ta Phut area as the petrochemical facility of Thailand ("Thailand's Petrochemical Industry," 2015). As petrochemicals can be used as a raw material to produce other types of industrial products, there are many companies that have set up in Map Ta Phut to use natural gas to produce their products, including plastic. The industrial structure of petroleum and petrochemicals can be explained by the network between the three main groups of petrochemical industries, which are upstream industry, intermediate industry, and downstream industry (as shown in figure 1). Overall, upstream industries provide the feedstock to the intermediate industry, and the intermediate industry uses the feedstock to supply the downstream industry. Plastic producing companies are considered as the downstream industry, which uses raw material from the upstream and intermediate industries to produce plastic resins such as PP, PET, and PVC. These plastic resins are then sold to other industries to be converted into final products such as plastic bottles and plastic packaging (Ministry of Energy, n.d.). Therefore, downstream industries and plastic producing companies that purchase raw materials from downstream industries are referred to as plastic-related industries throughout this research.

Figure 1 : The supply chain between petroleum and petrochemical industry



Source: (Ministry of Energy, n.d.).

In the past, the plastic industry was the fastest growing out of any other industries in Thailand (Kraipornsak, 2002). In the late 1990s, the plastic industry grew approximately 26 percent every year while other industrial sectors grew only 19 percent (Kraipornsak, 2002). Plastic products and resin produced by plastic manufacturers then became one of the main exports to drive the growth of the Thai economy. Since 1998, Thailand has become the eighth largest plastic product exporter in the global market, and the largest in Asia (Kraipornsak, 2002; "Thai Plastic Industry Showcases its Potential," 2011). In 2016 Thailand's regional and global rankings fell to second place after Singapore in ASEAN and to 14<sup>th</sup> place in the world (Thailand Board of Investment, n.d.). However, plastic exports still maintain their importance in Thailand's economy. Recently, the Ministry of Industry (2019) published the "Industrial Economic Status Report for 2018 and Outlook for 2019", which reported that the overall exports of industrial products in 2018 grew by 8.2 percent on average. In particular, the export of plastic pellets increased 22.3 percent from the previous year, and it is believed that the plastic industry will show a positive trend in exports because of growing demand from trade partners, especially in ASEAN. Moreover, Thailand today also foresees a growing opportunity to become one of the top countries in exporting raw material for bio-plastic as the country has abundant agricultural resources to produce bioplastic (Thailand Board of Investment, n.d.).

Thai people have become dependent on the use of plastic for everything as it is convenient and often free of charge. According to an opinion piece in the Bangkok Post by Danny Marks, a researcher at Hong Kong University, it is unsurprising that in 2018 one of the shameful reputations of Thailand was its recognition as one of the top five contributors to ocean plastic waste in Asia and also that it falls behind many countries in ASEAN in working to resolve the plastic waste problem (Marks, 2018). For instance, Japan consumes a large amount of plastic products but has not become a main contributor to ocean plastic waste because of its highly effective waste management system (Marks, 2018). Even China, who is condemned as the largest contributor to ocean plastic waste, has a total plastic waste measurement lower than that of Thailand. Recently China has been trying very hard to solve the problem by charging for non-biodegradable and thick plastic bags, and banning the import of several types of plastic wastes. As a result, the country has experienced a more than 50 percent decrease in plastic bag use and waste (Styllis, 2018).

Currently, there is a growing level of environment awareness around the world as the plastic problem is considered a global problem. The Thai government also recognizes the plastic problem domestically and has committed to the promotion of sustainability and green growth as one of the methods to solve the plastic issue. A serious concern of green growth is waste management, particularly that of plastic waste. To develop the green economy, Prime Minister Prayut Chan-Ocha created a 20-year national strategy (2018-2038) as a roadmap to achieve national security, prosperity, and sustainability. In order to facilitate real change, all plastic sectors, both public and private, have to be involved. The Pollution Control Department (PCD), which is the main governmental agency responsible for municipal solid waste, launched the Plastic Debris Management Plan in 2017 based on the 3Rs (Reduce, Reuse, and Recycle) Principle to combat plastic waste (PCD, 2016). The Ministry of Industry, which is in charge of monitoring industries and manufacturers, is also bound by national policy. In 2018, the Ministry of Industry proposed a new framework that aims to break away from the linear economy, or the “take-make-dispose” consumer



model, to the circular economy. The circular economy is consistent with the 3Rs Principle because industries will shift from using new materials to using recycled materials. Some leading private industries in Thailand have already embraced the circular economy model within their operations for a few years, such as Indorama Venture, Siam Cement Group, and PTT (Lamonphet & Therarat, 2018).

## 1.2 Problem Statement

Overall, plastic consumption in Thailand is primarily that of plastic packaging. It is estimated that Thai people use about eight plastic bags per day. However, only a small fraction of plastic packaging waste is recycled (Marks, 2018). Despite attempts to reduce plastic waste in the country, the ineffectiveness of these systems remains. For example, according to the statistics collected by PCD in 2015, the total plastic waste was 2.33 million tons. Out of the total plastic waste, PCD claimed that more than half were reused by communities and industrial sectors. While the rest of the plastic waste was disposed of, not all of the plastic was disposed of properly. A large proportion of the plastic waste was contaminated with food debris, such as plastic bags for hot food, which presents a challenge for reuse or recycling. This contaminated plastic waste is typically buried underground or dumped in an open area because the cost of recycling is too high for this type of waste. Consequently, it is still difficult to reduce plastic waste in Thailand. As reported by the PCD, over the last ten years plastic waste in Thailand has continuously increased by 12 percent annually, which accounts for an increase of 2 million tons per year (PCD, 2016). To give an example of how much plastic waste contributes to the total amount of solid waste in Thailand, PCD organized an activity for waste collection at mangrove, beach, and coral reef areas in 24 provinces in 2018. The total waste collected from the activity was 569,657 pieces, accounting for 33 tons, and the top five products found in the selected areas were plastic bags, plastic beverage bottles, plastic shopping bags, foam packaging, and glass beverage bottles (Pollution Control Department, 2019). Unsurprisingly, plastic waste made up the highest proportion of solid waste in the country.

While beverage bottles, both plastic and glass, were ranked in the top five products that contribute to plastic waste in Thailand, plastic bottle packaging made up

an even higher percentage than glass bottle. Polyethylene terephthalate (PET) is the specific type of plastic specifically used for direct-contact food packaging, such as beverage packaging. Other than plastic bags, plastic bottles have become one of the most common types of single-use plastic packaging. It was reported by PCD that there are 4.4 billion PET plastic bottles supplied to the beverage market in Thailand every year (Wipatayotin, 2018). Moreover, Gone Adventurin, a Business Consultancy on the Circular Economy, analyzed the consumption of PET bottles in Thailand in their study, “Material Flow and Value Chain Analysis for PET Bottle and Aluminum Cans in Thailand”, revealing that 185,000 tons of plastic bottles were sold in the Thai market in 2017. However, less than half of these plastic bottles were properly collected and recycled after their use (Food Focus Thailand, 2019). What is significant here is that about one hundred thousand bottles end up in a landfill, which can easily pollute the environment both on land and in the ocean. Accordingly, many plastic-related industries, such as beverage companies, cooperated with the PCD’s aim to minimize the amount of plastic waste from plastic bottles, and successfully campaigned to stop the use of plastic bottle cap seals. The next goal that industries want to achieve is the use of recycled PET plastic (rPET) for food packaging as food packaging made from rPET is already accepted by several countries in the European Union and Japan in Asia. Therefore, the use of rPET for food packaging is determined to be a potential mechanism for sustainable plastic waste management in Thailand (Wipatayotin, 2018).

In Thailand, food packaging is regulated by the Food Act of B.E.2522 (1979), which is enforced by the Ministry of Public Health. To ensure the safety of food packaging, there are three main notifications under the Food Act that are implemented to control food containers and packaging. These are notifications No. 92 B.E. 2528 (1985), No. 117 B.E. 2532 (1989)<sup>1</sup> and No. 295 B.E. 2548 (Tangpitayakul & Thesasilpa, 2014). The most relevant notification is No. 295 B.E. 2548, which particularly specifies the qualities for food packaging made from plastic. While Thailand has recently developed a strong desire to manage plastic waste based on the 3Rs Principle, some clauses in notification No. 295 might present a challenge for Thailand's ability to achieve sustainable management of plastic waste, particularly as Clause No. 8 stresses that "it is prohibited to use the plastic container made from reused plastic exempt using for packing fruits with peel" (Ministry of Public Health, 2005).

Therefore, the objective of this thesis is to analyze the potential for transition to the use of rPET for food packaging in Thailand. Previously, many industries and companies in Thailand did not pay much attention to rPET plastic as food packaging, yet their businesses were still able to grow. However, it seems that today there is a shift in the business behavior of plastic-related companies, namely PET plastic producers and companies using PET plastic as packaging, to begin supporting the use of rPET plastic for food packaging. For example, Indorama Ventures, a plastic producing company and a leading company in promotion of the circular economy, acknowledges the issue of plastic waste in Thailand and is eager to combat the issue with other partners. This company built the first plastic recycling plant, particularly for the production of rPET in Thailand to help reduce production of virgin PET plastic (Lamonphet & Therarat, 2018). Likewise, a petrochemical industry, PTT Global Chemical Plc, invested in a recycling plant for single-use plastic products in line with its long-term mission of zero single-use plastic waste in Thailand (Yuthana, 2018).

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<sup>1</sup> Notification No. 92 B.E. 2528 (1985) is used to regulate the quality and standard of food containers and prohibition of some material for food containers such as ceramic and enameled metal containers. The second notification is No. 117 B.E. 2532 (1989) which regulate the use of feeding bottles for infant and children. The notification set the standard for all material used to make feeding bottles such as bottle and rubber teat and its cover

From this transformation of business behavior toward engagement in recycling, it can be assumed that there might be influential factors from both the internal and external environments that impact a company's decision-making and increase their awareness of the plastic problem in Thailand. Thus, this study seeks to explore the rationale of why plastic-related companies that produce and use PET plastics have become more enthusiastic in shifting to the use of rPET plastic rather than virgin plastic for food packaging.

### 1.3 Research Question

The main research question of the thesis is *Under what internal and external conditions will plastic-related industries become more likely to move forward for PET recycling for food packaging in Thailand?*

To further specify the focus of the study, there are three sub-questions, as follows:

1. To what extent have the plastic-related industries moved toward supporting the use of rPET for food packaging to date?
2. What are the internal factors that influence plastic-related industries to change, or resist change, toward the use of rPET for food packaging?
3. What are the external factors that influence plastic-related industry to change, or resist change, toward the use of rPET for food packaging?

### 1.4 Objectives of Study

The main objectives of this thesis are:

1. To examine the transition of business behavior toward rPET for food packaging and identify their supportive practices and policies;
2. To analyze the environmental factors, both internal and external, of businesses in the plastic sector that influence their support of rPET for food packaging.

## 1.5 Conceptual Framework

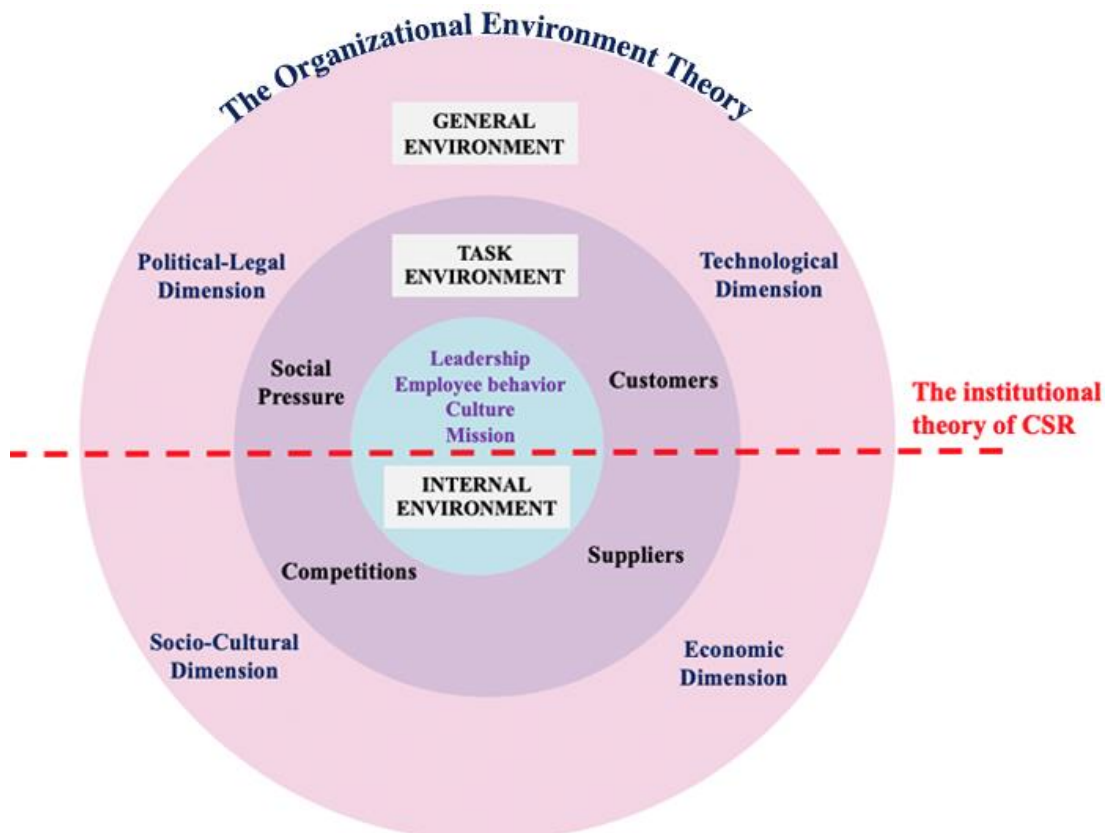
The objective of this thesis is to study the transformation of the plastic industry's behavior toward the use of rPET for food packaging in the context of government regulation and social expectation. For this reason, it is important to identify the factors that influence a company's performance and decision making. The environment, in general, is considered as everything surrounding objects that can influence those particular objects. Businesses and their environments have a direct relationship with one another; business performance and decision making can be influenced by a combination of the environment *within* organizations and the environment *surrounding* organizations. In other words, these environments can be referred to as internal factors and external factors. Influence from these factors can either support or obstruct businesses to operate in the market and the economy. Additionally, the ability of the business to adapt to or cope with their internal and external environments will determine whether or not the business will succeed (Adeola, 2016).

Modern organizational theories are useful to study the relationship between the businesses and their environments as they were developed during the rise of industrialization and economic progress. At this period of time, the environment in which organizations operated became more complex and dynamic, so modern organizational theories were created as a new approach to understand organizations in a dynamic environment. Additionally, these theories aim to explain forces or institutions surrounding organizations that affect their performance and operations. Organizational Environment Theory focuses on the relationship between organizations and their environments, with two main aspects: narrow and broad. In the narrow sense, the organization's environment is considered only as the environment outside of the organizations. On the other hand, the broad sense further divides the environment into two parts, internal and external. In this research the author aims to study both external factors and internal factors, therefore the broad aspect of organizational environment theory is more relevant (Yang, Liu, & Wang, 2013).

Social pressure and expectation are one of the main key factors that pressures businesses to take responsibility for the impact of their products on the environment. Applying the concept of organizational environment theory alone might not be sufficient enough to explain the social pressure that plastic-related businesses have recently experienced. This is because internal factors and external factors explained by the organizational environment theory do not directly address the company's social responsibility. This theory does not mention anything about Corporate Social Responsibility (CSR), which is relatively significant to business operations, particularly those companies related to the petrochemical industry such as plastic producers and companies that use plastic for food and beverage packaging. From analysis of the internal and external environments, the CSR principle emerges as a cross-cutting theme. The concept of CSR is relevant to at least one aspect of both the internal and external factors. For the internal factors, CSR is relevant to the mission of the company, and for the external factors, CSR is relevant to social pressure. Therefore, using the institutional theory of CSR will help to draw out the significance of CSR as one of the factors that leads to the changed behavior of plastic-related companies. Basically, factors that influence the plastic-related companies come from the external factors and the internal factors explained by the organizational environment theory, but some of those factors are also driven by the CSR principle and reason at the same time, making company must act in socially responsible way.

Therefore, the overarching conceptual framework of this research is organizational environment theory, but the author also modifies the theory to incorporate the institutional theory of CSR. This will help to establish a new and more precise understanding of what the most influential factors are that change the behavior of plastic-related businesses and to accurately measure how plastic-related businesses are responding to social pressure.

Figure 2 : Conceptual framework the organizational environment theory and the institutional theory of CSR



Source : Adapted from ("Internal and External Environment Factors that Influences Organizational Decision Making," 2018)

### 1.5.1 External Environment

Many scholars discuss the various types of external environments, sharing the opinion that the external environment is something unpredictable and uncertain. It can be categorized into two groups based on their level of influence over organizational performance: the general environment and the task environment. According to Miller (1992), the general environment asserts indirect influence over organizations' daily operations and refers to the political/legal dimension, economic dimension, social-cultural dimension, and technology dimension. The task environment is the second category of external environment and has direct influence over business performance and decision-making. This is because the task environment refers to consumers, competitors, resource suppliers, and social pressures, which have a greater impact on the achievement of businesses (Adeoye & Elegunde, 2012).

### **1.5.1.1 General Environment**

#### **I. The Political/Legal Dimension**

The political and legal dimension is a formal institutional condition referring to the state's practices, and has a strong influence over businesses practices. Political and legal conditions exist in the form of government policy, law, and regulation, and all businesses must follow them as set. When there is strong enforcement by the state, businesses will be more likely to comply with them and run their businesses in a good manner. However, the government does not always strictly enforce the laws to regulate businesses to behave in socially responsible ways. Sometimes, the government needs to ease the regulations some in order to favor businesses operations, otherwise businesses might move to other countries that have less strict regulations, causing the country to lose foreign investment. Moreover, when there is a change in regulation, proactive businesses might not only follow new regulations, but also might try to persuade the government to form regulations and policies in a way that will favor their businesses (Campbell, 2007).

#### **II. Economic Dimension**

Maximizing profit is the highest achievement for many businesses. It is normal for businesses to prioritize profit, so their economic situation drives their performance. Moreover, it also determines whether businesses will act in socially responsible ways or not. According to Campbell (2007), businesses prefer to behave ethically when there are good economic conditions. When businesses operate in unhealthy and unstable economic situations such as high inflation, low growth of productivity, or low demand for products, they are more likely to act in irresponsible ways. Weak businesses with financial problems are less likely to act in socially responsible ways than businesses making a profit because they might have fewer resources to use for CSR activities. Moreover, the economic situation of the country also impacts the organization in the way that it affects the purchasing power of people. When there is economic instability in the country, people consume less, affecting the profits of businesses during that particular period (Jankovic, Mihajlovic, &



Cvetkovic, 2016).

### **III.Socio-Cultural**

Socio-cultural environment refers to the social structures, cultural beliefs, traditions, values, and norms of people in a particular society. It has an influence over peoples' personalities and how they live their life, such as habits and attitude. In relation to business, socio-cultural structure can shape consumption patterns, particularly the manner in which people choose products. This means if a society is strongly concerned about environmental issues, people in that society may tend to prefer eco-friendly products (Adeola, 2016). For this reason, it is better for businesses to analyze the socio-cultural environment in which they operate so that they can produce the type of products that people in that particular society appreciate and value the most.

### **IV.Technological Dimension**

Technology is another external factor that has rapidly changed, more so than any other dimensions. There are two types of technologies that businesses should consider. First is product technology, which is used for product design. The second is process technology, which is how products are manufactured which. Technological change refers to the development of new products, new materials, and new machines. Whenever technology changes, it either offers businesses an opportunity or threat. Technological innovation is the discovery of new methods that enhance peoples' abilities and increase the opportunities for people to achieve their goals. Technology can help businesses to manufacture products more effectively and efficiently, converting raw materials into more useful products and services. Businesses that have the ability to adapt technological innovations can utilize advanced technology for their own benefit. On the other hand, businesses that respond slowly to technological change fall far behind their competition. A main point of competition between businesses today is the ability to develop alongside changes in technology, so it is necessary for businesses to analyze their technological environment to seek opportunities that may arise from technological change (Lovlyn, 2016).

### 1.5.1.2 Task Environment

#### I. Consumers

It is undeniable that businesses exist because of customers' support, so the satisfaction of customers is one of the key factors necessary for success. Yeo, Lee, and Carter (2018) reported that social responsibility is in fact considered as something voluntary, meaning it is not enforced by law. For this reason, if there is no mandate from state regulations, companies might not be interested in acting responsibly or ethically. However, within the absence of regulation, customers are one of the most important factors that companies need to pay attention to as meeting customer's expectations is necessary for the company's success. According to Lichtenstein, Drumwright, and Braig (2004), customers typically have a positive attitude toward businesses that act responsibly in society through customer-cooperate identification. This is when customers believe that a particular business will help them to contribute something good to society. When any business behaves in a good manner that is attractive to the customer, they are more likely to support the company by purchasing their products. Without the purchasing power of customers, businesses would not exist. However, there are some conditions in which consumers are no longer powerful enough to influence business behaviors, which will be discussed later.

#### II. Suppliers

Suppliers play an important role in the shift of business behaviors as they are significant for the businesses in terms of providing resources to support operations, such as raw materials, equipment, finance, and labor. Campbell (2007) stressed that one of the aspects of socially responsible corporations is not only treating customers and communities well, but also respecting the needs of its own suppliers. For this reason, maintaining a good relationship and mutual respect with suppliers is necessary for all companies because if suppliers are no longer satisfied with business operations they will seek other partners. Or if businesses operations are not consistent with suppliers, they might lose the supply. On the other hand, businesses, as the customers of suppliers, can also shape the operations of supplier's businesses by setting specific

criteria for supplier selection and establishing codes of conduct. Due to pressure from society on social responsibility, businesses have increased their practice and adaptation of CSR principles in their performance. Therefore, they tend to look for suppliers who have materials that meet their criteria and expectation, such as materials with less environmental impact, so that they can manufacture products that also meet consumer demands (Kaczmarek, Szafer, & Drożyner, 2015).

#### **IV. Competition**

The level of competition that businesses face is another task environment that influences their performance. Whether businesses will act positively or negatively toward society can be determined by the level of competition they face. Too much or too little competition will influence businesses to act in irresponsible ways. If there is too much competition for a similar kind of product in the market, the profit share of each business might be low. One of the possible options to survive in this situation is to cut unnecessary costs to save money as socially responsible activities are often costly. However, it does not necessarily mean that businesses are more likely to behave well if there is less competition. When a business has too little competition, that business becomes the monopoly on a particular product. Reputation and customer loyalty will not affect a monopoly because customers do not have another option for purchasing that particular product. The condition, then, in which businesses start to act socially responsible is when competition is not that intense. They need to engage in social responsibility because they must maintain their reputation and build customer trust. These economic conditions impact a company's decision to support socially responsible actions, they are mediated by a variety of other institutional factors (Campbell, 2007).

#### **III. Social Pressure**

Businesses are now in a globalized economy, which makes it more difficult for the state to regulate business behavior and conduct. Other actors, such as non-governmental organizations, social movements, media, and press, can apply direct

pressure on businesses and therefore play an important role in business behaviors. For example, media and the press act as a watchdog ready to reveal misbehaviors of businesses to the public and the government. Social movement campaigns can also put a lot of pressure on businesses, as well as participation in trade unions and associations, which can help encourage businesses to act in a socially responsible way. When businesses belong to associations, they have more opportunities to meet with other businesses and are more likely to commit to long-term methods of making their businesses sustainable, such as by supporting the well-being of workers and aligning with state policy (Campbell, 2007).

### **1.5.2 Internal Environment**

In discussion about the environmental factors that influence business performance, many studies are more focused on the environment outside organizations as it is very crucial for businesses to recognize the threats and opportunities outside of their business itself. However, it is also important for businesses to strengthen their internal environments. For this reason, some scholars have studied the conditions within organizations, or internal factors, and have concluded that internal factors also influence a company's performance to some extent. In this study, four internal factors of organizations will be examined as follows: leadership styles, employee performance, organizational culture, and the mission of the businesses.

#### **I. Leadership**

The most important position in any business is leadership, which is typically represented by the title of owner or CEO. There are several definitions given by many scholars to define leadership. The leader is the person that has the power to determine the direction of the company, so it can also refer to executives who are responsible for the performance of the businesses. What they do, and how, will affect the outcomes of the business operations (Özer & Tınaztepe, 2014). According to Loon, Mee Lim, Heang Lee, and Lian Tam (2012); Mkheimer (2018), the leader is the person in the highest position who has the ability to motivate others to willingly work

in a way that can achieve a company's goals without using authoritative power. Instead, they can persuade employees by using effective means of communication such as logic and encouragement. Moreover, as businesses now operate in a dynamic external environment, one of the leader's main duties is to analyze the environment surrounding the business, such as the current situation of the marketplace, to identify factors that might affect its operations and to develop responsive strategies that are appropriate in that particular environment (Ndirangu, 2017). As leaders maintain the power to make decisions on behalf of companies, a good personality will lead the company to achieve its goals while a bad personality may cause its failure.

## **II. Employee Performance**

Apart from the leader, employees are another element of human resources in the organization's internal environment. It is important to have employees who feel motivated by the company's vision because without employee commitment, the achievement of business activities and goals would not be possible (Özer & Tinaztepe, 2014). The study conducted by Kaliannan and Adjovu (2015) demonstrates that organizations that have a high level of employee engagement experience increased profits while those with a low level of employee engagement experience a significant decline in profit. Harvard Business Review (HBR) also concluded that employee engagement is one of the most crucial internal factors that can lead to a company's success, namely increased productivity, innovation, and corporate growth. Employee performance is also related to leadership personality through the leader-follower relationship, in that the way a leader behaves toward their subordinates will determine how they respond to the leader's command (Ghani, Yunus, & Bahry, 2016).

## **III. Culture**

Organizational culture can refer to the shared meaning, norms, beliefs, and customs that are valued among the people within organizations. According to Robbins (1993), organizational culture performs five functions. First, it establishes a unique characteristic for each organization, setting them apart from one another. Second, it

conveys a sense of identity among the members of the organizations. Employees will identify themselves with the organization as a whole, not just their individual positions. Next, culture increases the level of commitment by ensuring that workers in the organization have shared values of commitment and share the same motivation to achieve the company's goals. Fourth, it provides a standard for employee behavior. Finally, it can be used as a control mechanism and a standard by which employee performance is measured through the establishment of desired employee behaviors. When a large group of people holds similar values, this leads to an internal environment characterized by high behavioral control and a strong organizational culture. The more employees share and accept the core value of the business, the greater the possibility is for achieving the company's goals and commitments.

#### **IV. Mission**

An organization's culture and its mission are somewhat similar. However, the mission of an organization is shaped and developed according to its culture. The organization's mission comes in the form of a statement, and the statement typically conveys the reason for the organization's existence. Mission statements are written to precisely define the direction of the organization. Having a clearly established mission statement helps an organization to achieve its goals because when the mission is set, everybody in the organization knows their role (Yazhou & Jian, 2011). The mission statement also indicates how they want customers to see themselves. For example, when operating in a dynamic environment, it is better for businesses to have a mission that is updated and consistent with the current context, such as promoting eco-friendly products, as it will help them to maintain a good reputation (Alawneh, 2015)

#### **1.6 Research Methodology**

For this research, qualitative methodology was utilized to examine the case studies of plastic-related companies to understand the factors that have influenced them to begin supporting the use of rPET for food packaging in Thailand. Two main sources of data were collected to address the research question. First, in-depth interviews were conducted with key informants who are relevant to plastic products

and recycling in Thailand. To provide a critical analysis of the topic, various actors were interviewed such as representatives of governmental agencies, plastic-related businesses, non-governmental organizations, and the beverage association, as well as an environmental journalist and academic experts. Moreover, a focus group interview was conducted with environmentalists to examine their perspective on the use of rPET for food packaging and also on business performance to address the plastic problem in Thailand.

In addition to primary sources, secondary sources were also collected to conduct an analysis of business behavior. Some research questions, such as those of internal factors, required information gathered from the plastic-related companies' websites to understand their internal activities. Moreover, some companies were unwilling to give an interview, so the main source of data for these companies was based on their reports and stories in the press.

All of the data and information gathered from interviews with key informants, the focus group, and secondary sources were combined and analyzed to further understand the external and internal factors that influence businesses. The research was then concluded by drawing out the most significant factors that influence plastic-related companies to support the use of rPET food packaging in Thailand, which can be used to answer the main research question: *Under what internal and external conditions will plastic-related industries become more likely to move forward for PET recycling for food packaging in Thailand?*

## **1.6.1 Data Collection**

### **1.6.1.1 Sampling**

Informants were chosen using purposive sampling. All of the key actors interviewed, both state and non-state actors, were selected from relevant key actors in the field of plastic recycling. They together can play a significant role in transforming the recycling situation in Thailand by adapting the operations of plastic-related businesses. The sample chosen for primary data collection can be categorized into four main groups.

First are governmental agencies. Representatives of some departments under the Ministry of Industry, the Ministry of Environment Natural Resource, and the Ministry of Public Health were interviewed to understand the plastic recycling policy in Thailand, the general situation of plastic recycling, and the restrictions on using recycled materials for food packaging. Secondly, another source of information to provide a counter perspective regarding the extent to which plastic industries are moving toward use of rPET for food packaging was gathered from interviews with representatives of non-governmental organizations, such as Greenpeace. Opinions from Greenpeace were useful to analyze the actual performance of businesses as to whether they are actually moving toward the use of rPET or are really taking responsibility for environmental issues. Moreover, an interview with a member of the Thai Beverage Industry Association (TBA) was also conducted to understand the current progress, opportunities, and challenges of plastic-related companies in the push for use of rPET for food packaging in Thailand. The TBA has worked on the development of beverage industries in Thailand and strongly supports the use of rPET for food and beverage packaging, so they are capable of explaining the opportunities and limitations that plastic-related companies face when engaging in rPET production. Overall, the interviews with representatives from governmental agencies, NGOs, and the TBA enabled the author to see both different and similar points of view regarding the current stage of plastic-related industries that are moving forward to recycled packaging, as well as the challenges and opportunities of this issue.

The next group of key informants is representatives from plastic-related companies. Indorama Venture is one of the world's biggest PET plastic producers and is located in Thailand, serving as a downstream industry that produces plastic resin to supply other companies that use the plastic resin as an input. Another company is Coca-Cola Company, which is one of the biggest global beverage companies that uses PET bottles for its packaging. Accordingly, their interviews served as the main source of information to understand why some companies have become eager to support the use of rPET for food packaging. Apart from these two leading companies, data collection regarding overall operations and CSR strategy was gathered from two other



companies, whose names were not identified in the thesis as to protect their reputation. These two companies are also PET producers, but the companies do not fully engage in the issue of rPET. Interviewing different plastic-related companies that have varying plastic recycling strategies helped in the analysis of influential factors to further understand why some companies are eager to support the use of rPET for food packaging.

Lastly, key informants who are representatives of civil society organizations were interviewed. Journalists and university professors, who specialize in environmental issues and are interested in government's policy on plastic, were interviewed to comment on the performance of plastic-related companies and the government's policy on current environmental issues. An environmental journalist from The Nation, who often publishes about environmental issues in Thailand and works closely with Greenpeace, was interviewed to understand the role of the media in changing business behavior. Altogether, data collected from civil societies was mainly used to analyze how they contribute to social pressure demanding businesses to engage in CSR practices, which is considered as an external factor. Interviews with civil society representatives enabled the author to determine what they think about Thai society, government regulations, and the social responsibility of companies in the context of the plastic recycling issue in Thailand.

#### **1.6.1.2 Selection and Justification of Case Study**

The case studies selected are from two categories: plastic-related companies that are fully involved in promoting the use of rPET for food packaging, and those that are not. The difference in the companies' level of support for rPET food packaging will help to understand the opportunities of the companies supporting it while also noting the challenges facing other companies who are just starting to participate.

The first group of companies is those who strongly support rPET food packaging as a way to address the plastic issue in Thailand. For this study, Indorama and Coca-Cola Company were chosen. In Thailand, Indorama is the largest PET plastic producer, and is the only company that has a PET recycling plant in the country, as

mentioned above. Coca-Cola Company was selected due to the large quantity of Coca-Cola bottle debris found in several areas in Thailand. These two companies are widely recognized within the industry and by the government as the ones pioneering the use of rPET for food packaging in Thailand. The media has also published stories on their activities to educate people about the negative impact of PET bottles and the importance of rPET food packaging.

The other two selected companies, X Company and Y Company, are local Thai companies that are considered to be large plastic producers and are involved in PET production. These two companies were selected based on their membership in the TBA, as this association is one of the most important players in solving the plastic problem in Thailand, especially that of the plastic bottle. X Company and Y Company were used in the research to also represent other plastic producers of a similar size that do not explicitly support rPET food packaging. While these two companies might not be able to represent every plastic producer in Thailand, they were selected to build an overall picture of the varying plastic-related companies that support rPET food packaging in Thailand.

Table 1 : List of key informants (governmental agencies, NGOs and plastic association, plastic-related companies, and a group of civil society)

Name of agencies	Number	Type of data collection	Interviewees code name
<b>1. The governmental agencies</b>			
The Ministry of Industry (Industrial Waste Management Division)	1	In-depth interview	MI
The Ministry of Environment and Natural Resource (Pollution Control Department)	1	In-depth interview	PCD
The Ministry of Public Health - Department of Health - Food and Drug Administration	2	In-depth interview	PH FDA
<b>2. Non-governmental organization</b>			
Green Peace (International NGO)	1	In-depth interview	NGO
Stockholm Environmental Institute (SEI)	1	In-depth interview	SEI
Thai Beverage Industry Association (TBA)	1	In-depth interview	TBA
<b>3. The plastic-related companies (Selected from member of TBA)</b>			
Indorama Venture	2	In-depth interview	IVL
Coca-Cola	1	In-depth interview	CC
Company X (PET producer)	-	Content Analysis	-
Company Y (PET producer)	-	Content Analysis	-
<b>4. Civil society</b>			
A journalist from the Nation	1	In-depth interview	CS1
The academic experts from - Environmental Science Faculty - Environmental Research Institute	2	In-depth interview	AE1 AE2

### 1.6.1.3 Focus Group Interview

In this study, the focus group consisted of a group of environmentalists who act as a voluntary NGO. Participants in the focus group were selected from those who are directly engaged in environmental activities. They were selected from the environmental department of Chulalongkorn University who are personnel of the Chula Zero Waste Club and perform several tasks on environmental matters at the university. They commented on the overall environmental situation and regulations in Thailand and also on the performance of plastic-related companies. Moreover, the focus group interview was also partly used to explore consumers' general feelings, perceptions, and attitudes regarding plastic recycling and whether they would support the use of food packaging made from recycled plastic.

**Table 2 : List respondents from focus group**

Name of Organization/position	Numbers	Code Names
Focus group interview of environmentalist (Personnel from Chula's environment club)	5	FG

### 1.6.1.4 Secondary Data Collection

Secondary data was mainly collected from the companies' websites and was used to analyze the internal and external factors of each company, including mission, vision, and financial situation. Each company's website includes the history of the company, mission statement, vision, and information about what they have done so far in the support of rPET such as their recycling policies and CSR activities. As previously noted, all information about X Company and Y Company was gathered entirely from their websites and from the Stock Exchange of Thailand's (SET) website, which provided access to the annual reports of these companies.

Table 3 : List of key informants (governmental agencies, NGOs and association, plastic-related companies, and a group of civil society)

Research Question : In what way Internal and external factors influence plastic-related industries to become more likely to move forward for PET recycling for food packaging in Thailand?	Data needed	Source of information: interviewees, places of sources	Tools to get data from where/who	Data analyze
<p><b>Q 1.</b></p> <p>To what extent has the plastic- related industries moved toward supporting recycling PET plastic for food packaging to date?</p>	<ul style="list-style-type: none"> <li>■ Recycling strategy of the plastic sector</li> <li>■ The law regarding to plastic recycling for food packaging</li> <li>■ Businesses operation regarding to recycling, especially PET plastic</li> <li>■ Number of PET plastic recycling</li> </ul>	<ul style="list-style-type: none"> <li>■ Ministry of natural resource and environment, Ministry of Industry, and Ministry of public health</li> <li>■ The plastic-related companies</li> <li>■ The industry association</li> <li>■ NGOs</li> <li>■ Academic experts</li> </ul>	<ul style="list-style-type: none"> <li>■ In-depth interview with governmental agencies, businesses, NGOs, the industry association, and Academic experts</li> <li>■ Secondary data from official record of governmental agencies relevant to plastic recycling</li> </ul>	<ul style="list-style-type: none"> <li>■ Transcription</li> <li>■ Content analysis</li> </ul>
<p><b>Q 2.</b></p> <p>What are the internal factors that influence plastic-related industry to change or resisting to change toward more recycling for food packaging?</p>	<ul style="list-style-type: none"> <li>■ Leadership</li> <li>■ Employees performance</li> <li>■ Culture</li> <li>■ Mission</li> </ul>	<ul style="list-style-type: none"> <li>■ Head or staffs of CSR division of businesses</li> <li>■ Businesses' website</li> </ul>	<ul style="list-style-type: none"> <li>■ In-depth interview with key informant from businesses</li> <li>■ Secondary data of mission from Companies' website</li> </ul>	<ul style="list-style-type: none"> <li>■ Transcription</li> <li>■ Content analysis</li> </ul>

<b>Q 3.</b>	What are the external factors that influence plastic-related industry to change or resisting to change toward more recycling for food packaging?			
<p><b>Q 3.1 :</b> How does the general environment shape the behavior of the companies?</p>	<ul style="list-style-type: none"> <li>■ Economic factor</li> <li>■ Political/Legal factors</li> <li>■ Technological factors</li> <li>■ Socio-cultural factors</li> </ul>	<ul style="list-style-type: none"> <li>■ Financial statement of businesses</li> <li>■ Law and policy of government</li> <li>■ The plastic-related companies</li> <li>■ The industry association</li> <li>■ NGOs</li> <li>■ The market trend on recycling packaging</li> </ul>	<ul style="list-style-type: none"> <li>■ In-depth interview with governmental agencies, businesses, the industry association, and NGOs</li> <li>■ Secondary data from Laws and policy documents of government and financial report of businesses</li> <li>■ Secondary data from new website</li> <li>■ Focus group interview with the environmentalist</li> </ul>	<ul style="list-style-type: none"> <li>■ Transcription</li> <li>■ Content analysis</li> </ul>
<p><b>Q 3.2 :</b> How does the task environment shape the behavior of the companies?</p>	<ul style="list-style-type: none"> <li>■ Customers</li> <li>■ Competitions</li> <li>■ Suppliers</li> <li>■ Social pressure</li> </ul>	<ul style="list-style-type: none"> <li>■ The plastic-related companies</li> <li>■ NGOs, consumer preferences, news agencies</li> <li>■ The environmental trend on recycling packaging</li> </ul>	<ul style="list-style-type: none"> <li>■ In-depth interview with key informant of businesses, NGOs, consumers, news agencies</li> <li>■ Focus group interview with the environmentalist</li> <li>■ Secondary data from new website</li> </ul>	<ul style="list-style-type: none"> <li>■ Transcription</li> <li>■ Content analysis</li> </ul>

## 1.7 Significance of Research

The plastic issue is one of the most serious environmental issues in Thailand as the country has been identified as one of the global culprits for plastic waste. In 2018 Thailand enthusiastically campaigned for the use of fewer plastic bags, which received positive cooperation from various sectors, including grocery chains. However, an issue that may be more commonly overlooked is the plastic waste of food packaging. With so much emphasis on reducing the use of plastic bags, there is little attention given to the other types of plastics that Thai people also consume a lot, particularly food packaging made from PET which is 100% recyclable. This research, then, seeks to provide useful information for various actors to understand each other's perspectives so that they can collaborate to develop measures that advocate for the permission of rPET food packaging in Thailand. Moreover, this thesis will demonstrate the ideal conditions that influence companies to change their business operations. Therefore, it could help those who demand businesses to take more responsibility for their products that harm the environment, such as NGOs and the government, to determine which strategy of engagement is the most suitable to use with various companies in Thailand.

## 1.8 Research Ethic

The use of rPET for food packaging is a relatively new issue in Thailand and is a topic of debate between several key actors in the government sector and industrial sector. Also, there is not much information in the public domain. As different perspectives between the interviewees were raised during the interviews, the names of all interviewees were made anonymous for their confidentiality.

More importantly, as the author was unable to conduct interviews with two of the companies and could not ask for their permission to identify them, the actual names of the companies are anonymous. During the in-depth interviews, the author used audio recording as the main tool for data collection in order to capture all of the information provided by interviewees. Therefore, verbal consent was asked for before starting the interview session.

## 1.9 Limitations

In this research, one of the key limitations was that the author could not interview local PET producing companies. Several local companies producing PET were approached for an interview in order to understand their CSR activities and the challenges they face in moving into the recycling business. Tentative questions were written in an objective manner and were explained over the phone. However, when the author mentioned the topic of recycling, some companies began to show signs of reluctance to agree to an interview. One company stated that they are uncomfortable with providing an interview to an outsider. It can be assumed, then, that these companies are not fully involved in the recycling business and were worried about being blamed for social irresponsibility. For the case of X Company and Y Company, they seemed willing to give an interview at first, however after the list of questions was provided, they stopped responding. Even when they said they would contact the author back, they did not do so. From this situation, it could indicate that the company does not have much experience working with outsiders, especially for academic research, and they might be concerned about the confidentiality of their internal activities.

Another limitation was the inability to conduct in-depth interviews with consumers. Although consumers are one of the most important factors that influence business behavior, it was beyond the scope of this research to survey consumer perceptions and expectations of companies, or their preference for rPET. Interviewing just a few consumers could not accurately represent consumers as a whole. For this reason, other key informants, including the representatives of plastic-related companies and NGOs, answered the questions about consumer perception and expectation during their in-depth interviews. Instead of asking individual consumers about their perceptions, other key informants were asked about their perception of consumer expectation and demands. Moreover, a poll created by a well-known Facebook Page regarding the perception of consumers on the use of rPET for food packaging is used as one source of information for consumers' thoughts.



Another minor limitation was that the Food and Drug Administration declined audio recording of their interview. Before the interview session started, the author could sense that the official giving the interview was quite cautious to share information, as the progress of reviewing rPET is an internal issue. For this reason, only notes were taken during the interview instead of audio recording and there was not much information that could be used in this thesis.

### **1.10 Structure of the Thesis**

The rest of the thesis is structured beginning with the literature review in Chapter 2. Chapter 3 then provides information about plastic recycling in Thailand. The chapter begins with an overview of the recycling situation in Thailand and provides background information about the progress of rPET for food packaging in Thailand to further explain the starting point of this policy. Thus, this chapter answers the first research question. Also, the profiles of the four plastic-related companies that were selected as case studies are introduced through discussion of their CSR activities, reputation, and controversies. In Chapter 4, several of the internal factors that were mentioned in the conceptual framework are examined to answer the second research question. Similarly, chapter 5 discusses the external factors to answer the third research question. Finally, chapter 6 takes all of the research findings from both internal and external factors and analyzes them to identify the combined factors that eventually influence companies to move toward the support of rPET for food packaging in Thailand. Furthermore, the contributions of this research to the body of knowledge on organizational environment theory and institutional theory of CSR are discussed, followed by recommendations for rPET policy in Thailand and recommendations for further research.

## CHAPTER 2

### LITERATURE REVIEW

The literature review starts by presenting general knowledge about plastic recycling, also providing information on the types of plastic recycling and recycling processes. Then, the process of PET recycling for use in the production of direct-contact food packaging will be explained, with particular attention to decontamination. Next, the knowledge regarding legal use of rPET for food packaging in the United States and Europe is described to demonstrate examples of how other countries can progress toward achieving this same goal. After that, literature addressing Thailand's waste management strategy and the social responsibility behavior of businesses will be reviewed to identify knowledge gaps.

#### **2.1 Background Knowledge on Plastic Recycling**

Currently, when people think about plastic, they typically think about the impact it has on the environment, especially the plastic waste in the ocean that affects marine animals. However, looking carefully, plastic is not inherently bad. The actual problem is improper disposal and waste management systems. Plastic can actually benefit people because most types of plastic can be recycled at least once in its lifecycle. Unfortunately, this benefit is not being maximized and plastic is being burned and/or buried in landfills instead of being recycled. It is important to note, however, that not all types of plastic can be recycled or even reused. The recyclable plastics can be grouped into seven types, and are classified according to their material properties and the number of times they can be recycled. In 1988, the resin identification code (RIC) was developed by the Society of Plastic Industry to identify the different types of recyclable plastic (Figure 3). The resin identification code is represented by the "chasing arrow" symbol in which the three arrows represent that the plastic is recyclable. The number inside the arrows shows how many times that particular type of plastic can be recycled (Birgit Geueke, 2014).

Figure 3 : Resin Identification Coding System

1	2	3	4	5	6	7
PETE	HDPE	PVC	LDPE	PP	PS	OTHER
polyethylene terephthalate	high-density polyethylene	polyvinyl chloride	low-density polyethylene	polypropylene	polystyrene	other plastics, including acrylic, polycarbonate, polyactic fibers, nylon, fiberglass
soft drink bottles, mineral water, fruit juice container, cooking oil	milk jugs, cleaning agents, laundry detergents, bleaching agents, shampoo bottles, washing and shower soaps	trays for sweets, fruit, plastic packing (bubble foil) and food foils to wrap the foodstuff	crushed bottles, shopping bags, highly-resistant sacks and most of the wrappings	furniture, consumers, luggage, toys as well as bumpers, lining and external borders of the cars	toys, hard packing, refrigerator trays, cosmetic bags, costume jewellery, CD cases, vending cups	

Source from : (Seaman, 2012)

With advanced technology there are several ways for plastic to be recycled. According to Grigore (2017) there are four main technological processes used for plastic recycling: primary recycling, mechanical recycling, chemical recycling, and energy recovery. Primary recycling is low cost and relatively easy, converting used plastics into products that still possess similar properties and materials as the original product. Mechanical recycling, or secondary recycling, is when solid plastic waste is treated several times before being converted into completely new products. Plastics recycled in this way have to be single polymer plastics such as PET, PE, PP, and PS. The products made from secondary recycling can be easily found in daily life, such as plastic bags. To make it safe and hygienic to use these recycled plastics, the original used plastic is cut or shredded into flakes, washed, melted, and molded into the shape of the new end product. This is the most accepted recycling technique because it is cost-effective, efficient, and consistent with the sustainable development principles. Typically, food packaging is recycled using the mechanical method, as there are particular processes that are necessary to produce the new product. Chemical recycling, or tertiary recycling, is the process through which plastics are converted into liquid or gas so they can be used as feedstock for petrochemicals or as raw material to produce new plastic. The last technique is energy recovery, or quaternary

recycling, which is the burning of plastic to extract its energy through incineration. However, this technique is subject to environmental criticism as it can generate air pollution and airborne toxins such as carbon dioxide, nitrogen oxide, and sulphur oxides, which have a direct impact on people's health and can cause respiratory diseases (Al-Salem, Lettieri, & Baeyens, 2009; Grigore, 2017).

## 2.2 Recycling of rPET for Food Packaging

Throughout the world, many countries have started to put more effort into the reduction of plastic waste in order to mitigate the negative impacts of this issue. Several countries, including many in Europe, have implemented policies and regulations to reduce the amount of plastic waste from food packaging, as it is one of the most common forms of plastic waste and is usually single-use. One of the measures available to address this problem is to allow direct-contact food packaging to be made from recycled plastic (Grigore, 2017). This is allowed in many European countries, and is regulated under the Commission Regulation (EC) No. 282/2008. Additionally, the European Food Security published a guideline to evaluate the recycling process in order to assess the risk of contamination (Barthelemy et al., 2014).

PET is one of the most widely used plastics for food packaging, especially for water and soft drink bottles, because compared to other types of plastic, it is highly resistant, more transparent, and easier to recycle. For this reason, using rPET for food packaging, such as bottle-to-bottle recycling, became one of the most viable solutions to reduce plastic waste (Grigore, 2017). The studies of Fadlalla (2010); Triantafyllou, Karamani, Akrida-Demertzi, and Demertzis (2002) explain the process of PET recycling, both emphasizing the decontamination process. PET recycling is categorized into two levels according to hygiene and sanitation. First is conventional recycling, which utilizes similar processes to those in chemical recycling, including sorting, grinding, washing, and drying the used plastic. Within this process, there are three main sections: waste logistic, flake production, and flake processing. When PET

plastic is collected, it can be delivered to an intermediate processing facility, which then shreds the plastic and ships it to another facility to be converted into raw material. In this step, the PET flakes are separated from other materials, such as paper labels, and washed by the scrubber. Next, a centrifugal dryer dries the flakes before they are processed as raw materials such as clean plastic pellets, which will be sold to other industries to manufacture into rPET packaging. However, PET plastics recycled by this process might not be suitable for direct-contact food packaging as there is the risk of contamination. However, it can be used as food packaging that indirectly contact food, such as eggs or fruit with peels. The rPET used for direct-contact food packaging has to be processed in what is called a “Super Clean” PET recycling method. In this method, a deep cleaning process is added into the conventional recycling process to ensure that it is safe enough to use for direct-contact food packaging.

While there is technological capacity to recycle PET plastic and global interest to use it for food packaging, many studies discussed the potential substances of recycled plastic that can leak into food. The research of Barthelemy et al. (2014) presents the proposition that there are several ways that rPET can be contaminated during the recycling process. His study points out five main concerns. First, contamination can come from the misuse of the plastic before its disposal. For example, PET bottles may be used to store non-food products or chemical substances such as household cleaners or pesticides. If PET containers are used to store chemical substances, they absorb the chemical into the plastic. Next, some components of food, such as oil, fat, or flavors, could also be absorbed into the PET plastic. These are two ways through which PET containers can become too contaminated to be recycled. Third, if there is an inappropriate and insufficient sorting process for separating PET from other non-PET materials such as labels, glue, and caps, this can result in chemicals left over from these materials to be absorbed by the PET plastic. This is because non-PET materials might not have as high of a resistance to heat as PET. When PET plastic passes through high-temperature processes, non-PET materials can be degraded and produce hazardous residue in the production of rPET. Forth, PET

plastic can also absorb chemical residue during the washing process. In the cleaning process, the use of additional chemicals might be necessary, such as detergent and alkali. It is also possible for these chemicals to transfer to consumers when they are not effectively removed after the washing process. The last possible source for contamination is when the PET plastic is passed through several processes, leading to its degradation. For example, a high- temperature process can cause molecules to break down and lead to the formation of a new, dangerous compound.

Acknowledging the safety concerns of using recycled plastic for food packaging, some studies have provided a possible solution. For example, Kolek (2001 ) suggested that it is better to use multilayered recycled packaging. In other words, rPET used for food packaging should have an inner layer called a “functional barrier”, which is made from virgin plastic. This inner layer is the layer that has direct contact with food, which can prevent contamination from the rPET packaging. However, it seems that his research was written before the development of a measure that helps to ensure the sanitation of recycled plastic for food packaging. There is now a method by which to test the recycling process, developed by the US Food and Drug Administration, called the “challenge test”. During the challenge test, a plastic flake is selected. A chemical substance called a surrogate is added to the selected plastic flake to represent possible contaminants. After this, the plastic flake is processed through all of the recycling steps in order to analyze the effectiveness of decontamination at each point in the recycling process (Birgit Geueke, Groh, & Muncke, 2018)

### **2.3 rPET Food Packaging Permission in the United States and Europe**

Currently, the Thai FDA is deciding on the quality standard of the recycling process for rPET food packaging. The next chapter will elaborate more on this topic. However, it is better to have background knowledge of the standards for rPET food packaging in other countries in order to further understand how rPET food packaging can be regulated. Unlike Thailand, the United States and European countries are open

to using recycled material in direct-contact food packaging. Even though the US and EU do not have explicit policies or regulations stating that the country supports recycled food packaging, both countries have never implemented restrictions that particularly forbid the use of recycled material in direct-contact food packaging like Thailand has. Regardless, in their efforts to ensure safety for consumers, the US and EU implemented sanitation regulations and recommendations, which all manufacturers must comply with to avoid the transfer of contaminants to consumers.

In the European countries, the EU commission is mainly concerned about residue and contamination from the previous use of PET plastic. It is the responsibility of the manufacturer to prove the qualification of their recycling process in order to be authorized for their production of recycled direct-contact food packaging to be used and sold in the EU market. In other words, only authorized recycling process are allowed to produce this type of packaging. To be authorized, the recycling process must be able to produce packaging that meets at least the general requirements applied to all materials intended to contact with food (The Commission of the European Communities, 2008). Two of such requirements are that it must not harm consumer health and that it must not create any change to the composition of the food that could later harm consumers (The Commission of the European Communities, 2004). To obtain authorization of their process to produce recycled plastic for food packaging, manufacturers must submit information about their recycling technology and processes to the State Authority (European Food Safety Authority, 2008). The document submitted to the State Authority must include the name of the company, technical information about the recycling process, explanation of the decontamination process, and the characterization and quality of feedstock that becomes input for recycling material (European Food Safety Authority, 2008). All of this information will first be reviewed by the State Authority for comments, which are then forwarded to the European Commission to decide whether to allow each applicant to proceed with their recycling process. The decision of the European Commission is also based on the safety assessment conducted by the European Food Safety Authority (EFSA) (European Food Safety Authority, 2008).

Like the EU, the main concern of the US FDA is also regarding contamination from the misuse of the original plastic. The difference is that in the US there are no special standards for the regulation of the recycling process for direct-contact food packaging. Unlike EFSA, The US FDA has the mandate to regulate only the final composition of direct-contact food packaging (Misko, 2016). For this reason, the recycling processes do not need to be authorized by the US FDA. Rather, plastic producers can freely utilize any recycling process or technological innovation; as long as the final product meets the same standards that virgin packaging is held to. In other words, in the US, recycled food packaging, such as rPET food packaging, is regulated in the same way as food packaging made from virgin plastic, so it is subjected to the same standards and qualifications (Misko, 2016). However, to make sure that plastic producers do not overlook some certain conditions required for direct-contact food packaging, the US FDA began providing guidance in 2006 for any manufacturer who wants to produce recycled packaging for food. This is called the “*Guidance for Industry: Use of Recycled Plastics in Food Packaging: Chemistry Considerations*”; however, this document is not legally binding for any industry (U.S. Food and Drug Administration, 2006). The guide instead provides recommendations and suggestions for any industry that wants to recycle plastic for direct-contact food packaging, including, for example, an explanation of possible recycling processes for food packaging, as were mentioned in section 2.2. There are also recommendations for the maximum acceptable level of contamination in rPET food packaging as determined by scientific testing and proven by the “challenge test”.

#### **2.4 The Approach of Plastic Waste and the Possibility of Plastic Recycling in Thailand**

As mentioned in the first chapter, plastic waste in Thailand is considered to be an immediate issue. In Thailand, plastic waste is mostly generated from two main sources, industrial waste and household waste, and it seems that plastic waste is rapidly increasing due to population growth. It is for this reason that many studies on



plastic waste in Thailand discuss the government's strategies aimed at reduction. Many studies propose the use of different technical approaches for plastic recycling in Thailand. For example, there is the research from Bureecam, Chaisomphob, and Sungsomboon (2018) which conducted a plastic Material Flow Analysis (MFA) in Thailand. MFA is a concept used to study waste management policy and it has been used widely to analyze waste problems in many countries. The paper explains that there are six main processes of plastic material flow in Thailand, including manufacturing, consumption, collection, recycling, disposal, and open environment. From this material flow analysis, the management of plastic waste in 2020 is predicted by further analyzing the effectiveness of two government strategies, which are the National Solid Waste Master Plan (2016-2021) and the Alternative Energy Development Plan (2015-2036). Although there is an increase in plastic consumption and waste, the study demonstrates that these two government strategies can successfully reduce plastic waste while increasing the rates of recycling and energy recovery. However, one of the obstacles is that most plastic waste in Thailand still ends up in landfills due to the high operation costs of collecting and recycling. Stated in the Plastic Waste Master Plan 2017–2021, the main solution for plastic waste in Thailand is the landfill. This is because most plastic waste is contaminated so there is no cost efficiency in recycling it. To save costs, contaminated plastics are instead buried underground or dumped in an open area (PCD, 2016). In response, there is an ongoing engineering study that is trying to determine a proper recycling program for Thailand by using the Goal-Programming model (GP) to assess what should be done. The result of the study was to propose that Thailand increase the total cost target by 50%, which will help to achieve a higher amount of plastic recycling in the country, leading to less plastic waste (Wongthatsanekorn, 2009).

However, technical studies providing evidence on the effectiveness of recycling policies may not be enough. For any policy to be implemented, many stakeholders must cooperate and participate in the process to initiate policy. There are many studies, such as Wichai-utcha and Chavalparit (2018) Bureecam et al. (2018), that agree that the consumer is one of the most important key actors in the recycling

process and that consumer waste separation is one of the most crucial steps in plastic recycling. Unfortunately, many people in Thailand do not care much about issues that do not affect them directly, and often their levels of awareness are insufficient. Ittiravivongs (2012) studied the role of consumer behavior toward recycling, presenting two theories that are widely used to predict people's behavior toward recycling: the theory of planned behavior (TPB) and the theory of reasoned action (TRA). These two theories concluded that there is a direct connection between people's behavior toward recycling and the availability of resources or facilities for people to complete their intention. In other words, consumers are more likely to behave in favor of recycling when there are economic incentives and accessible recycling facilities. However, he also points out that consumer behavior toward plastic recycling does not *always* depend on these two factors. Additionally, moral responsibility is another factor that influences people to more actively participate in plastic recycling, even when there is an absence of facilities or economic factors. It follows, then, that people's awareness of the positive outcomes of plastic recycling is crucial. Therefore, in Thailand, measures for increasing people's awareness should be implemented first before focusing on the actual process of recycling.

## **2.5 Business Behavior Toward Social Responsibility**

Reviewing the existing literature on the impact of CSR on businesses, there are many studies that explore the influence of external and internal factors on industries, and many are based on the stakeholder approach. In regard to CSR principles and stakeholder influence, stakeholder theory can be relevant here as it evaluates the impact of external stakeholders and internal stakeholders, particularly consumers. Consumers have one of the strongest influences on businesses to change their performance. For instance, the rising demand for "green" products in the market has influenced businesses to change the type of product they manufacture in order to meet consumer expectations (Thongplew, van Koppen, & Spaargaren, 2016). Moreover, in some cases, consumers do actually care about the environmental impact of the business more than the price of the products, opting to pay more for "green" products (Čerkasov, Huml, Vokáčová, & Margarisová, 2017). If consumers have a

strong preference to support businesses that practice CSR, they will be more attracted to purchase from the businesses that promote their CSR activities. This can lead to brand switching (Mohr, Webb, & Hams, 2001). Other studies that utilized stakeholder theory mentioned the influence of competition, the demands of employees, and the culture of the organization (S.A, F.F, & K.O, 2013).

However, analyzing the shift of businesses toward increased CSR activity through the lens of stakeholder theory might not be enough. There are still other factors that determine the level of implementation of CSR activities by businesses, such as economic factors. There are two main levels of CSR implementation that businesses can adopt in their operations, which are proactive and passive. Sometimes, businesses decide to implement passive CSR, which requires only a minimal amount of effort. This is because the benefits of CSR practices are not guaranteed, so it is better for them to save costs and work to enhance the benefits of the business themselves (Kim, 2015). What is more, stakeholder analysis fails to acknowledge the willingness of a business itself to participate in CSR activities. Often, when businesses initiate CSR activities, it may be because they were exposed to new opportunities after they implemented these socially responsible actions and are looking to maintain the benefits. This rationale can be explained by the current situation of the plastic industry in Thailand. Chaisu (2016) notes that some plastic industries in Thailand today have developed an interest in producing bioplastic products, which is better for the environment. There are three main reasons for this change. First, Thailand has abundant raw materials for producing bioplastics, such as rice and cassava. Next, the government has strongly promoted the bioplastic industry through policy implementation. Finally, the most important reason is that Thailand has various types of industries in bioplastic value chains, which are ready to produce the materials for bioplastic. From this study, the main factor that influences industries to move toward eco-friendly products can be perceived as the technological availability that already exists in the country, providing a comparative advantage for the Thai bioplastic industry. In other words, the industry knows that they can generate more profit by producing bioplastic, so they feel motivated to progress to become a

major producer of eco-friendly plastic products.

## **2.6 Knowledge Gap**

Plastic waste is currently receiving a lot of attention from every sector in Thailand, including the government sector, industrial sector, and also the public sector. For this reason, recycling strategies have become an environmental trend in the country to solve the plastic problem. Many studies were conducted to determine possible solutions based on technical analysis. However, research from the perspective of development or political science, which focuses on policy change, is less common. Moreover, most of the current literature addressing businesses behavior focuses on the one-sided pressure that other stakeholders put on businesses. In contrast, Thai plastic industries are actually more enthusiastic than the government to promote sustainable strategies, such as the use of rPET for food packaging, to reduce the amount of virgin plastic in the country. However, there is also limited literature that examines the power of businesses to influence policy change. Therefore, my research will seek to fill the gap in the existing literature by using a combination of the two social theories mentioned above which are the organizational environment theory and the institutional theory of CSR to explain the CSR practices of businesses, analyzing mutual influence; and political economy analysis to study business behavior, observing the relationship between businesses strategy and policy transition of plastic recycling in Thailand.

## CHAPTER 3

### PLASTIC RECYCLING IN THAILAND

This chapter begins with a discussion of the current recycling situation in Thailand and will be divided into three parts. In section 3.1 an overview of how Thailand emphasizes recycling in order to reduce plastic debris is provided, focusing on the overall recycling situation, and the national strategy regarding plastic as promoted by several ministries, especially the Ministry of Industry. Adding to this overview are comments from several actors on the responsibility of plastic-related companies to work toward a solution. Section 3.2 provides a baseline study of the current stage of recycling PET for food packaging in Thailand. The next section, 3.3, outlines the profiles of selected plastic-related companies and discusses the intention and capability of each company to support recycling, particularly rPET for food packaging. The CSR performance, reputation, and controversies of each company are also reviewed. Finally, in section 3.4, a conclusion will be made regarding how Thai plastic-related industries participate in recycling and the rPET business. The main arguments of this section are that the plastic-related companies in Thailand do not adequately take responsibility for their role in the plastic issue, and that not many companies are really interested in recycling PET plastic for food packaging. These findings address the first research question: *“To what extent have the plastic-related industries moved toward supporting recycling PET plastic for food packaging to date?”*

#### 3.1 Recycling Situation in Thailand

As mentioned, Thailand is currently being watched by the world, as it is one of the main contributors to ocean waste. Plastic waste has been a serious issue in Thailand for a long time. However, an effective solution is difficult to find. The recycling strategy is strongly integrated into the circular economy concept, which the Thai government and the Ministry of Industry have been trying to push forward since 2018. Before having the term “circular economy”, which emphasizes the importance of recycling, the recycling strategy that was promoted by the Ministry of Industry was based on the 3Rs principle. For example, they persuaded plastic producers to create second-grade products or to develop a source of energy from the plastic materials that did not meet

specification (MI, Interview, 1 May 2019). In Thailand, plastic recycling is mostly used to develop energy, as there are several power plants in the country making it easier to convert plastic into energy than into other types of products (MI, Interview, 1 May 2019).

When asked about their perspectives regarding the challenges of Thailand's recycling situation, most interviewees mentioned the ineffective waste segregation system. One of the main problems with this system is that Thai people do not pay attention to waste segregation. To create an effective cycle of waste management and recycling, sorting waste should begin with consumers at the household level. However, when consumers do not segregate their types of waste, it is difficult for Bangkok Metropolitan Administration (BMA) garbage collectors to separate recyclable waste from other unrecyclable material, such as food waste, which lead to the contamination of recyclable waste, including PET bottles. It can be assumed that the reason people do not pay attention to waste segregation is that Thailand lacks an incentive policy to encourage people to segregate their waste, such as a deposit-refund system for PET bottles in which people can receive a portion of their money refunded if they return bottles (AE2, Interview, 3 May 2019). However, even if people wanted to segregate their waste properly, the facilities for consumers to do so are insufficient. For example, segregated waste bins are not offered everywhere in the country, and some people remain confused about the color of garbage bins (IVL, Interview, 2 May 2019). Consequently, as it is difficult for Thailand to implement waste sorting at the household level, this leads to the burying of municipal waste as the easiest way to eliminate waste in Thailand. When asked about the producers' responsibility toward the problem of plastic waste in Thailand, especially companies involved in plastic production, key informants expressed different viewpoints, except those from plastic-producing companies.

*“They have already done.... It is widely known among plastic producers that plastic can recycle...I believe that If FDA revise the regulation, all producers will involve in recycling business because of price mechanism ”*  
(MI, Interview, 1 May 2019)

*“I personally feel unsure with companies supporting this policy if they will seriously responsible to society because some of them used to pollute the environment. When producers said they import plastic, they said they import new plastic but actually it is not. It is decontaminated waste.”* (PH1, Interview, 8 May 2019)

*“No, they have done so little. What if we have no EPR [Extended Producer Responsibility] regulations, would they do that? Take back system for all plastic product, not just PET and HDPE that have recycling value.....can industries cooperate together, managing take back system and create an incentive for consumers to return plastic waste.....if industries can do, this is considered as enough”* – (AE2, Interview, 3 May 2019)

*“I have not seen many feelings that it does not change much from the previous situation. They seem trying to launch campaigns, but it does not work well. It does not practical”* (FG, Interview, 15 May 2019)

*“I perceive the movement of plastic producers. However, what they are doing is saying that some type of plastic can be recycled, consumers can give it to them so that they can recycle into something else. For Greenpeace, recycling is not the answer because eventually there are only 9% of plastics that are recycled. Other 91% will go to dump site which will become plastic pollution anyway.”* (NGO, Interview, 9 May 2019)

As can be seen from the varying opinions of the interviewees above, only the Ministry of Industry official expressed a positive opinion about businesses supporting recycling. It can be assumed that he, as an official of the Ministry of Industry whose duty it is to regulate and monitor the operation of industries, must support the practices of the industrial sector. His perspective, then, is based on that of the industrial sector. In contrast, the other interviewees, from sectors like civil society, expressed that the industrial sector does not put much effort into addressing this issue. These companies might take action to some extent, but it has not had any real impact on the current situation in Thailand.

### **3.2 Current Stage of Recycling PET for Food Packaging in Thailand**

In Thailand, recyclable materials with a high value, such as PET bottles, are collected by the informal sector. In other words, people such as garbage collectors, janitors, and road sweepers gather these water bottles and sell them to the recycling shop. Then, the recycling shop sells these bottles to garbage recycling companies, such as Wongphanit, who then create PET bottle bales before sending them to plastic manufacturers and producers. The director of the Industrial Waste Management Division said that recycling food packaging could be one of the main methods of reducing the import of plastic, which was an issue in 2018. However, producers cannot recycle plastic to use for food packaging due to the Thai FDA's restrictions. Even if the Ministry of Industry wanted to support this method of recycling, they cannot intervene in the regulations of other governmental agencies (MI, Interview, 1 May 2019). The Ministry of Industry also encourages plastic producers to engage in other methods of recycling, but this tends to be primarily downcycling. For example, post-consumer PET bottles are downcycled to make a lower quality form of plastic, which can be used in products such as low-grade polyester fiber to making carpet (MI, Interview, 1 of May 2019). Recycling plastic waste to create other goods seems to be a good solution, however, the problem is that the downcycled products will eventually also end up in a landfill.



News articles about the movement of Indorama and Coca-Cola to push for the use of rPET in food packaging provided only rough detail that this method could serve as a strategy to solve the plastic problem in Thailand. More detail was uncovered through interviews, including that the starting point of this movement was when the director of Coca-Cola, who is also the director of Thai Beverage Association (TBA), invited external rPET experts from other countries to participate in a meeting and provide their feedback on the issue. Then, a representative from the TBA pitched this policy to the Ministry of Public Health for consideration (CC & TBA, Interview, 21 May 2019). Consequently, the FDA under the Ministry of Public Health established a committee, consisting of several relevant agencies – governmental departments, companies within the TBA, and the Plastic Institute of Thailand – to review the notification from the Ministry of Public Health, which had arranged the meeting to discuss consideration of using rPET for food packaging. However, the company such as Indorama and Coca-Cola also understood the FDA's concern about the sanitation of the packaging and acknowledged the difficulty of using rPET. Therefore, companies initially asked for permission of PET food packaging, such as water bottles, beverage bottles, and cooking oil bottles, to be recycled into rPET for use in production of direct-contact food packaging (IVL, Interview, 2 May 2019).

The challenge of using rPET for food packaging exists primarily in the complexity of governmental agencies in Thailand. While in other countries one particular governmental department is in charge of the plastic recycling issue, in Thailand, it is different. Just within the committee for reviewing notifications from the Ministry of Public Health, there are three governmental departments that have relevant responsibilities. First is the Pollution Control Department (PCD), which is responsible for waste management. Secondly, the FDA is responsible for sanitation of direct-contact food packaging. Third is the Thailand Industrial Standard Institute (TISI), which is responsible for monitoring PET producers and PET quality standards. As these three organizations have different responsibilities, it is quite difficult to reach a consensus. Recently, Indorama invited the committee to visit its recycling plants at Nakhon Pathom in order to educate and inform the committee about the recycling

technology and processes being used for producing rPET food packaging (IVL, Interview, 2 May 2019). Currently, the committee in charge of this issue is in the process of conducting academic research to create rPET standards because Thailand does not yet have their own rPET standards for food packaging. The committee is deciding whether Thailand will apply U.S. FDA standards, EU standards, or both, to determine if rPET flakes are qualified to make food packaging. Academic experts from several universities are researching which standard is the best fit for Thailand (PCD, Interview, 17 May 2019; PH1, Interview, 8 May, 2019).

### **3.3 Introduction of Plastic-Related Companies**

#### **3.3.1 Indorama Venture**

##### *Profile of the Company*

Indorama Venture, an Indian-Thai company, is one of the largest global plastic producers, supplying of many of the world's leading soft drink and food companies such as Coca-Cola, Pepsi, and Nestle (IVL, Interview, 2 May 2019). The headquarters of the company are located in Thailand and it has expanded to other countries. In 1994, Indorama was established as the first wool yarn producer in Thailand (Indorama Ventures Annual Report 2018, 2018). Indorama became involved in the recycling business after taking over Wellman International in 2011, which is a European recycling business (IVL, Interview, 2 May 2019). Indorama adopts Wellman's recycling technology and adapts some of these processes so that they are suitable for the type of plastic waste in Thailand (IVL, Interview, 2 May 2019). In 2014, the company established a recycling plant in Thailand for the production of rPET and polyester fiber made from post-consumer PET. Due to Thailand's restriction on rPET packaging, Indorama's rPET bottles are mainly exported to other countries in Europe and the United States.

### ***CSR Reputation and Controversies***

Regarding Indorama's social responsibility, sustainable development goals have been integrated into the company's operations in terms of social, economic, and environment. The company's sustainability report shows that it pays close attention to the circular economy, which involves anything related to recycling, and that the sustainable development goals prioritized by the company are mostly those related to plastic recycling and the impact of their products on the environment and on their stakeholders (Indorama Venture Sustainability Report, 2018). While the actual motivation may be undisclosed, it seems as though Indorama is trying to solve the plastic problem in Thailand. As it is one of the only companies that can foresee the benefits of using rPET for food packaging, Indorama agreed to cooperate with Coca-Cola Thailand to lobby the Thai FDA in consideration of using rPET for food packaging.

However, there were a few interviewees who asserted that due to Indorama's poor environmental practices, their factories have created a lot of pollution. One interviewee revealed that many complaints have been made against Indorama and its role in several of Thailand's environmental problems. For example, Indorama's chemical plant in Kaeng Khoi district and its factory in Map Tha Phut have created air pollution. For this reason, the interviewee personally does not believe that Indorama's technology will be safe enough to make food packaging from rPET. Therefore, due to the effects of Indorama's negative environmental impact, people perceive the company as unreliable. Surveying newspaper articles to confirm these comments, no coverage of these events could be found in the public domain, and therefore Indorama's misbehavior could not be confirmed. However, another interviewee pointed out that the negative reputation of Indorama is not public, rather, it is something only insiders know, further stating that he himself did not trust the company either. He added that people in the industrial sector know all about the rumors surrounding Indorama.

### **3.3.2 The Coca-Cola Company**

#### ***Profile of the Company***

As the Coca-Cola Company is quite well known, a detailed profile will not be provided in this study. Instead, details about the operations of the Coca-Cola Company in Thailand are provided. Coke is considered a franchise business whose headquarters are located in the United States. Coca-Cola itself acts as a franchisor, or the owner of the brand, of Coke, Sprite, and Fanta, who produce syrup concentrates and then sell these to their franchisees, or bottlers, who are given licenses to use the Coca-Cola trademark, produce beverages, and distribute end products to consumers. Coke's franchise business in Thailand is operating as a small branch office of the Coca-Cola Company and is located in one floor of the Thainamthip building. It employs about 50 staff members, while the rest are employees of Thainamthip. In Thailand, there are two Coca-Cola bottlers, which are responsible for covering different part of the country. First is Thainamthip, who is responsible for the upper half of Thailand; and second is Haad Thip, who is responsible for the lower half of Thailand (CC & TBA, Interview, 21 May 2019).

#### ***CSR Reputation and Controversies***

Coca-Cola Thailand has tried proposing the use of refillable bottles to the Thai government, but this idea was rejected. Looking to progress beyond on what they have already done, Coca-Cola initiated the project "World Without Waste" in 2017, setting three main goals for this project in order to close the loop of plastic waste. The first goal is regarding eco-design, which has two indicators. The company aims to create packaging that can be 100% recycled by the end of 2025. From an interview with the director of Coca-Cola regarding this commitment, Coca-Cola Thailand already achieved this goal as all parts of Coke bottles – closure, PET bottle, and label – can be recycled (CC & TBA, Interview, 21 May 2019). Another indicator is that the amount of recycled content used to make a plastic bottle should be at least 50% by the end of 2030. In other words, bottles of Coke must be made from 50% or less virgin plastic and 50% or more recycled material (rPET). However, Coca-Cola Thailand cannot achieve this goal because in Thailand, plastic bottles have to be made from 100% virgin plastic.

The second project goal is in regards to bottle collection. Each year Coca-Cola releases an annual report of how many packages are released to the market, so by 2030, every bottle, can, and glass packaging of Coca-Cola that has been sold to the market must be collected and brought back to the company (CC & TBA, Interview, 21 May 2019). This goal is also difficult for the company because waste management and waste segregation in Thailand is ineffective (CC & TBA, Interview, 21 May 2019). The third goal is to emphasize working together with other organizations, companies, and sectors, such as the International Union for Conservation of Nature, Department of National Parks, and Wildlife and Plant Conservation, to help set up a system of sustainable waste management through provision of financial support (CC & TBA, Interview, 21 May 2019). The CSR reputation of Coca-Cola Thailand is mainly influenced by the 2012 Thainamthip introduction of eco-packaging and the lightest water bottle produced. The squeezable PET water bottle, under the Namthip brand, uses 35% less PET materials in production (Jitpleecheep, 2012). Due to its squeezable design, these bottles require less space for disposal and are stored more easily in recycling plants. Coca-Cola Thailand also claimed that the process of producing these bottles creates less pollution than the traditional water bottle designs (Jitpleecheep, 2012).

However, all companies face some negative rumors about their reputation, and Coca-Cola, not only in Thailand but also in other countries, has been subject to criticism of its plastic bottles harming the environment. Greenpeace is the main organization working to reveal rumors about Coca-Cola Company's harmful practices. One such rumor is about the rejection of a deposit refund system for PET bottles. The researcher from the Environmental Research Institute explained further on this issue:

*“I used to ask Coke [about the deposit refund system], Coke rejected. Coke said that deposit refund system is developed only for PET, the packaging which has recyclable value. Coke said it was unfair, and [Coke also] claimed that what about other plastic why not also create deposit refund system as well” (AE2, 3 of May 2019)*

Asking further about the company's World Without Waste project, she expressed that this is their own strategy to solve the plastic problem without the government sector regulating them (AE2, 3 of May 2019). During the interview with Coca-Cola, the director did not totally reject this scheme, but instead explained that deposit refund system might not be practical in Thailand for several reasons. For instance, an effective deposit refund system requires a large enough deposit to incentivize returning the plastic bottles. For this reason, it could disproportionately impact low income persons. Moreover, this system only works with recyclable packaging, so other types of packaging such as snack packaging still be able to produce without any regulation. Moreover, he explained the company's perception that it is more effective for the government to support the informal sector by campaigning for waste segregation at the household level than to intervene in Coca-Cola Company's operations by attempting to establish a deposit-refund system which would require a large investment (CC, 21 of May 2019).

The case of Coca-Cola Thailand's rejection of the deposit-refund is not new as Coca-Cola Company has also rejected similar proposals in some European countries. Greenpeace discovered an internal document from Coca-Cola Company called "Public Policy Risk Matrix & Lobby Focus", which includes the section 'Fight Back' to address the deposit-refund system for plastic bottles (Poulter, 2017). In some countries, such as Germany, Coca-Cola Company has actually complied with the deposit-refund system. However, this has had a direct impact on the company's profits, so it can be assumed that Coca-Cola Company seeks to protect its profits in the countries where they are still be able to do so by rejecting the deposit-refund system (Poulter, 2017)

### **3.3.3 X Company**

#### ***Profile of the Company***

X Company is a local plastic industry that was established in Thailand in the 1960s. Initially, the company mainly produced and sold household plasticware. After that, the company expanded its product lines to include other plastic products.

Currently, the product lines are separated into two groups: industrial business unit and household business unit. Food and beverage packaging are one of the product lines in the industrial business unit. Additionally, X Company also produces rigid packaging and material handling. In the household business unit, melamine<sup>2</sup> is produced for household products such as dishes, rice bowls, and spoons. Some customers of X Company are big beverage companies, such as Crystal for drinking water bottles and Pepsi, Coca-Cola, and Fanta for bottle closures.

### *CSR Reputation and Controversies*

X Company's CSR activities are based on the three practices: save materials, save energy, and save the world. Aligning with the perception that plastic products such as PET bottles can negatively impact the environment, X Company has worked to reduce the thickness of beverage packaging, including plastic bottles and closures, in order to mitigate this risk. This will help to reduce the use of raw materials and energy required to produce plastic bottles, leading to a smaller carbon footprint ("X Company's Annual Report 2018, 2018"). In researching publicity regarding X Company's reputation in the media, one story that gained public attention was when the company campaigned for the use of reusable food containers, called '*Pin To*' in Thai language. As the main objective of this campaign was to promote ecotourism, X Company gave *Pin To* to the Ministry of Natural Resource and Environment so that the officials could use these reusable food containers in the National Parks. This also further help promoting domestic tourism and helping to reduce the use of single-use plastics and foam products (Thansettakij, 2018). No public controversies were found about X Company.

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<sup>2</sup> Melamine is a chemical compound that is used to produce plastic materials. It is a chemical substance that is suspected to be found in Chinese milk powder

### **3.3.4 Y Company**

#### **Profile of the Company**

Y Company is another local Thai company that produces PET bottles. Similar to X Company, Y Company does not only produce plastic bottles. The company was initially founded in the 1970s as a glass production company, but it later became involved in the plastic packaging industry by registering a plastic business as an affiliated company in the 1980s. Plastic packaging, including beverage bottles, is one of Y Company's product lines. In other words, the plastic packaging section of Y Company is just another unit of a company whose main business is glass manufacturing. Judging from the company's website its customers include several big beverage companies in Thailand such as Thainamthip, Osotspa, and Singha.

#### ***CSR Reputation and Controversies***

In 2019, Y Company publicly acknowledged the negative impacts of plastic packaging and the importance of business operations that benefit society. The company predicts that environmental trends will change in the future and the use of plastic packaging can be dramatically decreased. In response, Y Company is conducting research on the viability of Biodegradable packaging. Even though the cost of producing Biodegradable packaging is three times higher than PET plastic, the company believes that technological innovations can help to reduce the cost (Apisitniran, 2019). This study did not uncover any publicity regarding misbehavior or controversies from Y Company.

To clarify further regarding the controversies discussed in the above company introductions, it should be noted that Coca-Cola and Indorama are big companies that attract a lot of criticism and attention from society. The scale of such coverage is simply not the same for X Company and Y Company. It can be assumed that these smaller companies have controversies of their own, however these are not available in the public domain.



### 3.4 Summary

Various plastic recycling strategies have been promoted by the Thai government and the Ministry of Public Health. Primarily, recycled plastic is converted into either electricity by power plants or lower quality products by polyester industries. Many plastic-related companies have begun to take action to reduce the environmental impact of their plastic production. For example, beverage companies, such as Coca-Cola, have committed to the use of recyclable packaging. At the same time, some plastic producers are working to develop technology and substitutional packaging that can help to reduce plastic waste in Thailand. However, not many companies support recycling PET plastic for food packaging because of the Ministry of Public Health's restrictions and the general lack of incentive. For this reason, when discussing solutions for Thailand's plastic problem, plastic-related companies are more likely to address the problem in a way other than supporting rPET materials.

## CHAPTER 4

### INTERNAL FACTOR

This chapter mainly discusses the internal environment of each company and is divided into four main parts. In section 4.1 the Mission and Vision, or any of the company's principles that can be used in guiding business operations, are examined. In order not to reveal the identities of companies X and Y, their organizational statements are paraphrased. Section 4.2 discusses leaders' intentions to promote recycling and employee involvement in plastic campaigns or company activities. Next, in section 4.3, the culture of each company is analyzed in observation of their characteristics and what they emphasize in their workplaces. The last section summarizes the internal factors that influence the performance of companies in line with their mission statements, especially the global mission of international businesses, as these factors determine the company's direction. This chapter seeks to answer the second research question: *What are the internal factors that influence plastic-related industry to change or resisting to change toward more recycling for food packaging?*

#### **4.1 Mission and Vision as a Guiding Principle of Business Operations**

##### **4.1.1 Overview of Missions and Visions of Companies**

The missions and visions of the four companies are very useful to analyze the direction and operations of each company. The objective of this chapter is to determine whether or not the mission and vision actually influences business behavior by analyzing each company's business performance and recycling policies.

##### **I. Indorama Venture**

Indorama Venture's vision statement is "To be a world-class chemical company making great products for society" and "We commit to be a responsible industry leader leveraging on the excellence of our people, processes, and technologies to create value for our stakeholders" is its mission statement (Indorama Ventures Annual Report 2018, 2018). From these two statements, it is very explicit that the company seeks to be a world leader in the plastic industry, further implying the importance of responsible production for society. When asked if the mission statement shapes Indorama Venture's recycling policy, the two interviewees expressed that the statement does in fact influence their operations in Thailand. The Assistant of the Vice President explained:

*“I think [our mission] has strong effect on our company. Moreover, [it is] because we are a global brand. [The word global brand] comes with the duty to show that we are responsible to the society, and [the phrase of] making great products for society implies the principle of sustainability that our products have to be good for society. This is one of the reasons that we took over the recycling business in 2011” (IVL, Interview, 2 May 2019).*

## **II. Coca-Cola Company**

The mission and vision statements of the Coca-Cola Company do not obviously imply the commitment of the company to environmental responsibility. The mission statements of the company are more focused on bringing people happiness and joy, as is portrayed by the brand’s image in the media. The intention of the company is clear in their mission statements: “To refresh the World”, “To inspire moment of optimism and happiness”, and “To create value and make a difference” (The Coca-Cola Company, n.d.). These statements do not specifically address the environment. However, Coca-Cola’s desired environmental accomplishments can be found in their “Vision on the Planet”. It stresses to “Be a responsible citizen that makes a difference by helping build and support sustainable communities.” Moreover, interview data revealed that Coca-Cola has a strong commitment to resolving the plastic problem, employing a work philosophy that helps to shape this commitment.

*“We believe that if we have run the business, and our growth impact on society. For example, we sell a lot of products, and plastic debris is found all over the city. No one wants to see succeed and growth of Coke. For this reason, it makes sense for us to create sustainable growth of the company which is not being the environmental burden of the society” (CC & TBA, Interview, 21 May 2019)*

In other words, Coca-Cola believes that if the growth of the company means exploitation of the environment, society, or community, the company will consider this as unsustainable growth of its business. They have realized that any company whose operations create a negative impact on the environment will be judged negatively by society. For this reason, the Coca-Cola Company has made the commitment to greatly reduce their negative impact on the environment and on society.

### **III. X Company**

Each year X Company conducts an annual review of the company's mission and vision statements. This allows the company to update its mission and vision to be consistent with the current internal and external contexts. Reviewing the annual reports of X Company from the last five years, the mission and vision of the company changed only once in 2014. The latest vision and mission of the company was reviewed in 2018 with the goal to become the largest melamine producer of household products worldwide, and also the leading company in ASEAN for plastic injection ("X Company's Annual Report 2018, 2018").

Furthermore, X Company's four missions aim for several developments: 1) development of human capital through the creation of a positive learning environment for knowledge sharing; 2) development of skills and capacity of the company's competitiveness in order to increase the company's value chain; 3) ensure that business operations will be conducted with ethical standards and good governance; 4) development of the company's efficiency and responsibility to society ("X Company's Annual Report 2018, 2018").

#### IV. Y Company

The vision of Y Company is its intention to become the leading company in ASEAN in the manufacturing and selling of packaging products, including glass packaging, plastic packaging, and containers. The company's missions are divided into five main points which have specific objectives to satisfy its stakeholders.

First is the financial goal which states that the company aims to maximize profits as much as possible so that all stakeholders can benefit from being a part of the company. Secondly, the mission of consumer satisfaction aims to deliver high quality and high standard products at an attractive price. The third mission aims to build long term partnerships. The fourth mission relates to the company's intention to utilize advanced manufacturing technology and professional teams to improve all working process. The last mission aims to build the capacity of personnel, promote teamwork, and increase employee engagement, further supporting an entrepreneurial spirit ("Y Company Annual Report 2018, 2018).

However, it should be clarified that this mission of Y Company is from the annual report of their core business, which is glass production, so this report provides information solely on the operations of the glass businesses. There is no website or report for the plastic packaging unit. Therefore, it can be assumed that there are no statements specifically mentioning environmental issues as glass packaging does not impact the environment as directly as plastic packaging.

From the missions and visions of the four companies, some similarities and differences can be determined between them. The similarity is most clear between Indorama and Coca-Cola, as these two companies both have strong missions, visions, or a principle that specifically address environmental responsibility. As the interviewees from Indorama said, "great products for society" demonstrate its commitment to the creation of products that are good for society, which, in turn, are

also good for the environment. In fact, an explicit statement from Indorama regarding the environment is also included in one of the five main values of the company. The company's insistence to operate in socially, economically, and environmentally responsible manner is emphasized in order to benefit its sustainable growth (Indorama Ventures Annual Report 2018, 2018). Similar to Indorama, the last mission of Coca-Cola Thailand explicitly mentions the responsibility of the company toward the community. Moreover, as the director of Coca-Cola Thailand explained, they have also set an objective to create a product that does not harm the environment.

Referring back to the conceptual framework, which explains the importance of the mission and value of the company, this study confirms that the mission statement can determine the direction and performance of the company. Both companies have mission statements that address environmental impact, which act as a guide for the company to operate in compliance with those statements. The theory in the conceptual framework also points out that a company can maintain its good reputation by developing operations strategies that are consistent with the current socio-political context. For example, current global trends advocate for green industry and sustainability. Therefore, since Indorama and Coca-Cola include sustainable development in their mission statements, they are perceived as being responsible toward society and the environment. While Coca-Cola Company may be criticized by international NGOs such as Greenpeace, they have taken that opportunity to acknowledge the problem and try to solve it.

On the other hand, there is no specific statement about the environment in the mission statements of companies X and Y. This does not mean that these two companies do not engage with environmental issues, as both of them also initiate CSR activities, however these activities are not focused on recycling. All four selected companies are taking responsibility for environmental issues in some way. Indorama and Coca-Cola want to support the use of rPET for food packaging as their environmental strategy, while the other two companies pursue different strategies. Y Company's business unit

for production of plastic packaging supports the use of biodegradable plastic, while X Company is working to reduce the plastic bottle's environmental impact by producing thin-wall packaging, as already mentioned in Chapter 3.

#### 4.1.2 Headquarter-Driven Corporate Social Responsibility Goal

There are also other factors that influence companies to support the use of rPET for food packaging in Thailand, inherent in the nature of these companies themselves. Indorama and Coca-Cola are international companies, while X Company and Y Company are local Thai companies. A researcher from Stockholm Environmental Institute (SEI) explained that there are differences between global companies and local companies, or even between big companies and small companies. For example, it is common for private sector companies, especially those that do not have international targets or headquarter-driven corporate social responsibility goals, to operate the business according to what is most financially profitable (SEI, Interview, 23 May 2019). For companies that do not have global commitments, switching from virgin plastic to rPET may not be a good choice as rPET materials are more expensive in Thailand, which will be discussed further in the next chapter. During the interview with an expert from the Environmental Research Institute of Chulalongkorn University, I asked why some plastic-related companies would want to support the use of rPET for food packaging. Her explanation was very similar to that of the researcher from SEI:

*“To be said, [the reason] why Coke want to support this policy is [Coke is] a global brand, and there is a mission from its headquarter. Therefore, if we look at the brand that is moving forward in Thailand, they are all global brands such as Nestle because the company received a policy from the mother company. However, if we talk about local brands in Thailand whether they would do this, no [they would not interest in rPET]. It is [because of] the cost [of production] .... Because of the price mechanism, it is not attractive at all if there is no intervention from the government or CSR mission from its headquarter.....Thailand is a free market that producers can choose between*

*producing rPET and virgin plastic. If there is no global mission, who else wants to change to recycle material” (AE2, Interview, 3 May 2019)*

The headquarter-driven mission was mentioned by several interviewees as having strong influence over the company’s operations. For example, another expert from Environmental Science of Chulalongkorn University, and the expert from PCD, also gave the same opinion by saying that :

*“I have seen that there is not many reasons and motivations that industries would do this. First, there is law enforcement. Secondly, they are enforced by oversea headquarter” – (AE1, Interview, 8 May 2019)*

*“Coca-Cola is forced by a global mission that the company need to recycle plastic bottles,” (PCD, Interview, 17 May 2019)*

The Coca-Cola Company serves as a good example of this case. When the World Without Waste project was initiated internally in 2017, all of the Coca-Cola branches all over the world were required to prepare their own strategies to achieve the project goals. In 2018 the World Without Waste campaign was publicly announced, and around the same time Coca-Cola Thailand began to push for the use of rPET for food packaging. Due to their global commitments, it is Coca-Cola Thailand’s duty to propose any policy or strategy that will help to achieve the objectives of the global mission within Thailand. The director of Coca-Cola Thailand himself also said that their branch must try to comply with the headquarters-directed mission, further stating that they actually do want to follow the goals that headquarters has set. It can be understood, then, why the company actively advocates for the Thai government to revise the law (CC & TBA, Interview, 21 May 2019).



## 4.2 Culture of Companies

Other than the company's mission and vision, organizational culture can also illuminate what a company is working to emphasize. Actually, organizational culture is implicit in the company's mission and vision statements because they demonstrate the norms and values that the company promotes. In their company reports, Indorama and Coca-Cola have expressed the need to make long-term commitments to sustainable development practices in order to mitigate their negative environmental impacts. Indorama states that "Sustainability has always been a critical element of our strategy" (Indorama Ventures Annual Report 2018, 2018), and Coca-Cola also emphasizes that "Sustainability will of course remain a central focus for our company". The 2018 Coca-Cola report is the first ever company report to combine a business report with a sustainability report, demonstrating the realization that business development and community sustainability are interlinked (The Coca-Cola Company, 2018). Another similarity between Indorama and Coca-Cola is the characteristics of their workplace cultures, which both companies describe with the terms 'Diversity and Inclusion'. This shows that both companies promote diversity and inclusivity by hiring people from different backgrounds and cultures. They believe that having personnel from diverse backgrounds will lead to a diversity of ideas and insights for the company. This further helps the company to understand the variety of expectations and perceptions of people all around the world.



Similarly, X Company also emphasizes the capacity building of personnel because they realize that a high quality of work will help the organization to achieve its commitments. The company culture is then established to enhance the capability of personnel to work in a sustainable manner. For example, there are internal campaigns, activities, and training sessions to strengthen teamwork and to improve work efficiency. Additionally, the company report explains the guiding principles of saving material, saving energy, and saving the environment, which are further incorporated into the company culture. Recognizing that employees are integral to the success of the company, X Company provides the opportunity for its employees to engage in internal and external CSR projects. These projects ensure awareness of all employees as to the

importance of the company's CSR mission ("X" Company Annual Report 2018, 2018). For Y Company, analyzing the company culture is more difficult as the information available is very limited. However, judging from the statements provided in the annual report, Y Company is similar to the other three companies in that it gives importance to personnel development. For example, their recruitment policy is regularly reviewed and adapted to be consistent with the changing context and needs of the company at that specific time ("Y" Company Annual Report 2018, 2018).

However, due to limited data, the provided information about the culture of these four companies may not be accurate enough to be thoroughly analyzed. The extent of the analysis that can be conducted demonstrates that Indorama and Coca-Cola Company promote norms and customs that value sustainability as the heart of the company's operations, making these two companies more likely to be concerned about the environmental impact of their products.

### **4.3 Personnel Engagement in Business Activities and Commitment to Recycling Strategy**

The information about internal factors, especially in regards to the organizational culture and engagement of leadership, is also limited for X Company and Y Company. For this reason, the factors of leadership and engagement are mainly discussed in the context of Indorama and Coca-Cola Company.

#### **4.3.1 Leadership's Intention Toward Social Responsibility**

Every company's proposed projects require the approval of the CEO and Board of Directors. To implement something, people in high positions have to review and agree on the projects or policies in order for them to progress. An interviewee from the group responsible for several Chula Zero Waste projects shared her personal experience in campaigning for this project within Chulalongkorn University, expressing her thoughts about the significant role of leadership in the implementation of a project:

*“For every project, if the board of director disagrees, it will not be passed.....even though we have everything to support if the director does not interest in the environmental issue, or they do not want to take part in, it will be gone. Although other employees want to do so, it will be abandoned” (FG, Interview, 15 May 2019)*

As switching from virgin plastic to rPET would be a major change in the companies’ operations, this decision would definitely require the approval of the company’s leadership. For example, the assistant of the Vice President of Indorama stated that their CEO is ready to invest in rPET if there is a demand in the market, as demand remains one of the significant indicators for potential business stability (see section 5.2.1).

Similarly, Coca-Cola Company’s CEO and Chairman of the Board of Directors, James Quincey, expressed to the media that all companies in the world are experiencing the same issues regarding plastic packaging and that Coca-Cola wants to help solve this problem. One such attempt at a solution is the World Without Waste project (Jirapa, 2018). Also, the director of Coca-Cola Thailand, who is advocating for the use of rPET, seems to be very passionate about finding an alternative solution for the plastic problem. He stated that the waste management projects proposed in Thailand are not sustainable because they place too much emphasis on the PR strategy, which is unable to be scaled up for a national campaign. There are many companies and governments that have launched many projects, but the overall problem of plastic waste still exists and is getting worse. The director further shared his experience of being invited to participate in several various projects, but they turned out to be PR stunts, which he is not interested in (CC & TBA, Interview, 21 May 2019). This demonstrates his personality as a leader, his attitude toward discovering innovative solutions, and his perspective to drive the direction of the company. He is seeking a practical solution for Thailand that can solve the problem at its root. While he does not underestimate the importance of PR to help spread awareness, he strongly believes that PR should not be

the main focus of any project. He expressed: “I want to be one voice saying that we need to stop using PR as a solution. PR cannot solve all the problem” (CC & TBA, Interview, 21 May 2019). Moreover, good leaders, as stressed in the conceptual framework, should be able to motivate their employees. For example, when discussing how Coca-Cola Thailand has to work with others to push their policies, he shared that because the company has so many tasks, he always motivates his subordinates by explaining *why* the company has to do this. If Coca-Cola is actively working on this policy, then its employees have to work hard as well.

*“I, personally, perceive it as a price of leadership. I always tell and explain to my team the reason why we have to take so much action [in term of finance and effort] ..... if we do not do this, who will [be ready to] do this. We are a leading company who are the readiest and has capability in many factors to push this policy [rPET food packaging], so it is normal that we need to take more action than others. However, it is our duty to do as being a leading company” (CC & TBA, Interview, 21 May 2019).*

In analyzing the mission statements of the companies, it is important to acknowledge whether they have any global commitments, particularly commitments regarding environmental concerns. If not, there may be other issues that are prioritized over environmental sustainability. The director of the Coca-Cola Thailand shared that his friend, who works with another big beverage company, asked him about rPET packaging and Halal standard. The Coca-Cola Thailand director believes that this indicates that his friend’s company is concerned whether using rPET packaging will affect his business in terms of exporting his products to Muslim countries. This may influence his company to be reluctant to use rPET packaging, demonstrating how environmental solutions might not be the first priority of some companies (CC & TBA, Interview, 21 May 2019).

### **4.3.2 Employee Engagement in the Recycling Strategy**

From both the interviews and examination of companies' reports, there is not much information recorded about employee engagement. Interviews with Indorama and Coca-Cola included a question about how employees help to promote the company's recycling activities. Unfortunately, there was no clear answer for this question, but the interviewees instead explained that they try to educate and inform employees so that they are aware of what the company is currently doing

#### **I. Indorama**

Indorama has arranged external educational activities for many schools, and other companies, about recycling and rPET. Also, the company conducts an internal activity at the head office every month and created the campaign to collect PET bottles. For example, maids at the Indorama office are educated about sorting waste and how to properly collect water bottles. Every month the head of the CSR division provides a report of post-consumer PET collection in the office and also educates employees about the current CSR projects. Some such CSR projects include cooperation with the government on recycling activities and sharing knowledge about recycled products that the company can produce (IVL, Interview, 2 May 2019). This is a good example of the internal activities that can motivate personnel to engage in activities that are consistent with the company's mission and strategy, which in this case is recycling PET bottles.

#### **II. Coca-Cola Thailand**

Coca-Cola Thailand employs about 50 people, while the other people in the workplace are employees of Thainamthip. The director explained that internal communications are arranged every month in order for employees to receive updates from the General Manager regarding the company's progress. Currently, everyone in the company is aware of the global mission that is being pursued and knows what the company is doing to push for rPET packaging in Thailand. Sometimes, the company also organizes trips to participate in CSR activities, such as collecting waste on the beach (CC & TBA, Interview, 21 May 2019).

### **III. X Company**

Operating their business on the three principles of saving material, saving energy, and saving the world, X Company realizes the importance of employee engagement in promotion of the company's mission. For this reason, there are both internal and external CSR activities regarding waste reduction for employees to participate in so that they will understand firsthand the importance of CSR to the company's business ("X" Company Annual Report 2018, 2018). The company also has recycling activities for employees, such as the Recycle Waste Bank project which aims to raise awareness of the value of recycled materials to further encourage employees to personally participate in waste reduction. The project encourages employees to bring recyclable waste, from within or outside of the workplace, to exchange for a stamp. These stamps can then be used to receive discounts at the company's cooperative shop.

### **IV. Y Company**

From the available information about Y Company on the Stock Exchange of Thailand (SET) website, there was hardly any mention of employee engagement, especially when compared to that of the other three companies in this study. There is one CSR activity focused on building public, and internal, awareness about waste recycling. However, as mentioned earlier, the source of information for Y Company is the annual report of their glass company; so the company's recycling activities are primarily focused on waste segregation and recycling of glass bottles, not plastic bottles. The glass recycling project is carried out by inviting people in the community and company employees to separate glass waste and donate glass bottles to charity, helping to reduce waste in the community ("Y" Company Annual Report 2018, 2018).

Based on the conceptual framework, employee engagement is considered to be one of the most crucial internal factors leading to the company's success. Analysis of the data collected regarding the level of employee engagement in each of these four companies determined that in reality, employee engagement may not be as important of a factor. Rather, the important factor is whether employees are completing their assigned tasks and duties to help the company achieve its objectives. Therefore, the

leader-follower relationship may be more significant in regards to increasing employee motivation, as was shown in the case of the Coca-Cola Company. The director of Coca-Cola Thailand always encourages employees in their work, building his team's passion to perform tasks that help to achieve the mission of the company.

#### 4.4 Summary

Based on data collection in all four categories of internal company factors, the key finding is that the mission and vision statements were the most important factor in determining the direction of the company, particularly in regards to moving toward the use of rPET for food packaging. The mission and vision statements from the two companies with global commitments implied strong responsibility toward the environment, such as Indorama's vision "To be a world-class chemical company making great products for society". Additionally, headquarter-driven global missions are important for companies such as Coca-Cola, where this mission drives the operations of all branches, worldwide. This further explains why Coca-Cola Thailand is pushing for policy that will allow the use of rPET for food packaging, as it is part of the headquarter-driven global mission. The director of Coca-Cola Thailand explained that each branch must comply with the World Without Waste campaign, but they face the obstacle of legal restrictions from the Ministry of Public Health. Working to eliminate this obstacle would actually bring positive progress for Thailand in terms of addressing the country's plastic problem. Regarding their mission statements, Indorama and Coca-Cola share some similarity in terms of their explicit commitment to addressing environmental issues. However, X Company and Y Company lack such explicit commitment to recycling, implying that it may not be a priority for their company mission. While it is difficult to collect detailed data regarding the internal factors and activities of these companies, particularly in regards to employee engagement, it can be discerned that recycling strategies advocated by the company leadership will be supported through the company's operations and external commitments.

Analysis of the data further indicated that internal factors are still essential, particularly the relationships between leaders and followers. For example, the effective internal communication between the director of Coca-Cola Thailand and his employees can be attributed to their progress in lobbying the government for the use of rPET for food packaging, as seen by the FDA's more recent acknowledgement of the issue. Additionally, the values emphasized in a company's culture will shape the company's mission, as exemplified by Coca-Cola and Indorama who both emphasize sustainability in their cultures, leading to their stewardship of sustainable products.





## CHAPTER 5

### EXTERNAL FACTOR

In Chapter 5, direct and indirect external factors influencing plastic-related companies to become involved in the use of rPET for food packaging are analyzed. The chapter is divided into three parts, described as follows. Section 5.1 discusses the general environment surrounding this issue, including plastic recycling regulations in Thailand, the resources needed to support rPET businesses, technological innovation for rPET manufacturing, and the Thai socio-cultural understanding of plastic consumption. In section 5.2, task environments are examined, which include social pressure from civil society, customer demands for eco-products such as rPET packaging, and competition between plastic-related companies in the rPET business. The last section summarizes the external factors that significantly influence plastic-related companies to support the use of rPET for its products. The argument of this section is that the external factors that influence plastic-related companies the most are social pressure from civil society and the demands of the business partner, which can also be combined with the ability of the business to respond to the demands of those two factors. This will address the third research question: *What are the external factors that influence plastic-related industry to change or resisting to change toward more recycling for food packaging?*

#### 5.1 General Environment

##### 5.1.1 Politics and Law Enforcement on Producer Responsibility

To determine whether political and legal factors can influence businesses to support the use of rPET for food packaging, the regulations and policies regarding plastic recycling in Thailand should be analyzed. As already mentioned, the Thai government is currently drafting various plans to address the issue of plastic waste. A recycling strategy has, in fact, been implemented in Thailand and supported by the Ministry of Industry, based on the concept of 3Rs which are Reduce, Reuse, and Recycle. This is the strategy that the Ministry prioritizes and uses to encourage the industrial sector to recycle as much as they can. One of Thailand's plastic waste strategies to watch is the Plastic Waste Management Road Map 2018-2030, drafted by the Ministry of Natural Resources and Environment. As the Road Map has not yet been

finalized, there is no official documentation published from the Ministry. News articles have explained that the Road Map is being drafted and has mentioned the types of plastics that are going to be banned, but further detail is not provided. However, the author received a draft of the Road Map from a PCD official who is one of the PCD researchers helping to draft this Road Map and is in the committee for rPET food packaging.

The Road Map will address plastic waste in Thailand through the entirety of the plastic's life cycle from production, consumption, to post-consumption and waste management. Within this plan, the measure for reducing the use of plastic at the consumption level provides a timeline to achieve a 100% ban on seven types of single-use plastic. At the same time, this ban will be supported by the circular economy. In other words, there are two objectives of this ban, which are 1) to stop using seven types of single use plastic, and 2) to recycle or reuse the plastic again and again, as much as possible. The timeline is divided into three periods. The first period is banning cap seals and plastics with Oxo substance and microbeads by the end of 2019. The second period is banning plastic bags less than 36 microns, foam packaging, and single-use plastic cups and straws by the end of 2022. The second period will begin in 2019 and be complete by the end of 2022. The last period is focused on recycling and reusing plastic waste. The draft document states that the Road Map will start in 2018 and will achieve 100% completion by the end of 2027.

Banning seven types of plastics by following the government's Road Map is a good option to address the plastic problem in Thailand. The PCD researcher explained that within this Road Map, rPET food packaging will be included in the measure supporting producers to use eco-friendly designs that are 100% recyclable (PCD, Interview, 17 May 2019). When asked if the Road Map will be enforced by the law for Extended Producer Responsibility (EPR) on plastic products, she stated that Thailand has never enacted any law for EPR. Also, rPET packaging, which is considered eco-packaging, will not be enforced by regulation anyway. Rather, it will be a voluntary

decision for companies to switch from the production of virgin plastic to rPET. As the strategy is not going to be legally enforced, in order for it to have any effect on the plastic problem companies will have to cooperate voluntarily. In order to persuade companies to do so, PCD will request their cooperation and will educate producers regarding the environmental impacts of plastics. Memorandums of Understanding (MOUs) will be signed by producers to ensure that they agree to change, however, MOUs are not legally binding. Therefore, there is no legal power to influence plastic-related companies to shift to eco-packaging in Thailand (PCD, Interview, 17 May 2019). The expert from the Environmental Research Institute of Chulalongkorn University also commented on this plan:

*“This plan has no law to enforce. For example, setting a goal to ban microbead, cap seal, and Oxo in this year, there is no enforcement for this to punish any Oxo producer who still produces it. This is my opinion that this Road Map is very weak. It is mainly a voluntary base. There are no backup regulations..... Eventually, if producers do not comply with this goal, nothing happens.....There have never had environmental laws that can push producers to manage this” (AE2, Interview, 3 May 2019)*

Moreover, the director of the Industrial Waste Management Division also explained that there is no specific branch of law enforcement to regulate the operations of plastic producers. Rather, the role of the Ministry is to support and educate industries or producers in terms of waste management and cost reduction, and to develop policies to support the circular economy. The Ministry also has a Plastic Institute responsible for the design of packaging (MI, Interview, 1 May 2019). Therefore, due to the scope of the Ministry’s authority, most of the policies regarding plastic production developed by the Ministry of the Industry are in the form of cooperation and support, not legal enforcement. Another regulation that may be relevant to plastic producers and soft drink producers is the Notification of the Ministry of Industry regarding industrial waste disposal. This Notification includes regulations regarding the disposal of waste from

the production of alcohol packaging, non-alcoholic beverage packaging, and other plastics. However, when asked whether there is any serious pollution emitted from the plastics and beverage industries, the director of the Industrial Waste Management Division explained that the production processes of these companies operate in a closed system. For example, the molding machine, or any process that requires heating for plastic recycling, is processed using electric heating and therefore there is not much pollution emitted from these industries. Instead, there might be some water pollution from soft drink industries, but wastewater treatment is relatively easy for these industries to cope with (MI, Interview, 1 May 2019). An expert from Environmental Science of Chulalongkorn University, who has helped to identify the industry's environmental problems, elaborated more on this issue:

*“Pollution of plastic industries can be emitted in the form of VOCs [Volatile Organic Compounds] which create an undesired smell. However, the production process is operated in the closed system, it is not released to communities.....there still be some leak for some industry, but overall it is confined within industry itself” (AEI, Interview, 8 May 2019)*

## **5.1.2 Availability of Resources**

### **5.1.2.1 Financial Resources**

The four companies in this study are all considered to be successful companies within their relative markets. In the global market, Indorama is a leading company in plastic recycling while Coca-Cola is one of the biggest soft drink companies in the world. In Thailand, X Company and Y Company are among the largest plastic producers that supply several well-known companies as their customers. As these are for-profit businesses, the misconception that recycling costs less than producing virgin plastic causes some tension between the company and how they are perceived by society. In order to produce virgin plastic, oil is only raw material, so the cost of making virgin plastic depends upon the fluctuation of the global oil price. On the other hand, the process of producing rPET requires the additional costs of post-consumer PET

bottle collection and transportation of plastic waste to the recycling industries. Indorama also imports plastic waste from other countries such as Japan because plastic waste in Thailand is too contaminated. These become the costs that producers then have to bear.

When a company wants to begin using rPET, they must ensure that their economic situation can be maintained or continue to turn a profit. The expert from the Environmental Research Institute gave her opinion that if plastic-related companies want to shift from using virgin packaging to rPET packaging, they all need to start doing so together. If only a few companies start by themselves, those companies might suffer. As the cost of recycled materials is higher, the price of their products has to be increased proportionately so that their profits can cover the costs (AE2, Interview, 3 May 2019). However, the company might be unable to increase the price of the product because consumers would then prefer to buy a similar product with a cheaper price from other brands. This is particularly relevant in Thailand where many people have to consider the price over the environmental impact. For this reason, any company using eco-packaging may not be able to do so for very long (AE2, Interview, 3 May 2019). This reconfirms the Indorama interviewee's explanation that if economic problems come as a result of using rPET, the company will have to reconsider:

*“We discussed in the committee that even though the regulation allows for using rPET in the future, the cost of production rPET still be a problem because recycled plastic is more expensive than the virgin pellet. However, big companies are willing to pay because they have a commitment that they must take responsibility to society as a part of the producer's responsibility to produce products that are good to the environment. For this reason, they are willing to invest it in. Anyway, there is some concern if we need to absorb too much cost [to produce rPET], we might not be able to handle it. However, this problem can be solved if [at least] the restriction is eliminated. When the restriction is unlocked, demand [for rPET food packaging] will be increased.*

*High demand will automatically reduce the price of recycling material. Currently, there is no demand because of restriction, so materials for recycling still high” (IVL, Interview, 2 May 2019).*

#### **5.1.2.2 Material Resource**

The shift from production of PET to rPET is not easy for plastic producers in Thailand as the concept of rPET is still relatively new. Due to longstanding restrictions on rPET, many plastic manufacturers are unsure about the benefit of investing in the rPET business. Some big companies may be able to take the risk, however not all companies can do so. Many companies question the availability of feedstock, or post-consumer PET bottles, whether there is stable demand in the market, and the cost of investment (CC & TBA, Interview, 21 May 2019). As waste segregation in Thailand is not very efficient, the feedstock of PET bottles is limited, thereby limiting the availability of the primary resource necessary to produce rPET (CC & TBA, Interview, 21 May 2019). An FDA official explained the additional concern that in order to allow permission of using rPET for food packaging, every step of the process must be regulated. There are several steps for PET recycling process such as the process of collecting post-consumer PET bottles until the process of producing final production of rPET materials. However, each process is controlled by different governmental departments which they have not created standards for any process they are in charge of. Therefore, effective waste segregation systems and regulation of post-consumer PET processes are necessary to be implemented first in order to ensure the availability of feedstock for the production of rPET (FDA, Interview, 6 June 2019).

The Communications Director of Coca-Cola, who also serves as a director of the TBA, explained that there might be some plastic producers who are interested in rPET, however there is not clear information about potential profit gains (see section 5.1.2.1), a question which even leading companies, such as Indorama and Coca-Cola, cannot answer as well (CC & TBA, Interview, 21 May 2019). Members of the TBA include both plastic producers and beverage companies, with three big beverage companies, including Coca-Cola Thailand, that are lobbying for the production and use

of rPET (CC & TBA, Interview, 21 May 2019). However, when asked about the plastic producers within the association, he said that none of plastic producer seem particularly interested in producing rPET, except Indorama:

*“Some small size of plastic producers might be interested. However, to do this sufficient amount of post-consumer PET bottles must be ensured so that they will be able to produce rPET. If there is no sufficient feedstock available for them to buy, how they can produce. They might be interested [in rPET food packaging]. But the supply of post-consumer PET bottles is not realistic for now” (CC & TBA, Interview, 21 May 2019).*

*“In the recycling process, Indorama has the appropriate technology. Also, to involve in the recycling business, a network of the retailer is needed, and Indorama has a lot of dealers who can find materials for the company” (PCD, Interview, 17 May 2019)*

### **5.1.3 Knowhow Technology for Plastic Recycling**

Recycling businesses require some additional technology to produce clean recycled plastic. To produce food packaging from recycled material, the technology must guarantee that it can decontaminate 100% of chemical substances and contaminants from post-consumer bottles. This concerns the FDA, as they are not sure if any company will be able to achieve this standard. The expert from the Department of Health of the Ministry of Public Health explained that the FDA has to be concerned about using rPET for food packaging because there is a possibility that consumers misuse plastic bottles for storage of chemical substances. Moreover, they worry about the challenge of telling people that their food packaging has been made from recycled materials (PH, Interview, 8 May 2019). Several interviewees commented that many Thai people, especially the older generation, still have a negative perception of recycling. They perceive recycled plastics as waste that was collected from dump sites.

For the reasons mentioned, any company who wants to move forward with the use of recycled materials for food packaging will need to prove that their technology is advanced enough to meet the requirements of the government sector, particularly the FDA. In Thailand, not all plastic industries have a recycling plant. This can present another challenge for plastic producers to shift from producing virgin plastic to recycled plastic. For example, one of the additional processes for recycling plastic is the grinding process, which requires a grinding machine. In response to this challenge, however, the director of the Industrial Waste Management Division explained that companies without a grinding machine can ask other recycling industries to produce recycled plastic pellets for them (MI, Interview, 1 May 2019). Today, recycling technology for packaging is divided into two main types. One is mechanical recycling, which was detailed in the literature review. This is the most widely used technology in the recycling business because it is cost-efficient. The second type of technology, however, is more suitable for the production of food-grade recycled pellets. The director Coca-Cola and TBA explained:

*“There is a technology called chemical recycling being claimed that all dirt can be decontaminated if the plastic is passed through this process. This process will separate polymer, atom, and molecule of plastic that can be guaranteed that recycle pellet from chemical recycling has the same quality with virgin PET. However, today this technology is very expensive. It is so expensive that it is not worth to invest. Every time, when there is something that cannot be happened in the business sector, it is because the cost of investment is too high” (CC & TBA, Interview, 21 May 2019)*

However, he also has the same opinion as the director of the Industrial Waste Management Division that technology is not the problem. Plastic producers usually purchase this technology from companies that produce recycling mechanisms. If they want to shift from producing virgin plastic to rPET, they just need to purchase recycling



technology and install it into their industries (CC & TBA, Interview, 21 May 2019). He emphasizes that it is not about the availability of technology, but rather making the worthwhile investment. He further explained that in other countries where the use of rPET for food packaging is permitted, there is explicit demand from the market for the industry to invest in new technology. On the other hand, plastic industries in Thailand are still hesitant to invest in recycling technology for the production of rPET because they do not know if it will return a profit or when their company would be able to reach the break-even point. However, according to the economic concept of supply and demand, once this technology becomes more widely used, the price can be expected to decline, as explained by the interviewee:

*“If one day there is a huge demand from big beverage companies and the demand [for rPET food packaging] is huge enough to meet production scale of companies, companies will feel ready to invest” (CC & TBA, Interview, 21 May 2019)*

Analyzing the recycling capabilities of the three plastic industries in this study, the only company that has a complete recycling plant and the necessary technology is Indorama. As previously mentioned, Indorama acquired its recycling technology from Wellman International, which is one of the world's largest PET recycling companies. Moreover, the company has acquired other mechanisms and technology from various technological companies, which will be used in each step of the recycling process from cleaning and sorting to producing rPET pellets. Indorama's recycling processes are certified by many organizations such as Global Recycled Standard, Greenhouse Gas Verification Statement, and Intertek (IVL, Interview, 2 May 2019). Judging from an interview with an Indorama representative, the company is very prepared for the recycling business and they are confident that their technologies are safe enough to produce bottle-to-bottle recycling (IVL, Interview, 2 May 2019). Recently, Indorama invited people from related governmental agencies, such as experts from the Ministry of Industry, the Ministry of Public Health, and the Ministry of Natural Resource and

Environment, to visit their recycling industry in Nakhon Pathom. The key informant from PCD, who is also a member of one of the committees that visited Indorama's recycling industry, explained that after the visit the agency representatives were satisfied by the recycling process and that all of the recycling technology was certified by the global standard (PCD, Interview, 17 May 2019). It can be assumed, then, that it is for this reason that Indorama plays a leading role in lobbying the Thai government in support of rPET packaging, as they are ready for the rPET business and have the full capacity to produce rPET products.

*“Those who are ready to recycle will get benefit from a revision of the regulation [for rPET food packaging] while those who have no technology, for now, will lose benefit,” (AE2, Interview, 3 May 2019)*

In the interviews with Indorama representatives, not much was mentioned about the company's rPET production technology, as their positions are not responsible for this technology. However, there was a document given to the author that explained the company's mechanical recycling process, which consists of the conventional recycling process of sorting, grinding, heating, and molding. An interesting point is that Indorama recently invested in chemical recycling technology. The difference between mechanical recycling technology and chemical recycling technology is that the latter was designed in order to allow for upcycling production. In other words, chemical recycling technology can produce virgin-grade resin and food-grade packaging from low-quality, post-consumer PET. During 2017-2018, Indorama decided to partner with two technology and licensing companies in the plastic recycling industry: Ioniqa Technologies from the Netherlands and Loop's industry from Canada (Indorama Venture Sustainability Report, 2018). In the interview with the Assistant of the Vice President of Indorama, the limitation of producing food-grade packaging from post-consumer PET was explained: using conventional recycling methods, colored post-consumer PET bottles cannot be recycled for food-grade packaging, only clear plastics can (IVL, Interview, 2 May 2019). However, Ioniqa's technology can reduce all colored

post-consumer PET waste into virgin-grade resin (Indorama Venture Sustainability Report, 2018). Furthermore, Indorama purchased chemical recycling technology, called 'Depolymerization Technology', from Loop's industry, which allows for a better, more thorough decontamination process than conventional recycling (Pourriahi, 2018). Together with these two companies' recycling technology, it can be assumed that Indorama will become the most prepared company to conduct rPET business in Thailand, and possibly even in the world. Any food or beverage company, such as Coca-Cola, that wants to use rPET packaging will likely purchase from Indorama, as it is currently the most rPET-specialized company.

#### **5.1.4 Socio-Cultural Dimension**

As it has been described in the media, Thai society has a plastic addiction, and the level of plastic consumption is much higher than necessary. For example, some fruits that are already protected by their natural peels, such as bananas, are wrapped again in plastic. Additionally, many retailers in Thailand still offer too much plastic packaging for buyers, such double-layering plastic bags for just a single product. Moreover, the number of Thai people who are really aware of the plastic problem in the country and who take serious action to mitigate it is still very limited. Several interviewees mentioned that people are still unable to distinguish between the concepts of 'reused' and 'recycled', as many people believe that recycled plastic is made from contaminated plastic or is simply the plastic items picked from the landfills. They maintain a negative attitude about recycled plastic because the image of post-consumer plastics has not been clarified. When discussing the concept of rPET, some people think that it is simply a process of washing and refilling used bottles. The academic expert from Environmental Science said that although Thai people have started to gain awareness about the benefits of using less plastic, they still lack sufficient knowledge about recycling (AE2, Interview, 3 May 2019). Unfortunately, this means that awareness regarding the necessity of using eco-products does not spread very widely throughout the country. Rather, it is confined with small groups of people, such as volunteers of Greenpeace who hold assemblies to campaign for particular issues, or those who actively follow the plastic problem globally.

*“Those who care about the environment is confined to a particular group such as students who study in the environmental field. Other people, namely local people, they still have no enough knowledge about the problem, so they are not aware of this problem” (FG, Interview, 15 May 2019)*

Moreover, society’s addiction has made it very difficult to stop using plastic, as it has become a ubiquitous part of people’s daily lives. When there are only a few groups of people truly aware of the plastic problem, and rPET is still very new for Thai society, the incentive for plastic-related companies to drastically change their normal operations is quite low. An interviewee from the focus group gave their opinion:

*“Consumer behavior is not easy to change for Thai people. For instance, even though big companies announce a policy to campaign employees to stop using straws, no one follows in the first place. Although they campaign retailers in companies to stop giving straw, they still give a straw to consumers because it is their habit. It is hard to change.” (FG, Interview, 15 May 2019)*

Compared to other countries such as Europe and Japan, Thai people and Thai companies are more concerned about the price of the product than the impact on the environment. In other words, they are less likely to be willing to pay a higher price for eco-products. In the focus group discussion, interviewees were asked to choose between normal products at a low price and eco-products with a higher price. All participants chose the lower priced product, even when the product is not good for the environment. The production of rPET packaging requires post-consumer PET to be taken into a closed loop recycling process. However, Thailand still lacks proper waste management and waste sorting systems. The deposit-refund system, as mentioned earlier, increases the price of the beverage due to the addition of the PET bottle deposit cost. Increasing

the price of consumer goods is considered a sensitive issue for Thai society, one which many people will not accept.

*“Companies might perceive that today Thai people have not aware of the [plastic] issue, so it does not necessary for them to shift to other processes or produce other products that are better to the environment” (FG, Interview, 15 May 2019)*

## **5.2 Task Environment**

### **5.2.1 Customers Demand for rPET Packaging**

#### **I. Thai Consumer Preference Regarding Eco-Products in the Market**

While firsthand survey research to determine consumer perspectives and preferences regarding rPET food packaging could not be conducted due to limitations, this discussion will utilize the survey conducted by Coca-Cola Thailand. Through the Facebook Page called “Drama Addict”, a poll was initiated to ask people about their response to the use of rPET. Coca-Cola Thailand used this as an unofficial base indicator to assess public response. Created on 1 November 2018, the poll asked if people feel comfortable using plastic bottles made from recycled plastic in order to help reduce the plastic problem in Thailand. There were about 15,700 people who answered this question. The result of the poll was that 87% accept and 13% reject the use of rPET. In response to the poll, about 200 people also expressed their thoughts in the comments section, both negative and positive. Negative comments were mostly about hygiene, personal feelings, and proposing other ways to use rPET. Some such comments are listed below:

*“I will support [rPET packaging] if it is not especially for food packaging”*

*“ [rPET packaging] can be made as the bottle but should not be made to be a water bottle. [It] can be used to fill washing liquid or whatever. Although*

*it is [claimed to be] clean, when [I] drink, [I] can't stop thinking about what it was filled earlier”*

*“Should not make it to be a new bottle because it is consumer goods. It should be made to be other things such as bins or garbage bags or plastic bags”*

*“It is not right to use as food packaging or beverage packaging. [I] feel distrust on standard and agencies who will in charge of controlling the standard. However, if it is made to be other things, I would support.”*

*“I am distrust with the Thai standard because we do not know if plastic still maintains its original quality. [This is] because when plastic is recycled, its quality is decreased, leading to chemical contamination. I used to test the time cycle of plastic, and its quality is really decreased”*

While some people who commented negatively about the hygiene and questioned whether it is appropriate to use rPET for food packaging, other people noted that there are many types of food packaging that are already dirtier than recycled plastic, but Thai people have accepted these for a long time. However, those who did not express an explicitly negative comment also did not clearly support or reject it. Some examples are listed below:

*“Paper bag [with black ink] as food packaging is scarier”*

*“Plastic recycling is probably safer than reuse it”*

*“I try to think positively. Diseases [or contaminant are] probably [eliminated] since [post-consumer PET] passing through 150 Celsius [in recycling process]. So....making it as food packaging (with good appearance) should be OK”*

*“For this issue, the result of scientific research is needed to prove if it can use or not. If it is proved to be able to use, [Industries or the government] must make it clear for people to understand”*

*“In my opinion, technology is already invented, we should get the most out of it. If we just only concern about the source of the thing we consume, organic fertilizer and EM ball would not exist”*

Two months before the poll was posted, Drama Addict shared a news story published by Matchon online about the cooperation between TBA, Coca-Cola Thailand, and Indorama regarding rPET. The article partly explains the decontamination process that uses high temperatures, up to 285 degrees Celsius. When Drama Addict posted the poll, they also attached this article, demonstrating that when people understand the recycling process, they feel more comfortable with rPET food packaging. Also, the director of Coca-Cola Thailand said that the company had a research agency conduct an official survey, designed with a sample size of approximately 2000 Thai people from all over the country. The result was satisfying as more than half of the respondents did not reject rPET (CC & TBA, Interview, 21 May 2019). He expressed that the company itself has conducted many market surveys. From their experience, typically when someone did not agree with the topic being discussed, that person would clearly demonstrate their disagreement. However, this was not the case during the surveys regarding rPET food packaging, as only 30-40% of respondents demonstrated a clearly negative response. Additionally, some respondents who originally disagreed with the use of rPET changed their perspective once the company

explained the decontamination process for producing rPET bottles (CC & TBA, Interview, 21 May 2019).

Similarly, the interviewee from Indorama also shared her experience of conducting general, public surveys about rPET. She said that people have started to become more aware of plastic recycling and shared that they feel comfortable using food packaging made from rPET if the products are from reliable companies such as Coca-Cola. Also, if the products can be sold at big retailers or at shopping malls, it provides customers with a sense of security that the products are safe to consume (IVL, Interview, 2 May 2019). Similarly, interviewees from the focus group interview agreed that most people might be more likely to purchase the products if they are certified by the FDA. One of them also suggested the use of public relations to promote recycling technology by engaging with brand ambassadors, such as famous singers or actors, who can vouch for the safety of rPET bottles. As Thai people are easily influenced by the media, this could be an effective method of gaining the public's trust in rPET technology. In the focus group, participants also mentioned the power of a brand's reliability, explaining that if rPET is used by international companies or large, well-known Thai companies, then more people would likely accept it (FG, Interview, 15 May 2019).

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*“Most of the company trying to use eco-packaging seems to be big companies, so it makes us trust on products because we have consumed the product of that particular company for a long time” (FG, Interview, 15 May 2019)*

Customers are one of the most important factors that companies should be concerned about as a business's profit is directly correlated to customer purchases. Therefore, companies should listen to the demands of their customers. In this research, customers are grouped into two main types, based on their relation to the type of plastic consumed. The first group consists of consumers who purchase items in plastic packaging and are thereby customers of plastic producers, such as beverage companies.



The second group consists of consumers who purchase the final products sold in the market.

*“Every business is moved by incentive, and there are not many things that give a direction to business to move in a certain way. The important group that businesses care the most is consumers. If they explicitly say that they want rPET bottle because they want to help alleviate the environmental problem, all businesses, definitely, need to listen to them” (CC & TBA, Interview, 21 May 2019).*

As already mentioned in the discussion regarding the Thai socio-cultural context regarding eco-products, the proportion of Thai consumers who would prefer recycled products to non-recycled products is limited (see section 5.1.4). The number of responsible consumers who want to use eco-products has to be quite large in order to influence companies to switch to an alternative product, such as rPET packaging.

## **II. The Demand of Business Partners in Regard to rPET Material**

Regarding the demands of business partners, the situation of Chula Zero Waste project can be used as an example. Participants in the Chula Zero Waste project focus group shared that the plastic supplier of the University complained about the decreased demand for plastic packaging from the University after this project was initiated as it impacted the company's revenue (FG, Interview, 15 May 2019). The participants further explained that as the policy in support of this project had already been approved and implemented, it could not be changed and therefore the University has to change to eco-friendly packaging. This puts pressure on the supplier to produce eco-friendly packaging if they want to maintain Chulalongkorn University as a customer. Currently, PTT Global Chemical (PTTGC) is the main supplier of the zero-waste cup for the University (FG, Interview, 15 May 2019). This example demonstrates that the demands of business partners directly impact the suppliers.

In the PET business, beverage companies are considered to be one of the main customers of PET packaging from plastic producers. Therefore, if a plastic production company's business partner has a demand for rPET or eco-packaging, the production company needs to find a way to meet their demand otherwise they will lose profit. The loss of revenue can be significant if the production company cannot produce the materials demanded by their main customers.

As plastic producers, Indorama, X Company, and Y Company each have their own business partners to whom they supply PET packaging. Identifying some of their partners can help to explain the plastic producers' motivation to begin producing rPET. The Coca-Cola Company is one of Indorama's main business partners worldwide. In other countries, Coca-Cola chooses Indorama as its main supplier and they are able to maintain direct contact in regards to trade and business (IVL, Interview, 2 May 2019). In Thailand, however, the trade structure for PET materials is different, as it must be conducted through a middle man or by way of bottling companies (IVL, Interview, 2 May 2019). For Coca-Cola Thailand, their bottling company, Thainamthip, is responsible for purchasing PET packaging on behalf of Coca-Cola. Thainamthip does not use Indorama as its only supplier due to the risk of having only one supplier for product materials. However, Indorama is still one of Thainamthip's major suppliers (CC & TBA, Interview, 21 May 2019). Although Coca-Cola Thailand does not purchase beverage bottles itself, the company has its own guiding principles to determine its packaging suppliers, which is provided to Thainamthip to identify qualified companies. These companies must be approved by Coca-Cola before making any agreements for purchase (CC & TBA, Interview, 21 May 2019). Coca-Cola Company's guiding principles were created to ensure that potential partners share similar values with the Coca-Cola Company so that they can build a good working relationship (Supplier Guiding Principle, n.d.).

*“We as a franchisor are the one who specifies the standard of supplier that those who sell material for us must not involve in child labour, community’s exploitation, and environmental exploitation, for example. Then, we will have an audit to check the standard we specify.....we need to make sure that our supply chains are sustainable otherwise problems can happen” (CC & TBA, Interview, 21 May 2019).*

However, Indorama and Coca-Cola have both been involved with recycled packaging long before they became partners. As they share a mutual interest in the support of rPET, they began working together in 2017 and have been advocating together for the use of rPET for food packaging in Thailand.

*“Coke has stated even before us. They were finding others that also recycle and the company found Indorama, so it is a perfect combination” (IVL, Interview, 2 May 2019).*

The interviews with Indorama and Coca-Cola did not explicitly identify who was first to become involved in the production and use of rPET. However, it can be assumed that Coca-Cola Company, as one of Indorama’s biggest customers, motivated Indorama to invest in chemical recycling technology for the production of rPET through the joint venture with Loop industry. Loop industry also signed a multiyear agreement with Coca-Cola bottlers in the United States to supply rPET packaging, as produced by its joint venture with Indorama, to help Coca-Cola achieve its mission of increasing the amount of recycled content in its beverage bottles (Toto, 2018). As the Coca-Cola headquarters in the United States has agreed to use rPET as supplied by Indorama, it is highly likely that if Thailand permits the use of rPET packaging, that Coca-Cola will again turn to Indorama to supply its beverage bottles. Another one of Indorama’s big customers is Unilever, who, according to press releases, set a commitment to switch to

recyclable packaging by 2025. This is another reason why Indorama joined the PET recycling partnership with Unilever and Ioniqa (Unilever, 2018).

Unlike Indorama, customers of X Company and Y Company tend to be local beverage companies that do not implement CSR strategies focused on recycling. For example, one of their shared customers is Sermsook Public Company Limited whose business purchases PET bottles for several of its beverage brands including Crystal Drinking Water, EST, and Oishi. In 2018, Greenpeace investigated plastic debris in a selected area of Thailand determining that Sermsook bottles were among the highest proportion out of local brands (Greenpeace, 2018). Crystal Drinking Water recently implemented a strategy to no longer utilize plastic sealing on their bottle caps, joining four other water bottle companies to lead this movement. Moreover, Crystal also became the first company in Thailand to receive a “Carbon Footprint Reduction” label from the Thailand Greenhouse Gas Management Organization and Thailand Environment Institute under the Federation of Thai Industries (Sermsook Public Company Limited, n.d.). Although Crystal, who purchases PET bottles from X Company, has implemented actions in response to the issue of plastic waste, there seems to be no intention to switch to rPET bottles, regardless of pressure from Greenpeace.



### **5.2.2 Competition in the rPET Business**

As plastic waste continues to pollute our environment and oceans, more and more people from around the world are demanding behavioral change. There is also growing demand for plastic-related companies to help society achieve such change. In Thailand, over the last two years many retailers, shopping malls, and petrochemical industries have campaigned to use less plastic. Some shopping malls have 'No Plastic Bag Days'. These movements and campaigns can be seen as a competition to show the public that they are environmentally responsible, which in turn can lead to a good reputation, good brand image, and support from the people. A participant in the focus group interview expressed that today this seems to be the trend. If one company

campaigns against plastic and another does not, comparison between the two companies can lead to a negative brand image for the company that is not actively campaigning (FG, Interview, 15 May 2019). Competition also occurs between plastic producing companies, particularly in regards to recycling.

*“If they want to remain competitive in a world where consumers are more and more concern about the environment and individual footprint. If they can say our bottles are recycled, then people might more willing to buy their product instead of competitive products” (FG, Interview, 15 May 2019).*

Many industrial sectors are driven by competition among companies that produce a similar product. However, after collecting data from various actors, the current state of the rPET business shows signs of being a monopolized market by Indorama. Even if there is some competition in this type of business, there are not many competitors, as this type of business requires large capital investment. The director of Coca-Cola Thailand and the TBA explained that the petrochemical business is very investment dependent. Not all companies participate very easily as there are not many companies who have the financial capital to open a new production line. Most of the companies that do so are already in the petrochemical sector and investing in the rPET business can be an extension of the company, such as with PTT who is currently investing in a new recycling business (CC & TBA, Interview, 21 May 2019).

*“Currently, it seems that Indorama is the only company who can produce rPET, but PTT is going to invest in this business. PTT, if the company want to be a significant player in this market, it needs to involve in this business competition” (CC & TBA, Interview, 21 May 2019).*

A researcher from PCD also expressed that in Thailand, only Indorama can supply the demands of big companies, so not many plastic producing companies intend to compete with Indorama (PCD, Interview, 17 May 2019). This indicates that if there were to be any competition in the rPET business, it would be the competition between the two biggest petrochemical companies in Thailand: Indorama and PTTGC. In late 2018, The Stock Exchange of Thailand (SET) reported that PTTGC was investing 1 billion baht in the establishment of recycling plants for single-use plastics at Rayong Industrial Estate in Map Ta Phut with the goal of drastically reducing single-use plastics within the next five years (Praiwan, 2018). However, the information available in the news and on the PTTGC website does not explicitly mention product stewardship of rPET, but it does mention about the process of up-cycling for the circular economy. Even though today Indorama is considered to be the only rPET producer in Thailand, the FDA restrictions severely inhibit true competition from taking place. Once rPET production is permitted, these two companies will be the first to compete in the recycling business. They are likely already competing with one another to become the most significant player in Thailand's recycling business.

*“rPET is a new market in Thailand. Taking post-consumer PET to make other types of products is widely made by many industries. However, if some company can make bottle-to-bottle recycling, that company will become the first company in Thailand. They can first gain customer which is its competitive advantage.....Being the first company that able to do is something matters”*  
(AE1, Interview, 8 May 2019)

It can be understood, then, that this situation is about the competition of recycling technology. Those who have sufficient financial capital to invest in new product lines and technology for the production of rPET for food packaging will have a comparative advantage over other companies that have limited financial capacity and technological resources (see section 5.1.3).

### 5.2.3 Public Attention to Plastic Companies Regarding Plastic Debris

#### I. Media as a Watchdog

Due to the media's role as a global channel for news, Thailand has recently earned a relatively negative reputation in regards to plastic pollution in the ocean. Since 2017 the media has been publishing news about marine animals' death due to plastic consumption. Last year, there was a pilot whale that died with 80 pieces of plastic in its stomach. Following the whale's death, a green turtle in Chantaburi died because plastic waste was clogged in its intestine, making it unable to eat and survive. Additionally, there were 23 sea turtles found dead in Phuket and Phangan because they were trapped by plastic waste. These stories gained public attention not only in Thailand but also on a global scale.

*“News that get public attention is the news reported that Thailand is the 6th country contribute plastic waste in the Ocean and the news about dead whale eating plastic. These two stories, I have seen the emergence of many new Pages such as ReLief and Lesswasteforwhales. Every Page was created for expressing that we need to use less plastic” (NGO, Interview, 9 May 2019)*

*“After there was news about a whale with plastic in the stomach, turtle's death because of plastic straw, people start to pay more attention to... Moreover, celebrities start to involve in campaigning for using less plastic bag, so it makes society realize about plastic problem in Thailand.” (CS, Interview, 18 May 2019)*

The journalist from The Nation explained that when the media hears of rumors speculating the misbehavior of a particular company, they are required by media ethics to ask the company for a response, signaling to the company that the public is already watching their behavior (CS, Interview, 18 May 2019). When asking the journalist if a direct attack by identifying the name of companies will influence producers to take

more responsibility and action, the journalist further explains why identifying companies by name is an inappropriate decision:

*“I think direct attack does not help that much, and it also ruins the company’s reputation which journalists can be sued. Actually, publishing news is enough for demanding producers to take action. For example, we call and ask them that we got some evidence that your companies create too much plastic waste do they have any solution for it.....Asking them [about existing evidence] is like telling them that society is watching them to do something [on environmental issue created from their businesses]. It is like a signal” (CS, Interview, 18 May 2019)*

The journalist also expressed that he has published news articles about the campaign activities of Greenpeace Thailand regarding the plastic issue. After news spread about various companies’ contribution to the issue of plastic waste, he saw some companies start to take action in an effort to resolve the problem. For example, Sahapat Company, which is a Thai distributor of consumer goods, was ranked 5th in Greenpeace’s 2018 Brand Audit Report on Thailand whose plastic debris is mostly found. After the report was released, Sahapat Company announced the implementation of CSR projects that aim to reduce plastic use (CS, Interview, 18 May 2019).

## **II. Pressure from Civil Society**

Greenpeace is one of the main NGOs campaigning about the plastic problem in Thailand. They have a global project called “Break Free from Plastic”, in which the organization visits locations where waste management is ineffective. In 2018 Greenpeace conducted a Brand Audit in Chonburi to identify which company’s plastic packaging was polluting the environment most, particularly the ocean (NGO, Interview, 9 May 2019). The result of the Brand Audit found that the top five companies whose plastic waste was found most included the food packaging from Dutch Mill



Group, Coca-Cola Company, and CP Group (Greenpeace, 2018). After the results of the brand audit were finalized, Greenpeace organized a press conference to share the audit results and plans to do this again in 2019 in order to target Fast Moving Consumer Goods companies (NGO, Interview, 9 May 2019). However, when asked about plastic production companies' response after Greenpeace demanded them to take responsibility for their role in the issue, she explained that:

*“For Greenpeace Thailand, last year we only organized a press conference. For this reason, we were not sure that the movement of companies toward plastic problem was actually because of Greenpeace..... This year we will do Brand Audit again, we will choose the top 2 or top 3 [companies in the result of the Brand Audit] so that we will communicate with the brand. However, we still not sure in what way we will use to communicate with those brands. We need to decide again” (NGO, Interview, 9 May 2019)*

The Brand Audit identified Coca-Cola as one of the main contributors to plastic waste, so a petition was made for Coca-Cola to take reconciliatory action in Thailand. However, the informant clarified that Greenpeace in Thailand does not target Coca-Cola specifically. Instead, the United States targets Coca-Cola because it is ranked 1st in the country as a contributor to plastic waste (NGO, Interview, 9 May 2019). In 2017, there were several news articles published about Greenpeace activists protesting in front of Coca-Cola's headquarters in London by blocking an entrance with the sculpture of bird vomiting plastic waste. It was reported that Coca-Cola is falling behind many other beverage companies who have committed to taking responsibility for its plastic bottles, including PepsiCo and Suntory who use 100% recycled material for their bottles (Vonberg, 2017). The Coca-Cola Company has faced massive pressure from Greenpeace after they published the Greenpeace Impact Report on Coca-Cola called 'Choke', which used the phrase 'Don't let Coke choke our oceans'. In the report, it was revealed that in 2017, Coca-Cola was not on track to achieve their commitment to increase the company's recycling rate in developed countries to 75% by 2020. In fact,

the company's recycling rate instead showed signs of declining by 4% according to analysis of Coca-Cola's data from 2013 to 2015 (Greenpeace, n.d.). This is what instigated Greenpeace activists to target Coca-Cola at the beginning of 2018, continuing even today. Greenpeace volunteers have gathered at Coca-Cola's headquarters in various countries to pressure the company to develop a strategy addressing their role in plastic waste (Brown, 2018). Judging from the timeline, directly following Greenpeace's petition and demonstrations, Coca-Cola Company announced the World Without Waste strategy to address the issue of plastic waste. This strategy now has to be implemented by every Coca-Cola branch in the world.

*“Currently, big companies such as Coke are attacked by Greenpeace because the company produce a large volume of a plastic bottle. For this reason, the company will try to create an image that the company do care environment” (PCD, Interview, 17 May 2019)*

During an interview with the Communications Director of Coca-Cola, he admitted that Coca-Cola is one of the main companies that uses a lot of plastic bottles, further impacting the environment. For this reason, it makes sense for the company to take responsibility for their action.

*“Coke has realized that if we have not done this.....Currently, we have already received a lot of pressure. When there is a red bottle found, we are the first one to be blamed. Even though we have an environmental commitment, we are still blamed” (CC & TBA, Interview, 21 May 2019)*

He also mentioned that NGOs are one of the actors that can significantly impact the direction of the company because NGOs work to raise awareness by either directly or indirectly attacking companies (CC & TBA, Interview, 21 May 2019). He expressed that no company wants to be seen as evil in the eyes of the people. Coca-Cola has more

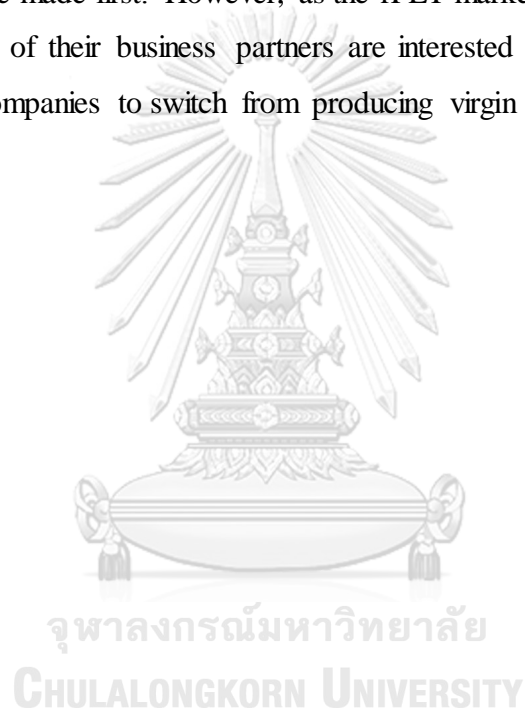
recently been receiving massive complaints about its plastic bottle. While Coca-Cola has to face global pressure, other brands, such as local beverage companies, do not face as much pressure as Coca-Cola and therefore may not see eco-packaging as a priority for their company. However, if they were to face the same pressures as Coca-Cola, they would likely respond in a similar way (CC & TBA, Interview, 21 May 2019).

### 5.3 Summary

From the data collection regarding external factors that influence the behavior of plastic-related companies, it can be concluded that the absence of regulations on producer's responsibilities for plastic waste allows for companies to choose which material they prefer to use, either virgin plastic or rPET. Therefore, this factor cannot influence companies to support the use of rPET for food packaging in Thailand. Based on the results of data analysis, the external environment's influence can vary depending on the nature of the company. In other words, the main external factor that shapes the behavior of companies that use plastic packaging, such as Coca-Cola, and that of companies that produce plastic, such as Indorama, X Company, and Y Company, are from different sources. The external factor that significantly influences the operations of beverage companies like Coca-Cola Company seems to be pressure from civil society groups such as Greenpeace that depict the image of the beverage company as a culprit of global plastic waste. This pressure often influences the beverage company to announce global missions taking responsibility on this issue by committing to the use of rPET packaging and reducing plastic bottle waste.

On the other hand, the motivation for plastic producers to produce rPET seems to be influenced by the demands of their business partners. The producers must respond to the demands of their partners, whether they are able to achieve them or not based on their financial capacity. As recycling technology requires investment, the availability of financial resources is correlated to the availability of technology. Therefore, those who have the capacity to invest in recycling technology to produce rPET for food packaging will be successful in meeting the demands of their business partners. Even

though in Thailand the rPET market does not yet exist due to legal obstacles, a company such as Indorama, who has the technological capacity, can prepare for when the legal situation changes. Combined with the demand of its business partners who want to use recycled content in their bottle packaging, Indorama can be confident that there will be a market for rPET products. Unlike Indorama, X Company and Y Company have not yet become fully involved in the recycling business. Their technological capacities for recycling post-consumer PET might not as advanced as Indorama, or may not even be installed in their factories. To open a production line for rPET, the technological investment must be made first. However, as the rPET market in Thailand still does not yet exist and none of their business partners are interested in using rPET, there is no reason for these companies to switch from producing virgin plastic to rPET.



## CHAPTER 6

### CONCLUSION AND RECOMMENDATION

This chapter concludes the results of the research findings from the data collected from different key actors who played a role in transforming the behavior of their business toward a focus on eco-packaging, particularly rPET food packaging. The first part of the chapter concludes the key findings from the interviews to answer the main research question: *Under what internal and external conditions will plastic-related industries become more likely to move forward for PET recycling for food packaging in Thailand?*

#### 6.1 Summary Statement of the Findings

From interviews with several key actors who are a) part of the various committees reviewing the notification of FDA, including the Ministry of Industry, FDA, Department of health, TBA, and the two leading companies which are Indorama Venture and the Coca-Cola company; and b) people from civil society such as academic experts in the environmental field, environmental researchers, and NGO representatives, it was determined that external factors have a strong influence on business behavior by shaping internal operations. Some factors create a major impact, while some create little impact. However, the factors that influence some companies to move forward with production of rPET for food packaging can at the same time become obstacles for other companies to do the same.

##### **6.1.1 Being a Global Company with a Global Mission and Being Directly Attacked by Civil Society such as International NGOs**

First and foremost, in order to be directly attacked by NGOs such as Greenpeace, the company needs to be large enough to create a widespread impact on the environment, either on a global or national scale. After conducting the research with Greenpeace, it was found that international beverage companies, such as Coca-Cola Company and other big Thai beverage companies including CP Group, are the

ones that are primarily targeted by NGOs. The bigger the companies are, the more they are watched by civil society. This study found that out of the other international beverage companies, Coca-Cola Company has received the heaviest attacks from Greenpeace and other environmental activists around the world. Activists who believe that Coca-Cola Company plastic bottles are polluting the ocean have lodged complaints and petitions against them. Greenpeace even published a special report revealing the environmental performance of the company, showing that Coca-Cola failed to address the plastic issue as they promised. For this reason, the World Without Waste project was developed in response as a global commitment to plastic waste reduction. This was also done in an effort to demonstrate that the company is not ignoring the problem and is taking responsibility for the impact of the Coca-Cola bottle as was asserted in the petitions. As a global company, Coca-Cola operates in many different parts of the world, including Thailand. As Thailand is one of Coca-Cola's most significant markets, they need to make sure that their product will cause the least amount of environmental impact as possible, otherwise it risks losing a big market share in the country. External forces, such as social pressure, have driven companies like Coca-Cola to develop global social missions. The World Without Waste project has become a driving *internal* force for Coca-Cola around the world, ensuring that all international branches are operating in compliance with the headquarters social mission.



Once an internal force, such as the mission statement, is established, a global company's direction becomes more easily accessible for its international branch companies. One of Coca-Cola Company's global commitments is to incorporate recycled content in their plastic bottles, which has already been achieved in many countries except Thailand. Use of recycled plastic in food packaging has been prohibited in Thailand for about 14 years. To achieve the global commitment of the company's headquarters-drive mission, then, it is the duty of Coca-Cola Thailand to actively lobby the government, particularly the FDA, to revise the regulation and allow for food packaging to be made from recycled materials. In short, there is a correlation between the external factors and internal factors surrounding the company. It can be

said that the external factor of social pressure shapes the mission of the company, which is an internal factor, to then be consistent with the external factor. The external factor of social pressure, as asserted by Greenpeace, for Coca-Cola to take responsibility for its own product, has shaped the internal factor of Coca-Cola Company's mission statement, and relevant actions, to meet society's demands.

### **6.1.2 Being Driven by the Demand of Customers with Its Own Capability to Support rPET Production**

Plastic producers such as Indorama, X Company, and Y Company, are more likely to be driven by the external factor of the business partner's demand for eco-packaging, not by social pressure like the Coca-Cola Company. In other words, if a plastic producer has business partners who aim to switch from using virgin plastic packaging to using rPET packaging, and the producer has the ability in terms of financial and technological capacities, they would not hesitate to change their production, which was obvious in the case of Indorama Company. However, it might not be reasonable to compare Indorama, who already has recycling technology, with X Company and Y Company who do not have the relevant capacities to invest in the recycling business. This thesis aims to show that customer demands, in terms of business partners, is one of the most significant factors that motivate companies to invest and participate in rPET production. As mentioned before, recycling technology, such as chemical technology, requires a huge investment from plastic production companies. This is typically the purchase and installation of decontamination technology. Of course, large companies will have more financial capital to invest in opening a new product line, such as rPET, through the purchase of relevant technology. However, after interviewing several informants it was determined that the cost of technological investment is actually not the main problem. Currently, the demand for rPET products is not high enough to make such investments cost-effective, however, as long as the demand is increasing, those companies who do not yet have recycling technology will be more likely to invest to fulfill the demands of their customers.

### **6.1.3 Absence of Incentive for Shifting to rPET Food Packaging**

Unlike Indorama and Coca-Cola Company, the research found that there is no incentive for X Company and Y Company to change from the production of virgin plastic to rPET plastic. This comes from a combination of factors, including no legal enforcement of eco-packaging, no demand from customers, and little pressure from civil society. These companies are typical Thai companies whose business partners are mainly also Thai. Due to Thailand's restriction on the use of recycled content in food packaging, local beverage companies do not create a high enough demand for rPET food packaging, leading to an absence of pressure from business partners. This is also linked with the absence of environmental laws that force companies to use eco-packaging. When there is no demand in the market, it is expected that plastic producers will not be interested to invest in something new without the guarantee of purchasing customers. Comparing the size of the three plastic producers in this research, even though X Company and Y Company are quite large in Thailand, they are not as large as Indorama, which is a global company and has customer bases in many parts of the world. Although the use of rPET for food packaging in Thailand is still prohibited, Indorama might not be very effected by this regulation as they are still able to export rPET food packaging to other companies overseas. On the other hand, if plastic producers whose customer bases are mainly in Thailand, such as X Company and Y Company, investing in technology before the existence of a stable market for rPET food packaging might be too high of a risk and could lead to a future loss in profit.

In addition, the level of social pressure is not as intense as it is for a global company like Coca-Cola. Perhaps X Company and Y Company have been received complaints about this issue. For this reason, there is no external force or incentive to influence companies with similar characteristic as those of X Company and Y Company to pursue a company mission on product stewardship. Instead, they can simply demonstrate that their company acknowledges the plastic problem and will use other strategies to address it, choosing those that will generate the most benefit for their company.



## 6.2. Implication of the Study for the Theory of Business Behavior

Overall, based on the above findings, combining organizational environment theory with the institutional theory of CSR successfully contributes to this body of knowledge by explaining why companies engage in CSR activities. It helps to show that a company's CSR projects are really driven by pressure from institutions, not by the company's own interest or will. Rather, it is influenced by external factors, which shape the internal operations of a company. In theory, each environmental factor seems to be explained as a separate thing, but in reality, the research findings show that these factors are not completely separate. In other words, some of these factors are influenced by other related factors and it is actually a *combination* of several factors, especially the correlation between external factors, that influence companies to pursue rPET food packaging. For example, Indorama and Coca-Cola Company would likely not be able to support rPET food packaging if they did not have the economic capacity, demand from business partners, and relevant technology. Having only one factor would not be enough to drive the transformation of business operations. For instance, if Indorama has the technological capacity to produce rPET food packaging, but there is no demand from customers, their production of rPET food packaging might not last long. Also, if the Coca-Cola Company only faced social pressure, it is unlikely they would change their business behaviors. A company, particularly one with a global customer base, must also have the financial capacity to transform their whole operations strategy.

### 6.2.1 Theoretical Contribution on the External Factors

Another point of theoretical contribution is based on research findings regarding the external environment, as evidence supporting and contradicting the conceptual framework of this theory were found. For the external environment, findings show that it is important to note each country's different context, including regulations, economy, and culture. Not all companies in the world whose products create an impact on the environment will experience all the same external factors that influence them to take responsibility for environmental issues. This explains why the

main factor influencing companies to behave in a particular way can vary depending on the context of the country in which the business is operating. In the case of Thailand, the use of rPET for food packaging is prohibited. However, the expert from Chulalongkorn University noted that Thailand has no enforcement for EPR, and therefore this prohibition is not strictly regulated. It can be assumed, then, that even if the government allowed the use of rPET for food packaging, not many companies would be interested as there is nothing forcing them to switch to eco-packaging anyway. Where environmental regulations and policies are limited and weak, there is no requirement to control the company's plastic production in terms of whether or not they produce eco-packaging. Even though today there are some companies that have started to become concerned about eco-packaging, it is on a voluntary basis. For this reason, it can be said that political and legal dimensions play a role in influencing businesses to pursue the manufacturing of products that have less negative impact on the environment. However, this study concludes that the institutional theory of CSR provides a relevant conceptual framework to explain the important role of civil society. As it is explained by the institutional theory of CSR, when the state government is ineffective in the regulation of business operations, social pressure will become the main regulating force on business behavior. For example, the Brand Audit launched by Greenpeace that revealed the name of companies whose plastic debris were found the most in the location they conducted the project. If those named companies are not a global company whose headquarters might also receive external influence from other countries, it is necessary for watchdog activists to put pressure on them. Without public pressure, local companies in Thailand are unlikely to change as there is no legally binding regulation to influence them.

However, the contradiction between the research findings and the conceptual framework is the factor of competition. The organizational environment theory provided a framework that acting as a monopoly leads to social irresponsibility. On the contrary, the findings show a different result. For example, Indorama can be considered a monopoly of the rPET market in Thailand, as there is no dimension of

market competition. However, the company still actively engages in CSR and strongly lobbies in support of rPET food packaging policy. Being a monopoly and maintaining environmental responsibility might not always be the case for other types of business sectors, particularly those whose product does not create negative impacts on the environment. However, in the case of plastic-related companies CSR does matter, as these companies cannot ignore their environmental impact in terms of product stewardship. It can be assumed that Indorama understands that when rPET food packaging is permitted in Thailand, coupled with the global trend of eco-packaging, they will gain high profits as the only company with the ability to produce rPET products and therefore engage in CSR to maintain their image as a leader in this regard.

### **6.2.2 Theoretical Contribution on the Internal Factors**

Regarding the internal environment, the findings agree with the concept provided by the organizational environment theory that the mission of the company provides significant guidance for business operations. One suggestion in the application of this theory to study business behavior is to analyze the origin of the company's mission statement as to whether it was created by the company in a particular country or if it comes from the overseas headquarters, such as the case of Coca-Cola Thailand. For this reason, it is also valuable to study the impact of the global mission of companies, if those companies are international businesses. However, due to limited information, the internal factors of leadership, employee engagement, and organizational culture, in reality, are hard to observe. In theory, it might be able to predict how the company is affected by the internal factors that further influence the practices of a company. However, the empirical evidence of internal factors could not provide sufficient findings for the thesis. Outsiders, including the author, cannot understand in depth the actual internal communication among employees, activities practiced in companies, or company culture that personnel engage in. The best way to analyze the internal environment of a company is to become an employee of the company and observe internal operations. However, this is beyond the scope of the research. For this reason, the thesis might not be able to contribute further to the theory that is applied in the thesis.

### **6.3 The Trend of Using rPET for Food Packaging as a Solution for the Plastic Issue in Thailand in the Future**

Compared to other countries in ASEAN, Thailand can be considered as the most prepared to enter the rPET market because the country already has facilities to support rPET production. However, it is also surprising that Thailand is the only country that has restrictions on the use of rPET for food packaging. Thailand also has the capacity in terms of recycling facilities and the informal sector, which could help to collect post-consumer PET and bring it back into the closed loop of plastic production. Although there are not many companies who can produce rPET materials today, the petrochemical industry of Thailand is very productive, placing Thailand as one of the largest exporters of plastic products. In addition, Indorama, the largest global producer of rPET, and PTT, who is considering becoming involved in the recycling business, are located in Thailand. As mentioned, these two companies might become competitors, but, together with a strong informal sector, they will be able to supply the large demand for rPET products in the future.

Many people have suggested other solutions to the plastic problem in Thailand, such as using less plastic. However, changing consumer behavior is very difficult, especially for Thai people who have been familiar with plastic consumption for a long time. Decreasing the use of plastic means changing the social practices and culture of Thai people. As previously mentioned, Thai people's awareness of the plastic problem is limited as many people believe that the problem has nothing to do with them as an individual. Furthermore, changing consumer behavior takes time and might not be easily changed even within one or two years. For this reason, it is more effective to deal with plastic producers and companies that use plastic packaging by asking them to take more responsibility for recycling strategies, rather than wait for people to use less plastic. This is because the number of actors in the industrial sector is much smaller than that of individual consumers in the whole country. This does not mean that consumers' behavioral changes are not significant, but rather that these changes should be made simultaneously with changes in the industrial sector. Therefore, attempting to

change the behavior of manufacturers is the more obvious entry point to impact the whole plastic system in Thailand, as campaigning for individuals to use less plastic is not very effective.

## **6.4 Recommendations**

Due to the challenges faced in solving Thailand's plastic problem and in permitting the use of rPET for food packaging as discussed, the thesis proposes the following recommendations, categorized by each key actor.

### **6.4.1 Recommendations for NGOs**

In terms of rPET food packaging as one of the solutions for the plastic problem in Thailand, Greenpeace has recently suggested a more radical solution. From the interviews it was determined that the highest goal of the organization is to completely ban all types of plastic in Thailand because the organization has perceived that recycling is not the most effective solution. Of course, if Thai people could completely stop using single-use plastics it would be good for the country, however, changing consumer behavior is very difficult, and it is even harder in countries where the provisions of convenience for people to stop using plastic are not available. For example, if Thailand completely prohibited plastic water bottles, how could people access drinking water when they are outside? This is an ongoing question as more people today carry refillable bottles, but do not trust the public water resources such as drinking fountains and refill stations. This is linked to the recommendations for the government, which will be discussed in the next section. The recommendation for NGOs in Thailand is that they should take part in forcing the government to take serious action regarding eco-packaging, rather than asking for a complete ban on all type of plastics. During the past five to six years it was quite hard for any organization to work with the military government. However, the current and future political situation may be easier. NGOs can put more pressure on the Thai government by using mass media, such as commenting on the ineffectiveness of governmental policy for plastic recycling and telling the government that their policies regarding plastic use

and production are too weak.

In Thailand, it seems that Greenpeace is the primary NGO that really puts pressure on companies. However, all NGOs in Thailand should put pressure on plastic-related companies to be more responsible for the impact of their products. NGOs can use the results of Greenpeace's Brand Audit to petition those high-ranking companies to signal that they are being watched by several NGOs in regard to their plastic production and packaging. NGOs can also propose suggested solutions for companies and keep watching to check each company's response.

#### **6.4.2 Recommendations for the Government**

Judging from the interviews with several members of the committees reviewing the notification of the Ministry of Public Health, there is a possibility for Thailand to allow for the use of rPET for food packaging. Through a review of the process to loosen the restrictions on the use of rPET for food packaging, it has positively progressed. However, if in the future the Thai government would like to promote the use of food packaging made from rPET, several things need to be done first. As mentioned, Thailand has never implemented any regulations to enforce producer's responsibilities in terms of their product stewardship. Even the Plastic Waste Management Road Map 2018-2030, was not developed to be enforced by the law. Therefore, in order to effectively enforce regulations, either incentive laws or disincentive laws can be implemented with plastic producers. Currently, the cost of producing virgin plastic is cheaper than producing rPET plastic, according to the studied companies. In order to make the plastic-related companies more interested in the use rPET packaging, the cost of rPET materials and final products should not differ too much from that of virgin plastic. Environmental tax measures may prove effective, including tax deduction for companies who use rPET and recyclable packaging; or tax collection for any company using virgin plastic or non-recyclable packaging.

Moreover, packaging laws should be in place such as the requirement for an identification mark for recyclable products. The interviewee from Indorama expressed that one reason it is so hard to recycle in Thailand is because the country has no laws requiring plastic producers to display identification markings on the packaging. It is the producer's voluntary decision whether or not to put the identification marker on their packaging. In other words, not all plastic products in Thailand are marked by the Plastics Identification Code, so people do not know whether their packaging is recyclable or not. As an example of a contrasting situation, Japan has "The Containers and Packaging Recycling Law", which requires all sizes of businesses to identify the recyclability of the product. This is not only for PET packaging, but also steel and aluminum cans, making waste sorting much easier. Japan has standardized the size of the marker and the area in which the identification code is placed on the package, and any company that fails to comply with these regulations will be subjected to a penalty. Additionally, every single part of the packaging must be marked. For example, every component of a PET bottle must be marked, including the cap ("The Containers and Packaging Recycling Law," n.d.).

In order to stop the use of plastic bottles, the government needs to invest in public water systems or clean tap water. Drinking water is not comparable to other types of beverages because people have to drink water continuously, and therefore it needs to be refilled. Currently no Thai people feel comfortable drinking tap water. People's perspective toward public water is that it is dirty, especially the tap, even though the government claims that it is clean and hygienic. Almost all public water fountains in Thailand are located by the road and are not covered to protect the water from rain and dirt. One solution could be that the location of the public water fountain should not be in an open area and could instead be located in a 7-11, a super market, or a shopping mall. Another solution could be investing in water filling machines that allow people to buy water to fill their refillable bottle. This would be a better solution than continuing to sell water in plastic bottles. The government can provide concessions to the private sector to invest in water filling machines and make sure that the machines are widely located in accessible areas throughout the country.

## 6.5. Further Research

This thesis emphasizes the transformation of company behavior toward rPET food packaging as it is influenced by several internal and external factors. That being said, this thesis does not touch on the role of the government to solve Thailand's plastic. However, in the context of Thailand, it is also useful to study the transformation of regulations and restrictions on the use of rPET for food packaging. For example, acknowledging that several governmental agencies have a mandate to supervise and monitor different steps in the rPET recycling process to ensure sanitation of post-consumer PET material. Furthermore, development of a legally binding environmental policy to require company responsibility for the environmental impact of their plastic packaging is vital as this kind of legal enforcement is currently absent in Thailand. Accordingly, key areas for further research are:

1. Measure the regulations of relevant governmental agencies to supervise and monitor each recycling process, from waste sorting to final production of rPET packaging.
2. Analyze the impact of tax incentive and disincentive policies in the regulation of plastic-related companies.
3. Conduct a comparative study between Thailand and other countries on the application of a deposit-refund system strategy to reduce plastic waste, such as that of PET bottles, in Thailand.



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