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# Strategic implementation of circular business models in developing countries

## Experiences from a Swedish multinational corporation in Thailand

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# Abstract

This thesis aims to address the challenges of implementing circular economy (CE) practices in emerging/developing economies by harnessing the resources of multinational corporations (MNCs) to improve waste management situations in these areas of the world. A case study is conducted on a Swedish beverage carton producer operating in Thailand to examine the key challenges and strategies employed by the company to promote the recycling of used beverage cartons (UBCs) in the country. The study reveals that the company faces significant challenges related to host-country regulations, the informal nature of the waste collection sector, limited consumer awareness, and the absence of adequate recycling infrastructure. To address these challenges, the company employs several strategies, including collaborating with stakeholders to enhance consumer awareness and engagement, providing financial incentives to informal sector actors, and engaging with industry partners and national and municipal governments to promote recycling initiatives. The study recommends that MNCs consider host-country regulations, the dominant type of recycling value chain, and the availability of necessary recycling infrastructure when implementing CE strategies in developing countries. It also suggests that MNCs adopt an appropriate project management approach that fits the host-country environment and establish a balanced organizational structure to optimize knowledge sharing and resource allocation within the global organization. Future research is needed to explore the transferability of these findings to other contexts and to investigate the effectiveness of the company's strategies in achieving its objectives.


**Keywords:** circular economy, multinational corporations, municipal solid waste management, recycling, developing countries

# Executive Summary


## *Background*

The prevailing linear economy in modern society puts finite resources at risk of depletion, while an increasing portion of the global population experiences negative environmental impacts such as waste generation and rising emissions. In response to these challenges, the concept of a circular economy (CE) has gained popularity, aiming to maximize resource efficiency in product and material usage. Businesses are increasingly integrating the principles of a CE into their models. However, transferring such strategies to different contexts, especially in emerging or developing economies, presents unique challenges. Moreover, there is a knowledge gap regarding the implementation of CE practices in these contexts, particularly in relation to multinational corporations (MNCs) and their adaptation of global CE ambitions.

## *Research aim and approach*

The primary aim of this thesis was to address the identified knowledge gap and leverage the resources of MNCs to promote the adoption of circular economy practices in developing countries, specifically addressing the challenges of waste management in these regions.

Furthermore, this study seeks to have practical implications by identifying strategies for MNCs to take an active role in shaping the adoption of more rigorous environmental standards that encourage the implementation of circular business models (CBMs) in emerging markets, particularly in Thailand. It also highlighted the key challenges that MNCs encounter when incorporating circularity into their products' end-of-life phase in the local market and propose viable solutions to overcome these challenges. By conducting this investigation, this study seeks to enhance the current understanding of CE practices in emerging markets and provide useful insights for MNCs operating in these contexts.

To achieve these aims and objectives, a case study was conducted on an MNC that specializes in the production of recyclable carton beverage packaging and operates in Thailand. In this study, two research questions were posed and answered as follows.

*RQ1*: What are key challenges perceived by a Swedish beverage carton producer when promoting recycling of used beverage cartons (UBCs) in Thailand?

*RQ2*: What strategies does the company employ to influence their key stakeholders to drive recycling of UBCs in Thailand?

The research employed a conceptual design to ensure construct validity and effectiveness. It followed three steps to gather knowledge and address the research questions: understanding Thai MSWM, identifying challenges, and identifying strategies. Multiple data sources, including literature, interviews with various stakeholders, conference presentations and company documents, were used to answer the research questions. The PESTLE framework guided the interview questions, and a SWOT analysis was performed to assess the host-country environment and the case company's capabilities. These analytical frameworks and data triangulation contributed to obtaining comprehensive answers to the research questions.

## *Findings*

*RQ1*: What are key challenges perceived by a Swedish beverage carton producer when promoting recycling of used beverage cartons (UBCs) in Thailand?

The study has revealed that the case company faces significant challenges related to host-country regulations and the infrastructure for municipal solid waste management (MSWM) and recycling, the informal nature of the waste collection sector, and limited consumer awareness concerning source separation. Inadequate regulations pertaining to MSWM and recycling act as a barrier to promoting product recycling, as they reinforce the existing paradigm. In the absence of enforced regulations and government support, many municipalities struggle to provide effective waste collection services to their residents, leading to a heavy reliance on the informal sector within the country's MSWM system. Engaging with multiple economically motivated actors within the informal sector complicates the case company's efforts to increase the collection rate of UBCs. Furthermore, the inadequate infrastructure for recycling composite materials used in beverage carton packaging products in Thailand restricts the potential applications of recycled materials. This poses a significant barrier to enhancing the value of UBCs within the informal waste trade system and contributes to the stagnation of the UBC collection rate. Furthermore, there is a lack of consumer awareness regarding the importance of source separation, which hinders the establishment of an additional collection channel for the company.

*RQ2*: What strategies does the company employ to influence their key stakeholders to drive recycling of UBCs in Thailand?

The case company has implemented several initiatives guided by the strategic framework instituted by the global headquarters, including driving consumer awareness and engagement, activating collection and sorting, expanding recycling capacity and solutions, growing recycled material uses and applications, and driving collection action through industry coalitions. To promote consumer awareness and activate private collection channels, the company collaborates with retailers, NGOs, and schools to establish collection points and provide education on the importance of recycling UBCs. Financial incentives such as price premiums and logistics support are also provided to informal sector actors to enhance the collection rate of UBCs. Furthermore, the company collaborates with industry partners and engages with national and municipal governments to promote initiatives such as the pilot MRF project and the drafting of EPR legislation to improve the public collection system. The company also works with recyclers to develop higher value recycled products from UBC materials and provides support and advisory services to improve their operations and sales of recycled products. The study has revealed that the MNC adopts a balanced approach to managing global sustainability initiatives, whereby a centralised approach is employed for management, with local sustainability personnel reporting directly to the global headquarters. Meanwhile, the MNC also grants its subsidiaries the autonomy to plan and execute projects in an agile manner without the need for lengthy approval processes, in addition to providing financial resources and authority to achieve set goals. This approach allows the company to effectively leverage its global resources and expertise while adapting to local contexts.

The results of the study highlight several internal and external factors influencing the implementation of CE strategies by MNCs in developing countries. Internally, factors such as financial and technical resources, autonomy of sustainability personnel, and clear strategic frameworks play a crucial role in facilitating CE implementation at the subsidiary level. Externally, factors include aligning interests with the host-country government, considering local recycling value chains, and responding to stakeholder pressures. Strategies for engaging with actors in the informal waste sector, such as providing financial incentives and supporting logistics, are identified. Additionally, active representation within industry associations is highlighted as a tactic to influence host-country governments and shape regulatory frameworks.

The findings support the theory that subsidiaries with significant autonomy are more likely to engage in proactive corporate social responsibility (CSR) practices aligned with global and international policies. However, the study also uncovered that the case company adapted global policies to fit the specific requirements of the host country, contrary to prior suggestions. Additionally, the lessons from the case study emphasises the importance of harnessing MNCs' knowledge and technical resources to enhance subsidiary capabilities in implementing CE practices in developing country settings. This indicates the benefits of global integration and learning capabilities for both the MNC at a global level and its subsidiaries.

### *Recommendations*

Based on the findings of this research, several suggestions are provided for MNC practitioners and their consultants who aim to promote recycling in developing countries.

First, the study suggests key factors that may be important to consider for the promotion of product recycling in a developing country: host-country regulations, the local recycling value chain, and the availability of recycling infrastructure. By incorporating these factors, MNCs can anticipate challenges and tailor initiatives to meet local needs. The study also emphasises selecting an appropriate project management style, particularly advocating for an agile approach due to its adaptability and flexibility in engaging multiple stakeholders, such as informal actors involved in recycling processes. To enable effective knowledge sharing and resource allocation, the study suggests establishing a global organizational structure that facilitates both global and regional collaboration. It also highlights the importance of providing financial and technical support to local subsidiaries. Balancing centralised coordination and subsidiary autonomy may support optimisation of knowledge and resource exchange.

In terms of future research, the study suggests exploring the transferability of these findings to other contexts and investigating the effectiveness of company strategies in addressing challenges and achieving objectives. It also recommends conducting comparative studies across different geographical locations or MNCs operating in diverse internal and external environments. Additionally, future research should consider involving bilingual researchers or language assistance to better understand the perspectives and experiences of local stakeholders who primarily communicate in the local language. Furthermore, further research on project management approaches suitable for implementing circular economy in developing countries would provide valuable guidance for practitioners leading such initiatives.

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# Abbreviations

CE – Circular Economy

CBM – Circular Business Model

CSR – Corporate Social Responsibility

EU – European Union

EPR – Extended Producer Responsibility

MD – Managing Director

MNC – Multinational Corporation

MSW – Municipal Solid Waste

MSWM – Municipal Solid Waste Management

NGO – Non-Governmental Organisation

SAO – Subdistrict Administrative Organization

SME – Medium-Sized Enterprises

UBC – Used Beverage Carton

# 1 Introduction

Since the advent of the industrial revolution and the subsequent historically unprecedented increase in human wealth and health, the prevailing economic model has been relying on what is referred to a *linear* economy – wherein the lifecycle of outputs of material productive activities have been following a basic pattern of (i) creation, (ii) consumption, and (iii) disposal. While the economic gains of this paradigm of economic activity are laudable, industrialization of previously agrarian (e.g., '*developing*') nations, unprecedented growth in the global human population (Roser & Rodés-Guirao, 2013) and a policy-based focal modality in increasing economic output exemplified in measures of GDP growth (Ravallion, 2015), finite resources are at risk of depletion and adverse environmental impacts, signified by e.g. waste and emissions, are being felt by an increasing proportion of the human population. Thus, an economic model based on linearity is axiomatically unsustainable *ad infinitum*. UN Secretary General António Guterres stated that *"We have reached a tipping point on the need for climate action"* in conjunction with the 2021 publication of the United in Science compilation, comprising of an assessment of the latest unified climate science assessment of the state the Earth (*United in Science 2021*, 2021). In recent years, the concept of a *circular* economy has gained in popularity, with the aim to maximize the resource efficiency of products and materials by focusing on *reduction*, *reusing*, *recycling* & *recovering* of materials in use (Ellen McArthur Foundation, 2022).

Multinational corporations (MNCs) constitute a key stakeholder group in the global economy and are one of the key primary actors in the development of a sustainable or circular economy. Increasingly, MNCs are governed not only by purely bottom-line financial considerations but incorporate environmental and social concerns in their strategies as well (Ishak et al., 2017). This is driven in part by mounting legislative and regularity impositions by their host countries, but also by non-binding and often morally-based requirements by customers, employees, and other secondary stakeholders. This has in turn led to MNCs to either choose to or be coerced to transform their business models. Large companies based within the European Union (EU) in general – and perhaps Sweden in particular – have often taken global lead in the development of sustainable business models. This has come about owing to various antecedents, including EU's regulatory mandates and directives for MNCs, strong employee demand, as well as being seen as constituting a source of competitiveness due to ever-increasing environmental awareness by European consumers (Domenech & Bahn-Walkowiak, 2019).

## 1.1 Problem definition

MNCs with leading environmental solutions can bring substantial positive impacts to a host country when it is ensured that their environmental solutions are sustained and maximized. In countries such as Thailand, assets of MNCs, e.g. knowledge and expertise, are crucial to ensuring sustainable development of the country (Eang et al., 2023; Ishak et al., 2017).

Additionally, as modern MNCs are increasingly global (World Trade Organization, 2020), they face significant shareholder and stakeholder pressure to improve their sustainability performance amidst an ever-increasing global scrutiny on positive and negative externality effects created in societies where they operate (Kawai et al., 2018). The geographical locations in scope often have distinct political, economical, societal, technological, institutional, and infrastructural characteristics, making it highly challenging to transfer a verbatim global sustainability strategy into a host market (Kanter & Dretler, 1998; Meyer & Estrin, 2014).

MNCs that offer products or solutions with high environmental performance face challenges pertaining the global integration and transferability of environmental advantages into host countries, more specifically in emerging markets located in developing countries (Goyal et al.,

2018). This is often due to lack or insufficient environmental policy, social awareness, technological capacity, or perhaps most importantly – infrastructure (*ibid.*). For example, Tetra Pak, a MNC, provides carton packaging products globally, which are purposefully designed to enhance material circularity through optimal recycling. However, despite such efforts, in countries such as Thailand, where waste separation and recycling infrastructure and practices are limited, a substantial proportion of Tetra Pak's products end up in landfills. Thereby, the company's global sustainability ambitions and targets, as well as its product value proposition, are undermined. Such challenges underline the need for MNCs to make extensive efforts when operating in developing countries to not only offer sustainable products and solutions, but also to cultivate the local external environment where their product sustainability proposition can be implemented or maximized. This may be achieved through engagement with the local regulators to encourage policymaking favourable for the MNC, by heavily investing in internal local capacity, or by forming and nurturing partnerships with local stakeholders such as service providers, business associations, or NGOs (*ibid.*).

As alluded to above, Thailand faces chronic and critical deficiencies in systematic waste management, which poses a grave environmental threat and constitutes a problem in the implementation of its sustainability agenda. Bangkok, the capital of Thailand, is home to over 12 million inhabitants and grapples with approximately 10 kilotons of waste generated each day. Of the almost 5 megatons of solid waste generated per annum in the country, only around 19% is separated and recycled (Rajesh, 2021). The consequences are not merely environmental; in the absence of effective recycling infrastructure, impoverished waste pickers contribute to a crude version of "circularity" by collecting waste from bins or landfills and make a living by selling it to small dealers who sell it further on to either larger waste dealers or recycling plants. This system is both a consequence of and a precursor to social issues such as poverty, ill health, and social stigma (*ibid.*).

From a sustainability perspective, MNCs may be in a far stronger position than local firms to exert influence over local environmental policies through cooperation with local institutions and regulators, for instance by offering technical resources (Child & Tsai, 2005). MNCs also have potential to produce considerable impacts in increasing circularity due to its scale of business as well as its ability to transfer technical knowhow and expertise to local actors. Therefore, an understanding of these efforts may ultimately contribute to promoting circularity and resolving waste-related environmental and social sustainability issues of developing countries such as Thailand by providing insights for improving global adaptation and local transfer of circular business models which can be utilised by MNCs and sustainability consultancies.

However, previous academic research on the implementation of CE has predominantly concentrated on developed economies, with limited attention given to its potential and facilitators in the *Global South* (Mishra et al., 2019; Schroeder et al., 2019), despite the increasing recognition for its significant implications for sustainable development (SD) (Alhawari et al., 2021). It is only recent that the academic research community and international development practitioners started exploring CE practices in developing countries. Only in recent times have scholars in the academic research community and professionals in international development begun to examine the implementation of CE practices in developing nations (Schroeder et al., 2019). Nonetheless, the research on this part of the world is restricted to certain nations (Mishra et al., 2019) and is heavily skewed towards the Chinese context (Goyal et al., 2018). Furthermore, during the literature review conducted for this study, extensive research on the transfer and local adaptation of environmental policy or CSR (Tsai & Child, 1997; Child & Tsai, 2005; Christmann, 2004; Jamali, 2010; Kim et al., 2018; Rhodes et al., 2014) was identified. However, no empirical studies specifically addressing the implementation of CE by a MNC operating within an emerging economy could be found.

Consequently, a knowledge gap has been identified with regards to instances of CE implementation in developing or emerging economy contexts, particularly as seen through the lens of MNCs' transfer and adaptation of their global CE ambitions. Moreover, it is imperative to explore the challenges and drivers that confront MNCs in business environment unique to a developing country, in order to gain valuable insights for future research as well as for those MNCs that share similar goals. The insights gained from such investigations could prove beneficial in unlocking the potential of MNCs to contribute to sustainable development within developing nations, thereby facilitating environmental and social progress in the Global South. This is particularly crucial, given the acknowledged capacity of MNCs in promoting sustainable development at the local level (Eang et al., 2023; Ishak et al., 2017).

## 1.2 Aims and research problems

To address the problem definition above, the primary aim of this study is to unlock MNCs' resources to support the advancement of CE practices in developing countries, thereby mitigating the challenges of waste management in this region.

The present study seeks to bridge the gap in academic literature by providing a valuable contribution towards the implementation of a CE by MNCs in an emerging market context, while considering the internal and external factors that may affect MNC behaviour, as well as their stakeholder engagement strategies. The review of existing literature revealed a dearth of studies on this subject matter, making this research particularly significant and valuable in advancing the knowledge in this area.

Further, in terms of practical implications, this study aims to outline strategic choices for MNCs to proactively participate in and influence the implementation of more stringent environmental standards that facilitate the adoption of circular business models in emerging markets, particularly in Thailand. Additionally, it seeks to identify the key challenges that MNCs face when integrating circularity into their product end-of-use phase in the local market and offer strategic choices to address these challenges successfully. Through this investigation, this study aims to enhance the current understanding of circular economy practices in emerging markets and provide practical insights for MNCs operating in such contexts.

Therefore, this research seeks to address the following two research questions (RQs).

> *RQ1*: What are key challenges perceived by a Swedish beverage carton producer when promoting recycling of used beverage cartons (UBCs) in Thailand?
>
> *RQ2*: What strategies does the company employ to drive recycling of UBCs in Thailand?

To answer these RQs, a case study was conducted with a selected Swedish MNC with active sales operations in Thailand, whose product value propositions involve circularity at the end-of-use phase, namely, Tetra Pak. The selection of Tetra Pak as the case company for this study is attributed to their unwavering commitment to promoting product circularity, particularly in the area of recycling (Tetra Pak, 2022), as well as their demonstrated track record of proactive engagement with host-country stakeholders to facilitate the implementation of circularity practices (Tetra Pak, n.d.; Orsato et al., 2007).

## 1.3 Audience

The intended audience of this thesis is practitioners and researchers in the field of CE and international businesses. More specifically, this thesis aims to provide insights for MNCs with strong sustainability ambitions who intend to improve their environmental performance in

emerging markets particularly in terms of circularity of their products. It can also be beneficial for sustainability consultancies who support MNCs with similar endeavours.

Moreover, this thesis contributes to the emerging academic research on circular business models (CBMs) as well as expanse of existing research on international business management and global integration, by uncovering insights for improving global adaptation and local transfer of circular business models taken by MNCs to developing countries.

## 1.4 Disposition

*Chapter one* introduces the background, problem definition, research questions, and identifies the target audience of this thesis.

*Chapter two* presents and justifies the methodology, research design, and case study approach employed in this research. It also discusses data collection and analysis methods, as well as the scope, limitations, and ethical considerations.

*Chapter three* provides a comprehensive literature review on CE, including relevant theories, explanations, and conceptual frameworks related to the transfer and diffusion of environmental strategies in developing countries. The chapter concludes by summarizing the identified knowledge and key concepts that inform the data collection and analysis in this study.

*Chapter four* presents an overview of the waste management landscape in Thailand to provide necessary background information for addressing the research questions.

*Chapter five* presents the findings derived from the case study, addressing the research questions.

*Chapter six* analyses the findings in relation to the existing literature, highlighting the contribution of this research to the current state of knowledge. Methodological reflections are also provided.

Finally, in *Chapter seven*, the thesis concludes by summarizing the findings and offering recommendations for practitioners, as well as suggestions for future research.

# 2 Methodology

In this chapter, the methodology of this thesis employed to answer the previously described research questions is explained. The overall research design is introduced in section 2.1, followed by data collection and data analysis respectively in section 2.2 and 2.3. It also addresses scope and limitations in section 2.4, as well as ethical considerations in section 2.5.

## 2.1 Research design

This thesis takes a transdisciplinary approach, reflecting the interdisciplinary nature of CBMs. Interdisciplinarity is necessary to study CBMs because factors of different disciplines determine a success of a CBM, such as business, environmental, political, technological/infrastructural aspects. A transdisciplinary approach is characterised by its aims to create *"knowledge that is solution-oriented, socially robust, and transferable to both the scientific and societal practice",* by "*enabling mutual learning processes among researchers from different disciplines…, as well as actors from outside academia"*. (Lang et al., 2012, p. 27) Therefore it is an approach suitable for my research aim to make contributions to not only the field of academic research but also to MNCs and sustainable consultancies to provide insights on what strategic choices exist for them to implement their CBM in developing countries.

### 2.1.1 Conceptual design

A conceptual design was established to facilitate effective research and ensure construct validity (O'Leary-Kelly & J. Vokurka, 1998) of the research outcomes (see Figure 2-1). The research took three steps to deduce knowledge and answer the research questions: understand Thai MSWM, identify challenges, and finally, identify strategies. Each of them was associated with respective research questions. A wider selection of data sources was used to answer *RQ1* (i.e., academic/grey literature, and the case company public information, interviews with academia, the case company practitioners, recycling company practitioner, and Swedish government official) to gain the general understanding of the socio-political context in Thailand, as well as more specific knowledge on internal context of the selected case company. A document review and interviews with the case company practitioners were the primary source of information to answer RQ2, specifically to gain an in-depth understanding of specific considerations and actions taken by the company. The PESTLE framework was used to facilitate preparation of interview questions. Additionally, SWOT analysis was carried out to gain a comprehensive picture of the host-country environment as well as the case company characteristics regarding their capabilities to implement CE in Thailand. SWOT analysis was selected as a framework, because such approach of soft science can be useful for evaluating corporate social responsibility (CSR) initiatives as well as facilitating knowledge and information sharing among stakeholders (Winans et al., 2017).

These different analytical frameworks are deployed to help produce answers to each research question, and as described in section 2.2, multiple sources of data were used for triangulation.

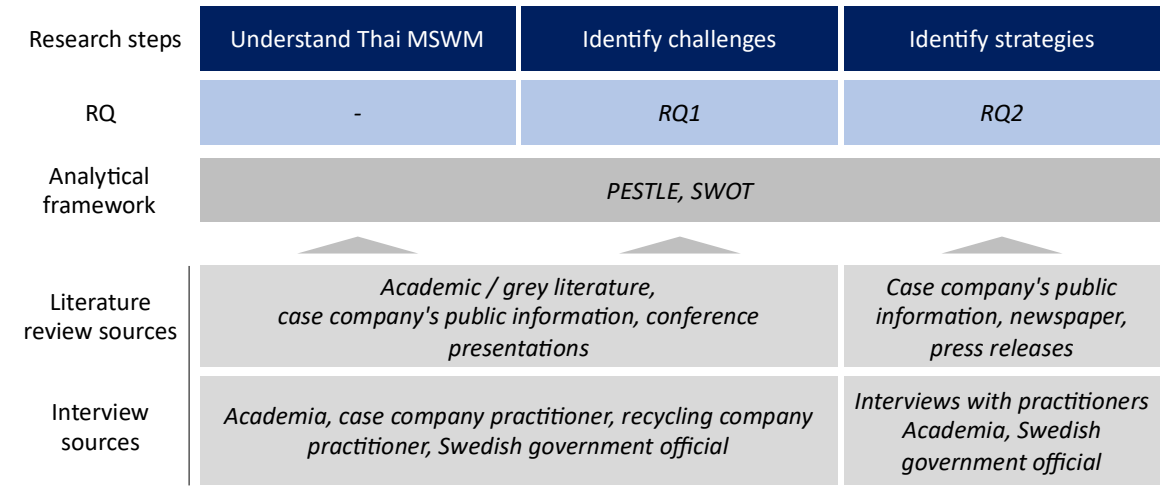


*Figure 2-1 Conceptual Design*

### 2.1.2 Case study approach

Yin (2014) states that a case study approach can be useful as a research methodology when research questions seek to explain "how" and "why" some present phenomenon occurs, providing an extensive and "in-depth" description of the phenomenon. It is especially suited for understanding changing business practice in their social contexts. Eriksson & Kovalainen (2015) and Humphrey & Scapens (1996) categorise the case study approach into two types: intensive case research and extensive case research. The former refers to a research approach to investigate one (or a few) case(s) from the inside by providing a deep, comprehensive, and contextualised description and interpretation, whereas the latter refers to an approach that enhances or develops theory by comparing a number of cases for generalisation. This thesis takes the former approach to dive into a selected single case, conducting an in-depth investigation in its unique organisational context and a real-life setting, because CBMs, particularly in closed-loop resource, are subject to product type and contextual factors (Wells & Seitz, 2005).

One of the main reasons for selecting Tetra Pak as the case company is that it is a global packaging company. Packaging is an essential element of modern economic activity. However, companies frequently employ environmentally detrimental options like single-use plastics and multi-layered packaging to package their products (Hall, 2017; WWF, 2019; Meherishi et al., 2019). This, coupled with unsustainable packaging consumption and disposal practices by consumers, puts additional ecological pressure on the environment (*ibid.*). Moreover, packaging accounts for 15–20% of total municipal solid waste in several countries (Tencati et al., 2016). As such, a successful CE implementation for packaging products could create a greater positive contribution for alleviating the global waste problem. Additionally, as stated by Jacob et al. (2022), the majority of beverage carton waste (72.28%) is found to be disposed of in the open environment in Thailand, and thus there is a greater potential for a shift towards a CE in this area. Another factor that influenced the selection of Tetra Pak Thailand as the case company is the Tetra Pak Group's established track record of proactive efforts towards implementing a CE in the local environment since the 2000s (Orsato et al., 2007). This suggests that the company has accumulated valuable expertise and know-how in this domain.

## 2.2 Data collection

Multiple sources of data are employed for triangulation, i.e., academic, and grey literature, company's public information, and interviews.

### 2.2.1 Literature review

The aim of the literature review is to understand current situations of areas relevant to the research topic, define key concepts and gain overview of previous academic discussions on the topic. The literature review contributes to answering *RQ1-a and RQ1-b* as well as to developing an analytical framework to produce answers for *RQ2*. The literature review provides knowledge on:

1) Current understanding and definition on CE; and
2) Theories and framework relevant for environmental strategies transfer and diffusion to developing countries.

In this thesis, both academic and grey literature was used. Academic literature included peer-reviewed journal articles and books published in the English language, accessed by the end of March 2023. Guided by a simplified methodology outlined in DeLuca et al. (2008), the author conducted a citation analysis, using the keyword string method of literature review. Alphabet's *Google Scholar* search engine was here utilised to generate a 'start set' of well-cited, relevant, recent articles generated from a combination of search strings including, but not limited to: e.g., '*environmental practice transfer and diffusion to developing countries*', '*sustainable development MNC intervention*, '*MNC, local implementation approach*', '*Circular economy in developing countries'*, '*waste management emerging market*' and '*MNCs host government relations'*. The author then conducted backward (i.e., reference) tracking as well as forward (i.e., citation) tracking to uncover further literature of interest.

To develop a further empirical understanding of the realities of Thailand, a search of non-scholarly publications related to the current landscape, opportunities, and key challenges of waste management in the country was also executed. Data was gathered from primary sources such as Ministry of Natural Resources and Environment (MONRE) and Bangkok Metropolitan Administration (BMA) through their publications as well as conference presentations, along with secondary private research publications ('grey literature'). The author also conducted a media analysis of Tetra Pak's waste management efforts in Thailand to gain initial understanding of the company's practices and to prepare for the interview questions.

### 2.2.2 Documents

Documents and presentations provided by Tetra Pak Thailand were consulted to gain a deeper understanding of the context of the case study, as well as to collect data on the current challenges faced by the company and their strategies to promote recycling of their UBC products in Thailand.

### 2.2.3 Interviews

The method for data collection of my research was a quantitative study through semi-structured interviews with practitioners of Tetra Pak Thailand as well as subject-matter experts on MSWM in the country. Interviewees were identified and contacted through the author's network. As for the case company, the Managing Director (MD) of Tetra Pak Thailand was introduced to the author through the Swedish Trade Commissioner to Thailand, and then the Head of Sustainability of Tetra Pak Thailand was introduced by the MD upon the author's request and description of requirements. The list of interviewees is provided in Appendix I. Interviews were conducted in a face-to-face format where possible, or online when necessary. As many companies still maintain work-from-home policy in Thailand in consideration for Covid-19, an online format was necessary for many of the interviews. Regarding the case study company's interviews, the author was granted access to the Tetra Pak Thailand office where a total of two interviews were conducted. The first interview involved the Managing Director of Tetra Pak

Thailand and the Head of Sustainability, with the aim of gaining a broad understanding of the company's business operations and sustainability initiatives. The second interview was conducted solely with the Head of Sustainability to delve deeper into the specifics of the company's sustainability practices.

Furthermore, in order to triangulate the data obtained, additional interviews were conducted. These interviews involved an academic expert in municipal solid waste management (MSWM), a public sector official responsible for Sweden-Thailand trade relations within the Swedish government, and a practitioner employed by a major recycling company in Thailand.

## 2.3 Data analysis

As for the methodology applied to synthesize and analyse the selected body of readings for the literature review, a mapping of the relevant literature into five broad categories was first conducted (*Current understanding and definition on CE and CBMs, Current understanding of MSWM in Thailand, Factors influencing the adoption of CE strategies in Thailand, Current global and local sustainability strategy of Tetra Pak, and Theories and framework relevant for environmental strategies transfer and diffusion to developing countries*), wherein key arguments and highlights are summarized and inserted into synthesis matrices. Finally, the initial set of categories was refined and reduced to two categories as outlined in section 2.2.1. Empiric data from Thailand was added to this matrix, which enables a mind-map of interrelationships to be drawn. The matrices employ both inductive and deductive approaches and were adjusted throughout the research period and completed in an iterative process.

The PESTLE framework, which identifies political, economic, social, technological, legal, and environmental factors, was employed to guide the formulation of interview questions and to structure the data collection. It should be noted that the legal aspect was subsumed under the political aspect due to their interdependence. However, the framework was utilised as a loose structure to guide the analysis, rather than as a rigid framework dictating the research process.

To answer the research questions, a content analysis was performed on the data gathered through interviews. Initially, a coding scheme was established based on the PESTLE framework and stakeholder analysis, including consumers, informal waste collection actors, recyclers, national and municipal government, industry associations, and NGOs. However, the analysis was not constrained to these predefined codes, and a flexible approach was maintained to identify new insights and findings related to the research questions. As such, both inductive and deductive approaches were employed. Additionally, grey literature such as news articles and press releases were consulted to obtain third-party perspectives and more detailed information.

Furthermore, the SWOT analysis was instrumental in organizing and comprehensively understanding the collected data, by highlighting the strengths and weaknesses of the case company, and identifying the opportunities and threats presented by the external operating environment.

## 2.4 Scope and limitations

As described in the research questions in section 1.2, the geographical scope of this research is limited to Thailand. Thus, further research is necessary to explore the transferability of the findings in this thesis to other developing countries. Furthermore, this research focuses on adaptation of a CE particularly in recycling. Such limitation of the scope may influence the breadth of potential applications of the research findings, for example, the knowledge gained in this thesis may not be applicable to MNCs whose product characteristics relates to reuse or recovery, or other modes of product circularity with focus on slowing resource loops.

Furthermore, it is important to acknowledge that this thesis does not address the evaluation of the effectiveness and impacts resulting from the case company's implementation of strategies. The main reason for this limitation is the difficulty in accessing appropriate data due to the language barrier, as previously mentioned. To carry out such an evaluation, it would be necessary to consult local governmental data and conduct interviews with local formal and informal sources. However, without a proficiency in the local language, conducting these tasks with the limited resources and time allocated for this thesis would pose a significant challenge.

Moreover, in this thesis, only subsidiary-level perspectives are examined. Thus, strategic decisions within the purview of global headquarters of a MNC were not considered in this research.

Another limitation with this research is that it examines a single case as part of case study to answer *RQ2*. Thus, findings of this research are in nature conditional of external and internal contexts in which the case company operates, hence may not produce conventional knowledge that can be generally applied to other cases in different contexts. Nevertheless, as Flyvbjerg (2006) emphasises, with its adherence to the real-life situations, a case study can contribute to development or testing of propositions and hypothesis reflective of a nuanced view of reality, and can stimulate further investigation and theory formulation. Moreover, in order to address this limitation and triangulate the findings of RQ2, an interview was conducted with a subject-expert of MSWM in Thailand to gain a third-party perspective on the information provided by the case company. Such measure is intended to provide a third-party perspectives and additional insights to the findings.

Last, a significant limitation of this study conducted in Thailand was the restricted data sources, which was limited to English-language literature and interviews. The majority of available data regarding waste management and CE policy and practices were in the Thai language, which limited the accessibility to relevant documents, particularly during the interview stage, as it was challenging to identify subject experts who were proficient enough in English to participate in the study. This linguistic barrier restricted the scope of insights that could be gathered, particularly in terms of gaining a comprehensive understanding of the local context and nuances of waste management and CE practices in Thailand.

## 2.5 Ethical considerations

This research was partially supported by Business Sweden in Bangkok, primarily with regards to introduction to the case company as well as attainment of information related to market and political situation of Thailand. Nonetheless, concerning honesty and personal integrity, the author can attest that this research and its conclusions are in any way not influenced by this collaboration. Neither is there anyone else who is in position to unduly influence the author's analysis and conclusions. No competing interests are identified.

There are certain ethical responsibilities to the subjects of research regarding consent and confidentiality. Participation of participants in this study was completely voluntary. The author ensured that consent was given by participants for disclosure of information provided in interviews to eliminate the risk of any disadvantage or damage on their reputation. For participants who requested to review the content in the case of direct citations, their consent was obtained prior to the online publication of this thesis. Finally, regarding handling of sensitive information, the author stored gathered sensible data (e.g., non-anonymised interview recordings and list with interviewees and respective encrypted labels) on a hard drive, USB stick, or local folder that have been protected with a password.

# 3 Literature Review

The literature review provides general knowledge and insights on the following topics: current knowledge and understanding of CE (section 3.1), and theories and framework relevant for environmental strategies transfer and diffusion to developing countries (section 3.2). Then section 3.3 summarises key learning that the literature provides, knowledge gaps, and the key concepts to facilitate the data collection and analysis.

## 3.1 Current knowledge and understanding of CE

This section explores the previous research on definitions and typologies of CE, drivers and barriers, benefits, and limitations, as well as how CE is interpreted and applied to business practices in the form of circular business models. Through the literature review the current knowledge gap in the academic field is identified.

### 3.1.1 Definition and typology

While several definitions of the 'circular economy' (CE) concept exist, Hofmann (2019) states that its aim is the extension of the use-phase of extracted natural resources as long as possible, as well as to preserve the maximum value of products by strategies such as reuse and recovery.

The CE concept has attracted significant and growing interest from regulators, academia, and business and is touted as a solution to achieve the *triple bottom line*, more precisely, to decouple economic growth from the depletion of natural resources and degradation of the environment (Murray et al., 2017, p. 373). The CE is a type of economic model in which the planning, resourcing, procurement, production, and reprocessing of materials is intentionally designed and managed to optimise the functioning of ecosystems and promote the well-being of humans, both as a process and as an end result (Murray et al., 2017). In contrast, the notion of 'linear economy' (LE) is seen as unsustainable as it leads to over-exploitation of natural resources (Sariatli, 2017). A linear economy is characterised by the conversion of natural resources into waste through production, which leads to environmental degradation in two ways. Firstly, through the depletion of natural capital from the environment, caused by activities such as mining and unsustainable harvesting. Secondly, through the devaluation of natural capital due to pollution caused by waste (Murray et al., 2017). Such form of economy has been referred to as a 'cowboy economy' (Boulding, 2011).

However, as there is some ambiguity related to the notion of CE, business models incorporating circularity are diverse. Bocken et al. (2016) makes a dyadic distinction between *closing resource loops* and *slowing resource flows* in the context of CBMs. A slow resource flow business model aims at the prolongation of the product lifespan, and to facilitate or maximize the use of the product. This business model often includes a component of servitisation, and can e.g., be seen in applications of the sharing economy. In contrast, the close resource loop aims at the collecting and processing of the depleted products, as well as transforming this waste into new forms of value (Planing, 2018).

The adoption of CE strategies could result in significant advantages for businesses, including cost reductions, job opportunities, technological advancements, improved efficiency in resource usage, and increased productivity. These benefits could be realised in both developed and developing nations (Yuan et al. 2006; Friends of Europe 2014; Ellen MacArthur Foundation 2015; Gower and Schroeder 2016; Schroeder et al., 2019).

Sariatli (2017) conducted a SWOT analysis of adopting CE strategies to identify values that can act as guidelines in dealing with the present and future consequences. He presents strengths and weaknesses of CE strategies as Table 3-1.

*Table 3-1 Strengths and weaknesses of CE strategies*
*Adapted from Sariatli (2017)*

| Strengths | Weaknesses |
|---|---|
| • Proficiency in the reverse material flow cycle is a potential competitive edge.<br>• Elimination of waste from the value chain has the quantifiable benefit of reducing systemic and direct material cost and diminishing resource dependence.<br>• Incorporating the attributes of CE in the R&D phase of operation yields spurs progress in material sciences and yields the development of higher quality and more durable components.<br>• Due to the closed-loop processes, the economy grows less exposed to price fluctuations of the materials and the flattened cost curve ultimately results in more efficient use of resources in terms of both value and volume.<br>• Externalities are associated with the use and flow of material; lower material consumption evidently decreases the exposure to externalities. | • Circular economy still requires amalgamation of the entire product life cycle from raw material provision to annihilation.<br>• No specific guidelines to sectors on how to implement circular economy.<br>• There is still no internationally recognized standards institution to regulate the sector<br>• Circular Economy may omit the feature of semi-recyclability when choosing a raw material for production process.<br>• Public opinion about CE is yet inefficient and social marketing campaigns lack to access sectoral people.<br>• There is still no special legal regulation about circular economy and its application.<br>• Investments about circular economy to introduce the system to sector are not enough. |

CE can be an effective means to enhance waste management practices and solve environmental and societal issues deriving from poor waste management. The majority of countries worldwide, especially developing nations, are experiencing an increase in solid waste due to rapid economic and population growth, as well as a rise in urbanisation (Guerrero et al., 2013). Due to the increasing amount of solid waste being generated, there is a shortage of available landfill space (Li et al. 2019; Silva et al. 2017; Yang et al., 2023). Yang et al. (2023) emphasises the significance of CE for societies. They underscore the adverse effects of conventional waste disposal practices that go beyond merely depleting land resources to include environmental contamination. Additionally, Yang et al. (2023) notes that the extensive use of natural resources and non-renewable energy sources leads to a shortage of natural materials. Consequently, the recycling and reusing of solid waste not only mitigates natural resource scarcity but also protects the environment, ultimately leading to the development of a CE mode.

### 3.1.2 Drivers and barriers

Identifying the factors that either facilitate or hinder the implementation of the CE is a complex task, as the concept itself lacks specificity and the strategies to achieve it are yet unclear and lacks comprehensive understanding (de Jesus & Mendonça, 2018). There are a number of internal and external factors of political, economic, social, legal, and technological nature that can either facilitate or impede the implementation of the CE. Rizos et al. (2016) states that an organizational culture that prioritises environmental sustainability, including the attitudes and behaviours of both management and employees is a key internal factor that enables the transformation. Yang et al. (2023) suggests that the CE strategy of the government can assist in achieving sustainable development of the industry, whereas innovative research conducted by universities on CE strategies can generate additional prospects for the industry. Hofmann (2019) acknowledges that for a resource-efficient society to be realized, it is essential for both internal and external factors to work in tandem towards this goal, facilitating the transition by innovative capacities of private corporations, as well as governmental provision of economic incentives

and assistance, such as preferential government procurement programs, to encourage sustainable practices. To further bolster this initiative, private corporations can also allocate funds towards research projects aimed at experimenting and implementing CE principles into their day-to-day business routines.

Furthermore, de Jesus & Mendonça (2018) provides a comprehensive outline of factors facilitating and constraining this transition as Table 3-2.

*Table 3-2 Drivers & barriers of the transition toward CE for MNCs*
*Adapted from de Jesus & Mendonça (2018)*

| | | **Drivers** | **Barriers** |
|---|---|---|---|
| **Hard factors** | **Technical** | Availability of technologies facilitating resource optimisation, re-manufacturing of by-products as inputs, development of sharing solutions | Inappropriate technology, lag between design and diffusion, lack of technical support and training |
| | **Economic**<br>**Financial**<br>**Market** | Demand-side (rising resource demand) and supply-side trends (resource cost increases, incentives towards cost reduction solutions) | Large capital requirements, significant transaction costs, high initial costs, asymmetric information, uncertain return and profit |
| **Soft factors** | **Institutional**<br>**Regulatory** | Increasing environmental legislation, environmental standards and waste management directives | Misaligned incentives, lack of a conducive legal system, deficient institutional framework |
| | **Social**<br>**Cultural** | Social awareness, environmental literacy and shifting consumer preferences | Rigidity of consumer behaviour and businesses routines |

de Jesus & Mendonça (2018) underscore the significance of institutional and regulatory drivers in the implementation of a CE, linking to its resemblance to the function of laws and taxes in promoting environmentally friendly technological advancements (Porter and Linde, 1995; de Jesus & Mendonça, 2018). This means that policies can serve a dual purpose by regulating behaviour in a dynamic manner, as their impact is not primarily direct but rather indirect, by catalysing desired responses. They also recognise that institutional and regulatory barriers represent one of the most critical factors impeding the advancement of a CE, because legal systems that are not conducive to the development of a CE and misaligned incentives not only pose significant obstacles but also reinforce the existing paradigm. For instance, prevailing environmental policies can influence the categorisation of materials as waste, even if they or their components could still be repurposed, hampering the potential development of industrial eco-parks and symbiotic relationships (Zhang et al., 2010; de Jesus & Mendonça, 2018).

Social/cultural factors are also essential to facilitating the implementation of a CE, including trends such as increased societal awareness of environmental issues and the recognition among businesses of the reputational benefits associated with sustainable practices. Demand-side factors play a crucial role in driving momentum towards more environmentally friendly practices and sustainable choices. (Andrews and deVault, 2009; Geng et al., 2010b; Maurizio Catulli, 2012;

de Jesus & Mendonça, 2018) Conversely, consumer behaviours and business practices are evolving at a sluggish pace due to inadequate awareness and information about the CE concept and the available choices, resulting in a significant barrier to the implementation of a CE. (de Jesus & Mendonça, 2018)

### 3.1.3 CE in developing countries

There is a significant gap in understanding the phenomenon from the perspective of developing countries, as the majority of studies related to CE have focused on developed nations (Jabbour et al., 2019). Similarly, research on the potential contributions of the CE approach for low- and middle-income countries have been rather concentrated to China (Yuan et al. 2006; Mathews and Tan 2011; Schroeder et al., 2018) (Meixell and Luoma, 2015; Mishra et al., 2019), and there have been relatively little attention paid to other nations of the Global South (Schroeder et al., 2019). The academic research community (Chertow & Park, 2016) and international development practitioners (Gower & Schröder, 2016) have only recently directed their focus towards the CE practices in this part of the world. Nevertheless, several aspects of the CE concept in the context of developing countries have yet to be thoroughly researched. (Mishra et al., 2019)

In terms of the benefits of a CE in developing nations, the study conducted by Schroeder et al. (2019) present that the adoption of CE practices and associated business models can contribute significantly to the achievement of several targets outlined in the Sustainable Development Goals (SDGs). Specifically, these practices directly contribute to 21 of the targets and indirectly contribute to a further 28 targets. Among the SDGs, the strongest relationships exist between CE practices and targets of SDG 6 (Clean Water and Sanitation), SDG 7 (Affordable and Clean Energy), SDG 8 (Decent Work and Economic Growth), SDG 12 (Responsible Consumption and Production), and SDG 15 (Life on Land). Furthermore, CE practices have the potential to create synergies between various SDGs, such as those focused on economic growth and job creation (SDG 8), poverty eradication (SDG 1), sustainable food production and ending hunger (SDG 2), and the protection of biodiversity in oceans (SDG 14) and on land (SDG 15). It should be noted, however, that while CE practices have the potential to contribute significantly to the achievement of specific SDG targets, they are not a panacea for all SDG-related challenges. In fact, 35 of the SDG targets have no or limited relationship to CE practices. Nonetheless, the CE offers a promising implementation approach for addressing particular SDG targets.

Schroeder et al. (2019) also notes that the key drivers for CE practices in these countries are increased efforts on skills training, capacity building programs, technology development, and multistakeholder partnerships. They also suggest that for CE practices related to the recycling of household waste, e-waste, sewage sludge, and human waste, more endeavours are required through skill training and safety measures to avoid trade-offs with targets for human health and well-being (Target 3.9) and secure working environments (Target 8.8).

The case study conducted on North African companies by Mishra et al. (2019) concluded that multi-stakeholder collaboration is crucial for the implementation of a CE, particularly in developing countries. More specifically, they suggest that collaboration among businesses, with a specific focus on CBM, and other companies or small and medium-sized enterprises (SMEs), could facilitate the transfer of technology and the development of organizational learning required for achieving resource efficiency and the adoption of clean technologies, which are fundamental to the implementation of a CE. In developing countries where resources are limited, the co-development and investment in technology could enhance the capability of companies in transitioning toward CBM. Moreover, the authors acknowledge that a model for collaboration between MNCs and local businesses as an enabler for CE need to be further studied, as they discovered that implementing CBM by MNCs results in a mutually beneficial

relationship with local businesses. They (*ibid.*) added that the advantages primarily centre on the transfer of technology and organisational learning, which are essential for resource efficiency and clean technology.

In a broader context, the study by Chiu & Yong (2004) identified the key characteristics required for the adoption and adaptation of industrial ecology in developing countries in Asia. According to the authors (*ibid.*), the development of sustainable business and industrial strategies in Asian developing countries has been observed to rely on three important themes: laws and regulations, legitimacy and societal acceptability, and competitiveness. With regards to laws and regulations, industries need to adhere to government regulations, although the types of regulations as well as the level of enforcement of these regulations may vary across different areas. In terms of legitimacy and societal acceptability, industries operating in Asian developing countries have acknowledged the importance of enhancing their operations to meet the demands and expectations of the society they operate in. SMEs especially have been recognised as significant actors in the industrial landscape of the region, as large corporations have more incentives and capabilities to achieve their environmental and sustainability objectives, while SMEs face a dearth of resources and driving factors. They (*ibid.*) also highlight that some groups of companies in developing economies are not content with merely complying with legal and social norms as they aspire to achieve higher goals.

## 3.2 Theories and framework relevant for environmental strategies transfer and diffusion to developing countries

### 3.2.1 Stakeholder influence on MNCs' environmental strategies in host countries and local adaptation approach

The environmental behaviour of MNCs is a topic that has been much debated. Some argue that MNCs take advantage of variations in environmental regulations between countries by conducting environmentally harmful activities in countries with less stringent regulations. They may also adapt their subsidiaries' environmental policies, technologies, and standards to the local conditions of each country (Gladwin, 1987; Korten, 1995; Vernon, 1998; Christmann, 2004). As per the resource-based view, a MNC can even leverage its resources to circumvent local constraints or to negotiate to attain more favourable treatment (Wernerfelt, 1984). Conversely, some scholars acknowledge that a MNC may participate in *corporate institutionalism* by complying with local requirements, engaging in local business associations, and through mutual normative conformity over e.g. environmental standards (Child & Tsai, 2005). Similarly, some suggest that MNCs are beginning to self-regulate their own environmental conduct, referring to cases in which a company implements environmental policies or performance standards that go beyond the mandatory regulations set by the government (Christmann & Taylor, 2001; Rappaport & Flaherty, 1992; United Nations, 1993; Christmann, 2004). Further, especially in emerging or developing markets where environmental protection standards are embryonic, governments often rely on large and reputable MNCs and their environmental protection codes, on which regulations are set (Tsai & Child, 1997).

A dichotomy of interests that can exist between the local subsidiary of an MNC and the host government may be a contributing factor in determining the behavioural choices of an MNC in a host country. For the MNC to achieve its strategic goals, cooperation and competition with the host country government are crucial. It may cooperate with the local environmental constraints to gain access to necessary resources, or compete by bargaining or seeking gains at the expense of the host government's interests (Luo, 2004). The author (*ibid.*) outlines a bidimensional typology of 'coopetition' between the MNC and the host government, as a portmanteau of *competition* and *cooperation*, as shown in Figure 3-1.

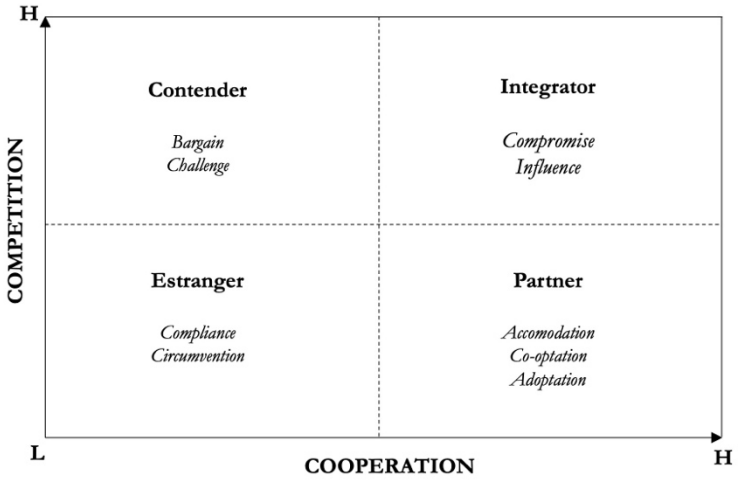


*Figure 3-1 A typology of coopetition*
*Adapted from Luo (2004)*

Luo (2004) suggests that in situations of low competition between the MNC and the host government (i.e., *estranger* or *partner* in the typology above), the MNCs political responses to governmental regulations should aim to be non-confrontational (e.g., adaptation or compliance). Whereas, when the levels of competition are high, the response should be more competitive (e.g., bargaining or influencing). In other cases, by encouraging the local host government to improve their environmental standards and encouraging normative and mimetic isomorphism (Martínez-Ferrero & García-Sánchez, 2017; Child & Tsai, 2005), a MNC may lower the levels of competition which, in turn, could mean less confrontation from the host government in the typology of Luo (2004).

On another note, Christmann (2004) presents factors influencing MNCs' standardisation of global environmental strategies. The author argues that external stakeholders and internal characteristics of a company have both been recognised as factors that influence a company's standardisation of global strategy and environmental practices. The study conducted by the author (*ibid.*) indicate that various external stakeholders' pressures contribute to the global standardisation of different aspects of MNCs' environmental policies. The results of the study (*ibid.*) showed that the adoption of high internal global environmental performance standards is influenced by perceived government pressures, while the standardisation of environmental communication is influenced by perceived customer pressures, and the standardisation of operational environmental policies is influenced by perceived industry pressures. The variations in responses to stakeholder pressures can be explained by differences in the nature of stakeholder demands. For example, MNCs establish high global environmental performance standards, but allow their subsidiaries in each country to choose environmental practices that align with these standards while also complying with national environmental regulations. The author (*ibid.*) concludes that this reflects the nature of international governmental treaties that commonly set goals for performance standards while providing national governments with the freedom to determine how to integrate these targets into their respective national legislations. Conversely, it was observed that MNCs have the tendency to conform to industry pressures for standardisation of global environmental policies by standardising their operational environmental policies on a global scale, because industry associations often create codes of conduct outlining general environmental practices while not specifying particular performance obligations.

Jamali (2010) suggests that when examining different political strategies that are pertinent to MNCs, the political behaviour literature has advanced in identifying crucial factors that influence

whether political activities or responses should be adapted to the local context or standardized across countries. For instance, the political risk literature highlights the various potential risks and difficulties that companies may encounter in diverse geographical locations, often requiring an approach that is tailored to the local environment (Brewer, 1983; Jain and Nigh, 1989; Jamali, 2010). This suggests that there is a need for more extensive inquiry to better understand their CSR actions in these countries, as well as the dynamics between globalization and localization. The author (*ibid.*) also highlights that the literature on business and society indicates a scarcity of research on the CSR activities of MNCs in developing countries, proposing the necessity for further investigation.

Further, concerning factors incentivising MNC subsidiaries to engage in CSR activities, the author (*ibid.*) suggests perceived significance of securing legitimacy and credibility in the host environment by the subsidiaries of MNCs, as recognised in both institutional theory (the significance of taking into account legitimacy concerns in order to align with societal anticipations) and stakeholder theory (an implied social agreement or sentiment of responsibility towards various stakeholders).

Similarly, Kim et al. (2018) suggests that MNC subsidiaries are inclined to prioritize symbolic corporate social responsibility (CSR) actions as a means of demonstrating organizational legitimacy, but this tendency is only observed if they are confronted with critical primary stakeholders, including consumers, employees, and business associates.

It can be inferred that MNCs' transfer and adaptation of their environmental strategies to subsidiaries in diverse geographical locations are influenced by a number of factors, such as its internal organisational structures as well as external stakeholders. Furthermore, it is apparent that distinct stakeholders have an impact on different aspects of an MNC's operations. More importantly, as Luo (2004) suggested, a MNC's alignment of interests with the host government or the presence of conflicts between the two parties may be a determinant of the attitude of a MNC regarding its conformity with local standards.

### 3.2.2 Stakeholder engagement approach for implementation of global environmental strategies

A stakeholder is defined as 'any group or individual who can affect or is affected by the achievement of an organization's purpose' (Freeman, 2010, p.53). The previous section discussed how stakeholders influences MNC's environmental behaviours in a host country. Some scholars adopt the perspective of 'non-market strategy' to examine MNCs' global strategies (Boddewyn & Doh, 2011) as well as global CSR strategies (Sun et al., 2021) and their adaptation to host countries. They (*ibid.*) also consider influence of political and non-political stakeholders. Non-market strategy is defined as business political behaviour' in process terms as 'those actions taken to favourably position the firm in its nonmarket environments by managing those uncertainties and resource dependences stemming from the influence and/or resistance of other nonmarket actors that (can) affect the firm's overall economic performance.' (Mahon, 1993; Boddewyn & Doh, 2011, p.355) For instance, non-market strategy can include activities such as acquiring necessary permissions from governing bodies, gaining legitimacy from NGOs, and managing relations with leaders of the local community are involved (Boddewyn & Doh, 2011). These stakeholders are referred to as 'non-market actors', who also seek their own non-economic objectives as social welfare (*ibid.*).

Hillman & Wan (2005) introduces the idea of local legitimacy that companies must conform to the regulations and value systems of the local stakeholders' context within which they function, in order to sustain their existence. This mean that they need to establish a "generalized perception or assumption that the actions of [their] entity are desirable, proper, or appropriate

within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995, p. 574; Reimann et al., 2012) Reimann et al. (2012) highlight the influence of not only the host government, but also the internal actor, local employees in emerging economies, who often prioritise social contributions by their employer, in driving MNCs to pursue higher standards of working conditions and local community contributions.

Furthermore, relations between home-country institutions and MNCs' host-country stakeholder strategies are discussed by Carney et al. (2016). They introduce the notion of cross-border institutional capabilities, which refers to the strategies, expertise, and established practices that MNCs develop in home-country institutions, and subsequently apply to stakeholder engagement in host countries. This enables them to effectively interact with diverse social and political stakeholders within the institutions of the host country.

Sun et al. (2021) underscores that developing a business ecosystem that involves a range of stakeholders from both the home and host countries is a vital non-market strategy for successfully navigating a challenging and unstable host-country environment, from an example provided by Parente et al. (2019) on a Chinese state-owned company which successfully evolved together with important home and host country stakeholders over various stages of the company's development.

Kim et al. (2018) argue that if subsidiaries are required to engage with powerful stakeholders such as governments, local communities, and NGOs, they are more likely to concentrate on pragmatic CSR initiatives that extend beyond their organizational boundaries in order to acquire social legitimacy.

The importance of integration between key internal and external factors is outlined by Rhodes et al. (2014). The authors (*ibid.*) suggest that in order to achieve successful stakeholder engagement, critical internal factors such as human capital/talent, technology, finances, culture, leadership, organizational structure, and processes must be combined and harmonised with external factors such as social, political, cultural, and environmental considerations, as well as external stakeholders and NGOs (Austin and Seitanidi, 2012; Van Huijstee and Glasbergen, 2007; Rhodes et al., 2014). According to their perspective, effective stakeholder engagement necessitates the consideration of both internal factors and resources as depicted in the Resource-Based View (RBV), and the integration and alignment of these factors with external stakeholders as represented in the Relational-Based Theory (RBT).

The authors (*ibid.*) propose that effective stakeholder engagement requires several key processes or practices, such as collaboration and partnership, innovation and co-creation of value, knowledge sharing and learning, shared benefit activities or value creation, and leveraging of resources from stakeholder engagement, CSR, and credibility to support sustainable development (SD). They suggest that these processes can be utilised by managers and practitioners to optimise the relationship between stakeholder engagement, value creation, and SD within this conceptual framework.

### 3.2.3 Organisational factors influencing MNCs' environmental strategies in host countries

There is a debate surrounding whether MNCs should formulate centralised, 'global' environmental strategies or encourage decentralized, 'local' strategies. There are potential pros and cons on both sides, Muller (2006) argues, as an approach that is global in nature could entail the effective dissemination of proactive CSR practices across the entire organization globally, while it may not provide a sense of ownership and credibility at the local level. On the other hand, a strategy that is more responsive and tailored to local conditions may be fragmented.

Muller (2006) concludes that it is evident that subsidiaries that perceive themselves as having a high degree of autonomy in their overall activities are more likely to proactively engage in CSR. Interestingly, autonomous subsidiaries' proactive CSR strategies seem to be primarily aligned with home-country and international policies, despite their non-binding nature, rather than being customised to the specific context of the host country. The results of the empirical study (*ibid.*) have shown that autonomous subsidiaries CSR strategies tend to indeed derive from the vision set forth by the global headquarters.

Similarly, Jamali (2010) points out that globally standardised CSR activities reflecting the priorities of the home country can be 'diluted' in a host country environment, if CSR activities are not aligned with the local needs or demands in the countries where they are implemented. 'Diluted' CSR activities are often limited to acts of charity, philanthropy, or attempts to gain legitimacy in developing countries, rather than adopting more focused forms of giving that tackle local social needs and urgent priorities.

Christmann (2004) identified that the implementation of standardised functional strategies by MNCs on a global scale influence the standardisation of all three dimensions of environmental policies that are; (1) the degree to which a MNC establishes a global minimum standard for environmental performance, (2) the degree to which a MNC implements consistent environmental policies across its operations worldwide, and (3) the degree to which a MNC maintains consistent communication about the environment across its global organisation. More specifically, MNCs that have subsidiary companies in countries where they rely on other parts of the corporation for resources tend to establish standardized environmental policies, encompassing both content and dimensions, across all of their global operations.

### 3.2.4 Global integration, local responsiveness, and local embeddedness

Andersson et al. (2002) discusses the concept of *embeddedness* in external networks as a strategic resource for performance and capability development in MNCs. The proposed typology introduces five types of embeddedness – network; relational; structural; business; and technical. It is argued that network embeddedness is a corporate resource of the local subsidiary, and the subsidiary's external networks affect its role within the MNC. The authors found that these networks influence the company's role as source of knowledge about products and production process development to other MNC units. It was also concluded that business embeddedness has a strong impact on technical embeddedness and, consequently, an indirect impact on both subsidiary performance as well as competence development within the corporation.

Birkinshaw (1997) indicates that the subsidiary has the potential to enhance the local responsiveness, global integration, and global learning capabilities of the MNC. These two studies thus suggest that a higher level of global integration and local responsiveness are beneficial for the MNC, not only at the subsidiary level but also for the global firm. In turn, this implies that MNCs and their subsidiaries are prone to actively strive to enhance their embeddedness and local responsiveness. According to Hansen et al. (2009), firms with dispersed value chain configurations are considerably more inclined to create jobs among local linkage partners than firms with concentrated value chain configurations.

## 3.3 Summary

The literature review highlights the extensive body of research conducted to investigate the definition, application, drivers and barriers of the concept of CE, along with the factors driving and impeding its adoption. It further reveals the growing understanding of the ways in which MNCs modify their CSR strategies to suit local contexts, shaped by both internal and external

factors. Nevertheless, the review exposes a significant gap in the knowledge concerning the MNCs' implementation of CE in developing or emerging economies, encompassing the obstacles encountered, as well as their attitudes and approaches towards CE. While some research exists on the CSR and environmental strategies adopted by MNCs in developing countries, there remains a lack of empirical evidence specifically pertaining to the implementation of CE as well as host-country stakeholder engagement in this context. Furthermore, a lack of academic attention has been identified concerning how MNCs attempt to exert influence over diverse host-country stakeholders to enable effective transfer of their strategies in the host-country environment. This includes the collaborative efforts between MNCs and local businesses, as highlighted by Mishra et al. (2019). Moreover, as Jamali (2010) suggested, further research is required to examine CSR approaches taken by MNCs in various countries, taking into account their distinct characteristics, as well as the interplay between globalisation and localisation.

Hence, there is a need for a comprehensive study to explore what strategies MNCs employ to implement their CE strategy in the context of developing/emerging economies, while considering the internal and external factors that may affect MNC behaviour, as well as their stakeholder engagement strategies. The primary objective of this study is to address the current knowledge gap by investigating the subsidiary strategy and tactics of MNCs for the implementation of their recycling strategy in the specific context of an emerging market, through a case study in Thailand. Additionally, this research seeks to examine the extent of engagement between the MNC and their host-country stakeholders, with an emphasis on the MNC's ability to influence behavioural change or foster a favourable environment.

Furthermore, albeit not the primary focus of the investigation, this research will also take into account the additional perspectives to derive valuable insights from the specific case study. Such perspectives include the degree of (de)centralization and standardization of sustainability policy and strategy, as well as the corporate resources within the MNC's global organisation leveraged to achieve their objectives.

# 4 Waste management landscape in Thailand

This section provides an overview of the waste management situation as well as realities of recycling efforts in Thailand from political, economic, social, and technological perspectives involving key public and private sector actors, with the intention to provide background knowledge necessary to answer the RQs. Academic discussions and both public and private sector efforts around recycling are mostly focused on plastic in Thailand, and hence the following sections discuss MSWM and recycling from the perspective of plastic waste unless otherwise specified. As recycling value chains are similar for major recyclables (plastic, paper, aluminium, etc.) in the country, the described process and situations should be transferable across different recyclables.

## 4.1 Typology and actors of recycling value chain

Recycling value chains refer to a series of processes and structures that are shaped by stakeholder relationships and aimed at linking the production process with the management of recyclable waste resources (Silva de Souza Lima Cano et al., 2022). These value chains consist of value chain activities and performance, as well as formal and informal stakeholder networks operating throughout the value chain (*ibid.*). In order to enhance the comprehension of the waste management sector and material flow of municipal solid waste (MSW) in Thailand, a typical recycling value chain prevalent in developing countries is introduced in this section, based on the investigation conducted by Silva de Souza Lima Cano et al. (2022).

According to the author (*ibid.*) there are typically three types of recycling value chains globally. Firstly, the *Formal recycling value chain (Type 1)* comprises of waste management systems that are operated by public or private organisations in a formal and regulated manner. These systems involve activities such as waste collection, transportation, and recycling, and are fully integrated into the formal economy. The formal recycling value chain is characterised by high levels of investment, technology, and expertise. Additionally, it is supported by legal frameworks and regulations that promote sustainable and efficient waste management practices. Such type of recycling value chain is found to be common in high-income, developed countries, e.g., USA, Nordic, and European countries.

Secondly, there is the *Suppressed informal recycling value chain (Type 2)*. This type of recycling value chain encompasses informal waste management systems that are typically operated by individuals or small groups of informal waste collectors, who work in a labour environment characterised by health hazards, a lack of regulation, and unfair labour practices. The suppressed informal recycling value chain is commonly identified by its limited investment, technology, and knowledge. Additionally, it is often constrained by legal and regulatory frameworks that do not acknowledge or support the important role of informal waste collectors in the waste management sector. These individuals may work in conditions that lack safety regulations and may be subject to exploitation. Such recycling value chain is prevalent in developing countries, for example, in large parts of the South-East Asian (SEA) region.

Lastly, the third typology of recycling value chains, known as the *Hybrid recycling value chain (Type 3)*, combines both formal and informal waste management systems that operate simultaneously, sometimes complementing each other. This approach often requires cooperation and coordination between formal and informal actors in waste management. It is characterised by innovative waste collection, sorting, transportation, and recycling practices that draw upon the strengths of both formal and informal systems. The legal and regulatory frameworks supporting this model acknowledge and encourage the role of informal waste collectors and seek to integrate their activities into the formal waste management sector.

Table 4-1, adapted from the study (*ibid.*) summarises and provides descriptions of actors involved in a MSW recycling value chain. Some of these actors will be addressed by different terms in this thesis, to adjust to the common terms used in the country's context.

*Table 4-1 Descriptions of actors typically involved in MSW recycling value chains Adapted from Silva de Souza Lima Cano et al. (2022)*

| Actors | Activity/Service | Terms used in this thesis |
|---|---|---|
| Waste generators | Primarily generate post-consumer or similar recyclable waste materials. | *Consumers* |
| Collectors | Primarily collect (or buy) recyclable waste materials from the points of generation and/or disposal (e.g., door-to-door, streets, parks, dumpsites, landfills) and sell them to small scrap dealers, or brokers/large scrap dealers. | Collectors employed by municipality for formal MSW collection: *Waste collectors*<br>Collectors involved in informal collection: *Scavengers* |
| Small scrap dealers | Primarily sort recyclable waste materials (incl. baling and storing), and they trade – they buy from Collectors and sell to brokers/large scrap dealers/ reprocessors. | Small scrap dealers |
| Brokers/large scrap dealers | Primarily store and trade recyclable waste materials (or recycled materials as secondary commodities) in big quantities – they buy from collectors and small scrap dealers and sell them to reprocessors (and from reprocessors to Manufacturers in the case of recycled materials) | Brokers |
| Reprocessors | Primarily convert materials into secondary commodities and trade them – they buy from small scrap dealers/brokers/large scrap dealers and sell them to Manufacturers (via Brokers or not) | Recyclers |
| Manufacturers | Primarily the end-users of secondary materials in the production of new components and products – they buy from brokers/ large scrap dealers /reprocessors. | (Secondary) recyclers |

## 4.2 Material flow and recycling value chain in Thailand

One of the most important characteristics of MSWM and recycling in Thailand is that it is centred around the informal sector, manifested in long and complex sorting and collection processes involving many informal actors such as waste collectors, scavengers, and itinerant brokers (Tangwanichagapong et al., 2020). The recycling value chain in Thailand consists of starting from producers, consumers (waste generators), waste collectors, waste brokers and recyclers. The municipal government, waste collectors, waste brokers and recyclers are seen as key players in MSWM and recycling in Thailand, while waste generators, research institute/universities, and producers have lesser influence on waste reduction and recycling

(Wichai-utcha & Chavalparit, 2019). Discussion with academia and sector experts indicated complexity and dynamism of the waste sector. Due to the sector's informal nature, layers of actors involved and the path that waste takes until recycled largely vary and the situation can be kaleidoscopic. Thus, in this section, a simplified model of material flow is presented as shown in *Figure 4-1*, drawn from multiple literature, interviews, and conference presentations.

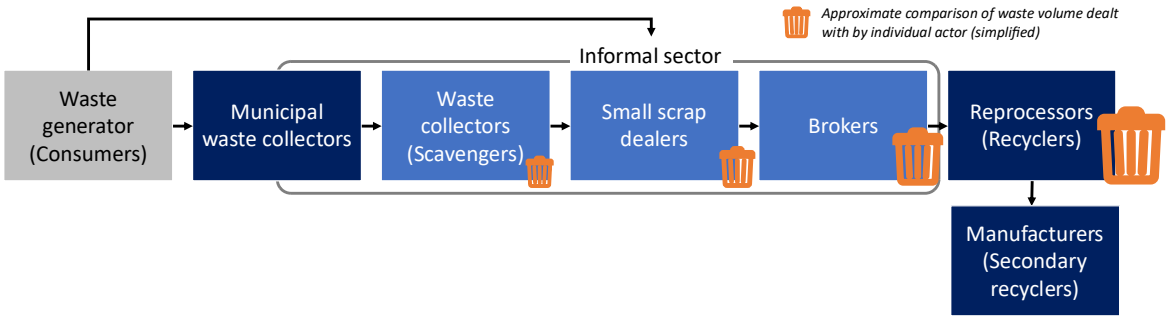


*Figure 4-1 Simplified model of material flow for recyclables in Thailand*

Waste collectors and scavengers gather valuable waste such as plastic, glass, metal, and paper from households, communities, waste transportation hubs or landfills, and sell them to small scrap dealers, who then sell them at larger volume to waste brokers. In this thesis, waste collectors who are employed by municipalities are referred to as 'waste collectors', and individuals or those in small groups who collect waste as an informal actor are called 'scavengers', to distinguish the two. Waste brokers are the large actors who sell waste to recyclers, dealing only with large volume transactions. There could be cases where many more layers of collectors, scavengers, and small scrap dealers are involved, following different variations of paths. In large municipalities that generate large amount of waste such as Bangkok, waste collectors who are employed by the municipality also act as informal waste scavengers, as they pick out valuable waste that can be recycled and sell them to make side money. They enjoy access to high value waste by being positioned at the upstream of waste collection and sorting process. It became evident from the information gained through interviews and the literature review that the recycling value chain commonly found in Thailand can be classified as a Type 2 recycling value chain, as described in section 4.1.1.

Waste volume is an important factor to consider when understanding the material flows and the actors involved in Thailand; due to transaction costs and transportation cost, large actors such as waste brokers or recyclers deal with recyclables only at large volume, so it is more economically efficient for them. Multiple layers of waste transactions and the existence of small scrap dealers serve as a efficient waste collection network to accumulate sufficient volumes of recyclables. In this perspective, as Interviewee 1 described, the informal waste sector in Thailand is "well organised" despite its informal nature.

## 4.3 Regulatory landscape related to MSWM and recycling in Thailand

In Thailand, various governmental organisations set laws, policies and plans that encourage, mandate, or regulate stakeholders such as municipalities, producers, waste generators, waste collectors and recyclers to reduce environmental impacts caused by waste as well as to promote recycling activities. This policy network includes the Ministry of Natural Resources and Environment (MNRE), Pollution Control Department (PCD), Department of Industrial Work (DIW) and Ministry of Energy (MOE) (Wichai-utcha & Chavalparit, 2019).

Recognising the environmental and health issues caused by the absence of a functioning MSWM in the country, the government of Thailand released the Roadmap for Municipal and Hazardous

Waste in 2014, which encouraged communities and municipal authorities to reduce waste, practice waste sorting at the source, and to dispose of waste in an appropriate manner (Royal Thai Government; Yukalang et al., 2018).

Following the roadmap, the government issued various national plans as part of the effort to improve waste management and promote circular economy in the country. One of such plans is the National Waste Management Master Plan (2016-2021), along with the Industrial Waste Management Plan (2015-2019), aiming to promote integrated waste management and reduce the amount of waste sent to final disposal sites. The plans also focus on reducing greenhouse gas emissions, improving resource efficiency and energy recovery (Wichai-utcha & Chavalparit, 2019). In addition, the government also implemented the Act on the Maintenance of Cleanliness and Orderliness of the Country, B.E. 2560. This act revised the fee structure for waste collection and waste disposal, allowing municipal governments to charge up to 150 and 200 THB per month, respectively. This change was made to encourage municipal governments to prioritise waste management and provide better waste management services to their communities (Manomaivibool et al., 2018).

More recently, as outlined by Marks et al. (2023), the Thai government has adopted a two-pronged strategy to leverage the potential of the circular economy while ensuring its environmental sustainability. This policy approach involves capitalising on the global trend towards circularity, particularly through the scaling up of Thailand's Bio-Circular-Green (BCG) Economy. The government has incentivised investment in companies that employ secondary raw materials, engage in waste recycling, or promote environmentally friendly production processes. Concurrently, the government has endeavoured to implement the "National Roadmap on Plastic Waste Management (2018-2030) as an amendment to the National Master Plan for Waste Management (2016-2021). The roadmap sets out an ambitious agenda for reducing plastic waste, including targets to halve marine plastic debris by 2027 and increase plastic waste recycling by 50% by 2022, with the ultimate goal of achieving zero plastic waste by 2027.

Interviewee 1 has identified two crucial factors that motivate the Thai government to initiate action. One of the drivers identified is domestic, while the other is international.

The first driver is a landfill fire that occurred in May 2014, at a big industrial waste landfill site, Phraeksa, Samut Prakan Province, in the Bangkok Metropolitan Region. The fire produced multiple pollutants, including particulate matter 10 (PM10) exposing residents of the surrounding areas to health risks (Wiwanitkit, 2016). After this incident, there were several pilot projects set up at the municipal levels, however, many of them have failed, leaving the issue unresolved. As a result, there have been more landfill fires after 2014. Although there was one famously successful case in Rayong Province, situated in the southeast of Bangkok, learnings from this case have not been rolled out to other provinces to replicate the success. Nevertheless, this incident has generated a political momentum towards addressing the waste problem and promoting circular economy.

Another driver is international attention that was drawn to Thailand when it was announced as one of the top contributors to marine plastic pollution by a 2015 study released by NGO Ocean Conservancy (Bangkok Post Public Company Limited, n.d.). As a country whose economy is largely dependent on tourism, a sector that accounted for 11% of GDP and 20% of total employment in 2019 (Surawattananon et al., 2021), marine pollution poses a great risk to the economy. After the release of the study, the Thai government and its agencies established a series of policies to tackle the issue, namely, the 20-Year Pollution Management Strategy,

Pollution Management Plan 2017-2021, and Master Plan on Waste Management 2016-2021 (United Nations Department of Economic and Social Affairs, n.d.).

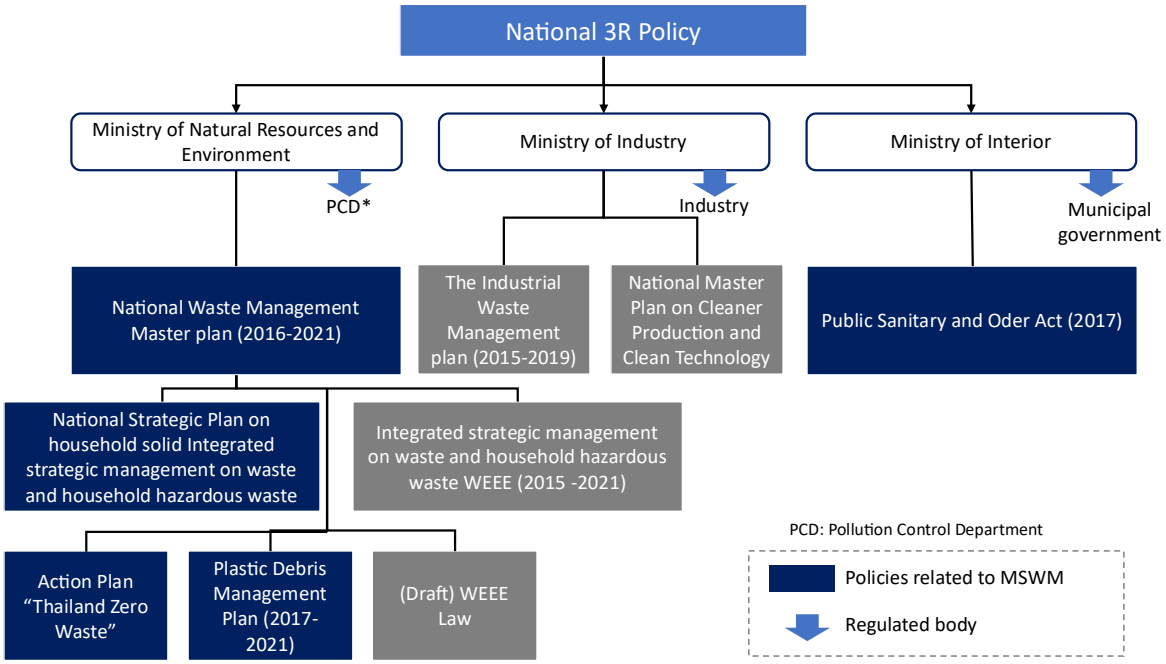


*Figure 4-2 Notable policies related to MSWM in Thailand*
*Adapted from Wichai-utcha & Chavalparit (2019)*

Figure 4-2 shows some of the notable plans implemented by governmental agencies, demonstrating that the responsibility for waste management and recycling spans over jurisdictions of several agencies who set different plans of their own. Such unclear segregation of responsibilities on MSWM among multiple ministries and departments may be a factor that impedes drastic and efficient policy-making necessary for solving the country's waste problem, as it leads to more difficult and arduous processes requiring coordination among different governmental agencies to draft new legislation. According to Interviewee 5, due to such miscellany of agencies and stakeholders being involved with often conflicting interests and no inter-agency collaboration, delays or poor outcomes are common.

The above may be one contributing factor to the fact that the existing policies related to MSWM in Thailand are mostly limited to voluntary measures, and they are neither enforced in forms of legal measures nor do they provide incentives (Wichai-utcha & Chavalparit, 2019), or disincentives such as fines or jail terms (Marks et al., 2023). A government official, Dr Pinsak Suraswadi, Director-General of Pollution Control Department, Ministry of Natural Resources and Environment, acknowledged that there is a lack of laws and regulations to support effective solid waste management, at a waste management conference held in Bangkok on 29 March, 2023 (Suraswadi, 2023). Tangwanichagapong et al. (2020) points out that voluntary measures are not sufficient as policy measures to drive tangible behavioural change to more environmentally responsible ones in a developing country. The adoption of solely voluntary measures also means that government officials have to engage in negotiations with various industries and solicit collaboration from multiple sectors (Marks et al., 2023). Experts interviewed in this work agreed that lack of legal enforcement contributes to the country's low recycling rate and improper disposal of waste, and it is indispensable to solve the environmental issue associated with Thailand's MSWM. Interviewee 1 highlighted that significant MNCs that are engaged in advocating for circular economy and addressing plastic pollution in the nation recognize the necessity of implementing a new legal framework enforced by the government to

achieve desirable outcomes. It is worth noting that these MNCs have announced global commitments to end plastic pollution. This has created a constructive atmosphere for legal development and lowered the opposition towards the enactment of novel legislation.

## 4.4 MSWM situations at municipalities

The sustainable waste management transition in Thailand's political economy has thus far exhibited a sequence of policy disconnections, whereby ambitious circular reforms at the national level do not correspond with the challenges encountered in their implementation at lower levels of governance (Marks et al., 2023). In Thailand, municipal governments have the authority over collection and disposal of solid waste in their respective jurisdictions, meaning that each of 7,777 municipal governments that exist in Thailand are responsible for their own MSWM. However, in reality, as many as 3,066 out of 7,777 municipal governments were not equipped to offer waste collection services in their municipality (Manomaivibool et al., 2018). Without a basic waste collection service, low-value plastics and mixed material packaging often end up in the ocean (*Policy Brief*, n.d.), open burning or open dumping resulting in environmental pollution and health issues (Yukalang et al., 2018). In those municipalities that have public waste collection systems, waste is collected mostly in a single stream of mixed solid waste, except for high-value recyclables that are separated and collected by waste collection crews for additional income. (*Policy Brief*, n.d.) Lack of safe waste disposal options is an equally serious issue in municipalities. There is a shortage of legal landfill sites, for example, there are only three sanitary landfill sites in the Province of Chiang Rai, which cannot accommodate all waste generated in the region, resulting in waste finding its way to illegal dumpsites (Manomaivibool et al., 2018). Establishing new landfill sites is not an easy task; it entails complex and costly process and are subject to public opposition from local communities in surrounding areas (Kharat, M.G. et al., 2016; Yukalang et al., 2018). There are technical hurdles to ensure safe operations, such as proper isolation of a new landfill site (Council for Scientific and Industrial Research (CSIR), 2011; Yukalang et al., 2018), and selection of site location as some regions of Thailand are prone to flooding (Yukalang et al., 2018).

## 4.5 Factors contributing to inadequate MSWM

There are political, economic, social, and technological/infrastructural factors that are playing part as barriers to proper MSWM at municipalities.

### *Scarcity of financial and human resources at municipal government*

Because the responsibility for MSWM is given to 7,777 municipalities at the sub-district level respectively, each municipal government has limited financial and human resources, especially in rural areas. They are pressed to make decisions about how to allocate limited resources to many different important problems and agendas, and often more urgent issues such as water and sewage infrastructure, road maintenance, public amenities, and disaster response are prioritised over waste management (Yukalang et al., 2018).

Lack of financial means to invest in collection and disposal of MSW is a fundamental problem limiting municipalities' capacity to exercise their responsibilities. According to Manomaivibool et al. (2018), the Public Health Act, B.E. 2535 that authorised municipal governments of collection and disposal of MSW, also set a ceiling price for the monthly waste fee that a municipal government can charge their residents at THB 40, for a household generating 20 litres of waste or less per day, which is far from sufficient for municipalities to afford the cost. The new Act on the Maintenance of the Cleanliness and Orderliness of the Country, B.E. 2560 that was enacted in 2017, raised this ceiling rate that had been frozen for 20 years up to monthly fees of 150 THB for waste collection and 200 THB for disposal, respectively. An empirical study shows it is still not sufficient to support municipal governments to provide waste management

services (Dokmaingam & Manomaivibool, 2017). The study found that only 62 out of the 143 municipalities and subdistrict administrative organizations (SAO) in Chiang Rai province managed to run some sort of waste collection services to their citizens, and one of the key obstacles identified was financial. Due to the low ceiling price set by the national government, 70-80% of the operating costs were found to be covered by the general revenues of the municipal government in some of districts in the province (Manomaivibool & Hempattarasuwan, 2013), and most SAOs could not afford such cost, resulting in failure to fulfil MSWM in their jurisdictions. Even with the new Act aimed at addressing this issue, it is expected to take time for it to take effect as most municipal governments will likely raise the fee only gradually to avoid public backlash (Manomaivibool et al., 2018).

Importantly, the interview with academia revealed that the underlying issue related to insufficient financial capacity to support the system stems from the national government's over-delegation of MSWM authority to lower levels of administrative organisations with resource constraints, while municipal governments have limited power to control revenues. Indeed, municipal governments do not have authority to collect local tax from their citizens; most of the taxes in Thailand are collected by the national government which are then allocated to municipalities. This means that while municipal governments lack financial resources to fulfil waste collection and disposal responsibilities, they are constrained in means to remediate the situation themselves; this is particularly evident for smaller municipalities such as SAOs.

### *Conflict of interest for municipalities*

There are also issues at larger municipalities with larger waste volumes and budgets. Most notable is Bangkok, the capital of Thailand and a city with by far the largest population (National News Bureau of Thailand, 2023). Bangkok Metropolitan Administration (BMA) runs waste collection services in the city and has a large workforce of waste collectors. As described in section 4.2, waste collectors sort out high value waste that can be recycled from non-segregated, single source of waste and make side money by selling it individually. This situation indeed creates conflicts of interest for BMA to promote segregation of waste at source and to reform waste collection and recycling processes; by preserving the status quo, BMA can maintain low wages for waste collectors which is set at a level with a presumption that they make side money from the informal sector. Encouraging source segregation of waste and formalising recycling streams could diminish sources of income for waste collectors, and thus these workers may expect BMA to raise their wages. Therefore, there is less perceived economic incentive for BMA to commit in the reform, resulting in rather superficial measures such as PR campaigns for source segregation. While the status quo seemingly makes economic sense for BMA, the current practices where waste collectors manually segregate waste while they pick up garbage and load them on a truck lead to operational inefficiency, requiring more crew and time per truck. By promoting segregation at source, BMA could potentially reduce operational cost by reducing the number of workers required for the process as well as time.

Similarly, municipalities with large waste volumes often perceive their high value waste as a source of income. When an external actor such as a private company wants to make an intervention (for example, to set up a treatment facility), a local municipality may claim ownership for waste generated within their jurisdiction and ask for the company to pay for them. They can leverage their power as waste owner as these facilities likely require sufficient volume to operate. This makes it more expensive for companies willing to invest in proper waste treatment. Each of the 7,777 municipalities being responsible for their MSWM also mean that there are many stakeholders that need to be dealt with respectively; if one wants to invest in a good waste management facility, one needs to negotiate with many different municipalities with their own agenda as a facility requires large volume of waste to generate an economically sensible return on investment.

## 4.6 Situation surrounding the recycling industry in Thailand

The major players in the Thai recycling industry are often subsidiaries of large-scale packaging waste producers, such as SCG, PTT, Global Chemical, and Thai Beverage. [Interviewee 1, 2023] The recycling industry in Thailand is operating in a unique business environment, notably due to the informality of the sector as well as recent political events in a neighbouring country.

### *Informality of the sector*

As explained in section 4.1, the recycling value chain in Thailand is largely comprised of an informal sector such as waste collectors/scavengers and waste brokers, which can cause not only social problems such as poverty facing scavengers, but also undermine the efficiency of recycling as well as opportunities to set up a formal recycling system. For example, contamination of recyclable waste can be an issue for recyclers. There are many conditions that need to be met to enable recycling; one of them is contamination rate (i.e., recyclables mixed with other materials). Recyclers normally set acceptable contamination rates when purchasing recyclables from sellers, however, this condition can be taken advantage of by sellers to maximise their profits by purposefully contaminating recyclables to the threshold accepted by recyclers. As the collecting and sorting industry is generally informal and they are not subject to accountability, it is difficult to remediate this situation.

Informal actors dominating the sector pose economic challenges for newcomers to set up formal recycling systems, especially for low value recyclables. If a company wants to formalise collection and sorting processes to increase transparency and accountability, it will be exposed to fierce competition from the existing sector who enjoy economic advantages as they do not have to pay for all the costs that would be incurred for environmentally and socially responsible operations.

### *Collapse of domestic waste recycling market due to increased imported recyclables*

One of the most impactful events that occurred for the recycling industry in Thailand in recent years is China's import restriction on recyclable waste in 2017. In July 2017, the government of China announced a ban on the imports of 24 types of solid waste including household plastic waste, which took effect at the end of the year (State Council of China, 2017). This event caused spill-overs of recyclable waste imports, largely from North America and European nations to countries in Southeast Asia, including Thailand (Wang et al., 2019). The following year after the restriction was imposed, Thailand experienced a leap in waste imports, recording 553,000 tons of plastic waste, 3.6 times higher than the imports in 2017 (Sasaki, 2021). In addition, not only did the country accept more waste, but it lost an export destination for its domestic waste due to the China's move, as more than 80% of domestic plastic waste in Thailand used to be exported to China in 2013 (Sasaki, 2021). To address and capture profit generated by the large volume of imported recyclables, many new recycling factories were established in Thailand, largely with Chinese investment, who process plastic waste into plastic pellets and export secondary materials back to China [Interviewee 1, 2023].

Sasaki (2021) points out the challenges with regulating imports and handling of such imported waste. Before China's import restriction came about, the Thai government issued "Ministerial Notification: permission criteria of import plastic waste in 1996", requiring recycling factories to obtain approval from the Department of Industrial Works (DIW) of the Ministry of Industry (MOI), tasked with regulation of industrial waste. The factories were subject to many regulations, which included, for example, a mandate to submit annual recycling plans and processing rules, such as all imported plastic waste had to first be cleansed and cut into pieces no longer than 2 cm. However, the raids of several recycling companies conducted by the Thai

police revealed the difficulty of enforcing such regulations, as many cases of illegal imports through smuggling arose soon after the sudden increase of imported waste.

Another major consequence of China's policy on waste imports was a temporary collapse of the domestic waste recycling market [Interviewee 1, 2023]. The large inflow of recyclables from overseas, which were higher in quality due to low contamination rates unlike domestic waste, led the price of domestic plastic waste to plunge. Especially the value of domestic waste that used to have high value such as PET bottles and carton boxes plummeted in 2018 and have not recovered.

In response to these issues, the Thai government declared in July 2018 that it will implement an import ban on plastic waste by the end of 2020, with a two-year grace period during which import quotas would be established (Sasaki, 2021). Contrary to such pledge made by the government, the ban has not come into effect as of April 2023, nor any import quotas. The import quota is set to be enforced in 2023, limiting the import to approximately 300,000 tons, which is still significantly more compared to the levels prior to 2018 (i.e., approx. 50,000 tons in 2015, according to the figure presented by Sasaki (2021)) [Interviewee 1, 2023]. The Thai government announced it would also enforce the ban within the next two years, but this could also be overturned or postponed again. It is also noteworthy that there are essentially two sides of lobbying groups, advocating for and against the ban respectively, which may impact the decision by the government [Interviewee 1, 2023].

# 5 Findings

This section presents the results of a case study conducted to address RQ1 and RQ2. Initially, the case company, Tetra Pak Thailand, is introduced along with the general information about Tetra Pak Group obtained from public sources, providing an overview of their organizational profile. Subsequently, the findings related to the main challenges faced by Tetra Pak Thailand in promoting recycling in the country are presented to address RQ1. Finally, the section concludes by addressing RQ2, outlining the key strategies employed by the company to tackle these challenges.

## 5.1 Introduction of Tetra Pak Group

Today's global leading producer in beverage carton boxes, Tetra Pak, was founded in 1951 by Swedish entrepreneur Ruben Rausing. 70 years after its origin as one of the first packaging companies for liquid milk, the company now not only supplies a wide range of carton packaging formats but also develops processing solutions and designs, along with services to support customer plants. Tetra Pak operates in more than 160 countries and provides employment opportunities to a global workforce of over 25,000 individuals. Tetra Pak is under the Tetra Laval Group and has its headquarters in Switzerland. (Orsato et al., 2007; Tetra Pak, 2022)

Sustainability is at the core of the organisation's existence. The company envisions to "*commit to making food safe and available, everywhere*", with internal shared value to "*Protect what's good*", protecting food, people, and the planet. To achieve this, Tetra Pak takes a long-term and holistic life cycle approach, specifically, continual environmental performance improvements, designing sustainably, open communication with stakeholders and transparency on performance. As a packaging company with a sustainability focus, driving product circularity, especially recycling, is essential aspect of doing business. (Tetra Pak, 2022) They have the ambition to "*drive circular solutions by designing recyclable liquid food packaging, using recycled and renewable materials, and expanding collection and recycling to keep materials in use and out of landfills*". In pursuit of achieving this ambition, the company has pledged to invest an amount of EUR 100 million annually over the upcoming 5-10 years for development of sustainable packaging solutions. Additionally, they have dedicated an amount of EUR 120 million over the next 3 years towards the establishment and enhancement of collection and recycling ecosystems at a local level, with the objective of augmenting the efficiency of the recycling process. Furthermore, the company has resolved to spearhead industry collaborations aimed at augmenting the collection and recycling of carton packages.

Tetra Pak has demonstrated a proactive approach towards the promotion of recycling efforts by extending their commitment beyond internal endeavours and offering support and influence on stakeholders. Their collaboration with over 200 recycling facilities on a global scale serves as a testament to their firm dedication. Based on their sustainability report for 2022, the stakeholders of the company are represented in the Figure 5-1.

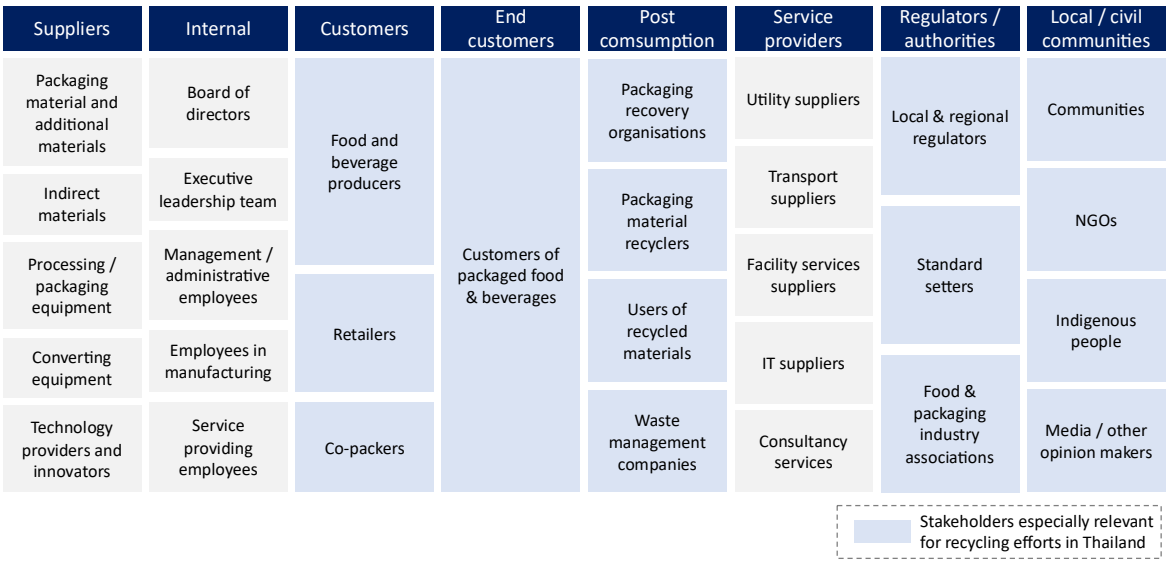


*Figure 5-1 Overview of Tetra Pak's stakeholder*
*Created by the author based on the disclosure by Tetra Pak Sustainability Report 2022*

Their key strategies to realise their recycling ambition are described as following (Tetra Pak, n.d.).

1. Design for recycling
2. Drive consumer awareness and engagement
3. Collection and sorting: support collection and sorting of cartons across all markets, as well as the relevant regulation
4. Expand recycling capacity and solutions
5. Grow recycled material use and applications
6. Drive collective action through industry coalitions

The strategies have been implemented across all Tetra Pak offices, with dedicated sustainability experts in each country spearheading activities specific to their respective markets.

## 5.2 Introduction of Tetra Pak Thailand

The origin of Tetra Pak's presence in Thailand dates back in 1975, when the first machine was installed by the Agricultural Promotion and Development Board in Saraburi province. Later in 1981, Tetra Pak (Thailand) Limited (Tetra Pak Thailand) was officially established and presents a wide-encompassing range of services in the realm of food and beverage production processes, along with provisions for packaging and packaging materials. The company is presently situated in Bangkok, where it maintains its principal administrative hub. The establishment also has a collection of production sites, where plastic tubes, plastic lids, and caps specifically for beverage cartons are produced. Additionally, the organization houses a technical training centre, located within the Eastern Seaboard Industrial Estate of Rayong province. Tetra Pak Thailand Limited operated with the following operational statistics: 222 packaging machines were utilised for production purposes, while 799 units of equipment were employed for packaging and distribution. The company maintained a workforce of 244 individuals within their Bangkok office, and a total of 249 individuals were employed at their factory located in the province of Rayong. Furthermore, Tetra Pak Thailand packaged a total of 1,493 million litres of products in their packaging cartons, and 6,819 million boxes were dispatched (all figures recorded as of January 2022). (Tetra Pak Thailand, n.d.)

Tetra Pak Thailand primarily comprises business-related and client-oriented operations, overseen by the Managing Director of Tetra Pak Thailand. These include marketing, sales, finance, customer service, supply chain management, and food processing. As the factory located in Rayong reports directly to the global headquarters, it does not fall under the direct jurisdiction of Tetra Pak Thailand. In the Thai office, approximately 60% of the staff are customer service engineers supporting customers on site. The majority of their sales is generated by the packaging business, followed subsequently by customer services and processing. It should be emphasized that the sustainability function operating in Thailand maintains a direct reporting line to the Executive Vice President (EVP) in charge of Communications and Sustainability. Within the Thai office, a total of two professionals are tasked with the responsibility of sustainability work, which includes the head of sustainability. However, the engagement of Tetra Pak's employees in sustainability-related work is not contingent on their direct reporting line. Rather, sustainability is deeply integrated into the company's operations. Specifically, employees involved in sustainability operation, sustainability transformation, and technical fields, such as recycling specialists, are actively contributing to the company's sustainability efforts. [Interviewee 2, 3, 2023]

Tetra Pak accounts for around 60% of beverage carton share in the Thai market. Local beverage manufacturers represent the primary customer base for the company, trailed by prominent multinational brands [Interviewee 3, 2023]. Among a range of sustainability aims that the Tetra Pak Group strive toward, the key focus for sustainability work in Thailand is circularity and recycling [*ibid.*]. The MNC has set a challenging target of achieving a global recycling rate of 70% by 2030 (Tetra Pak, 2022), which is undoubtedly an ambitious objective. However, the difficulty of attaining this goal is further compounded by the challenges posed in the developing world, where recycling infrastructure is not yet well established. In Thailand, it is estimated that approximately 76,000 tonnes of Tetra Pak product waste are generated in 2022, excluding customer factory waste and exported products, with the estimate of around 1.15kg per capita consumption [Interviewee 3, 2023]. In 2022, less than 5% of used Tetra Pak beverage carton products were recycled, compared to the initial target of 7%; this highlights the significance of challenges that need to be overcome to achieve the global goal (*ibid.*).

Given that the city of Bangkok accounts for a significant proportion of used beverage cartons in Thailand, along with other regions such as the central, northern and southern parts of the country, Tetra Pak has designated these areas as the primary focus regions for their activities (Bangkok is responsible for 25% of all used beverage cartons in the country, followed by the central region for 24%, the northeast for 28%, the north for 15%, and the south for 9%) [Interviewee 3, 2023].

By 2023, it is estimated that the global company works with more than 190 recyclers worldwide, eight of which are located and partnered within Thailand. Two of them are fibre recyclers, and one full carton recycler, and then the rest of them work with Polymers and aluminium (PolyAl) recycling. (*ibid.*)

### *Aseptic carton packaging*

On average, Tetra Pak beverage carton consists of 75% paperboard, 21% polymers and 4% aluminium by weight, according to the data disclosed in 2019 by the company (Tetra Pak Thailand, 2019), as illustrated in Figure 5-2. There are three distinct recycling pathways for used beverage cartons (UBCs). As shown in Figure 5-3, the foremost approach entails the recycling of full UBC materials into chipboards. Following repulping, the resultant pulp can serve as an input for the production of paper fibre-based products such as paper cores, cardboard, tissue paper, office paper, food boxes, and moulded fibre. Alternatively, the separation of PolyAl through chemical processing represents a viable recycling avenue whereby plastic pellets, panels,

profiles, crates, and tiles can be produced from the separated PolyAl. The recycling of PolyAl poses a greater challenge, thereby emerging as a crucial item on the agenda for the sustainability team of Tetra Pak Thailand [Interviewee 3, 2023]. This is attributed to the cost-intensive nature of the process, coupled with the possibility of inefficiencies in energy and water usage, culminating in higher CO2 emissions (*ibid.*).

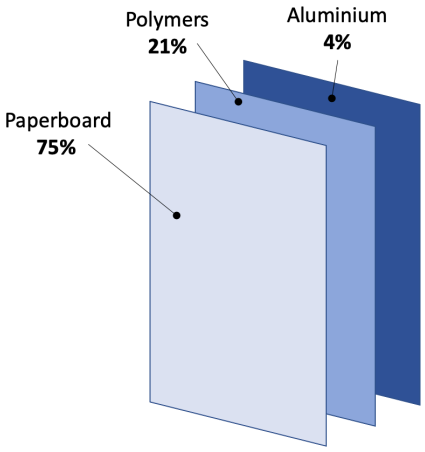


*Figure 5-2 Composition of Tetra Pak beverage carton product*
*Created by the author based on the Tetra Pak Thailand 'Sustainability in Action' report 2019*

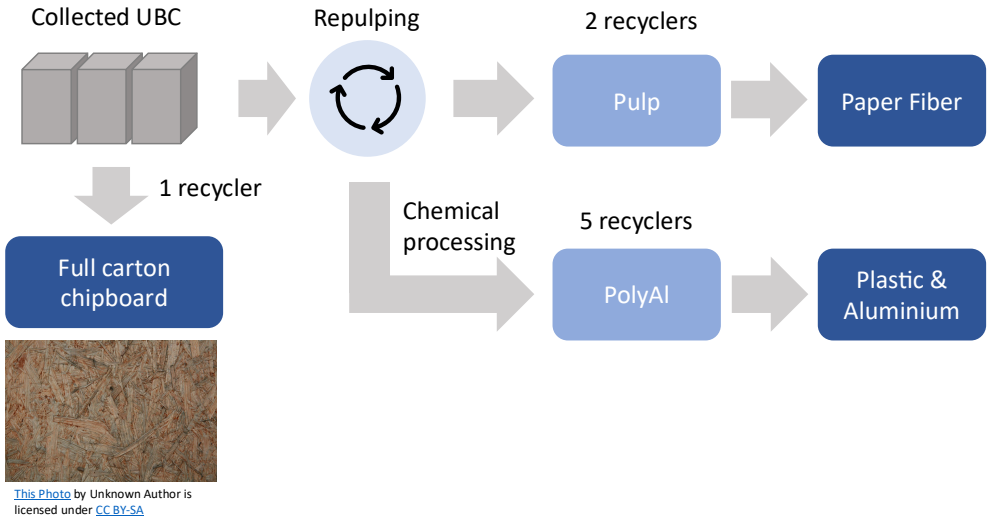


*Figure 5-3 Illustration of recycling process and example products*
*Created by the author based on the presentation material provided by Tetra Pak Thailand and the interviews*

### Global knowledge sharing and assistance

Tetra Pak's sustainability efforts at the global level are supported by 28 local Heads of Sustainability worldwide who report directly to the EVP of Communications & Sustainability at the global headquarters. Within ASEAN region, these local sustainability leaders maintain close communication and hold monthly regional meetings, including in Thailand, Malaysia, the Philippines, Singapore, Indonesia, and Vietnam. At the global level, there are bi-monthly meetings where all sustainability heads gather to share information on projects taking place around the world, alongside the sustainability team at the headquarters. There is also a team dedicated to collection activation at the global headquarters. Additionally, as mentioned previously, there is a team of technicians specialised in recycling technology who share

knowledge and experiences from different markets on a quarterly basis. Apart from these more official regular meetings, sustainability personnel in each office maintain a strong collaborative network and frequently support each other.

## 5.3 Key challenges for Tetra Pak Thailand

As previously stated, the major hurdle for Tetra Pak Thailand in promoting the recycling of their products in the country is the low collection rate of used beverage cartons (UBCs). This challenge stems from a range of contributing factors, encompassing political/regulatory, economic, social, and technological considerations.

### *Lack of consumer awareness for separation at source*

In Thailand, waste separation is not a common practice at households, and lack of consumer awareness for waste separation at source is raised as one of the key barriers for recycling in general (Wichai-utcha & Chavalparit, 2019)[Interviewee 4]. Tetra Pak's efforts to collect UBC for recycling are hindered by the lack of waste separation at the source, which results in a more complex intervention process. This requires the company to increase its engagement with the informal waste sector that is responsible for the separation and collection of waste.

As discussed previously, low at-source separation rates are attributable to the absence of waste segregation in the waste collection process at the municipal level. Consumers are worried that their efforts to segregate waste at home would end up in vain because of a single stream collection [Interviewee 1, 2023]. Similarly, Marks et al. (2023) explain that despite the lack of reliable national data on waste management, an interviewee has approximated that a mere 12% of local governments in Thailand encourage waste separation at the source. The prevailing trend among most local administrations, hospitals, and households to commingle waste stems primarily from the inadequacy of infrastructure, such as sorting facilities and collection vehicles suited for distinct types of waste, compounded by limited public awareness and insufficient public educational programmes about why waste separation is necessary to combat plastic pollution.

This lack of infrastructure, coupled with the inefficiency of existing waste collection system, poses significant challenges for companies looking to promote recycling and encourage consumers to increase their recycling rates.

Similarly, the lack of consumer environmental awareness and actions pose a challenge for Tetra Pak Thailand to promote their recyclable packaging products. The study conducted by Tangwanichagapong et al. (2020) revealed that producers in Thailand perceive lack of consumer awareness and behaviours as a critical barrier to invest in green packaging, such as packaging reduction or alternating to more eco-friendly packaging materials. Manufacturers who considered shifting to green packaging indicated that they have been demotivated to take the action as they have learnt that consumers do not yet favour green packaging. The study (*ibid.*) also suggested that environmental criteria are not yet considered as an important factor in making purchasing decisions by industries and consumers in developing economies.

The Managing Director of Tetra Pak Thailand has highlighted that sustainability is not a priority for the company's key customers when making purchasing decisions, particularly amidst the prevailing business climate where they are facing challenges in enhancing their sales of dairy products, for which Tetra Pak products are commonly utilised [Interviewee 2, 2023]. This is primarily attributed to the expected decrease in population over the coming decades, which implies less prospects for future market growth (*ibid.*).

### Informality of the sector and financial inefficiency for workers involved in collection and sorting

As previously stated, low at-source separation and low access to curb side collection indicates that Tetra Pak must collaborate with informal waste collectors. The presence of numerous and informal actors in the waste collection process presents unique challenges for the company in its efforts to encourage the collection of its products.

One of the challenges is that it is difficult to obtain accurate information such as tonnage of collection, as countless actors are involved in the collection process and the process itself is highly complicated [Interviewee 1, 3, 2023]. In the absence of reliable data, assessing current progress and accomplishments becomes arduous, thus impeding the formulation of data-driven strategies and action plans. Such challenge is shared by other MNCs, according to a Unilever representative who stated that quantifying the magnitude of improperly managed waste, pinpointing areas of deficiency, establishing objectives, and gauging the degree to which they are achieved over time is a difficult task for them (Marks et al., 2023).

More importantly, the fact that actors involved in the informal sector are inmost of the cases solely driven by economic incentives should be emphasised. As a result, the market price of a recyclable item significantly influences the collection rate of the particular item; the higher the market price is, the more waste collectors are incentivised to separate and collect them. Reversely, "because the incomes of waste pickers are tied to market prices for high-value plastic waste, collection rates suffer whenever prices drop" (Marks et al., 2023, p.6). The value of end-products derived from recycled materials represents another crucial determinant that significantly influences the market price of recyclable items. Furthermore, as the market is not regulated, the market price is subject to the influence of a limited number of actors, such as waste brokers, who possess the capacity to control it.

Another significant obstacle faced by Tetra Pak pertains to the presence of food residue in their products, necessitating cleaning prior to recycling. In the context of a waste collection initiative on an island, Interviewee 1 conveyed his personal encounter with challenges in the retrieval of UBCs by waste collectors. The project participants cited two primary reasons for this impediment. Firstly, there exists a difficulty in ensuring proper cleansing of UBCs prior to their delivery to small scrap dealers, who function as intermediary agents for recyclable materials. Secondly, the accumulation of sufficient UBC volume for shipping and selling to recyclers requires longer period of time due to its comparatively lower market representation, resulting in prolonged storage by collectors and small scrap dealers. This practice, in turn, may engender malodorous conditions within the neighbourhood. Moreover, a longer duration of time required to amass sufficient quantity means slower cashflow, which often discourage the actors involved in collection processes to collect UBCs for sale.

In addition to the aforementioned challenges, the considerable distances to UBC recycling facilities serve as an additional disincentive for actors to participate in UBC collection due to the high associated transportation costs.

### Financial inefficiency for recyclers

Recycling cartons is a relatively straightforward technological process. Conventional paper mills are capable of processing a small proportion of polyethylene along with 80-90% fibres, enabling the recycling of most paper cartons. However, in cases where paper cartons incorporate aluminium components, recycling facilities must prevent aluminium contamination of the fibres, necessitating the implementation of an additional screening process in addition to the standard recycling procedures [Interviewee 3, 2023]. Due to the challenges of securing a sufficient volume of Tetra Pak UBCs, it is often arduous for recyclers to justify the financial viability of

establishing a dedicated UBC recycling line. In terms of polymer and aluminium recycling, the separation process and associated machinery can be expensive for recyclers (*ibid.*), presenting a significant obstacle to economically feasible investment.

Furthermore, the financial inefficiency of UBC recycling is further diminished by the scarcity of high-value end-market solutions for recycled UBCs. The limited volume of Tetra Pak recyclables often results in an insufficient quantity of materials for sustainable production of recycled products [Interviewee 1, 2023]. As mentioned above, the scarcity of end-market solutions culminates in low buying prices of recyclable waste for recyclers. This, in turn, reduces the incentive for waste collectors to prioritize the collection of UBCs.

#### *Absence of effective regulatory measures*

As discussed in section 4.2, regulations pertaining waste management in Thailand are limited to voluntary ones. The task of enhancing the collection rate of used beverage cartons (UBCs) for Tetra Pak in Thailand is fraught with difficulties in the absence of mandatory regulations that establish a framework for waste management systems, or support to municipalities in acquiring waste collection and sorting capabilities. Marks et al. (2023) also highlighted that, without state agencies to enforce regulatory measures such as extended producer responsibility (EPR) laws or levying taxes, there are widely shared concerns that market dynamics continue to dictate rates of recycling collection. Similarly, Interviewee 3 expressed that although the lack of effective regulations is "not a showstopper", enhancing the collection rate through engaging with the informal waste collection and sorting sector driven only by economic incentives, as a result, demands a substantial financial investment, not to mention considerable efforts and time.

Encouragingly, the ongoing drafting of an EPR law under the National Roadmap on Plastic Waste Management 2018-2030 [Interviewee 1, 2023] presents a significant opportunity for Tetra Pak to accelerate the collection of UBCs [Interviewee 3, 2023].

## 5.4 Tetra Pak Thailand's strategies to promote recycling of their products in Thailand

As previously discussed, Tetra Pak Thailand faces challenging obstacles that necessitate proactive interventions and substantial investment of corporate resources to overcome. As a global organisation, it is found that Tetra Pak leverages its global resources, providing their subsidiaries with essential assistance in the form of financial support, knowledge sharing, and technical expertise to tackle local challenges. This section presents the key tactics and undertakings implemented by Tetra Pak Thailand, as gleaned from publicly disclosed corporate information and interviews.

### 5.4.1 Key strategies and activities

As outlined in section 5.1.1, the Tetra Pak Group has instituted a strategic framework that is applied globally to promote recycling and unlock the value proposition of product recyclability in all the markets where they operate (Tetra Pak, n.d.). The framework also serves as a guideline in Thailand to shape strategies and activities that are tailored to the political, economic, and social conditions of the country. It should be noted that since Tetra Pak Thailand does not possess an R&D function, the concept of "design for recycling" is not applicable.

#### *Drive consumer awareness and engagement*

Lack of consumer awareness related to source segregation poses a key barrier to promoting recycling (Tangwanichagapong et al., 2020). There are three noteworthy initiatives that seek to engage with consumers and raise their awareness about segregating UBCs, while simultaneously fulfilling their CSR.

First of these initiatives is a project called "Green Shelter". In June 2010, Tetra Pak entered into a partnership agreement with Friend in Need (of "PA")Volunteers Foundation, Thai Red Cross, and Big C Supercenter to launch the "Green Roof Project for Friend in Need (of "PA") Volunteers Foundation". Subsequently, in 2015, the project welcomed TV 360 news program as its partner. The project has initiated a campaign aimed at encouraging Thai citizens to donate UBCs, primarily at Big C Supercenters located throughout Thailand, to facilitate their recycling into "Green Roof" tiles. These end products are then delivered to the foundation for further use in housing projects designed to assist disaster victims. Over the course of eight years, the project has extended its support to affected regions and impoverished communities across more than 20 provinces, including but not limited to Mae Hong Sorn, Pa Yao, Uttaradit, Tak, Khonkhen, Roi Et, Rayong, Suratthani, Nakorn Sri Thammarat, Songkla, among others. From 2010 to 2018, the project successfully collected close to 2,000 tons, equivalent to approximately 200 million UBCs, which were repurposed into over 60,000 roof sheets for donation. (Tetra Pak Thailand, 2019; Thai-Swedish Chamber of Commerc, 2019)

Another is known as "Beverage Carton Recycling project", or BECARE. Since 2016, Tetra Pak has emerged as a front-runner in the development of a collaborative initiative for the collection of cartons. This project is primarily executed in conjunction with local governmental bodies, such as municipalities and sub-district administrative organizations, whose waste management policies align with Tetra Pak's carton recycling endeavours. In partnership with the Department of Environmental Quality Promotion and a recycler, Tetra Pak's BECARE project was aimed at fostering awareness and establishing carton drop-off or collection points at strategic partner locations, thereby engendering a long-term cooperation aimed at sustainable carton collection. (*ibid.*)

The project has effectively increased awareness of the recyclability of cartons and has advanced carton collection and recycling through road shows and educational activities targeting specific groups. The number of participating locations has experienced significant expansion to 13 provinces in 2018. The project has also exceeded its collection volume target by several hundred tons. Furthermore, consumer behaviour has undergone positive changes, particularly in the areas of carton sorting and collection practices, with a view to reducing environmental impact and creating societal value. (*ibid.*)

Finally, a project known as the "School Milk Carton Recycling Project (SMCRP)" was initiated in 2019 through collaboration between the Dairy Farming Promotion Organization of Thailand, the BMA, and two recycling organizations (The Nation Thailand, 2019). The aim of the project was to collect UBC of school milk from schools under the supervision of BMA, subsequently repurposing them into useful items such as roof sheets. At the same time, the project was intended to enhance the public awareness of the advantages associated with recycling (Tetra Pak, n.d.). As of 2020, the project involved more than 350 schools and by the end of 2019, succeeded to collect 77 tons of milk cartons (*ibid.*). Starting 2023, the company plans to support one of their partner recyclers to begin a commercial collection deal with a customer to shift towards more robust and sustained collection model.

Interviewee 1 acknowledged the significance of public engagement programs, such as the BECARE and the SMCRP (School Milk Carton Recycling Project), in facilitating the collection of recyclable materials. These initiatives play a crucial role in establishing additional collection channels that directly involve consumers (*ibid.*). For example, the BECARE program sets up collection points in supermarkets, making it well-suited for urban and suburban areas and enabling environmentally conscious consumers to take proactive action (*ibid.*). This is particularly important within the current MSWM system, where the public collection system does not support source segregation, as previously discussed. Educating

consumers to deliver recyclable waste to designated collection points also holds potential benefits for the future, especially considering the ongoing development of Extended Producer Responsibility (EPR) legislation that may mandate retailers to establish such collection points (*ibid.*).

Similarly, the SMCRP has the potential to enhance recycling accessibility for consumers in rural areas by providing collection points for households, as parents of students can encourage their children to bring UBCs from home to school (ibid.). However, it is worth noting that the current success of this initiative relies heavily on the commitment of environmentally dedicated teachers to participate (ibid.). In Thailand, where schoolteachers are regularly rotated among schools, the continuity of the initiative may face challenges (*ibid.*).

Nonetheless, these programmes can contribute to establishment of well-organised collection systems and logistics through partnerships with schools and supermarkets (*ibid.*).

### *Activate collection and sorting*

Tetra Pak Thailand collaborates with various actors to activate collection across three channels, specifically, public collection, informal waste trade, and dedicated waste drop-off points. Regarding the establishment of dedicated waste drop-off points, the corporation utilises networks of partners including NGOs and companies. The implementation of initiatives such as BECARE and the SMCRP, as mentioned earlier, is a significant measure towards setting up drop-off points for consumers and increasing awareness of waste segregation.

Furthermore, the company attempts to improve the collection of UBCs through public collection and informal waste trade over the upcoming few years.

**Public collection**

To enhance public collection of recyclables, the company engages with national government and local municipalities. The company's main focus for recent years is on two ongoing initiatives, namely drafting EPR (Extended Producer Responsibility) legislation and supporting a pilot project by BMA to establish an MRF (Material Recovery Facility) in a Bangkok district [Interviewee 3, 2023].

At the end of 2021, Tetra Pak Thailand signed a MOU (Memorandum of Understanding), along with fifty other prominent corporations and NGOs who share the ambition to promote recycling in Thailand, with a shared goal to drive EPR initiative in Thailand. The initiative was organised by the Thailand Institute of Packaging and Recycling Management for Sustainable Environment (TIPMSE), with the aim to create sustainable packaging management processes in line with the country's goal of advancing the circular economy. The program is supported by the Ministry of Interior, Ministry of Natural Resources and Environment, and Ministry of Higher Education, Science, Research and Innovation (MHESI), as well as the local government of Chonburi province. The collaboration between public and private sector, involving manufacturers, distributors, waste collectors and recyclers, academic institutions, as well as international organisations are working to establish an EPR-based packaging model for Thailand, which will entail developing processes related to packaging sorting, collection, and transportation, creating sorting points, as well as increasing public awareness and responsible attitudes towards recycling. At present, drafting of EPR legislation is taking place through the collaboration of various stakeholders involved in the initiative. (Tetra Pak, n.d.)

It is important to note that the initiative includes not only Tetra Pak Thailand as a member, but also the head of sustainability of the company as an individual serving as the secretary of TIMSE.

Interviewee 3 expressed that it is advantageous for a Tetra Pak personnel to hold such an influential position, because it allows direct engagement in the drafting work and coordination with various stakeholders. In addition to the role in the company, holding multiple titles in industry associations is a crucial tactic employed to improve coordination with the public sector and influence policymaking [Interviewee 3, 2023]. Interviewee 5 agreed that in a country where industry associations have a significant influence over policymakers, it is important to leverage representation within such associations to induce favourable business environment for a company.

In a similar vein, Tetra Pak Thailand is collaborating with BMA via an industry association. BMA and other industry associations, such as the Federation of Thai Industries (FTI), established a Public-Private Partnership (PPP) and launched an initiative named the "Plastic Waste Campaign" or the "Smart Recycling Hub" with the objective of enhancing MSW recycling in Thailand's capital city. Within this initiative, BMA plans to initiate a trial project, funded by the Alliance to End Plastic Waste (AEPW), an industry-founded and funded NGO, to build a Material Recovery Facility (MRF) that will segregate recyclable materials from MSW generated in a pilot district in Bangkok. Notably, Tetra Pak Thailand not only provides funding to FTI but also the Head of Sustainability holds the position of secretary to the organization. Hence, they are actively involved in the planning and execution of the pilot project via representation in the industry association.

Collaboration with the BMA is essential in order to enhance public waste collection practices, as it is the largest generator of MSW in the country, so "the impact would be greater there" [Interviewee 1, 2023] if succeeded. Furthermore, there is a perceived momentum to drive the transition towards a CE in the region, as evidenced by the inclusion of CE as a priority agenda item by Mr. Chadchart Sittipunt, the newly elected governor of Bangkok [Interviewee 5, 2023].

**Informal waste trade**

To enhance collection of UBCs via informal waste trade, it is crucial to offer economic incentives in an industry that is primarily motivated by financial gain. Stabilising the purchasing price of UBCs at an appealing price range for waste collectors, scavengers, and small scrap dealers is a crucial factor in achieving high and sustainable collection rates [Interviewee 3, 2023]. Unstable prices that do not provide a stable income would not encourage these parties to collect the recyclable material [Interviewee 1, 2023], making it vital to offer economic incentives. As such, Tetra Pak Thailand collaborates with partner recyclers to provide funding and offer a price premium for the purchase of UBCs. For example, EcoFriendly Thai, a partner recycler of Tetra Pak Thailand, gives the price of 9.5THB/kg instead of 5THB that other recyclers pay. Furthermore, Tetra Pak Thailand offers logistical assistance to small scrap dealers by providing them with funds to dispatch a truck to gather UBCs from small scrap dealers. This enables them to gather an adequate amount of UBCs to sell to recycling companies, accelerating the process and cash flow.

Tetra Pak Thailand also partners with small scrap dealers to establish allies who encourage waste collectors and scavengers to collect UBCs. These allies are referred to as "waste busters".

Interviewee 3 emphasised that it is crucial for the company, which holds the protection of people at the heart of its core values, to extend assistance to those who require support. In this regard, the company seeks to collaborate with smaller actors, such as waste collectors and scavengers, who face difficulties in receiving low wages, and lack proper labour protection and health insurance coverage (Ferronato, et al., 2019; Marks et al., 2023) in the unregulated waste industry.

Such approach focusing on social impact, nonetheless, may be in exchange for overall impact in enhancement of collection rates. In a country where a handful of actors often possess dominant control over a sector (Marks et al., 2023)[Interviewee 5, 2023], engaging with smaller actors such as waste collectors and scavengers may be more time-consuming as an approach than to work with more powerful actors. However, as highlighted by Marks et al. (2023), it is imperative to tackle the social disparities inherent in the country's waste management industry, as these inequalities represent a significant factor in the perpetuation of gridlock within the sector, impeding efforts to mitigate waste pollution.

The effectiveness of such initiatives, however, may be compromised by the inherent characteristics of Tetra Pak UBCs. These cartons often contain food residues, particularly dairy products, which can cause odour issues during storage and transportation unless they are thoroughly cleaned [Interviewee 1, 2023]. As previously mentioned as one of the challenges, small scrap dealers are often reluctant to accept Tetra Pak UBCs due to the difficulty associated with handling them. To illustrate this point, Interviewee 1 shared an experience from a joint project with Coca-Cola Thailand, where logistics support was provided to small scrap dealers on an island to collect various types of packaging waste, including glass, aluminium, PET, and Tetra Pak UBCs. To his surprise, he discovered that the UBCs were the only packaging waste that was not collected (*ibid.*). Furthermore, Interviewee 1 emphasized that there is currently no established market for Tetra Pak UBCs as a recycling material, which serves as a bottleneck for increasing the collection rate. It appears that this challenge persists despite the implementation of monetary incentives (*ibid.*), highlighting the need for additional measures.

Nevertheless, it is important to acknowledge that the third-party perspective is originated from the Interviewee's views and experience, which primarily revolve around rural areas, whereas Tetra Pak Thailand's primary focus region is in larger cities. This distinction should be taken into consideration when assessing the applicability of the Interviewee's observations to Tetra Pak's operations in urban environments.

### *Expand recycling capacity and solutions*

Considering the challenges facing Tetra Pak Thailand, including low market distribution and collection, as well as limited high-value application of recyclable materials, it is crucial for the company to work closely with and support its partner recyclers in enhancing their capacity and potential for application. This approach is seen as pivotal in overcoming these obstacles.

To promote the circularity of its products, the sustainability personnel at Tetra Pak engages in close collaboration with partner recyclers to address any challenges they confront to successfully recycle Tetra Pak UBCs [Interviewee 3]. This involves investing in and developing new end-products using recyclable materials such as fibre and PolyAl, as well as providing support for the sustainable operation of these recycling companies. Interviewee 3 emphasised that the company recognises that their successful and sustainable operations are critical to Tetra Pak's success in driving circularity.

It should also be noted that Tetra Pak Thailand receives daily reports regarding shipments being sent to recyclers and collection volumes to oversee their operations, and also conducts third-party audits (*ibid.*).

### *Grow recycled material uses and applications*

Developing high-value application of the recyclable materials through upcycling is pivotal for enhancing collection rate of recyclable waste for increased recycling [Interviewee 1, 2023], by valorising the recycling value chain in the informal waste trade market. Thus, Tetra Pak Thailand proactively collaborates with recyclers to develop new end-products, recycling or upcycling

materials from their used products, such as fibres and PolyAl [Interviewee 3, 2023]. Using fibres, they have developed roofs, boards, chipboards, and various furniture using chipboards such as desks, benches, and flooring, etc. PolyAl are used to make roofs, bricks, and door frames (*ibid.*).

One of the main priorities for the sustainability work at Tetra Pak Thailand in 2023 is to create new recycling and upcycling products using PolyAl to fully utilise its potential (*ibid.*). To achieve this goal, the company is adopting an "agile project management approach" and seeking partners who can produce plastic resin and plastic pellets from recycled materials in their used products. This approach avoids making a new investment and starting a project from scratch (*ibid.*). Interviewee 3 has emphasised the importance of being "agile" instead of using a "waterfall project management approach", where a project plan is created, approved, followed by a feasibility study and pilot, and then revised. As the industry is changing daily, it is essential to be flexible and find more efficient and effective ways to approach sustainability work.

They also benefit from the extensive knowledge and expertise of the Tetra Pak global network. The global team consists of recycling technology experts who travel to different offices worldwide to acquire knowledge and offer assistance to those who require it (*ibid.*). These experts act as advisors for local sustainability personnel. Tetra Pak Thailand also takes advantage of this assistance to help achieve their own success.

As a MNC that places great importance on their product circularity, and has made significant investments in expanding recycling infrastructures across various markets (Orsato et al., 2007; Tetra Pak, n.d.), Tetra Pak has the advantage of such corporate resources available to them [Interviewee 1, 2023].

#### *Drive collective action through industry coalitions*

Promoting recycling in Thailand is not a task that can be accomplished by a single company. It is necessary to bring together the combined efforts of various stakeholders since political, economic, social, and infrastructural factors are all intricately linked in the recycling value chain of the country. In particular, enforcing effective regulations that enhance waste management and recycling is vital to achieving the shared objective of waste reduction [Interviewee 1, 2023]. To effectively interact with the government to develop legislation that supports this goal, collaborating with other companies and harnessing the influence and presence of industry associations are effective strategies [Interviewee 5, 2023]. As previously touched upon, not only do Tetra Pak Thailand financially support these industry associations, but also leverage its representation of the company's position through the head of sustainability who holds a position in these associations as an individual.

At present, the company is actively promoting EPR legislation to build industrial collaborations for UBC collection, as well as advocating for taxes or levies on unsorted waste that is sent to waste-to-energy facilities or landfills, while also seeking relief for separately collected waste.

Interviewee 1, an expert in MSWM and a key contributor to the drafting process of EPR, saw this as a logical move because non-composite materials could be at a disadvantage compared to other recyclables such as aluminium, PET, or glass unless there would be a significant reform in waste collection and disposal.

### 5.4.2 Expert perspectives

To obtain an impartial viewpoint regarding Tetra Pak Thailand's efforts to improve the recycling of their UBCs, the perspectives of a waste management expert [Interviewee 1] was obtained. The purpose of the interview was to explore the company's advantages and disadvantages in this endeavour.

### *Advantages*

Tetra Pak Thailand's notable advantage lies in its substantial access to resources, particularly financial resources, enabling them to invest in initiatives aimed at improving the collection and recycling of UBCs [Interviewee 1, 2023]. Interviewee 3 also acknowledged the generosity of the global headquarters in terms of budget allocation, as evidenced by the approval of an increased annual budget for FY 2023, despite not meeting the previous year's Key Performance Indicator (KPI) for UBC collection rate [Interviewee 3, 2023]. This may be attributed to the commitment of Tetra Pak Global as a whole to achieve their global goal of recycling rate of UBC at 70%.

Although it does not directly lead to the company's advantage, it is worth noting that Tetra Pak Thailand is perceived as one of the most proactive among MNCs in promoting the recycling of their products [Interviewee 1, 2023]. This perception derives from a comparison with other major international food and beverage companies operating in Thailand, such as Coca-Cola Thailand, PepsiCo Thailand, and Nestlé. Interviewee 1 further noted that PepsiCo Thailand has also adopted a similar approach to Tetra Pak Thailand by allocating funds to offer a higher buying price for their packaging waste. Nonetheless, PepsiCo's initiative operates on a smaller scale compared to Tetra Pak's efforts. He attributed this difference partially to Tetra Pak Thailand's strong commitment to promoting recycling, as well as the fact that the other MNCs may find it easier to achieve a sufficient collection rate due to their packaging materials (such as aluminium, PET, and glass) being perceived as high value or easy to recycle, with a larger market established in the country.

### *Disadvantages*

One of the most significant drawbacks of Tetra Pak UBCs is the perceived complexity of their recycling process. While Tetra Pak aseptic beverage cartons are acknowledged as "environmentally friendly" and "easy-to-recycle" packaging in Sweden [Interviewee 5, 2023], in the developing country with limited recycling infrastructure, the composite nature of the material is viewed as "difficult and costly to recycle" [Interviewee 1, 2023]. The separation process required to extract more valuable materials, such as PolyAl, from Tetra Pak UBCs, as acknowledged by a Tetra Pak representative [Interviewee 3], can be costly for recyclers. An alternative, more cost-effective option is to utilize the entire composite material without separation. This involves cutting the UBCs into pieces and compressing them into carton boards, which can be repurposed for various applications such as roof sheets, wall boards, and furniture [Interviewee 3, 2023].

However, the absence of a well-established market for products made from Tetra Pak UBCs poses another significant disadvantage for the company. This contributes to the stagnation of waste value, ultimately leading to a low collection rate [Interviewee 1, 2023].

Such observations highlight that the successful implementation of product recycling in a developing country is highly reliant on several factors, including the characteristics of the materials involved in the recycling project and the host country's waste management infrastructure. Additionally, the availability of appropriate recycling technology plays a crucial role in determining the feasibility and effectiveness of recycling initiatives.

## 5.5 SWOT analysis

Conducting a SWOT analysis allowed for a comprehensive evaluation of the internal and external business environment of Tetra Pak Thailand. This analysis encompassed an assessment of the company's strengths and weaknesses with regards to its ability to facilitate the recycling of UBCs in the country, as well as an identification of potential opportunities and threats that may impact the company's efforts.

Tetra Pak Thailand benefits from several strengths, primarily derived from its status as a global enterprise with abundant financial resources, extensive knowledge and expertise in recycling technology and its global implementation of product recycling initiatives.

On the other hand, one of the weaknesses faced by Tetra Pak Thailand is related to the types of materials used in its products, which pose a challenge due to the limitations of Thailand's current recycling infrastructure. This restricts the range of potential applications for using recycled materials. Furthermore, the low collection rate of UBCs results in idle capacity for Tetra Pak's partner recyclers, further highlighting a barrier in the company's recycling efforts.

Challenges and ongoing threats to improving the collection rate of UBCs for Tetra Pak Thailand include the lack of consumer awareness regarding source segregation and the heavy reliance on the informal waste sector for waste collection. This is partially attributed to the absence of an effective public collection system, which hinders the company's efforts to enhance UBC collection rates. Moreover, the lack of effective regulations related to MSWM and the promotion of a circular economy, particularly in recycling, poses a significant threat to the company's efforts. This serves as an underlying issue that impacts the other factors previously mentioned, hindering the progress towards sustainable waste management and the implementation of a CE. Furthermore, the implementation of EPR schemes may pose threats to the company if Tetra Pak UBC is not included in the scheme or if it is perceived as costly to recycle by its customers, as previously discussed.

There are also significant opportunities that support the company's initiatives to promote product recycling. These include the recognition of the CE as an important political agenda by the national government of Thailand, as well as the pressures exerted by international and domestic stakeholders for government action. These opportunities are evident in the ongoing drafting of EPR legislation and the pilot project of MRF by the BMA. These developments create favourable conditions for Tetra Pak to align its recycling efforts with the public sector initiatives and harness collaborative partnerships.

By proactively implementing the strategies outlined in section 5.4, Tetra Pak Thailand is taking proactive measures to address the identified threats and seize the opportunities at hand. Through these initiatives, the company is working towards mitigating its weaknesses and further strengthening its existing strengths.

*Table 5-1 The result of a SWOT analysis*

| Strengths | Opportunities |
|---|---|
| - Financial resources<br>- Globally accumulated knowledge and expertise about collection, recycling, and application<br>- Technical/human resources (global and local technicians specialised in recycling)<br>- Representation in several influential industry associations | - The CE recognised as important agenda for the national government<br>- International and domestic pressures on the government to solve plastic pollution<br>- Ongoing drafting of EPR legislation<br>- Ongoing pilot project of MRF by BMA |
| **Weaknesses** | **Threats** |
| - Composite material makes recycling more complex in the context of Thailand's recycling infrastructure<br>- Low collection rate of UBCs<br>- Limited capacity of the partner recyclers<br>- Limited available application of recycled materials | - Lack of consumer awareness for source segregation of waste<br>- Absence of effective public collection system and MSWM dependency on informal sector<br>- Lack of effective regulation related to MSWM / promotion of a CE<br>- EPR implementation if Tetra Pak UBC is not included in the scheme / perceived costly to recycle by producers (beverage brands) |

# 6 Discussion

In this thesis, a case study on Tetra Pak Thailand was conducted to explore what challenges that a MNC confronts in their endeavour to implement their CE strategy in a developing country context, as well as their implementation strategy vis-à-vis host-country stakeholders.

The following section presents a comprehensive overview and interpretation of the key findings of this study. The academic and practical contributions of these findings will be highlighted. Additionally, the limitations of the research methodology will also be outlined.

## 6.1 Overview of the key findings and their significance

The findings of this study provide an overview of the potential challenges that a MNC may face when implementing its CE strategy in a developing country. Furthermore, the study offers examples of possible approaches that can be adopted to overcome these challenges, thus addressing the existing knowledge gap in this area.

### 6.1.1 Key challenges and their academic and practical implications

While there are many challenges that Tetra Pak Thailand must overcome to unleash the potential of its recyclable products in Thailand, some of them are of utmost importance and require additional attention.

The study found that a systemic issue that exacerbates the problem of waste management in Thailand is the insufficient enforcement of regulations that mandate or provide incentives for actors to adopt sustainable waste management practices and promote recycling, which in turn creates a bottleneck to the circular economy in the country. Regulations pertaining to waste management and recycling in Thailand are characterised by general plans and roadmaps, as well as requests or recommendations made to stakeholders, without possessing legal power to enforce compliance. As a factor hindering the government to implement meaningful waste management laws, a Thai government official of the General Pollution Control Department, which is responsible for waste management, stated that "it is difficult to introduce a modern waste management law to promote a CE because it affects business as usual" (Suraswadi, 2023). Nonetheless, it is rather the responsibility of public policy to intervene by mandating or incentivizing the private sector to transition from the traditional "business as usual" model to embrace a circular economy. As highlighted by Tangwanichagapong et al. (2020) and Wichai-utcha & Chavalparit (2019), the low consumer awareness of source segregation is a critical issue. However, without an effective public waste collection system that supports and facilitates source separation, enhancing the practice becomes challenging. The establishment of such a system involves providing separate waste bins, implementing regular collection schedules, and conducting educational campaigns to raise awareness and educate the public about the benefits of source separation.

Another significant challenge faced by Tetra Pak Thailand is the country's reliance on the informal sector for MSWM. This can be partly attributed to the lack of effective regulations that enforce or enable municipalities to fulfil their responsibility in implementing MSWM within their jurisdictions. In the absence of a well-functioning public waste collection system, the informal sector in practice fills this gap. However, this type of MSWM system presents several problems. Firstly, without proper public intervention, the system becomes heavily driven by market forces, resulting in low-value recyclable waste, including Tetra Pak UBCs, being neglected, and not adequately collected and recycled. This contributes to the challenges faced by Tetra Pak in achieving higher collection rates. Furthermore, the informal sector is a complex network involving numerous stakeholders, which adds to the complexity of engaging with these stakeholders. This complexity can pose challenges to the implementation of effective recycling

initiatives and collaboration between Tetra Pak and the informal waste sector. Lastly, it is crucial to acknowledge the social inequality and adverse working conditions experienced by informal waste actors, particularly scavengers and those upstream in the waste stream. These individuals often face low wages and health hazards, highlighting the need for sustainable and equitable waste management practices. Addressing these challenges requires comprehensive efforts, including regulatory interventions, public-private partnerships, and initiatives aimed at improving the working conditions and livelihoods of informal waste workers.

These findings confirms the significance of institutional and regulatory drivers in the implementation of a CE underscored by de Jesus & Mendonça (2018). As they recognised, the institutional and regulatory factors present a critical barrier to promoting a CE, by reinforcing the existing paradigm. Similarly, the finding related to the situation of MSWM reliant on the informal sector and the challenges it poses, resonate with the authors' view that social factors are essential to facilitating the implementation of a CE.

Lastly, one of the key challenges faced by Tetra Pak Thailand is the lack of infrastructure for recycling composite material in the country. In developed countries like Sweden, separating and recycling composite material, such as Tetra Pak UBCs consisting of fibres, polymers, and aluminium, poses minimal technological and financial obstacles. Existing facilities for conventional carton recycling can handle such materials effectively [Interviewee 5, 2023]. However, in Thailand, the number of recyclers equipped with the necessary facilities for PolyAl separation is limited, and there is a lack of willingness to invest in such machinery. In contrast, it is comparatively easier for MNCs like Coca-Cola and PepsiCo, whose packaging materials (aluminium, PET, glass) are of high value or easily recyclable, to enhance their collection and recycling rates. This challenge presents a significant barrier to establishing a market for UBCs as a recyclable material in Thailand. These findings imply practical implications for MNCs aiming to implement their CE strategies in developing countries. Specifically, the challenges faced by MNCs are highly dependent on the type of materials used in their products and the presence of necessary infrastructure in the host country.

### 6.1.2 Key strategies and their academic and practical implications

Tetra Pak Thailand, drawing upon their financial, human, intellectual, social, and relationship capital (IFRS Foundation, n.d.) implements a range of initiatives to drive their CE strategy in the country. These initiatives include extensive awareness campaigns, the activation of multiple collection channels, provision of financial and technical support to informal waste sector actors and partner recyclers, as well as collaborations with NGOs and industry associations. These endeavours are guided by several overarching strategies that have been identified to facilitate their implementation.

#### *Standardisation of global policy and autonomy of subsidiaries*

The case study revealed that Tetra Pak Group operates with a centralized structure for its global sustainability function. The 28 sustainability heads located in different geographical regions directly report to the global headquarters, which exercises control over the budget. Moreover, the group establishes a standardized core framework to guide the promotion of product recycling across diverse markets, exercising cross-border institutional capabilities, as suggested by Carney et al. (2016). Conversely, the subsidiaries within the organization possess a significant degree of autonomy. The head of sustainability in Thailand, for instance, is granted authority to strategically plan and execute initiatives aimed at enhancing the product recycling rate. This agile management approach allows for efficient decision-making without the need for lengthy approval processes. Additionally, as noted by Interviewee 3, the budget allocation has been notably generous, enabling the subsidiary to undertake dynamic initiatives. Interviewee 1 further highlighted Tetra Pak Thailand's exceptional commitment and substantial resources, surpassing

those of other MNCs. This finding aligns with Muller's (2009) argument regarding the proactive approach to CSR adopted by autonomous subsidiaries, which stems from the organization's global vision.

The direct management of global sustainability functions offers several perceived benefits. Firstly, when the global headquarters allocates the budget directly to local subsidiaries, the budget allocation is not dependent on the financial performance of each subsidiary. This provides stability and ensures continuous investment in local initiatives for long-term outcomes. Secondly, this structure enhances organizational learning capabilities by allowing the MNC to gain insights and experiences from different markets. The knowledge and expertise gained in one market can be shared and disseminated to improve the overall global sustainability efforts of the organization. Regular communication among sustainability practitioners at both regional and global levels facilitates this knowledge exchange. Furthermore, the global headquarters not only provides financial resources but also human and technical resources to support the efforts of subsidiaries. For example, the presence of a team of recycling technology experts specialized in the field can offer support and share their knowledge with subsidiaries. This demonstrates a commitment to leveraging internal resources and expertise to drive sustainability initiatives.

These characteristics of a MNC align with the theory proposed by Birkinshaw (1997), which suggests that a higher level of global integration and local responsiveness can benefit both subsidiaries and the overall global organization. By promoting collaboration, knowledge sharing, and resource allocation, these approaches enhance the organizational capabilities of the MNC in advancing sustainability objectives.

Furthermore, in contrast to the findings highlighted by Jamali (2010), which suggest that CSR is often assigned lower priority in developing country contexts, Tetra Pak Thailand demonstrates a proactive approach to CSR that extends beyond philanthropic activities. The company strives to create positive environmental and societal impacts within the host country. This can be attributed to two key factors: the significance of a CE within the company's product value proposition and the integration of CSR within the global corporate culture, which is disseminated throughout the entire organization. However, it should be noted that further studies are necessary to gain a more comprehensive understanding of these dynamics.

### *Advocation for higher environmental standards*

The study provides evidence supporting the positive attitude of Tetra Pak Thailand towards the host government. Consistent with findings from previous studies (Christmann & Taylor, 2001; Rappaport & Flaherty, 1992; United Nations, 1993; Christmann, 2004), the company not only complies with the mandatory environmental regulations set by the Thai government but also adopts higher environmental standards and performance that exceed the regulatory requirements. Furthermore, Tetra Pak Thailand actively contributes to the improvement of local environmental standards, as demonstrated by their support for the implementation of EPR legislation. The company recognizes that higher environmental standards align with their own interests and goals.

It is noteworthy that Tetra Pak Thailand seeks to exert its influence through the representation of key personnel in influential local industry groups, rather than directly influencing the government. This strategic approach may provide valuable insights for other MNCs with similar ambitions. By engaging with industry groups, Tetra Pak Thailand can effectively advocate for higher environmental standards and contribute to shaping the local regulatory landscape in a manner that aligns with their sustainability objectives.

### 6.1.3 Academic contributions

This thesis sought to address the knowledge gap, that was identified by the literature review conducted prior to this research, regarding empirical studies on the implementation strategies of MNCs for a CE in the context of developing or emerging economies. Additionally, as secondary perspectives of interest, the study aimed to uncover the degree of (de)centralization and standardization of sustainability policy and strategy, as well as the corporate resources within the MNC's global organisation leveraged to achieve their objectives.

Initially, the study identified internal and external factors influencing MNCs' strategies, as well as their stakeholder engagement approach. Internal factors play a crucial role in facilitating the implementation of a CE strategy at the subsidiary level. These factors include the availability of necessary financial and technical resources, granting autonomy to sustainability personnel for decision-making, and having a clear and structured strategic framework in place.

On the other hand, external factors also influence the implementation of CE strategies. These factors involve the alignment of interests between the MNC and the host-country government, as suggested in the typology of coopetition proposed by Luo (2004). The type of predominant recycling value chains in the local context is another external factor to consider. Additionally, the presence or absence of stakeholder pressures impacts the implementation of CE strategies. For instance, the existence of international pressure on the government due to Thailand's plastic marine pollution issue led to improvements in MSWM. Conversely, the absence of consumer or public pressure to promote recycling or adopt green packaging can hinder progress in CE implementation.

The study uncovered available strategies for MNCs to engage with actors in the informal waste sector. These strategies include providing financial incentives such as a price premium for the collection of their product waste. Additionally, a MNC can support logistic costs associated with waste collection to influence actors in the informal waste sector. Additionally, the study highlighted the unique tactic that can be employed by a MNC to influence the host-country government. This tactic involves active representation of sustainability personnel within industry associations. By participating actively in these associations, MNCs can exert influence on policy-making processes, contribute to the development of regulatory frameworks, and advocate for sustainable practices within the industry.

The investigation of governance modes regarding the centralization and standardization of sustainability policy and strategy in the case study provided support for Muller's (2006) theory, which posits that subsidiaries with a significant level of autonomy are more inclined to engage in proactive CSR practices that align with home-country and international policies. However, contrary to the author's suggestion (*ibid.*) that proactive subsidiaries primarily align their CSR activities with global policies rather than customizing them to the host-country context, the study uncovered that the case company adapted the global policy and framework to fit the specific requirements of the host country.

Furthermore, the investigation underscored the significance of harnessing MNCs' knowledge and technical resources to enhance subsidiary capabilities for implementing CE practices in developing country settings. The study also uncovered how the global integration and global learning capabilities benefit a MNC both at global and subsidiary level, in line with the assertion by Birkinshaw (1997).

### 6.1.4 Contributions for practitioners

The empirical study's findings provide insights beneficial for MNCs that share similar ambitions or challenges. These insights encompass the challenges that MNCs may face, as well as the various approaches available to address them.

Moreover, the study identified the important variables that may contribute to challenges for MNCs when implementing a CE strategy in developing countries. They include host-country regulations related to MSWM and the CE, the dominant type of recycling value chain (as presented in section 4.1.1), and the availability of infrastructure required for recycling product materials.

Insufficient regulations pertaining to MSWM, and the CE can result in a lack of drivers for key actors in the host country to promote a CE. Consequently, MNCs may need to allocate more resources to encourage favourable actions or advocate for the adoption of higher environmental standards. The absence of effective MSWM regulations is closely tied to the dominant type of recycling value chain. Without enforcement of efficient MSWM practices by national and municipal authorities, reliance on the informal sector is often heightened. Consequently, as observed in the case study, such informality involving numerous uncoordinated actors makes stakeholder engagement more complex and arduous for a MNC. Further, the prevalence of informality in the collection and recycling processes means they become more market-driven. This implies that the collection and recycling rates of a material heavily rely on economic incentives, especially for those involved in the informal waste sector. As a result, the type of material used in a product becomes more crucial, along with the availability and prevalence of infrastructure supporting the recycling of specific materials.

Another insight offered by the study is the relevance of selecting an appropriate project management style. In this context, an agile project management approach (Association for Project Management, n.d.) emerges as a suitable choice for the implementation of a CE in a developing country. This approach is characterized by iterative or incremental steps towards achieving an objective, in contrast to the traditional approach that involves detailed and often time-consuming project planning. The need for an agile approach is particularly pronounced in an environment prone to change and involving multiple actors, such as the collection and recycling process for UBCs in Thailand, which includes informal actors. However, the suitability of this project approach may depend on factors such as local culture, highlighting the need for further exploration in future research.

Furthermore, the study emphasized the significance of a global organizational structure that facilitates knowledge sharing at both the global and regional levels, while also providing the necessary financial and technical support to local subsidiaries. Within the context of the case company, this was achieved through the centralization of sustainability functions at the global headquarters, with a direct reporting line to a global Executive Vice President responsible for sustainability. Additionally, the global budget allocation remained unaffected by the financial performance of local subsidiaries. Moreover, a dedicated global team was established to provide technical assistance. It is important to note that the study observed a balance between autonomy and centralized coordination. Local subsidiaries were granted autonomy in developing strategies and approaches at the local level, which enabled agile planning and execution of initiatives. This approach allowed for adaptation to local contexts while leveraging the resources and expertise available at the global level.

## 6.2 Methodological reflections

This thesis adopted a single case study method, focusing on a specific company and country case, to facilitate a comprehensive examination of contextual factors and analyse the situation and initiatives of the case company. This methodological approach allowed for an in-depth exploration of the subject matter, particularly in relation to the CE and its specific application to recycling. However, it is important to acknowledge that the scope of the study was limited to recycling, and other modes of CE were not investigated. The use of a single case study method provides rich insights and detailed analysis within the specific context examined. However, it is essential to recognize the potential limitations regarding the generalizability of the findings. The insights and conclusions drawn from this thesis may not be directly applicable to different geographical locations or MNCs operating in different internal and external environments, or those implementing alternative modes of CE. The findings should be interpreted within the context of the specific case studied and may require further investigation and validation in different settings. Therefore, while the single case study approach allowed for a deep understanding of the chosen context, it is necessary to exercise caution when applying the findings to other situations. Future research could explore additional cases or employ comparative studies to enhance the breadth of knowledge and provide more comprehensive insights into the implementation of CE strategies across various contexts and modalities.

Moreover, it is important to acknowledge that the selection of interviewees was limited for various reasons, including the availability of suitable candidates and, notably, language limitations. Key stakeholders relevant to the study, such as government officials at the national and local levels, informal waste sector workers, and recyclers, predominantly communicated in the local language, posing significant challenges in conducting interviews in English. The language barrier presented a constraint in accessing a broader range of perspectives and insights from these crucial stakeholders. The limitation in accessing the perspectives of these important local stakeholders may have had implications for the comprehensiveness of the data collected and, specifically, for the author's ability to understand the effectiveness of the case company's strategies and how they have been received and perceived by these actors. Consequently, the limitation in the number and variety of interviewees may not only impact the academic contribution of this thesis but also limit the insights and practical implications offered for practitioners. It is strongly recommended that future research conducted in similar contexts considers the involvement of bilingual researchers or utilizes language assistance, such as interpreters. This approach would facilitate the investigation of the perspectives and experiences of local stakeholders who predominantly communicate in the local language.

It is crucial to acknowledge a significant limitation inherent in this thesis, namely the insufficient examination of the company's strategies' efficacy in addressing challenges and attaining objectives, thereby necessitating further investigation in future studies. The thorough exploration of this aspect is crucial to maximize the practical value derived from the findings of this thesis.

Furthermore, the potential limitations regarding the generalizability of the findings presented in this thesis should be noted. Specifically, the applicability of these findings to diverse contexts such as variations in company size, industry sectors, product offerings, and geographical locations where the company operates may not be readily transferable. Thus, the transferability of these findings to other contexts warrants further exploration in future research. The investigation of transferability would allow for a deeper understanding of the applicability of the present findings and the factors that influence their transferability.

# 7 Conclusions

The prevailing linear economy in modern society puts finite resources at risk of depletion, while an increasing portion of the global population experiences negative environmental impacts such as waste generation and rising emissions. In response to these challenges, the concept of a circular economy has gained popularity, aiming to maximize resource efficiency in product and material usage. Businesses are increasingly integrating the principles of a circular economy into their business models. However, transferring such strategies to different contexts, especially in emerging or developing economies, presents unique challenges. Moreover, there is a knowledge gap regarding the implementation of circular economy practices in these contexts, particularly in relation to multinational corporations and their adaptation of global circular economy ambitions. Therefore, the primary objective of this thesis was to address this knowledge gap and leverage the resources of MNCs to promote the adoption of CE practices in developing countries, specifically addressing the challenges of waste management in these regions. To achieve this, a case study was conducted on an MNC that specializes in the production of recyclable carton beverage packaging and operates in Thailand. In this study, two research questions were posed and answered as follows.

*RQ1*: What are key challenges perceived by a Swedish beverage carton producer when promoting recycling of used beverage cartons (UBCs) in Thailand?

The case study has revealed that the case company faces significant challenges related to host-country regulations and the infrastructure for municipal solid waste management (MSWM) and recycling, the informal nature of the waste collection sector, and limited consumer awareness concerning source separation. Inadequate regulations pertaining to MSWM and recycling act as a barrier to promoting product recycling, as they reinforce the existing paradigm. In the absence of enforced regulations and government support, many municipalities struggle to provide effective waste collection services to their residents, leading to a heavy reliance on the informal sector within the country's MSWM system. Engaging with multiple economically motivated actors within the informal sector complicates the case company's efforts to increase the collection rate of UBCs. Furthermore, the inadequate infrastructure for recycling composite materials used in beverage carton packaging products in Thailand restricts the potential applications of recycled materials. This poses a significant barrier to enhancing the value of UBCs within the informal waste trade system and contributes to the stagnation of the UBC collection rate. Furthermore, there is a lack of consumer awareness regarding the importance of source separation, which hinders the establishment of an additional collection channel for the company.

*RQ2*: What strategies does the company employ to influence their key stakeholders to drive recycling of UBCs in Thailand?

The case company has implemented several initiatives guided by the strategic framework instituted by the global headquarters, including driving consumer awareness and engagement, activating collection and sorting, expanding recycling capacity and solutions, growing recycled material uses and applications, and driving collection action through industry coalitions. To promote consumer awareness and activate private collection channels, the company collaborates with retailers, NGOs, and schools to establish collection points and provide education on the importance of recycling UBCs. Financial incentives such as price premiums and logistics support are also provided to informal sector actors to enhance the collection rate of UBCs. Furthermore, the company collaborates with industry partners and engages with national and municipal governments to promote initiatives such as the pilot MRF project and the drafting of EPR legislation to improve the public collection system. The company also works with recyclers to develop higher value recycled products from UBC materials and provides

support and advisory services to improve their operations and sales of recycled products. The study has revealed that the MNC adopts a balanced approach to managing global sustainability initiatives, whereby a centralised approach is employed for management, with local sustainability personnel reporting directly to the global headquarters. Meanwhile, the MNC also grants its subsidiaries the autonomy to plan and execute projects in an agile manner without the need for lengthy approval processes, in addition to providing financial resources and authority to achieve goals. This approach allows the company to effectively leverage its global resources and expertise while adapting to local contexts.

## 7.1 Recommendations for practitioners

The study highlights several key factors that MNCs should consider to effectively promote recycling of their products in developing countries. These include host-country regulations related to MSWM and CE, the dominant type of recycling value chain in the country, and the availability of necessary infrastructure for recycling product materials. By taking these factors into account, MNCs can better predict potential challenges and tailor their initiatives to address local needs and limitations.

Moreover, the study emphasizes the importance of selecting an appropriate project management style for successful implementation of a CE in a developing country context. The agile project management approach emerges as a suitable choice due to its flexibility and ability to adapt to changing environments involving multiple stakeholders, such as the collection and recycling process for UBCs in Thailand which involves informal actors.

Finally, to facilitate effective knowledge sharing and resource allocation, the study recommends that MNCs establish a global organizational structure that enables both global and regional knowledge sharing, while also providing necessary financial and technical support to local subsidiaries. A balanced approach between centralized coordination and subsidiary autonomy can also help optimize the exchange of knowledge and resources.

## 7.2 Suggestions for future research

Further research is needed to explore the transferability of these findings to other contexts, as it would provide a deeper understanding of their applicability and the factors influencing their transferability. This can be achieved through investigating the transferability of the present findings, which would contribute to a more comprehensive understanding of the implementation of CE strategies in different contexts and modalities. Furthermore, it is essential to conduct further investigation in future studies to thoroughly explore the effectiveness of the company's strategies in addressing challenges and achieving its objectives. This additional research is crucial to maximize the practical value derived from the findings of this thesis.

To enhance the breadth of knowledge and gain more comprehensive insights into the implementation of CE strategies, future research could consider exploring additional cases or employing comparative studies across various geographical locations or MNCs operating in different internal and external environments, or those implementing alternative modes of CE. It is strongly recommended that future research in similar contexts involve bilingual researchers or utilize language assistance, such as interpreters. This approach would facilitate the investigation of the perspectives and experiences of local stakeholders who primarily communicate in the local language.

Additionally, further research on the project management approach that is suitable for the implementation of a CE in a developing country setting would provide valuable guidance for practitioners who lead such initiatives.

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# Appendix I List of Interviewees

| Interviewee # | Name | Title & Affiliation | Duration | Mean |
|---|---|---|---|---|
| **1** | Panate Manomaivibool | Head of the Circular Economy for Waste-free Thailand (CEWT) Research Center, the School of Science, Mae Fah Luang University | 2.5hr | Online |
| **2** | Ratanasiri Tilokskulchai | Managing Director at Tetra Pak Thailand | 1.5hr | In person |
| **3** | Patinya Silsupadol | Head of Sustainability at Tetra Pak Thailand | 3.0hr | In person |
| **4** | Chotika Tantisirirak | Business Expansion and Development Division Manager at INSEE Ecocycle Thailand | 1hr | Online |
| **5** | Carl Lindwall | Trade Commissioner of Sweden to Thailand, Country Manager at Business Sweden | 1hr | In person |